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lift Industry News

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RACHEL SMALLEY
OVERVIEW

For the autumn edition we welcome Rachel Smalley, an industry leader in the field of inclusive design, working in different countries and cultures on the most complex and largest projects in the world.

I was delighted to be asked to be the Guest Editor for the October edition of Lift Industry News, having a strong connection with this vital industry through my work as Head of Inclusive Design at Jacobs.

I was sorry to miss the Lift & Escalator Symposium this year, it certainly sounded like a great event (I was getting many live updates via text from people attending!). You can read about the proceedings, look at wonderful photographs and hear what some of the delegates had to say on page 45.

The subject of the Grenfell Tower final report was referenced many times at LES and my good friend and colleague Hywel Davies has written an excellent article for LIN on the Grenfell findings and the implications for the lift industry, which is definitely worth a read and can be found on page 30.

As a specialist in Inclusive Design I am very interested in use of the term 'vulnerable persons' which appeared extensively in the Grenfell Tower Inquiry final report, so I have taken the opportunity to explore this further and look at some of the reasons we should move away from this terminology on page 33.

We are so lucky in this industry to have really experienced people who do challenge the status quo in a very informed way, and Len Halsey has written a great piece on Evacuation Lifts on page 12, which I have also provided some further commentary on. The tragedy of Grenfell has shown us all that change is needed and we can work together to achieve this.

We do all need resilience in the work that we do, and I was very pleased to see our four legged correspondent tackle this topic in his brilliant Ted Barks column! Personally, even though I identify as a 'dog person', I am lobbying for a cat related article, after recently being adopted by a rather demanding and overly fluffy feline!

My team undertakes a lot of rail sector work, and my work takes me on a lot of train journeys, so I was very interested to read about Dave Cooper's site visit to see the latest evolution in rail station bridge and level access provision, and how it supports the Network Rail's Access for All Programme. Read more about the AVA Bridge and Lift system on page 36.

And as I am involved in Inclusive Design, I am really pleased to see the case studies presented by Lyfthaus in this edition on page 38. I especially like their approach to presenting users with equitable choice between level access (i.e. lift) and stepped options, and avoiding unnecessary segregation. Many of the examples are in heritage assets and architecturally challenging spaces, which are testament to their vision of 'making beautiful spaces beautifully accessible'.

And finally, I wanted to thank Lift Industry News for giving me the opportunity to guest edit this edition. It has been great to see how the industry is evolving and responding to changing end user expectations and a diverse range of end user requirements, especially in relation to fire safety, and evacuation lifts.

In terms of the challenge of ensuring the built environment is people focussed, welcoming, usable, future proofed and relevant, the lift industry does and will continue to play a vitally important and fundamental role, and I look forward to seeing the future solutions which come out of this sector going forwards!

lift Industry News

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IMPLICATIONS OF THE GRENFELL TOWER REPORT

With the publication of the Grenfell Inquiry Phase 2 report we focus on the critical topic of Evacuation.

EVACUATION, ENGINEERING, TECHNOLOGY AND SAFETY

The 15th Lift & Escalator Symposium took place last month and we have a detailed review of the two days and LOTS of photos.

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CALENDAR 2024/25

October 28 - 30

Lift City Expo Saudi
October 28-30

RIYADH,
SAUDI ARABIA

November 13 - 14

Build2Perform
November 13-14

LONDON, UK

February 06 - 08

Lift City Expo 2025
February 6-8

CAIRO, EGYPT

November 06

Elevator Forum (Manchester)
November 6

MANCHESTER, UK

December 04 - 06

Lift Expo Italia
December 4-6

MILAN, ITALY

May 06 - 08

Expo Elevador
May 6-8

SÃO PAULO, BRAZIL

November 12

Nordic Lift Expo
November 12

STOCKHOLM,
SWEDEN

December 05 - 07

International Sourcing Exposition for Elevators and Escalators
December 5-7

MUMBAI, INDIA

May 08 - 11

World Elevator & Escalator Expo 2022
May 8-11

SHANGHAI, CHINA

November 12

CIBSE Lifts Group Annual Evening seminar
November 12

LONDON, UK

December 06

Elevator Forum (London)
December 6

LONDON, UK

May 15 - 18

Asansör
May 15-18

ISTANBUL, TURKEY

June 11 - 12

LIFTEX
June 11-12

LONDON, UK

June 17 - 19

Elevcon
June 17-19

LISBON, PORTUGAL

October 14 - 17

Interlift
October 14-17

NUREMBERG, GERMANY

November 19 - 21

GEE Global Elevator
November 19-21

MILAN, ITALY

LIFTEX 2025

Now in its 37th year, LIFTEX is the UK's only dedicated exhibition for the lift, escalator and access industry and takes place only once every three years. The 2022 event saw a 22% increase in attendance, attracting 4,000 attendees – the biggest yet - with over 100 exhibitors from 12 countries, including the UK, Croatia, Germany, Italy, Spain, Sweden, Switzerland and the USA. LIFTEX features an exhibition of over 100 suppliers, alongside a programme of free seminars. Hosted by industry experts, sessions will cover topics such as safety, evacuation, modernisation and the latest standards and regulations.

ELEVCON 2025

Elevcon 2025, the 24th International Congress on Vertical Transportation will be held June 17-19, 2025 in Lisbon, Portugal. The Elevcon Congress brings together subject matter experts, professionals, and enthusiasts from across the industry to explore the latest developments, exchange insights, and foster collaboration. With a 3-day professional programme featuring presentations, panel discussions, workshops, and networking opportunities, there will be ample opportunities to learn, connect, and expand horizons. Dr. Marja-Liisa Siikonen, M.Sc, Ph.D. from MLS Lift Consulting Ltd., Finland is once again the Elevcon Congress Chairwoman & Programme Manager.

Evacuation lifts – is now the time to rethink their use?

POINT OF VIEW

by Len Halsey

This edition of LIN looks at a topic I have taken a keen interest in for a number of years; evacuation lifts. Evacuation lifts have been discussed within the industry for many years, mainly, it has to be said, in relation to the evacuation of tall office buildings. However, in more recent times the debate has moved on to include tall residential buildings, something brought into sharp focus by the tragic events of the Grenfell fire. It is against this background that we have seen the introduction of the London Plan and Building Safety Act (BSA). Add to this the draft standard for evacuation of people with disabilities, EN 81-76, and we find we have three new areas of compliance to consider in building design and operation.

The combined introduction of these new requirements will, without doubt, have a profound impact on the design and operation of buildings, with special attention being paid to the safe evacuation of those with disabilities. While the London Plan is just that, a plan for London, it is reasonable to suggest that its approach to evacuation for disabled people may well become a benchmark for other regions and be broadly implemented nationally.

The changes necessary to meet the requirements of the BSA, London Plan and the draft EN 81-76 have already started to shape thinking when it comes to design and the provision for allowing disabled people to safely evacuate, and while draft EN 81-76 will be a European Standard, when applied in combination with the domestic BSA and London Plan the changes are hugely significant. As we know, the London Plan focus is on the provision of evacuation lifts while EN 81-76 will look at the lift operation and how the evacuation process might be managed; from a remote location, automatic evacuation (effectively independent self-evacuation) or supervised evacuation, which needs suitably trained operatives in managed buildings to oversee the process.

The question of evacuation lifts was debated at the Lift & Escalator Symposium in September and it was interesting to hear the latest thinking on what can sometimes be a contentious subject.

While we perhaps think of evacuation lifts in residential buildings, for obvious reasons, it is worth remembering that the evacuation of office buildings became a hot topic of debate following the events of 9/11 and the collapse of the twin towers in New York. Many of you will be aware of the term Imminent Catastrophic Event (ICE event). This grew out of the reaction to 9/11 and was seen as a means of evacuating buildings that were perceived to be at risk of an imminent event but had full functionality. A significant amount of work was undertaken at the time to establish an approach to evacuating tall office buildings which resulted in countless papers and articles being published on the subject. However, we are only too aware the spectrum of buildings that could benefit from the use of lifts to aid evacuation extends well beyond offices and residential buildings to hotels, hospitals, department stores, public buildings etc - when was the last time you checked the fire escape route from your hotel room?

As we know, the term 'evacuation lifts' is primarily aimed at providing a means of escape for disabled people in the event of a fire and while this is clearly a key requirement, it does appear to me that the definition is too narrow. In my view it should be widened to include the use of evacuation lifts for people with young children who would find negotiating long crowded stairwells difficult, not to mention slowing the progress of other staircase users.

So, do we need to redefine the term 'Evacuation Lift(s)' and look to standards that recognise the different events/occasions when lifts can be used for evacuation purposes? There is the International Standard, ISO/TS 18870 'Requirements for lift use to assist in building evacuation' published in 2014, that sets out very basic criteria for both building and lift design to provide an evacuation service. With such a basic template it leaves many questions, and being 10 years old needs updating to take account of current standards, thinking and available technology.

When looking at how tall buildings are evacuated, perhaps a starting point is the method of operation. In the case of EN81-76 three options are detailed, as mentioned above. My preference would be for the supervised option, given the potential difficulties a remotely controlled operation may encounter and possible issues associated with automatic (independent self evacuation) in what could be a stressful and chaotic situation.

The supervised option requires the use of an evacuation switch at the main lobby and someone driving the lift to the floors to pick up disabled passengers. This would allow a properly managed approach to the evacuation process and ensure the quickest and most efficient use of the lift. The provision of a suitable communication system, similar to that detailed in BS9999, will need to be provided to assist the process. This, of course, is only relevant in a managed building.

In contrast, when looking at the evacuation of a whole building and people for whom level egress is not essential, an 'evacuation service' feature provides an automatic operation of the lifts which can either employ a shuttle service from refuge floors, located at set levels up the building, or a demand driven 'down collective' service that only allows access to the main building exit floor. While an automatic system is theoretically fine for all building occupants, provision will still need to be made for those who require level egress. In addition, dynamic signage and communications systems would form part of the overall evacuation strategy, providing real time information to occupants regarding lift availability and way finding information.

This approach would allow large numbers of people to escape from the building using the lifts and provides significant relief on what could be congested escape stairs. With the lifts providing a 'lifeboat' service, the function has the ability to save many lives.

Looking at the options then, we have two types of evacuation:

1. The evacuation of disabled people (to be addressed in the new EN81-76)

2. Evacuation of the whole building population in an ICE event or during a fire (currently covered under ISO/TS 18870).

In both cases the means of evacuation must form part of the overall building design and fire strategy, and while this can work for new buildings it is far more difficult to implement in existing buildings, especially where you may only have one lift. Here you are confronted with the possibility of competing demand, the need to evacuate disabled people and people who require level egress while the fire brigade need access to fight a fire.

For any form of evacuation lift to operate reliably two key factors are essential; secure power supplies and smoke management. Similar to firefighting lifts, evacuation lifts, as defined by BS9999 and the draft EN81-76, require secondary power supplies as well as fire rated lobbies and shafts. Smoke management is a key area to navigate especially as lift shafts act as a chimney and can provide an easy route for smoke to move through the building, a far more difficult thing to manage in older buildings.

One of the biggest obstacles to change is working within the constraints of 'custom and practice' that have grown through the application of existing codes and standards. Maybe it is time to take a step back and reevaluate what is needed in modern buildings and look at how new technology can be employed to provide better solutions. We recently discussed the use of AI and the IoT in managing buildings and here is a key area where the practical application of these technologies will not only create safer environments to live and work, but also to provide an integrated form of intelligent systems that enables safer evacuation.

Current standards have evolved to establish a line of thinking that lifts cannot be used to evacuate buildings in the event of a fire. However, with buildings becoming ever taller and the means of evacuation more complex, rapidly changing technology does offer an opportunity to reevaluate our approach and move in a different direction.

One key question in this debate will be how much the final Grenfell enquiry report influences future decision making and what impact this will have on the application of current standards. We have already seen a significant shift in approach since Grenfell with a tightening of standards compliance. The pendulum will no doubt swing towards full compliance and I suspect stay there for some time, before new regulations start to be considered based on revised fire regulations and the recognition of what new technology can offer. The implementation of the BSA, the London Plan and changes resulting from the Grenfell enquiry will take time to digest and understand but they will certainly direct how we move forward in the safe provision and use of evacuation lifts.

While we wait to see how things develop, I would argue now is the time to raise the level of debate regarding the use of lifts to evacuate buildings during a fire. I know from experience it will be a long and wide-ranging discussion involving many disciplines, but with such a focus on safety, now would be a good time to start the conversation; we should remember, every journey an evacuation lift makes means lives saved.

BIOGRAPHY

Len spent a major part of his career with Otis, holding senior technical and managerial positions in construction, modernisation and major projects before joining Canary Wharf Contractors in 1998. Working with vertical transportation contractors, consultants and interface trades Len was responsible for lift and escalator installations on major high rise developments before being appointed Vertical Transportation Design Manager in 2002.

Working with signature architects and major international VT consultancies, Len worked providing design solutions in complex high rise buildings and across the developments portfolio, including infrastructure, retail, residential and public transport projects. He was appointed Project Executive for Vertical Transportation Systems in 2015 and fully retired from Canary Wharf in 2023. He is now an independent consultant.

He is a former chair of the CIBSE Lifts Group

Rachel Smalley, Head of Inclusive Design at Jacobs, commented on Len's Point of View

I love Len's article and it is really good to see the important subject of evacuation lifts being discussed in such detail.

On a personal note - it's great to see that the London Plan policy requirement for evacuation lifts is having an impact. Very few people actually realise that policy requirement was drafted before the Grenfell Tower tragedy (trust me - I drafted it!). But since it was drafted it has, due to the fire at Grenfell, greater participation and changing societal expectations, become even more pertinent.

Len's article highlights that we tend to think about evacuation lifts in a residential context, however they are just as relevant in commercial buildings. The London Plan requirements were actually initially drafted with commercial environments in mind, with the policy wording stating; "In all developments where lifts are installed…". So the policy does not require lifts, but where lifts are installed - potentially due to a different regulatory regime i.e. the building regulations, the policy applies. The building regulations and Approved Document M (vol 1 and 2) are (nationally) more likely to apply or require lifts in non-residential settings, than residential ones (partly due to the optional requirement approach which volume 1 residential sits under).

So it is great to see Len casting the spotlight on the subject of level egress and emergency evacuation from non-residential buildings.

Len also highlights that we tend to think of the primary users of lifts in an evacuation situation being disabled people, however it should be remembered that people's requirements vary by building type and use, and potentially in many buildings, many more groups of people would benefit from or require the use of an evacuation lift. Taking the example of an aviation building; people are more likely to require the use of a lift in an aviation environment. People who do can include people with luggage (no one wants to abandon luggage in an airport!), people with young children or babies, people with temporary injuries (common if the airport is close to a winter sports destination!), older people, as well as some disabled people. This has an impact on lift capacity and if insufficient, can cause significant operational difficulties once in use.

I agree with Len - we need a switch in people's approach/attitudes to the use of lifts in an emergency egress situation, especially in terms of influencing our future building stock and buildings which are being designed now.

We already have too many buildings which disabled people cannot use or are being denied access to for 'fire safety reasons', if they require level egress via an evacuation lift and one is not provided. Change is needed in how we approach this subject now, to ensure buildings going forwards are safe, usable, futureproofed and fit for purpose.

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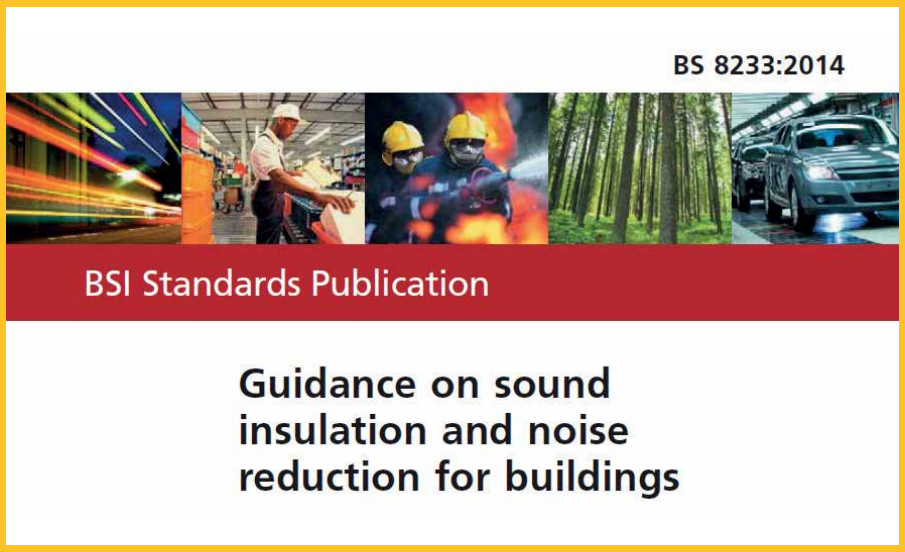
SAFETY FIRST

Dave Cooper, our expert adviser looks at

NOISE AND WELLBEING

I am rather hoping that people will indulge my opinion that wellbeing and safety are connected. Negative wellbeing can lead to all sorts of unhealthy situations and my column this edition is about something that can affect wellbeing.

I am sure that I am not the only person who has checked into a hotel only to find that your room is on the top floor and adjacent to a lift shaft and then got annoyed every time the brake slapped on and off until you finally fell asleep. Sound familiar? Imagine that is your own home and you once enjoyed peace and quiet because the pump room for the hydraulic lift was remotely located and then, following the trend, it was replaced with an electric traction MRL design. No matter what the noise levels now are and whether or not they are compliant, you are going to be hearing noises that you don't want to be hearing, unless someone is professional enough to look at the acoustics and get them to a level at or below where they were. Even then the noises are going to be 'different' to what you heard before.



Enter this standard which very few in our industry know or mention. Section 7.7.3.4 of this standard states that the maximum recommended noise levels within the living accommodation due to lift operation should not exceed the values given in table 5. These criteria relate to the highest noise levels during any part of the lift cycle and with any occupancy level between zero and the recommended maximum number of people in a car.

Now comes the crunch.

It is always worth checking the scope of a standard and BS8233 states:

Table 5 Noise levels from lifts in living accommodation

Room	Maximum noise level (dB $L_{Amax,F}$)
Bedroom	25
Living room	30
Other areas	35

NOTE These figures relate solely to lift noise levels and do not account for any other noise sources. These values include noise from the lifts irrespective of the transmission mechanism, i.e. they include both airborne and structure-borne noise.

This British Standard provides guidance for the control of noise in and around buildings. It is applicable to the design of new buildings, or refurbished buildings undergoing a change of use, but does not provide guidance on assessing the effects of changes in the external noise levels to occupants of an existing building.

Is replacing a hydraulic lift within an existing building with a traction lift (and therefore changing the noise characteristics) a change of use? The person you don't want deciding that is a judge as by the time it gets there you will already have spent thousands on legal costs bearing in mind solicitors and barristers both charge like rhinos!

BS ISO 8100-34:2021 specifies that the maximum and LAeq (average sound pressure level) sound pressure levels should be reported from 0.5 m after the lift has started until 0.5 m before the lift stops.

This is very different to what is stated in BS8233 above where noise levels refer to any part of the lift cycle. Of course, that wretched brake slap that I mentioned at the start of this article comes within the 0.5 metres mentioned in BS ISO 8100-34.

At the end of the day it doesn't matter what the standards say as you have already got a very unhappy client in the mix.

The acceptable level of noise in lobbies will vary according to the function of the building. Noise ratings for various areas within buildings are given in CIBSE Guide A. Lift noise, when measured at 1.5 m from the floor and 1.0 m from the door face should generally not exceed 55 dB(A) at any time during the lift cycle.

Anyway, the moral of the story is… people are very precious about noise, especially when it affects their day-to-day living, including sleeping. If you are going to change the configuration of a lift, make sure you have thought it through first.

REFERENCES

BSI, BS ISO 8100-34 Lifts for the transport of persons and goods part 34 measurement of lift ride quality (2021)

BSI, BS8233 Guidance on sound insulation and noise reduction for buildings (2014)

CIBSE, Guide A, Environmental Design (2017)

BIOGRAPHY

EurIng Prof. David Cooper MBE
BSc (Hons), MSc, MPhil, CEng, FIET, FCIBSE, FSOE, FCGI,

David Cooper is the CEO of UK based lift consultants LECS (UK) Ltd. He has been in the lift & escalator industry since 1980 and is a well-known author and speaker. He holds a Master of Philosophy Degree following a 5-year research project into accidents on escalators, a Master of Science Degree in Lift Engineering as well as a Bachelor of Science Honours degree, Higher National Certificate and a Continuing Education Certificate in lift and escalator engineering. He is a co-author of "The Elevator & Escalator Micropedia" (1997) and "Elevator & Escalator Accident Investigation & Litigation". (2002 & 2005) as well as being a contributor to a number of other books including five editions of CIBSE Guide D. He is a regular columnist in trade journals worldwide including Elevation, Elevator World, Elevatori and Lift Industry News. He has presented at a number of industry seminars worldwide including in Thessaloniki, Munich, Shanghai, San Francisco, Melbourne, Zurich, Barcelona and Vienna as well as numerous presentations within the UK.

He is also a Founding Trustee and Chairman of the UK's Lift Industry Charity which assists industry members and/or their families after an accident at work. In 2012 David was awarded the silver medal by CIBSE for services to the Institution.

David also Chairs the charity that runs the Lift Symposium and is an Honorary Visiting Professor at The University of Northampton. He also sits on the Board of CIBSE. In 2021 he was awarded the Sir Moir Lockhead Award by the SOE for 30 years dedication to safety in the lift & escalator industry.

In 2023 David received an MBE in the King's Birthday Honours list for services to lift & escalator engineering.

KEEPING YOUR UPS RUNNING

How to size and maintain your UPS system to avoid failures

In 2023, National Grid reported that zero-carbon power sources account for 51% of Britain's electricity mix. While this is great news for the planet, many renewable distributed energy resources (DERs) still produce inconsistent power outputs. Uninterruptible power supplies (UPS) can help sites maintain a consistent supply during disturbances. Here Brian Preston, general manager at *elevator and UPS specialist*, CP Automation, explains how operators can prevent downtime by selecting and maintaining an appropriate UPS system.

The 2022 Uptime Institute Global Data Centre Survey reported that power-related outages accounted for 43% of outages causing downtime or significant financial loss. The survey also reported that the biggest cause of power incidents is non-maintained UPS failures, followed by transfer switch and generator failures. Data centres, elevators and hospitals are prime examples of locations where power disruption can be catastrophic.

While diesel generators are a tried and tested source of backup power, they can take up to 30 seconds to come online after a power loss. This is unacceptable if, for instance, patients awaiting theatre are then stuck in an elevator in a hospital.

In contrast, a UPS output is always available, so it quickly kicks into life when a loss of mains power is detected. This battery power is then fed through an inverter in order to generate a supplementary supply.

SIZING UP

When specifying a UPS system, the two critical factors are the power demand of the application in all loaded conditions and the amount of time that the UPS is required to operate. UPS sizes for elevators can range from single-phase units as small as 1 kVA for a simple brake lift function and redundancy for control system power, through to three-phase units of 80 kVA and beyond to provide full lift operation for a defined period of time.

Proper sizing ensures there is sufficient power to meet the load requirements and also prevents the risk of batteries running low during operation. If a UPS has been sized to run for an hour, including the time that it's stationary, it should be able to run for the full hour without failure.

To start the sizing process, operators should list all the equipment and devices that they want the UPS to protect along with the power required for reliable operation in all loaded conditions. This is then used to determine the total VoltAmps (VA) that the UPS needs to supply.

The next step is to define how long the UPS should be in operation and this will then dictate the battery requirements.

REMOTE MONITORING

It is also important that the selected UPS includes remote monitoring features to provide early warning of, for example, a UPS failure or low battery conditions. In an elevator, the car controller mustn't initiate a journey without being certain that the trip can be completed. These features can be provided either as logic I/O to be integrated into an elevator control system or via serial or wireless connection to a Building Management System. Remote monitoring systems allow for immediate fault detection so if there is an issue with the UPS system, operators are alerted even if it is out-of-hours.

Some UPS systems such as the ***ARD CORE single phase*** or ***ARD JR three phase*** have automatic power transfer, ensuring maintenance-free operation even after the unit has been switched off after an extended mains failure. Automatic diagnostics can ensure that components and parameters are controlled without user interference and can be monitored remotely. Using remote monitoring, the operator can identify any issues and rectify them before they grow to the point where a specialist is required.

JR 3 Phase

MAINTAINING THE SYSTEM

To ensure the UPS will operate when needed, it is critical that operators regularly maintain their UPS. They can usually carry out basic servicing on smaller, single-phase systems themselves following simple step-by-step guides. However, because of their complexity and size, a maintenance specialist such as CPA should service any three-phase UPS units, at least on an annual basis.

With the number of zero-carbon power sources on the rise, the need for supply contingency is crucial, so UPS systems will always have an important role in elevators, hospitals, data centres and other facilities. Selecting the right system and regularly maintaining it is crucial for operators to avoid unplanned outages and ensure that the UPS is ready for use when needed.

CP Automation has an ***online sizing tool*** that can help you choose the correct UPS for your application. You can also get in touch with CP Automation and arrange a ***no-obligation conversation about our UPS solutions***.

For further information contact:

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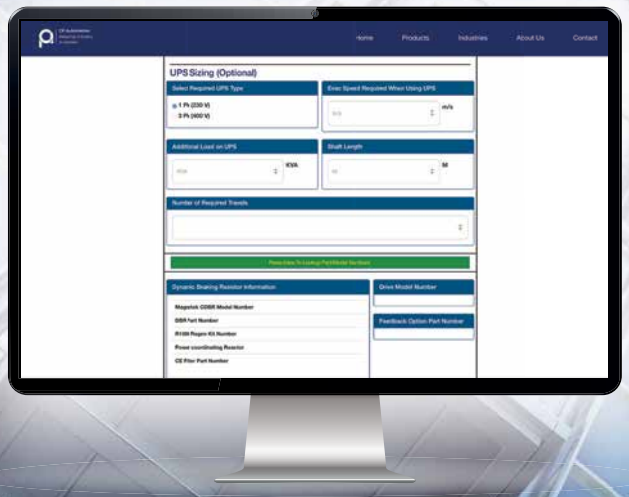

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BEHIND THE SCENES AT LEIA

LEIA Member seminars:

LEIA Technical Seminar -
Wednesday 23rd October

LEIA Building Safety Seminar -
Tuesday 26th November

LEIA Safety Charter

The safety of people working on and using equipment within LEIA's scope is always a priority for us and we recently held the LEIA Safety Seminar. We are very grateful to many of our members who, as part of our commitment to safety, contribute to our accident statistics. This year LEIA members took this commitment a step further by supporting a change to the LEIA Rules requiring all LEIA members to commit to the LEIA Safety Charter. Many thanks to those members who have already signed it.

As part of our work on building safety, we will be holding a Building Safety seminar in November.

Date for your diary

The cut-off date for LEIA January distance learning is **15th December.**

New LEIA members

This year we've had the biggest intake of new members in one go (with a number of applications to be considered at our next meetings). Welcome to the following:

- Academy Lifts – Based in Warrington and established in 2002, Academy provides a rapid breakdown cover 365 days a year, 24 hours a day at affordable prices.
- Kinetic Lift Services – Established in 2015, the company offers solutions to all lift requirements, from maintenance, 24/7 callouts, repairs, and refurbishment to full replacements of existing lift systems.
- Lyfthaus – Haverhill-based Lyfthaus joins LEIA as it celebrates its 10th anniversary. The company provides tailor-made solutions to meet challenging architectural requirements, hand-crafted in Britain for heritage and contemporary properties of distinction.
- Premier Lift Group - Formerly Premier Platform Lifts, the Heathrow-based business provides lift solutions for domestic and commercial projects.
- Technical Lift Services - Bournemouth-based Technical Lift Services Ltd provides complete bespoke solutions for lift installation and maintenance.

Distance learning update

In line with our ongoing commitment to educating and assisting members with safety, we're pleased to report that our IOSH Management and Safety module has seen a record cohort starting their studies in June this year.

Building Safety Working Group

A new Building Safety Working Group has been established to guide the changes needed around the Building Safety Act (2022). This is the first time a cross-committee group has been set up. We released our first guidance on the Building Safety Act to members at the start of September and are hosting a members-only seminar on the Building Safety Act on 26th November.

For those who are not LEIA members, but would like more information on the Act, this will feature in the free LIFTEX seminar programme (11 – 12th June 2025, ExCeL, London).

Grenfell Inquiry Phase 2 report

The Grenfell Inquiry Phase 2 report published on Wednesday 4th September was the culmination of more than seven years of work by the inquiry and followed publication of the Phase 1 report nearly five years ago.

One of the more telling images from the end of the sessions in 2022 was the Grenfell 'web of blame' reflecting the unedifying spectacle of key players seeking to blame others without accepting responsibility for their shortcomings.

The Phase 2 report was cogent and extremely well-written which included an assessment by the inquiry of the responsibility and shortcomings of many organisations – some now being investigated by the Metropolitan Police and potentially facing prosecution.

Within the large report, consideration of the lifts was a relatively small element, yet occupied a chapter. The focus was on why the existing lifts could not be recalled or taken under the control of firefighters (the subject of a recommendation of the Phase1 Report resulting in requirements of the Fire Safety (England) Regulations 2022).

Concerns with switch reliability were compounded by apparent problems in variation in drop keys available, resulting in some not being able to operate the switch. Therefore, the only lift-specific recommendation in the Phase 2 report is for the government to seek urgent advice from the Building Safety Regulator and the National Fire Chiefs Council (NFCC) on the nature and scale of the problem and the appropriate response to it.

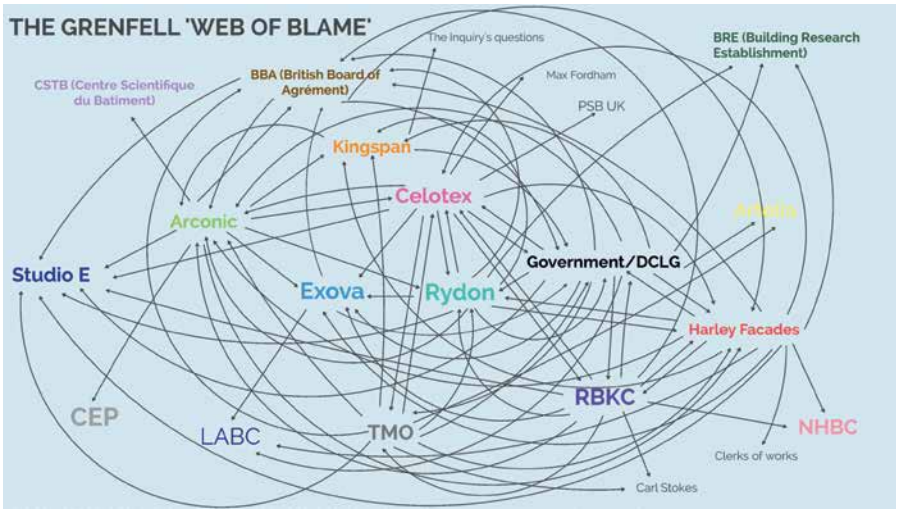
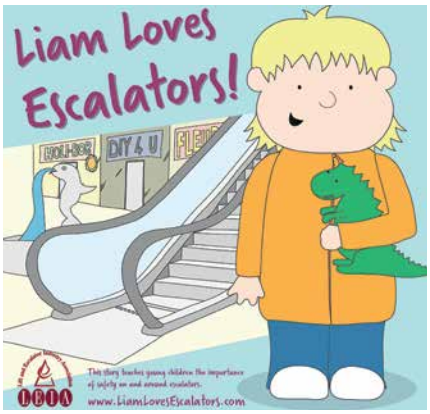


Diagram showing who the core participants blame for the Grenfell Tower tragedy
Source: Counsel to the Grenfell Tower Inquiry

Concerns with the evacuation of vulnerable people recurred a number of times throughout the recommendations. This was alongside a reiteration of the recommendation from the Phase 1 Report for personal emergency evacuation plans (PEEPs) for all residents whose ability to self-evacuate may be compromised (such as persons with reduced mobility or cognition).

Elsewhere, many of the 58 recommendations would, if adopted, have very significant impacts on the construction industry and its regulation, including some very significant implications for our sector. Some of these are explored in a longer piece you can find on the LEIA website.

There is also a detailed review of the Grenfell Report on page 30 by Hywel Davies.



Liam Loves resources

As we head towards half term and Christmas holidays, when children will be off school, a reminder that our children's safety campaign resources are available to download for free. The Liam Loves Escalators and Liam Loves Lifts eBooks are available at ***https://www.leia.co.uk/safety/liam-loves-safety-campaign/***.

Apprentices needed!

We have been hearing of struggles to fill apprenticeship vacancies from some of our members. Over the coming months, we will be promoting our Lift Careers website heavily across our social media channels once again. The site is designed to sell the benefits of careers in our industry and features interviews with apprentices, guidance on how to get started and what to expect. Please share it with your networks. ***https://liftcareers.co.uk***.

SAVE THE DATE: LIFTEX IS BACK IN 2025

Now in its 37th year, LIFTEX returns to London's ExCeL next June (11 - 12th). Show Director Oliver Greening tells us what's in store…

LIFTEX is the UK's only dedicated exhibition for the lift, escalator and access industry. The last event, held in 2022, smashed all records and next year's show looks set to continue the trend.

LIFTEX takes place once every three years, and we've been overwhelmed by the industry's response to next year's event. We sold out of exhibition space earlier this year, over 12 months ahead of the show. We've already had to extend the floorplan to accommodate the demand. It's great to see the industry's appetite for its return, and we're now looking forward to starting the countdown to June 2025.

WHO WILL YOU MEET?

We've got a strong exhibitor line-up, with over 100 companies attending from the UK, Croatia, Germany, Greece, Italy, Spain, Sweden, Switzerland, The Netherlands and Turkey. Next year's exhibition will also see 14 new exhibitors joining for the first time. Visitors will find a breadth of industry representation including contractors, service companies, component suppliers and organisations from support services.

FREE SEMINARS & THE LATEST GUIDANCE ON THE BUILDING SAFETY ACT

A popular element of the event is always the free seminar proramme. Running alongside the exhibition across both days it brings together industry experts to discuss the latest hot topics.

Seminars will cover key issues like modernisation, evacuation and safety, as well as the latest news on standards and regulations of course.

However, the biggest talking point will be the Building Safety Act and its implications for the industry, including The Golden Thread and its implications for specifiers and building owners. These are undoubtedly the biggest improvements in building safety in nearly 40 years, and LEIA will share its guidance.

There will also be opportunities to talk to the LEIA team throughout the show about this. We are working on the seminar programme as we speak, so watch this space!

To register for free visit *www.liftexshow.com* or follow on LinkedIn at *LIFTEX Show*, on X *@LiftexShow* and Instagram: *https://www.instagram.com/liftexshow*

Registration opens Jan 2025

LIFTEX International is organised and brought to you by

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Stay up to date with safety and training

Come together to see old and new colleagues and friends

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NEWS FROM THE CIBSE LIFTS GROUP

Transition of the CIBSE Lifts Group to The Society of Vertical Transportation

Michael Bottomley,
Chair, CIBSE Lifts Group

At the Lifts Group AGM in February 2024, I announced that the CIBSE Special Interest Lifts Group would evolve into the Society of Vertical Transportation (SVT). This transformation represents our commitment to advancing the vertical transportation industry globally.

As a society, we will continue to offer regular Vertical Transportation (VT) continuous professional development (CPD) seminars, accessible to all, regardless of geographic location or CIBSE membership. Additionally, we will:

- Publish industry-leading resources, including CIBSE Guide D.
- Support global initiatives such as the Lift and Escalator Symposium.
- Serve as an international forum for discussion for anyone interested in the lift and escalator industry.

Importantly, the new society will provide a pathway to industry-specific professional registration, recognised globally through CIBSE and the Engineering Council, offering the following credentials:

- Engineering Technician (ASVT EngTech)
- Incorporated Engineer (LSVT IEng)
- Chartered Engineer (MSVT CEng)

Why the change?

Recent years have seen significant global shifts in building safety standards, underscoring the need for greater competence in high-risk sectors like vertical transportation. For instance, the UK's Building Safety Act, introduced in response to the Grenfell Tower tragedy, has implemented some of the most substantial changes in building safety regulations in the past 50 years. This Act places new responsibilities on building owners and developers, making it a criminal offence to hire consultants or workers on high-risk buildings without ensuring their competence.

While many industries have established professional qualifications to meet such regulatory demands, the vertical transportation sector is now poised to introduce similar standards. The SVT aims to fill this gap, providing clear pathways to professional recognition that meet these new global expectations.

Pathways to the proposed awards:

There are three main routes to achieving these professional registrations:

1. Current CIBSE members

Licentiates, Members, and Fellows of CIBSE can apply by submitting a curriculum vitae highlighting their experience within the vertical transportation industry. This will be assessed by two trained assessors who are members of both CIBSE and the Lifts Group.

2. Applicants with recognised qualifications

Candidates who have attained the required learning outcomes through recognised qualifications can apply. These qualifications include:

- EngTech: Level 3 qualification as part of an approved apprenticeship scheme.
- IEng: An accredited Bachelor's degree.
- CEng: An accredited integrated Master's degree or a combination of accredited Bachelor's and Master's degrees.

Two trained assessors will review the application during a professional review interview.

3. Individual assessment

Applicants without recognised qualifications can undergo an individual assessment of their qualifications and other relevant learning, such as:

- Formal academic programmes
- In-employment training
- Experiential learning
- Self-directed learning

They may also be required to submit a technical report and participate in a technical interview with two MSVT-trained assessors.

The Society of Vertical Transportation will adapt these processes to meet the needs of the global industry, ensuring that recipients of these awards are recognised for their expertise and professionalism. We will also offer mentoring, CPD seminars, and guidance toward further learning or training opportunities as applicable.

Find out more
If you are interested in becoming a member of the Society of Vertical Transportation, please register your expression of interest through the link below.

https://www.surveymonkey.com/r/P9W3337

Exciting News! The 2025 edition of CIBSE Guide D is on the way!

We are thrilled to announce that the 2025 edition of the CIBSE Guide D is coming soon! This updated guide will continue to serve as the definitive resource for transportation systems in buildings, providing the latest insights, innovations, and best practices.

Why it matters: The forthcoming guide will be an essential resource for engineers, designers and facility managers committed to developing building transportation systems. It will reflect the latest industry standards and technological advancements, providing a blueprint for future-ready buildings.

Stay tuned: Keep an eye on the CIBSE website and our updates for the official release date. We can't wait to share this resource with you and support you in bringing innovative and sustainable solutions to your projects.
https://lnkd.in/e5nWdsXC

FOLLOW us on

Keep up to date on our web site

ANNUAL EVENING SEMINAR
In support and to endorse CIBSE's Build2Perform at London Excel on 13th and 14th November, the CLG is delighted to announce the Annual Evening Seminar will be held on 12 November 2024 at Novotel London Excel.

Join us for an evening of insightful discussions and networking opportunities with industry experts in the field of lifts and escalators.

AGENDA:

4:45 PM
Registration

5:00 PM
Opening Address from Chair of CIBSE Lifts Group, Michael Bottomley,

5:05 PM
Codes and Standard Updates, Adam Scott

5:30 PM
***BLACKOUT:** Exposing the Hidden Risks in Lift Passenger Emergency Systems, Paul Burns, D2E*

5:50 PM
***Lusail Plaza Towers:** Lifting the Design for Future Flexibility, Chuan Lim, F+P*

6:10 PM
Grenfell Phase 2 and means of escape, Nick Mellor, LEIA

6:45 PM
Society Update

6:55 PM
Closing Address from the Chair

FOR TICKETS:
https://bit.ly/4h4b8HU

THE CIBSE LIFTS GROUP

CIBSE Lifts Group

The CIBSE LIFTS GROUP is converting to a SOCIETY to bring more benefits and recognition to our members

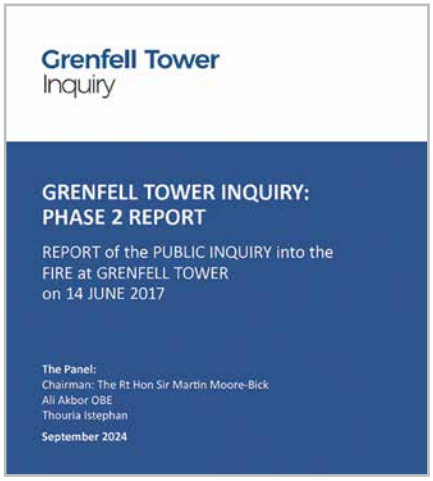
Follow us to be part of this journey

EXPERTISE >
KNOWLEDGE SHARING >
UPSKILLING >
INFORMATION FORUM >

FOLLOW us on

Keep up to date on our web site

GRENFELL TOWER



The final report into the Grenfell Tower tragedy was published on 4th September. Hywel Davies looks beyond the forensic analysis of what happened that night and how fire engulfed the tower and considers the most significant recommendations for lift engineers.

The final report into the tragic fire at Grenfell Tower is a monumental undertaking which comprises seven volumes and nearly 1700 pages. As well as detailing the events of that awful night and the whole refurbishment project, it also analyses the wider role of government policy, in particular deregulation under the coalition government. It provides a thoroughly detailed and very cogent analysis which is underpinned by an enormous volume of evidence and testimony.

There is little that will be a surprise to anyone who followed the Inquiry hearings.

The final report makes 58 recommendations, mostly to government. Twenty six relate directly to construction. Two revisit safe evacuation of 'vulnerable' people and recommend further action. And one relates to drop switches for fireman's lifts. The remainder address fire and rescue related matters. The recommendations recognise that the reforms brought in after Dame Judith Hackitt's 2018 review through the Building Safety Act 2022 are a start, but only a start. More needs doing to make the buildings in which we live and work safer and rebuild trust and confidence in construction, its workforce and the construction products industry. Bad apples spoil barrels.

Many recommendations are straightforward, uncontentious and should be implemented promptly. Some need care to implement, as they intersect with work already underway in the sector. The British Standards Institution and the Industry Competence Committee of the Building Safety Regulator have already done much to develop BS 8670:2024 for competence frameworks, along with various discipline specifications. There is also a new Engineering Council registration scheme for engineers working with Higher Risk Buildings.

The recommendation for statutory registration of fire engineers and fire risk assessors is entirely reasonable. It remains to be seen how this will align with the wider competence regime. And if fire engineers are to be registered, where does that leave lift engineers, or structural engineers, or façade engineers? This is a significant moment for all involved in the current registration of engineers through professional engineering institutions and those institutions need to recognise the urgency of this call to action.

Chapter 44 is devoted to the Grenfell Tower lifts: just ten pages of the report. It confirms that the lifts were fireman's lifts, intended to allow the fire service to take control of them using drop keys. In the event, the drop key used did not enable that. The detail set out in pages 167-176 of volume 3 of the report concludes that regular, effective maintenance and testing of fire control switches is essential.

The evidence offered "strongly suggests that [this] was not given the attention it deserved". It also showed the potential of CCTV footage to expose the thoroughness, or otherwise, of maintenance activity. Those responsible for maintenance of lifts, especially but not only in higher risk buildings, would do well to read the chapter and consider whether their firm could do more to maintain standards and to collect and retain the evidence to show that they have done what they are contracted to do (and doubtless invoice for).

The chapter concludes that urgent action by the London Fire Brigade to standardise drop keys should already have reduced variability in keys used. The sole recommendation specific to lifts is for government to seek urgent advice from the Building Safety Regulator and National Fire Chiefs Council on the nature and scale of the problem and the appropriate response. Can the lift industry further improve reliability of this hardware to support the regulators and fire and rescue services?

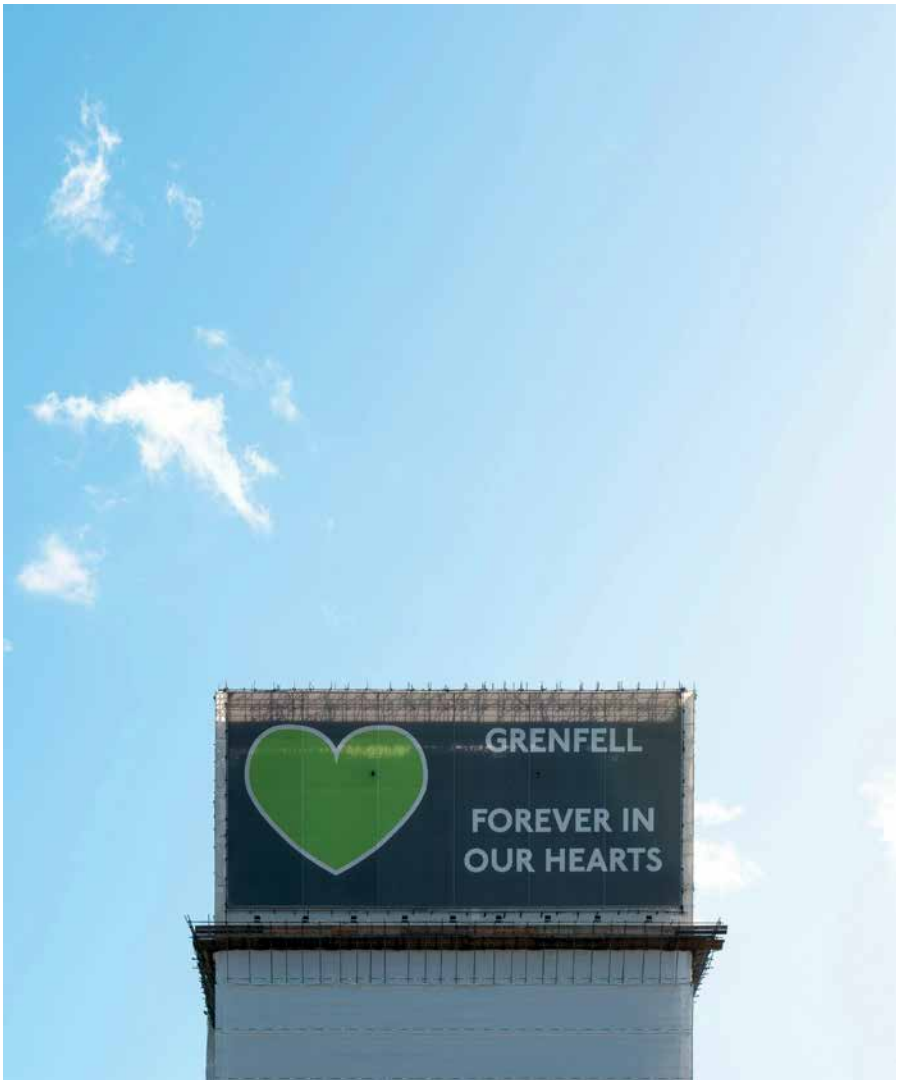


Photo by the blowup on Unsplash

Concerns with evacuation of 'vulnerable' people recur in the recommendations, which reiterate the Phase 1 Recommendation for personal emergency evacuation plans (PEEPs) for all residents whose ability to self-evacuate may be compromised (such as persons with reduced mobility or cognition). This raises two questions. The first is the use of the term 'vulnerable' to describe those who may be unable, or at best struggle, to use the stairs, who may not welcome that term. This is a question that is addressed by Rachel Smalley in her article on page 33.

The second is the issue of evacuation segregation in our buildings. When current design codes and guidance for evacuation were developed, about fifty years ago, the thinking was that only a relatively small number of people would be unable to use stairs, and so ad hoc arrangements were accepted. Since then the proportion of those with disabilities and the average age of the population have increased, as has the number of multi storey residential buildings. As a result the old assumptions are no longer appropriate and there needs to be a serious review of evacuation procedures and the potential role of lifts in safe evacuation of buildings.

Requirement B1 of the Building Regulations is for appropriate means of escape in case of fire. Appropriate simply has to mean accessible to those who cannot use stairs. The lift industry has done much to research this and to develop modern standards; the challenge now is to stimulate the right debate and policy development to deliver equitable evacuation. This should be part of the delivery of the "generational shift in the safety and quality of housing for everyone in this country" promised by the Prime Minister in his response to the final report.

Elsewhere, many of the recommendations would, if adopted, have a considerable impact on the construction industry and its regulation, including some very significant implications for our sector.

There is already work on the Morrell Day review of product testing and certification and the ongoing need to determine product marking and safety policy. Whatever is decided must be considered alongside the European Union review of their Construction Products Regulations and introduction of digital product passports to accompany and support CE marking of all construction products. That must also address the key question of whether lifts (and escalators) are construction products.

It is essential to build on a key principle of the Building Safety Act by driving responsibility and accountability down the whole supply chain, including product manufacturers, with clear duties, proportionate enforcement and appropriate sanctions and penalties. As with any major change, we must try to avoid unintended and undesirable consequences

Sir Martin and his whole team are to be commended for their work and service over the past seven years. The Final Report sets out responsibility for the tragedy and key shortcomings of numerous organisations involved in the project as well as sector bodies such as the BRE, LABC, NHBC and BBA and of central government, over a period of decades and under all major parties in government.

Government has openly recognised that more could have been done to reduce the likelihood of the fire happening, with the Prime Minister apologising on behalf of the state for its failings. Yet since publication of the report others depressingly continue to protest that it was all someone else's fault.

The construction sector, manufacturers, the BRE, testing and certification bodies and government all played a part in creating the climate for the Grenfell tragedy. Sir Martin labels the behaviour of some manufacturers as "systematic dishonesty". The industry must now come together to rebuild a safer future, but there should be no role in that for those who still blame others and deny their own responsibility. Let those who are without sin cast the first stone.

BIOGRAPHY

Dr Hywel Davies CChem CSci HonFCIBSE has recently retired as Chief Technical Officer from CIBSE after more than 25 years working for the Institution. He was CIBSE's technical director from 2007 until September 2023, after 10 years at the Building Research Establishment and 10 years as an independent consultant. He was awarded an Honorary Fellowship by CIBSE in 2023 – the first to be given to a serving member of staff. He led the government's expert group responsible for reviewing the use and structure of Approved Documents following the Grenfell Tower tragedy and led CIBSE's Covid-19 pandemic response. He has been an active author of and contributor to British, European and International Standards for over 30 years. He was the last chair of the Building Regulations Advisory Committee and is a member of the Building Safety Regulator's Building Advisory Committee, where he now serves in an independent capacity.

This subject was touched upon in Issue 8 of Lift Industry News earlier this year in 'Second staircases and evacuation lifts- an inclusive design perspective'. Since then the term *'vulnerable persons'* has appeared extensively in the Grenfell Tower Inquiry final report, so it now feels appropriate to explore the use of this term in a bit more detail.

IS THERE A PLACE FOR 'VULNERABLE PERSONS'?

As a starting point, it feels important to question what is meant by, and the people intended to be captured via the use of this term. It is also important to question whether a small change in terminology i.e. moving away from the term 'vulnerable persons' could result in more successful end user solutions.

The term 'vulnerable persons' is used by many different sectors and in a number of different contexts, including in safeguarding, health and social care, criminal justice and exploitation contexts. For many people the term will have negative or pejorative connotations, potentially evoking judgements of pity or disapproval. It should also be noted that many disabled people find being labelled 'vulnerable' offensive, sometimes for this reason.

In terms of the built environment context; the term is generally used as a 'catch all' term to describe people who are perceived to be 'outliers'. People who do not 'fit' the 'mean' or 'average' designed for when focussing on 95th percentile points in terms of people's body dimensions and weight. People with certain behaviours may also be deemed to be 'vulnerable'.

Jacobs five elements of inclusive design

The term 'vulnerable persons' does not really provide any greater granularity or insight than that. If I saw the term I would be asking; **what does that actually mean in terms of:**

- people's requirements?
- the built environment features that should be provided to meet these?

Specifically in the context of fire safety within the built environment 'vulnerable persons' is generally used to capture people with behaviours, and/or physical or other characteristics due to which they deemed as being more likely to be impacted by the effects of fire, or more vulnerable in a fire situation.

The knock on effect of using the term 'vulnerable persons' as a 'catch all' could mean that people who are perceived to be different or who do not 'fit' are seen as an additional separate group. A 'tag on' to the people being considered in the design process, and therefore a 'nice to accommodate if possible', as opposed to part of the mainstream population whose requirements must be met as an essential component of building design.

Can design make people vulnerable?

Parking for a moment whether the term 'vulnerable persons' is appropriate to use in a built environment, it should be questioned whether our approach to design, including in a fire safety context, can actually make people 'vulnerable'?

If people and their specific requirements have not been taken into account in the design of a building it will not be suitable for everyone, or safe for everyone to use.

Is the term 'vulnerable persons' fit for purpose or appropriate at all?

As a label, the term 'vulnerable persons' can result in blame being attached to the person being described by it. They can be seen as a problem, a difficulty, and combined with the

'tag on' approach highlighted above, their requirements can potentially be overlooked, as the Grenfell Tower Inquiry: Phase 2 report highlights:

15.15 "The department did take steps to develop guidance on the evacuation of disabled people…. but considered it too difficult to find a solution to the problem posed by vulnerable persons who could not escape from purpose-built general needs blocks of flats without assistance."

To label someone as a 'problem', will, in many people's minds, apportion blame to them, i.e. it is their fault they are vulnerable, they are the problem as they have specific personal or behavioural characteristics which are 'problematic'.

Working example: blame and vulnerable persons

Scenario- someone requires level access and level egress, and the use of an evacuation lift in an emergency situation.

A building does not provide an evacuation lift, only stairs.

Problem/ blame- is it the individual's fault they cannot egress a building in an emergency situation? Are they the problem?

Or is the problem the building design and lift provision, as it does not accommodate their requirements?

'Vulnerable persons'- does the design of the building in this scenario mean the person is more likely to be impacted by the effects of fire as they cannot evacuate?

What term to use instead of 'vulnerable persons'?

So we have established in the built environment context, the term 'vulnerable persons' can be problematic, can potentially create buildings which are not suitable for everyone, and can be potentially offensive due to its negative connotations. But what should we be using instead?

Instead of using an all-encompassing broad term such as 'vulnerable persons' which does not accurately capture built environment requirements, why not describe the requirements or features? This approach avoids or diminishes the chances of blame being (subconsciously) placed on the individual, and instead captures the built environment feature which would result in people not being excluded or 'vulnerable' (to use the term I am suggesting people do not use).

In terms of lifts, instead of saying 'vulnerable people may require an evacuation lift', why not use the term 'people who require level egress in an emergency situation', or 'level egress is required via the provision of evacuation lifts'.

I specialise in inclusive design, so I am going to say that adopting an inclusive design approach to people's requirements is important, ensuring that the design of developments takes into account a broad range of end user requirements. Ensuring the built environment is people-focussed, welcoming, usable, future proofed and relevant is key to creating a built environment that works for people, but I also feel simply moving away from terminology such as 'vulnerable persons' will catalyse and accelerate change in this space.

BIOGRAPHY

Rachel Smalley FCABE MRTPI NRAC
Rachel leads Jacobs Inclusive Design team, managing their world leading team of inclusive design experts, who take a unique, technical, engineering-based approach to deliver built environment solutions which work for the maximum range of people. Rachel is a Chartered Building Engineer (FCABE), a Chartered Town Planner (MRTPI), and a consultant level member of the National Register of Access Consultants, with over 20 years of experience working in the built environment sector. She is an industry leader in the field of inclusive design, working in different countries and cultures on the most complex and largest projects in the world.

Throughout her career Rachel has specialised in both standards and policy development, sitting on British Standards committees for over 15 years, and she currently chairs the committee responsible for standards relating to the creation of an inclusive built environment. She has worked for the current and previous Mayors of London, drafting current London Plan policies relating to inclusive design, housing and fire safety. She has also worked in central government both writing legislation, policy and guidance relating to the built environment and fire safety, and as a Specialist Advisor to the House of Commons women and equalities select committee. She was appointed to the Governments Building Regulations Advisory Committee in 2015 and led the Access Association as their national president for 7 years.

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Taking a step towards the principles of 'Industry 4.0' intelligent digital construction methods, the AVA Bridge & Lift brings to market a system that revolutionises the way railway platform to platform footbridges are commissioned, designed, installed and experienced.

The AVA Bridge & Lift has been developed for Network Rail, with funding from Innovate UK, by a consortium of British SMEs: Expedition Engineering; Hawkins\Brown; Walker Construction; McNealy Brown; and ARX.

Its modular off-site method of construction delivers a system that is simpler and quicker to install compared to standard industry practices. With internal cladding, glazing, and services installed before the bridge leaves the yard, only a single possession is required. Trains only need to be halted for a maximum of 27 hours, reducing disruption to passengers.

Designed to be different, the AVA Bridge & Lift system can be installed at any station. The configurable nature of the design allows for various bridge and lift arrangements to meet specific site requirements. Its span and height are flexible, to allow for overhead lines, with customisation options including the addition of a roof.

Its development stemmed from a recognition that traditional 'Industry 2.0' fabricated steel bridge and lift construction methods were cumbersome, slow and inefficient, as well as being incompatible with Network Rail's aspirations to reduce carbon and inhibiting rollout of its Access for All programme of work

Dave Cooper, who was involved in the original design, went to see the AVA system in action in Sittingbourne with Darren Falkingham, Market Engagement Manager, ARX, Russell Sweeting-White and Paul Hearn from Network Rail.

Previously Dave had only seen it as a protype lift on its own at ARX's test facility in Sheffield and now was able to see a full-scale AVA Bridge & Lift in readiness for installation at a Network Rail station with two lifts.

DAVE COOPER COMMENTED:
My interest in the AVA lift is that in the event of a drive failure the lift can continue to run at reduced speed and load but still means that it is a useable item. This means that the Network Rail Access for All Programme which provides an obstacle free, accessible route to and between platforms is more likely to be achieved even when the lift develops a problem.

From a maintainability point of view more or less everything can be maintained from outside the lift shaft and the changeover from dual drive to single drive should take approximately 20 minutes

The passenger lift, reimagined

The AVA Lift started with a blank piece of paper and a mission to redefine and re-engineer the passenger lift. The result is a lift system with faster installation times, lower through-life costs, greater reliability, enhanced passenger experience, improved safety and genuine sustainability credentials

Cost savings

The 21-person AVA Lift is comparable to a typical 16-person MRL lift in terms of capital cost. The real value of AVA is delivered through reduced operational expenses, and a step change in lift availability.

Faster procurement

Up-front design input is significantly reduced - only the landing height and power route needs to be decided. The AVA Lift is then fully assembled, tested and certified at the factory. It is then transported to the station in one piece, reducing platform installation times from 26 weeks to two weeks.

Lower emissions

Sustainability is a big part of AVA too. The AVA Lifts come with a step change in a reduction in WLC CO^2e.

Accessibility

Accessibility, safety and reliability are integral to the AVA Lift methodology. The lift provides access for all, including people with reduced mobility, bikes, pushchairs & trolleys.

Energy efficient

Due to the counterweighted design, low rolling resistance and efficient lighting, the AVA Modular Lift draws only 10A from the mains when under full load through a 32A three phase supply + 5A from a 16A single phase supply for ancillaries (15A Total).

This allows the modular lift to be installed in stations without the need to upgrade existing electrical infrastructure. This is particularly important in some remote stations with limited power supplies.

Two stations on the network have placed orders for this interesting piece of innovation so do keep a look out for an AVA lift at a station near you!

THE INTERVIEW

Lyfthaus
BESPOKE PLATFORM LIFTS

Creating beautiful bespoke platform lifts for disabled access, Lyfthaus is celebrating their 10th birthday this year. From Windsor Castle to Canary Wharf, their designs blend functionality with incredible creativity and innovative design. Working from their Cambridge base, Founder and Managing Director Darren Papani shared some insight to the Lyfthaus process.

Can you give us a little history lesson about Lyfthaus?

Lyfthaus was born out of our parent company, Edmo Lift, and is now part of the same group. Edmo Lift celebrated 60 years this year, and we set up the UK arm 32 years ago. Around 2010, architects started to approach us, asking us to design bespoke disabled access lifts. We made bespoke goods lifts, but for many years we resisted branching out because of the vast difference between goods and passenger lifts. However, the more we considered passenger lifts, the more we saw how our scissor lift platforms could be developed to meet the requirements for a range of buildings. In 2014, Lyfthaus was born, with the specific aim of designing and creating bespoke passenger lift platforms for disabled access.

What is the vision of Lyfthaus?

Our vision is to make beautiful spaces beautifully accessible. We are the largest British manufacturer of custom open aspect platform lifts, and everything we do is truly bespoke. We are the creative experts within the platform industry, and we tailor-make everything to our customers' unique requirements. Our ambition now, as we've reached ten years, is to export our products, developing them to be suitable for markets worldwide.

What sets you apart from other lift companies?

Our creativity sets us apart from other lift companies. Obviously, we have to comply with the set standards, but from there, the possibilities are endless – the size, materials, finish and style. We take clues from the architectural environment – we visit the site, study the drawings alongside the architects, and then go on the design journey with them so that the platform not only is in keeping, but enhances the space. Architects used to tell us that they'd hide the lift within their design, but our lifts are so beautiful that they're front and centre. This is also incredibly important for inclusivity, ensuring disabled users can access spaces easily.

Walk us through your design process.

We get involved right at the beginning – our average enquiry-to-installation time is three and a half years. Most of the lifts we install originate with the architect, who comes to us and makes that first enquiry. They explain their vision with hand drawn sketches of the space, whether that's a grand old cathedral, an ancient residence or fine hotel, and from there we work with them, often for many years, to develop the idea before we bring it to life.

As the project evolves, we go in at every step, amending and updating the proposal to ensure it meets the creative, practical and compliance elements. It's always a bit of an adventure!

What is your priority when it comes to creating your platforms?

Architects want the lifts to blend in with the environment, they don't want a plastic white box! For example, we've put lifts into Windsor Castle that you might not know are there. When you look at the balustrading, the timber and the metalwork, we match it exactly to the point where we borrow features from site – finials and metalwork – and cast them to ensure they are as close a match as possible, replicating the originals perfectly.

The Knights of the Garter have their own cottages at Windsor Castle, and outside each there is a wrought iron gate, one of which we borrowed to ensure it matched our design for a platform lift. We found out later that the gate was made from smelted cannons that were captured at the battle of Waterloo. It was incredible to have had such an amazing piece of history in our workshop, without even realising!

What other factors influence your process?

In terms of design, compliance is number one. We always start with a 'skeleton' product, and we then ensure it complies with the BS6440 standard, which is specific to open aspect low rise platform lifts. That sets a strong foundation for design, meeting the architect's remit, which usually means making it as discreet as possible. They want our lifts to be invisible with the existing architecture, so we make sure it blends in with the beautiful surroundings. With a scissor mechanism, we have very few weight limitations, so we can use granite slabs, wrought iron railings and any other material that helps it melt into the background when lowered. Often, it's not until it's used that people notice it's there.

Can you tell us about some of the most interesting projects you've completed?

We've recently put a platform lift into an old fishing trawler in Hull, the Arctic Corsair, which is being turned into museum covering the history of trawling. It goes between the three floors and arrives at the top in a hole in the deck that was used to pour the fish into!

Castles are always interesting, and it was the then Prince Charles, now King, that had the idea to put the platforms into Windsor. Two of the lifts were in the late Queen's state rooms, so we know she used them, and one was made to match the timber balustrades, using some of the original 500 year-old English oak salvaged from the fire in 1992 to match them. As well as the architects, the royal family was kept up to date with the project, so that was a special one.

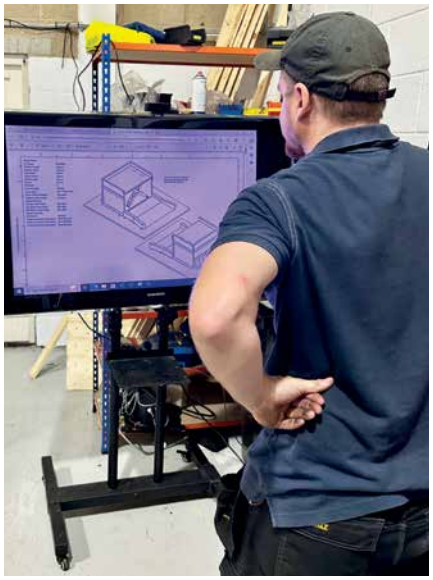
Painted Hall in Greenwich was an interesting project; when they started to dig the pit for the lift, they discovered evidence of Henry VIII's summerhouse underneath, which delayed installation by about a year and a half. They may never have found it if it weren't for our lift!

We've also installed lifts at St Paul's Cathedral, Gloucester Cathedral and Durham Cathedral, making places accessible for everyone.

What are some of the challenges you've encountered over the years?

The biggest issue for us is always the construction phase. We find that the industry works at a different pace, and often it's inflexible.

Particularly in London and the South East, the construction industry can be pretty aggressive, which makes life difficult, and their tolerances are very different to ours in the lift industry, which have to be millimetre-perfect. However, we're in the very fortunate position of having some great people in our team. I know it can be a challenge finding engineers and skilled people for site work, but we've built some excellent connections and also have a great team of designers here.



Why is it important for you to be a part of LEIA?

We work on the edge of the lift industry, but we're talking to lift companies every day as the orders for our platforms are often wrapped up within the project's main lift order. Being a member of LEIA will keep us up to date with any variations in legislation and changes in the marketplace and give us a greater understanding of the wider industry. I'm looking forward to speaking to people within the lift industry outside of a sales environment, discussing issues and resolutions, so hopefully this will bring a greater level of cooperation and collaboration between us. We hope that it raises our profile and people start to recognise us - we're still fairly young in the lift world, and it's nice to be a part of it through LEIA.

What are your ambitions for the future?

Certainly to grow the business – we're very niche, so we're never going to be huge, but I'd love to build our client portfolio. I'd also like to bring more of the manufacturing inhouse. We're a 'Made in Britain' product; everything we do is either made here on our site or by very local companies. The item that comes the furthest away is our glass, which is 30 minutes away! Being close to Cambridge offers us a lot of local industry, including steelwork, bronzework and timberwork, which then gets assembled here. I'd like to bring all manufacturing under the same roof, which may be several years away. We have a three year warranty with our products, so it's important to us that we can guarantee the quality.

What do you think is the most important focus for the lift industry in the near future?

I think it has to be skills. To try and get those young people in and developing their careers. We are a team of only 14, but in the last couple of years, four of those who have started have been in their 20s and 30s. Our latest recruit is 18 years old and we're putting him through all the relevant training and getting him involved in the team. We want to get those young, enthusiastic people through the door to start sharing the wealth of knowledge that the older industry experts have. This is such an interesting industry that, certainly with us here at Lyfthaus, puts us in some fascinating places around the UK, and the world. We experience things we'd otherwise never see. It's vital to enthuse young people about our vibrant industry and capture their imagination.

What do you love most about the lift industry?

The variety. There's something new everyday – different places, different people, you never know what to expect when you come to work in the morning. Of course, it has its challenges, but the variety you get with Lyfthaus is like nothing you get anywhere else. I love it.

A fascinating insight to Lyfthaus and some of their projects – thank you to Darren for sharing with us.

Find out more about Lyfthaus at -

https://lyfthaus.com/

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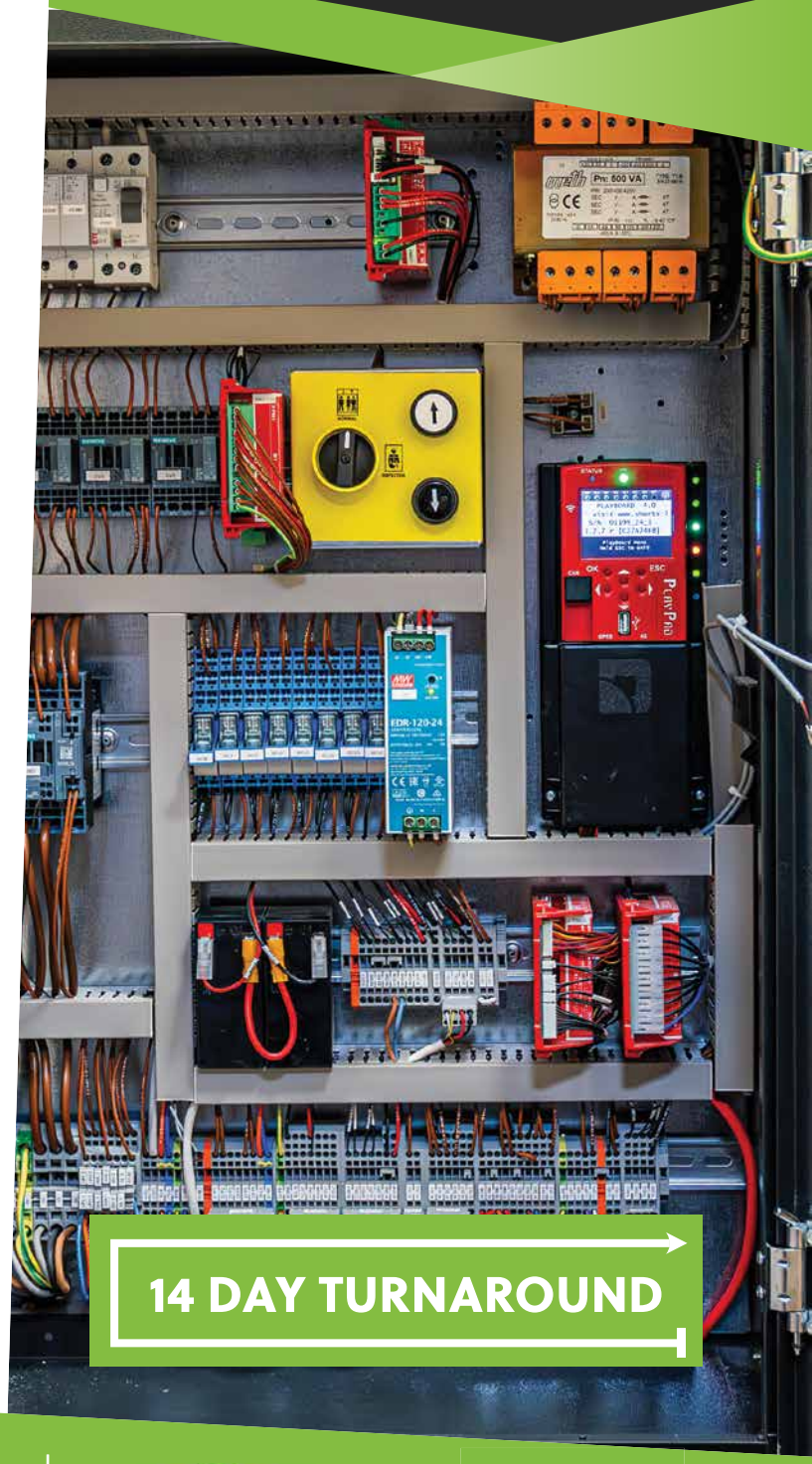

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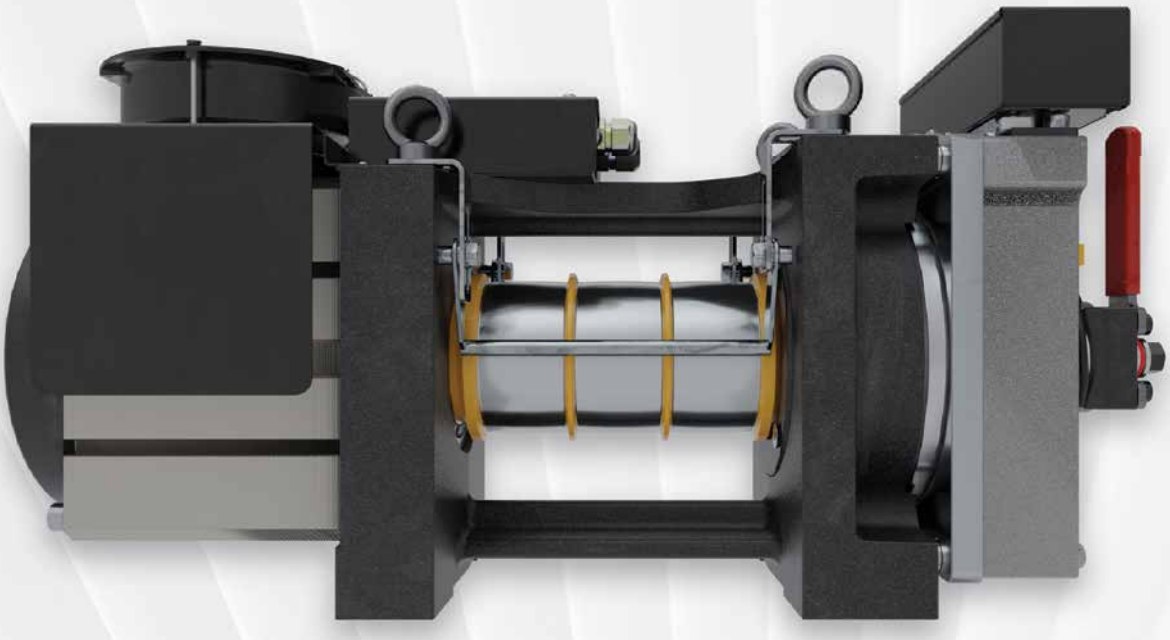

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CIBSE Lifts Group

EVACUATION, ENGINEERING, **TECHNOLOGY AND SAFETY**

All of these topics could be found at the 15th Lift & Escalator Symposium which took place at the Kettering Hotel & Spa on 18th & 19th September.

It was wonderful to welcome many old friends and new amongst the 120 delegates and conversations were wide, varied and frequently challenging across the two days.

The first session, chaired by Dave Cooper from LECS, focused on IoT & Technology. Rory Smith, Visiting Professor in Engineering/ Lift Engineering at the University of Northampton was first up. He explained how new technologies such as variable frequency drives can greatly improve escalator passenger safety. He also explored existing devices and procedures required by the ASME A17.1 code but not required by BS EN 115 that can greatly reduce the frequency of occurrence of entrapments as well as the severity of the harm caused by entrapments.

Matthew Davies, Business Development Manager for digital products and services at Memco (a brand of Avire) then presented the evolution of the design and provisioning of devices used by lift passengers to signal for help, from a bell on a rope to VoiP.

In the question session that followed Dave Cooper advised that the longest time a person has been stuck in a lift in the UK is 62 hours! Useful trivia for the pub quiz.

Bringing us back to technology, Daan Smans, President Business Development for IoT and Digital Products at Cedes AG of Switzerland looked at modelling failure detection of elevator doors through sensor fusion.

In an interactive presentation Thomas Ehrl from The University of Northampton started with Jimi Hendrix - whose iconic album Electric Ladyland was released the year Thomas was born - 1968 in case you wondered - and went on to talk about knowledge transfer in distance learning.

A state-of-the-art knowledge transfer model demonstrated the implication to the future concept design of enhanced learning courses in higher engineering education with a game changing potential for appropriate and modern 21st century learning, which is especially of interest in pandemic and crisis times.

Len Halsey, formerly of Canary Wharf, chaired the second session on Safety & Modernisation.

Paul Burns from D2E International VT Consultants Ltd presented a challenging paper on the hidden risks of battery failure in passenger lift emergency systems. Part of D2E's professional duties includes the regular condition and compliance auditing of 2,600 lifts across 20 diverse client portfolios throughout the UK. During 2023, 573 H&I reports were raised, and their data led to the alarming hypothesis that 18% of this portfolio's emergency batteries will be ineffective at any given time, and 10% of autodiallers will be entirely inoperative during a mains power failure. This raises the frightening prospect of large numbers of lift users being potentially trapped in the dark with no means of communication. This issue could be seen as a significant safety failing in the UK's (and potentially the global) vertical transportation industry. As well as highlighting this issue D2E will be championing an industry-wide campaign to address these safety-critical failings.

Mickey Grover-White, the LEIA Technical Manager, looked at the implications when modernising lifts which have been subject to a conformity assessment and accompanied with CE marking, the testing methods when modernising lifts and where the parameters of the lift are changed, and what testing requirements are required before placing the lift back into service.

Rory Smith finished Session 2 with a look at bow tie diagrams and how to employ them. Not something worn by James Bond but a graphic representation of a hazard and the mitigations that either reduce the probability of occurrence of a hazardous event or reduce the harm caused by the event. Bow ties help the team who is conducting a risk assessment by allowing them to visualise the issues involved.

After lunch the keynote speaker, Hywel Davies, the recently retired Chief Technical Office at CIBSE gave a fascinating and thought provoking talk about the Building Safety Act. He challenged the collective brains gathered in the room to think about the issues the BSA raises for the industry now and be proactive in their approach.

He framed his talk with the memorable answer United States Secretary of Defense Donald Rumsfeld gave to a question at a U.S. Department of Defense (DoD) news briefing on February 12, 2002:

…because as we know, there are known knowns; there are things we know we know. We also know there are known unknowns; that is to say we know there are some things we do not know. But there are also unknown unknowns—the ones we don't know we don't know…

He stressed that the BSA means there are significant pieces of legislation in place - this is happening and we should all be aware of the scale and scope of change. As the profession of Fire Engineer is to be recognised, should the lift sector also face regulation?

Hywel also referred to the recent Grenfell Tower Report, please take a look at his article on Page 30.

Day 1 proceedings concluded with Philip Hofer from Schindler Lifts, Hong Kong chairing a session on Traffic Simulation & Dispatching.

TAK Matthews, who has close to four decades experience in the construction and vertical transportation industry and is the principal consultant at TAK Consulting, visiting from India, gave a practical perspective in unravelling destination control systems based on his own extensive experience.

Lutfi Al-Sharif was the final speaker. A name well known in the industry, he is Professor of Building Transportation Systems at the Department of Mechatronics Engineering, The University of Jordan. His paper presented a machine learning application that could estimate the mix of traffic as well as the intensity of traffic in a building.

Day 2 was chaired by Nick Mellor, Managing Director at LEIA, on the very topical subject of Evacuation.

Richard Peters of Peters Research Ltd opened with Evacuation dispatching: strategies to get as many people out as possible as quickly as possible using lifts, exploring how to increase handling capacity so that lifts can help empty buildings as quickly as possible. You can read his paper in the Knowledge Bank on page 51

Kristian Farr, Senior Engineer from Sweco UK then looked at evacuation lift capacity assessments which are a requirement of the London Plan Guidance. Kris proposed a theoretical methodology to assess the evacuation lift capacity for a 34-storey development in London, with the assessment required by the building's fire strategy in line with the London Plan guidance. This study serves as a benchmark for the building design and evacuation planning, emphasising the importance of incorporating theoretical traffic analysis in the early stages of development to ensure safety and compliance with fire safety regulations.

Kristian's excellent presentation was awarded The Dr Gina Barney Emerging Excellence Award for Vertical Transportation for 2024. The award aims to acknowledge individuals who have demonstrated exceptional promise and dedication to advancing knowledge in the vertical transportation sector.

You can read his paper in the Knowledge Bank on page 62

An excellent panel discussion on Evacuation Lifts as a Means of Escape followed, with Hywel Davies, Adam Scott from Sweco, Eoin O'Loughlin, Associate Fire Safety Engineer at Arup and Matt Ryan of Red Brick Fire Consulting who left us with an excellent summation: **Access for all and Egress for all.**

Rachel Smalley was unable to join us but has written on the topic of vulnerable people on page 33 and we will return to the topic of Evacuation in future editions.

Everyone left for lunch with much to discuss.

The final session covered Engineering, chaired by Richard Peters.

First up was Stefan Voth, Technical Consultant at Applied Design – Cranes, reflecting on the EN 81-20 requirements on hydraulic buffers.

He was followed by Ioanna Sfampa, Innovation Researcher and Specialist in patents and intellectual property at KLEEMANN who presented a paper on the design of a compact air conditioning unit for elevators using CFD and thermoelectric coolers. This research was carried out as part of the project co-funded by the European Regional Development Fund and Greece.

We moved from air condition to earthquakes. Keisuke Minagawa, associate professor at Saitama Institute of Technology and an expert in seismic isolation and vibration control gave a paper on the Seismic Response Analysis of Lifting Ropes in the Development of Digital Twin Technology to Reduce Earthquake Disasters in Residential Buildings.

Unfortunately, the next speaker, Mohsen Seyyedi, currently pursuing an M.Sc. in Mechanical Design Engineering at Istanbul Technical University, was unable to be with us. Lutfi Al-Sharif stepped in to present the paper with an innovative approach that employs image processing enhanced by artificial intelligence within a fatigue testing setup. Utilising high-speed cameras, the system aims to detect the evaluation of fatigue failure. Overall, this research combines cutting-edge technology to enhance fatigue testing methodologies.

The final speaker was a familiar face at LES, Stefan Kaczmarczyk, Professor of Applied Mechanics and Postgraduate Programme Leader for Lift Engineering at the University of Northampton. As an expert in applied dynamics and vibration, computer modelling and simulation with applications to vertical transportation and material handling systems he was perfectly placed to end an excellent two days with a paper on The Strength and Design Criteria for a Lift Guiding System Revisited.

All in all an excellent two days, stimulating, challenging and educational. Thank you to all the speakers and contributors to the papers, so much work goes in to the presentations and it is very much appreciated.

A big thank you to all the exhibitors: Avire, CPA Automation, DAC, Dewhurst, DSW Solutions, Lester Controls, Sassi Lift Systems, Thames Valley Controls and the UoN.

The dates for 2025 are September 24th - 25th September, back at the Kettering Hotel - **get it in your diaries now!**


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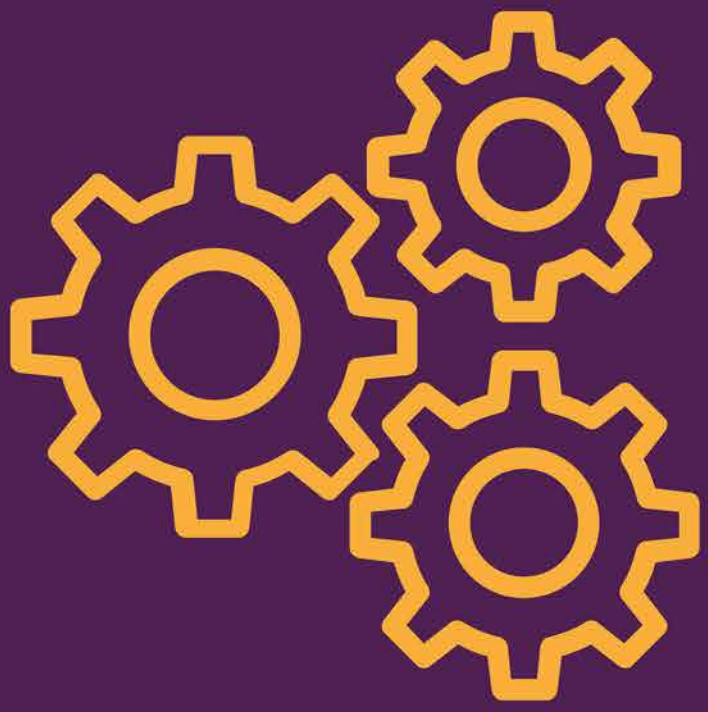

THE KNOWLEDGE BANK

LIFT & ESCALATOR SYMPOSIUM

This paper was first published at the 15th Symposium on Lift and Escalator Technologies, 18-19 September 2024, organised by The Lift and Escalator Symposium Educational Trust. For more information see ***www.liftsymposium.org***

EVACUATION DISPATCHING: STRATEGIES TO GET AS MANY PEOPLE OUT AS POSSIBLE AS QUICKLY AS POSSIBLE USING LIFTS

RICHARD PETERS
Peters Research Ltd., Bridge House, Station Approach, Great Missenden, Bucks, HP16 9AZ, UK

Keywords: Evacuation, dispatching, traffic calculations, simulation, handling capacity, fire, emergency.

Abstract: Modern lift dispatchers are designed to optimise passenger waiting and transit times, with a relatively small proportion of the total building population using the lifts in any 5-minute period. In an evacuation scenario, the passenger demand is significantly higher, and conventional dispatching strategies are no longer optimum. In this paper, the author explores how to increase handling capacity so that lifts can help empty buildings as quickly as possible. Lessons from round-trip time calculations and traditional dispatcher design strategies are considered to help understand how to optimise lift evacuation. Risk-based evacuation prioritising floors according to their likely order of being compromised is explored. New user interfaces are needed to inform and reassure anxious passengers waiting for evacuation.

1. INTRODUCTION

This paper provides insights into strategies and technologies for improving lift evacuation efficiency and thus enhancing safety in high-rise buildings.

Modern lift dispatcher systems are optimised for routine passenger flows, typically handling a small proportion of the building's population within a five-minute period. However, passenger demand surges during an evacuation, making conventional strategies ineffective.

This paper investigates methods to increase lift handling capacity for swift building evacuation. By examining round-trip time calculations and traditional dispatcher strategies, the study aims to optimise lift performance in emergencies. Additionally, it explores risk-based evacuation, prioritising floors based on their risk of being compromised.

New user interfaces are also discussed, emphasising the need to inform and reassure passengers during evacuation.

The requirements and design aspects of evacuation lifts have been extensively covered in various sources [1] [2] [3] [4] [5] [6] [7] and will not be the focus of this paper. However, to provide a complete understanding of the regulatory context, it is necessary to reference the International Building Code (IBC) [8] and ANSI A17.1 (ASME A17.1) [9], which are essential for guiding the design and operation of evacuation lifts in the U.S. The IBC addresses safety requirements during emergencies such as fire protection and communication systems, while ANSI/ASME A17.1 offers detailed technical standards for Emergency Power and Firefighter's Emergency Operation.

In contrast, prEN 81-76, a European standard, focuses specifically on the evacuation of persons with disabilities using lifts, emphasising accessibility and operational procedures unique to the European context. While the IBC and ANSI A17.1 provide broader safety guidelines, prEN 81-76 is tailored to ensuring safe evacuation for individuals with mobility impairments. Referencing these standards highlights the differences in regional approaches to evacuation lift design and implementation, contributing to a comprehensive understanding of the topic.

2. INCREASING HANDLING CAPACITY

2.1. LESSONS FROM ROUND-TRIP TIME CALCULATIONS

Consider the classical uppeak round-trip time calculation [1]

$$RTT = 2Ht_v + (S+1)t_s + 2Pt_p \quad (1)$$

where:

H Average highest reversal floor (value)

P Average number of passengers (persons)

RTT Average round trip time (s)

S Average number of stops (value)

tp Average single passenger transfer time (entry or exit) (s)

ts Time consumed in stopping (s)

tv Time to travel between two standard pitch adjacent floors at rated speed (s)

If we can reduce the number of stops (S) and the average highest reversal floor (H), the round-trip time (RTT) will become smaller. This is what happens when you implement a group collective down-peak algorithm [10], as illustrated in Figure 1. The building is divided into sectors, and the dispatcher sends a lift to each sector's top-down call in turn. The lifts are not fixed to a particular sector as the round-trip is longer for a higher sector than for a lower sector. In this specific implementation, if the lift is not full when it reaches the bottom of its sector, it can stop for additional passengers as it passes through lower sectors.

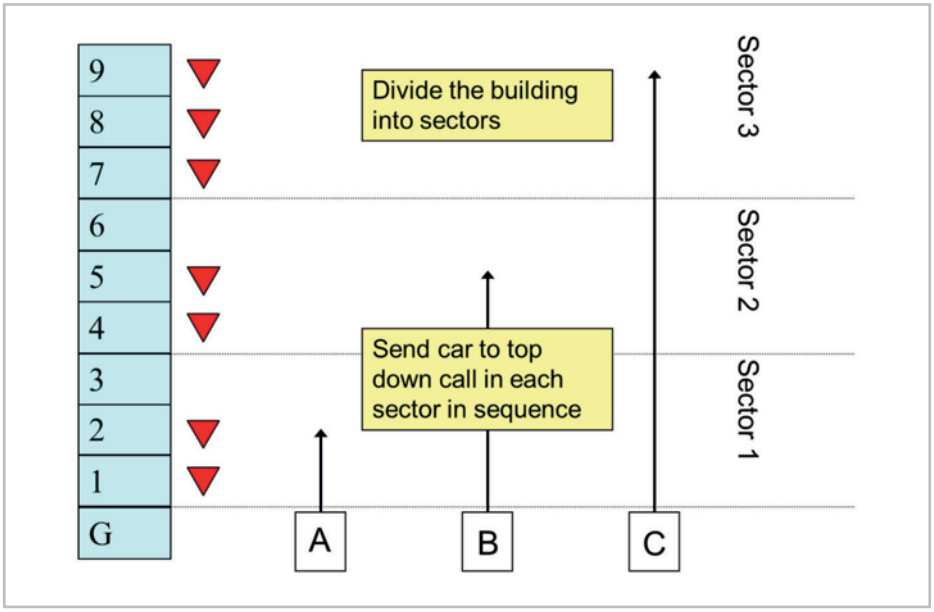

Figure 1 Down peak algorithm

2.2. UPPEAK HANDLING CAPACITY USING SIMULATION

To illustrate the impact, consider a simulation applying a group collective uppeak dispatcher algorithm and step profile where, every five minutes, the uppeak passenger demand increases by ten persons per five minutes, see Figure 2.

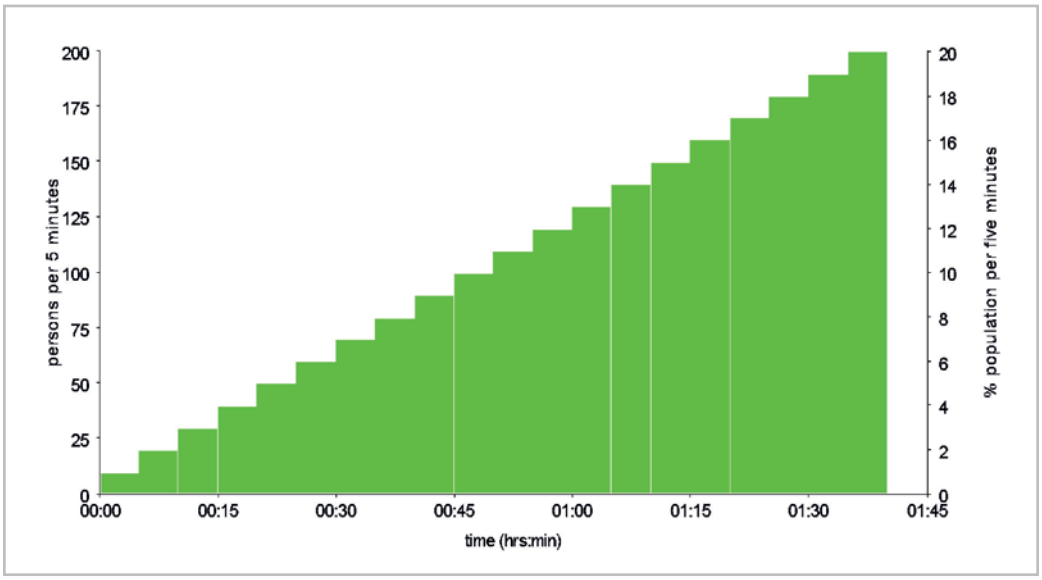

Figure 2 Uppeak passenger demand (green incoming, interfloor yellow, outgoing red)

The building has a population of 1000 people over 12 floors. The lift configuration is a six-car group of 1600 kg cars operating at a speed of 1.6 m/s.

By 01:10, every car is leaving the ground floor full, with the capacity factors applied such that up to 16 people load a nominally 21-person car; see Figure 3.

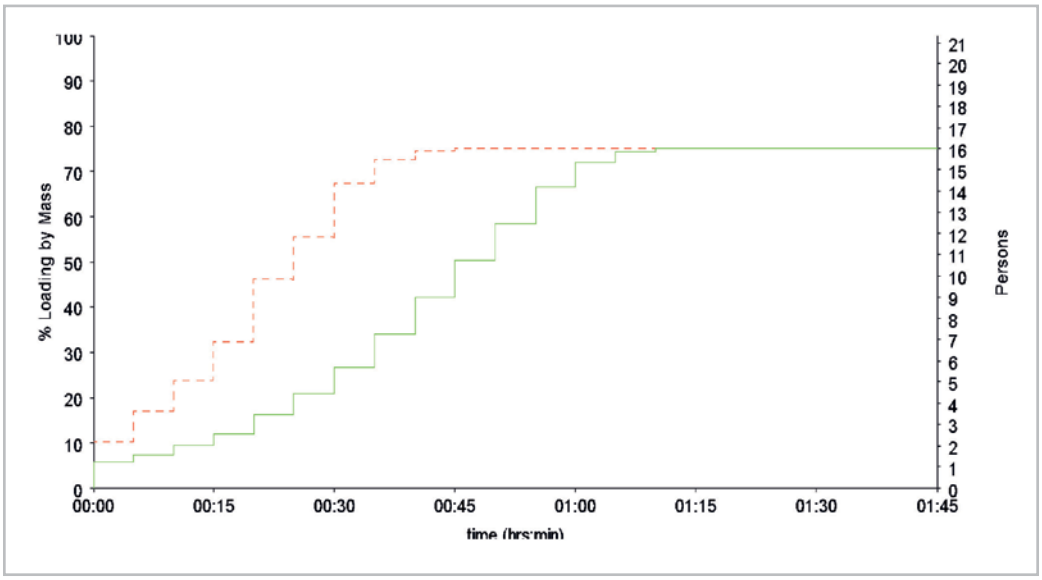

Figure 3 Car loading on departure home floor (green average, red maximum)

Counting the number of people loading and unloading the lift, therefore, shows the limit of the system's uppeak handling capacity. As illustrated in Figure 4, the limit of handling capacity is 133 persons per five minutes; any greater passenger demand than this gets added to the queue.

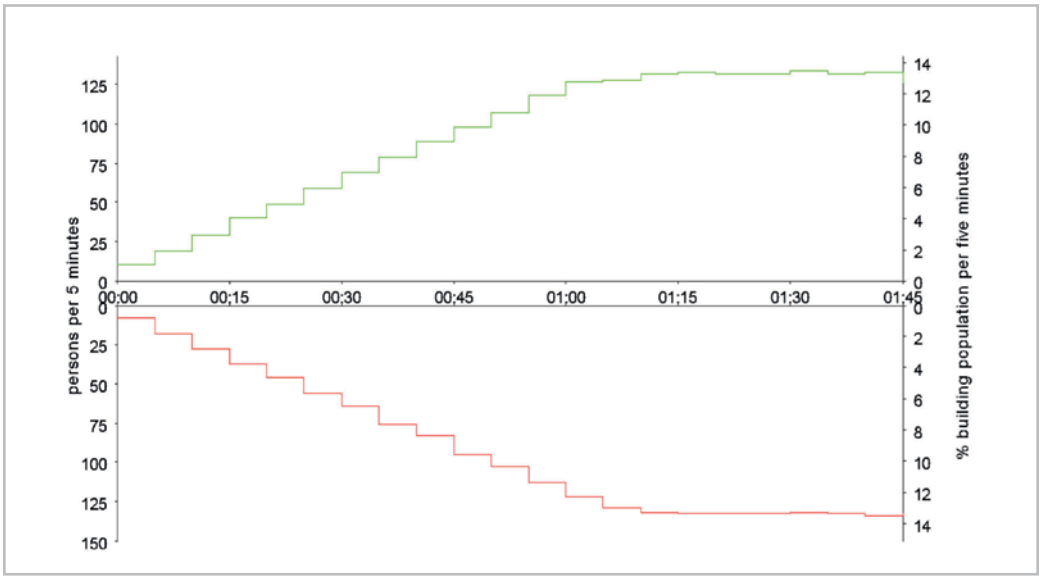

Figure 4 Uppeak passenger transfer (green loading, red unloading)

2.3. DOWN PEAK (EVACUATION) HANDLING CAPACITY USING SIMULATION

Now consider a down peak passenger demand, see Figure 5.

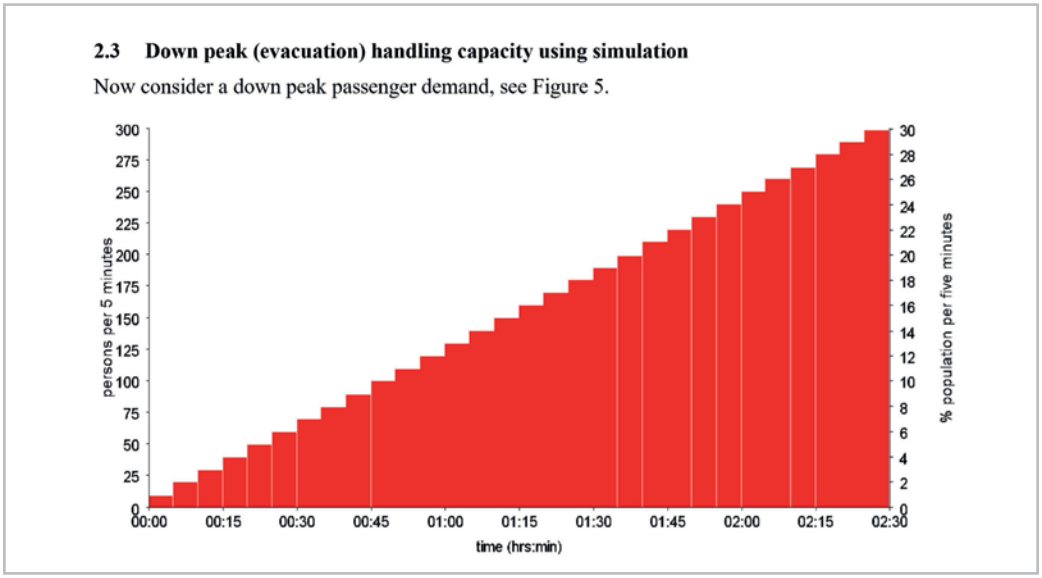

Figure 5 Down-peak demand (green incoming, interfloor yellow, outgoing red)

Applying the down-peak group collective algorithm [10], the handling capacity is 181 persons per five minutes; see Figure 6. **This is an increase of 36% over the uppeak handling capacity.**[1]

[1] The down-peak group collective algorithm is a simple but transparent algorithm, which is why it has been used for this illustration. Intelligent control systems [12] [13] increase handling capacity in different ways, but ultimately, the outcome of their algorithms is to reduce the number of stops. If there is a reliable way of knowing the number of people waiting on the floor, an intelligent evacuation algorithm can be optimised further [11].

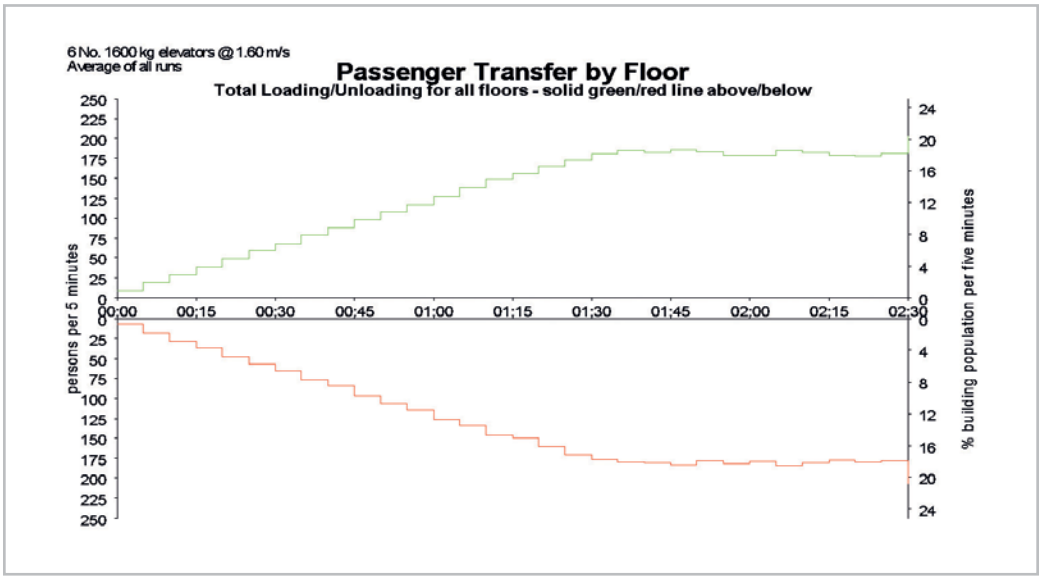

Figure 6 Down-peak passenger transfer (green loading, red unloading)

If people on every other floor are asked to walk down one level, the average number of stops and the average highest reversal floor can be further reduced. In the example scenario, this resulted in a handling capacity of 258 persons per five minutes, see Figure 7. This represents a 94% increase over the uppeak handling capacity.

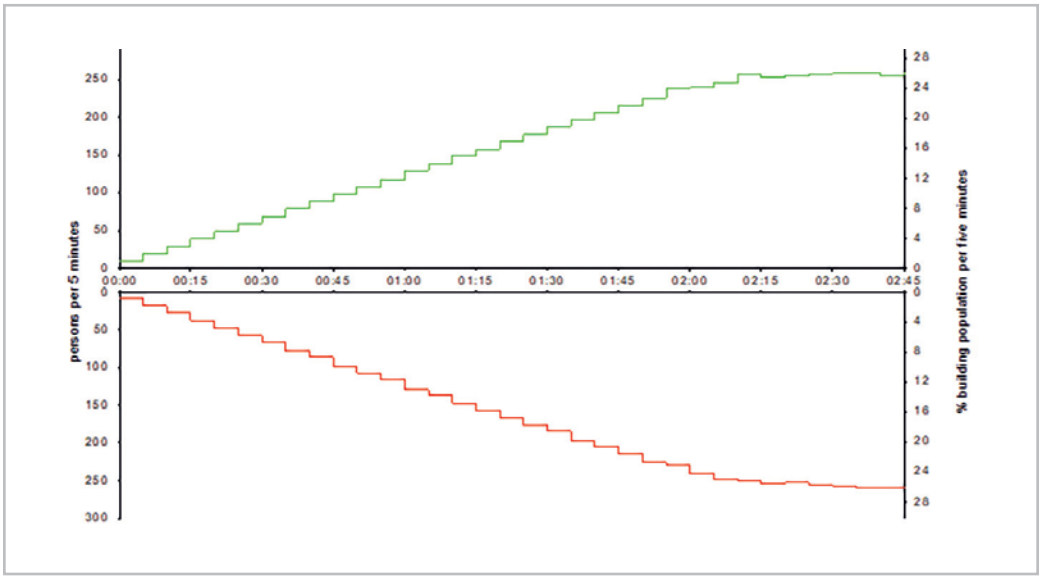

Figure 7 Down-peak passenger with reduced stops transfer (green loading, red unloading)

Simulations demonstrate that planning for able-bodied individuals to walk down to refuge floors, even if only a few floors, will significantly accelerate the evacuation of high-rise buildings. Asking people to walk further, thereby allowing fewer refuge floors, can maximise the additional handling capacity.

Consideration must be given to the number of floors that building occupants can reasonably be expected to walk and the lift lobby space available on refuge floors. Separate lift service from every floor will be required for those unable to walk.

2.4. PARALLELS WITH OTHER DISPATCHING CONCEPTS

As an aside, the thought processes introduced in the context of evacuation dispatching are similar to those used when discussing destination control, i.e. increasing handling capacity by reducing the number of stops and average highest reversal floor. The optimisation goals applied in destination control typically group people going to the same floors, reducing the number of stops. Consider uppeak traffic with conventional control as illustrated in Figure 8. Destination control, by grouping passengers travelling to the same destination and considering waiting and transit time, results in a reduced number of stops and a lower average highest reversal floor, see Figure 9.

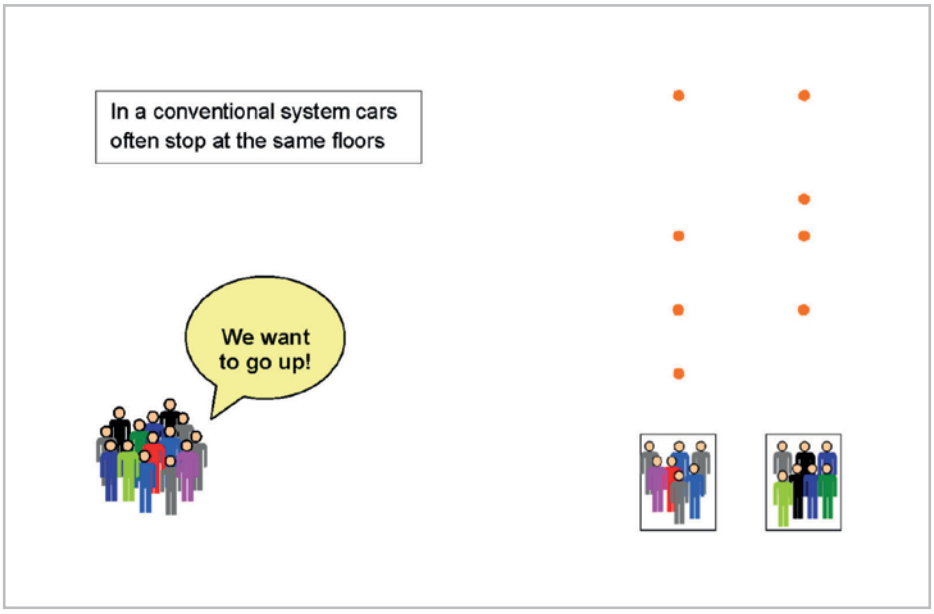

Figure 8 Conventional control (up and down button system) during uppeak

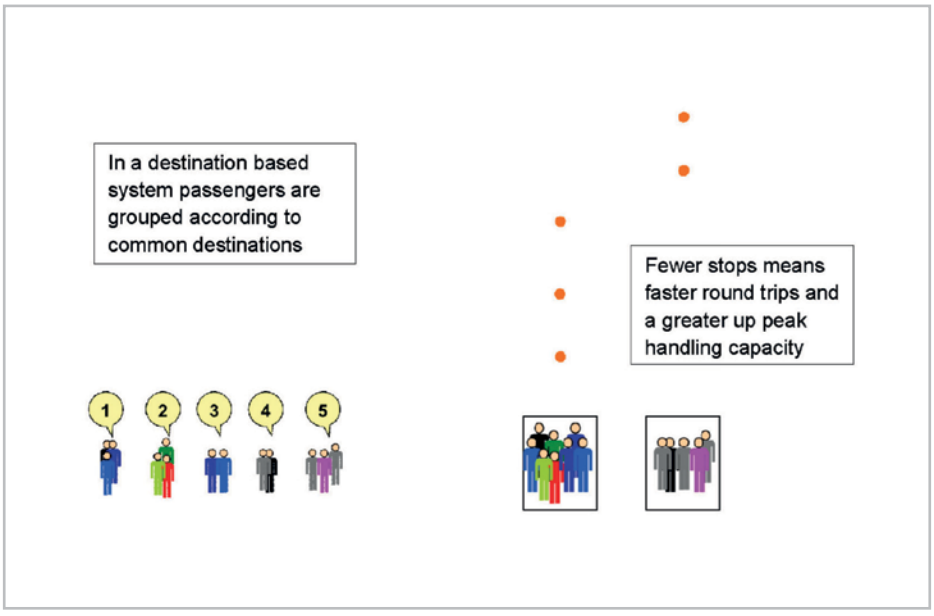

Figure 9 Destination control during uppeak

2.5. LESSONS LEARNT

Handling capacity is related to traffic mix, i.e. the mix of uppeak, down-peak and interfloor traffic.

Handling capacity is also related to dispatching strategies. Classical dispatcher logic has been used to illustrate this. Even with intelligent dispatcher algorithms, evacuation must be explicitly considered. Dispatchers with optimisation goals to reduce waiting and transit times will differ in operation from dispatchers with an optimisation goal of maximising handling capacity.[2] The latter is what is required to evacuate a building more quickly.

3. RISK-BASED DISPATCHING

If a dispatcher is told the order of risk to passengers on different floors, it can be programmed to prioritise floors. For automatic operation, this requires an interface between the fire detection system and the dispatcher.

For example, if there was a fire on the 8th floor, the dispatcher could serve calls according to the priorities listed in Table 1.

Table 1 Dispatcher priorities in case of fire

Floor Name	Incident	Dispatcher priority
Level 12		4
Level 11		3
Level 10		2
Level 9		1
Level 8	FIRE	No call accepted
Level 7		5
Level 6		6
Level 5		7
Level 4		8
Level 3		9
Level 2		10
Level 1		11
Ground		No call accepted

[2] In its most basic form, a dispatcher with an optimisation goal of maximising handling capacity prioritises reducing the number of stops per round trip over longer waiting times, even if calls are bypassed on several round trips.

In this example, an assumption is made that it is unsafe for the lift to stop on level 8. However, this limitation may not be needed in some buildings, especially if there are large floor plates and the fire detection system can communicate to the dispatcher that the lifts are safely separated from the fire. In A17.1 and prEN81-76, the evacuation lifts are assumed to be protected from the fire, so the fire floor will be served.

The dispatcher would not accept calls from the ground floor as this contradicts the objective of evacuating the building. Separate firefighting lifts are assumed.

This is a generalised solution; the concept can be used to apply specific recommendations, for example, as provided in A17.1 [9] where the priority order would be (i) the fire floor, (ii) two floors above the fire floor, (iii) the two floors below the fire floor, (iv) the rest.

In the context of destination call systems, only the ground floor button would be shown on the destination input touch panel. In the context of a conventional control system, only the down-landing call and ground-floor car call buttons would be active; the car call to the ground floor is likely to be registered automatically.

Some design decisions need to be made in the dispatcher implementation. For example, if the lift is not filled at Level 9, should it travel to Level 10 and other high floors before reversing and taking a full car load to the ground floor? And if travelling down, at what threshold should the lift bypass other floors where passengers are waiting to be evacuated? Barney [1] suggests a self-evacuation touch panel, which could assist the dispatcher in supporting the dispatching algorithm to send a car when a whole car load is ready to be collected; this information could not be determined with AI analysis of video images or light curtains on the entrance to lift lobbies [14].

Even with risk-based evacuation dispatching, handling capacity can be increased by applying the strategies discussed in section 2; by asking able-bodied people to walk one or more floors, see Table 2, we can reduce the evacuation time.

Table 2 Dispatcher priorities with increased handling capacity

Floor Name	Incident	Dispatcher priority
Level 12		No call accepted
Level 11		3
Level 10		No call accepted
Level 9		1
Level 8	FIRE	No call accepted
Level 7		3
Level 6		No call accepted
Level 5		4
Level 4		No call accepted
Level 3		5
Level 2		No call accepted
Level 1		6
Ground		No call accepted

4. USER INTERFACES

Longer-than-normal wait times for many will be necessary for the most efficient evacuation, as the dispatcher should minimise risk and total evacuation time rather than individual waiting times; reducing stops per round trip increases handling capacity at the expense of waiting time. Lower-risk floors are likely to be evacuated last.

The lifts must operate differently to evacuate a building as quickly as possible, and good communication with waiting passengers is essential. The challenges faced include:

1. Stress caused by alarms sounding and an emergency being announced.

2. Queues and long waiting times due to high passenger demand.

3. An unfamiliar lift operation mode.

4. Passengers on low-risk floors feeling left behind.

Without effective communication, there is likely to be heightened anxiety and a loss of trust. Having fire marshals guide the evacuation will support this. Still, the author believes the lifts should operate automatically and provide all the necessary guidance in case a fire marshal is unavailable.

Useful things for lift displays to indicate include:

1. The lifts are operating in evacuation mode

2. An estimated wait time for the floor to be served

3. Guidance walking down to a nominated refuge floor for faster service

Regular evacuation drills will support the most effective evacuation strategy in emergencies.

Effective user interfaces are crucial in lift evacuation strategies, ensuring that building occupants are informed, reassured, and guided appropriately during emergencies. The design of these interfaces must address the need to communicate essential information rapidly while also maintaining occupant trust throughout the evacuation process.

4.1. REAL-TIME STATUS INFORMATION

A key component of a successful user interface is the provision of real-time status information. Occupants waiting for evacuation lifts must be kept informed about the lift's status, such as expected wait times and operational status. Research has shown that uncertainty and anxiety are significantly reduced when occupants receive clear and timely updates, including countdown timers or queue positions [15]. Moreover, studies indicate that as the height of the floor increases, so does the willingness of occupants to use lifts during an evacuation [16]. This underscores the importance of providing detailed and reassuring information, especially for occupants on higher floors who may be more inclined to wait for a lift rather than using the stairs.

4.2. VISUAL AND AUDITORY CUES

In addition to textual information, using visual and auditory cues is essential to attract attention and convey critical messages effectively. Bright, high-contrast signs paired with flashing lights can significantly improve visibility and comprehension, especially in low-visibility conditions such as smoke-filled environments. Green flashing lights have been shown to effectively guide occupants towards exits and could similarly be used to direct them towards evacuation lifts [15]. Additionally, auditory signals should accompany visual cues to ensure that individuals with sensory impairments are also adequately informed.

4.3. ADDRESSING PSYCHOLOGICAL FACTORS

The psychological impact of waiting during an evacuation cannot be overlooked. Anxiety tends to make waits seem longer, especially in uncertain or high-stress situations. User interfaces must therefore provide explanations for any delays, coupled with reassurance that the lift system is still functioning as intended. Simple, credible messages from recognised authorities, such as building management or the fire brigade, can enhance trust and compliance. For instance, a message could state: "This is [Building Manager]. The next lift will arrive in [X minutes]. Please wait here or use the nearest stairway if you prefer." This is particularly important for occupants on higher floors, who, as noted, are more likely to opt for lift evacuation [15] [16].

4.4. ROLE OF LIFT EVACUATION AND FIRE MARSHALS

The standards A17.1 [9] and prEN 81-76 [5] describe the implementation of automated lift evacuation systems designed to commence immediately after a fire has been detected. These systems allow for self-evacuation by building occupants, reducing the reliance on manual coordination. However, the role of lift evacuation and fire marshals remains critical. Fire marshals are responsible for overseeing the evacuation process, ensuring that lifts are operating correctly, and that occupants are following the correct procedures. They provide an additional layer of safety by monitoring the situation, managing any potential issues with the lifts, and assisting occupants, particularly those with disabilities or those experiencing difficulties. Fire marshals also play a vital role in coordinating with emergency services, ensuring that the lift systems are used effectively while preventing congestion and confusion in the evacuation zones.

4.5. INCLUSIVITY AND ACCESSIBILITY

User interfaces must be designed with all occupants in mind, including those with disabilities. This includes providing instructions in multiple formats—visual, auditory, and tactile—so everyone receives the necessary information. For example, tactile signs and Braille should be used alongside visual displays to ensure that visually impaired individuals are not excluded from receiving critical evacuation instructions.

4.6. TESTING AND DRILLS

The effectiveness of these user interfaces should not be assumed; they must be tested regularly through evacuation drills. Testing ensures that the messages and interface elements are clear, effective, and understood by all building occupants. Regular drills also help familiarise occupants with the emergency procedures, reducing confusion and improving overall evacuation efficiency.

By integrating these elements into the design of lift user interfaces, we can significantly enhance the safety and efficiency of high-rise building evacuations. These strategies align with the best practices and highlight the increased willingness of occupants on higher floors to use lifts during evacuations [15] [16]. Additionally, the role of fire marshals, as supported by the A17.1 and prEN 81-76 standards, is crucial in ensuring the smooth operation of automated evacuation systems and the safety of all building occupants.

5. CONCLUSION

This paper highlights the importance of optimising lift dispatcher strategies for emergency evacuations. Traditional lift systems, designed for normal passenger flow, fall short in high-demand scenarios such as evacuations. By leveraging round-trip time calculations and classical dispatcher strategies, this study has demonstrated methods to significantly enhance lift handling capacity during emergencies.

Key considerations include the effectiveness of planning for able-bodied individuals to walk down a few floors to refuge areas, thereby improving overall evacuation efficiency. Further life-saving options include risk-based evacuation strategies prioritising floors based on risk levels.

Introducing new user interfaces is also essential to communicate effectively with passengers, reducing anxiety and maintaining trust during evacuation.

These insights underscore the need for ongoing development and implementation of advanced evacuation strategies and technologies. As building designs and standards evolve, incorporating sophisticated evacuation lifts and user-friendly interfaces will be paramount in ensuring the safety and swift evacuation of high-rise buildings during emergencies. This study provides insights for future research and development in building safety and emergency management.

REFERENCES

[1] G. Barney, "Capacity calculation for evacuation lifts (the London Plan)," 7 June 2022. [Online]. Available: https://www.youtube.com/watch?v=6Cscp19FEes. [Accessed 26 July 2024].

[2] British Standards Institution, *BS 9991:2015 - Fire safety in the design, management, and use of residential buildings. Code of practice,* BSI Standards Limited, 2015.

[3] British Standards Institution, *BS 9999:2017 - Fire safety in the design, management, and use of buildings. Code of practice.,* BSI Standards Limited, 2017.

[4] British Standards Institution, *BS EN 81-72:2018 - Safety rules for the construction and installation of lifts - Particular applications for passenger and goods passenger lifts - Part 72: Firefighters lifts,* BSI Standards Limited, 2018.

[5] CEN, *prEN 81-76:2019 - Safety rules for the construction and installation of lifts – Particular applications for passenger and goods passenger lifts – Part 76: Evacuation of persons with disabilities using lifts,* European Committee for Standardization, 2019.

[6] *Greater London Authority, The London Plan 2021*, London: Greater London Authority, 2021.

[7] N. Mellor, "Challenges to Drafting a Standard for the Evacuation of Disabled People Using Lifts," in *Proceedings of the 13th Symposium on Lift & Escalator Technologies,* Northampton, 2022.

[8] International Code Council, *International Building Code (IBC) 2021,* International Code Council, 2021.

[9] ASME, *ANSI/ASME A17.1-2019: Safety Code for Elevators and Escalators,* American Society of Mechanical Engineers, 2019.

[10] Peters Research Ltd, "Elevate Traffic Analysis and Simulation Software," [Online]. Available: www.peters-research.com.

[11] M.-L. Siikonen and J. Sorsa, "Elevator Evacuation Algorithms," in *Pedestrian and Evacuation Dynamics,* Springer, 2011, pp. 637-647.

[12] R. Smith and R. Peters, "Enhancements to the ETD Dispatcher Algorithm," in *Elevator Technology 14,* The International Association of Elevator Engineers, 2004.

[13] M.-L. Siikonen and H. Hakonen, "Efficient Evacuation Methods in Tall Buildings," in *Elevator Technology 12 Proceedings of Elevcon 2002,* Milan, 2002.

[14] M. Guidotti, "Smarter Buildings: IoT-enhanced Traffic Analysis Embedded in Lift Sensors," in *Proceedings of the 14th Symposium on Lift & Escalator Symposium,* Northampton, 2023.

[15] E. D. Kuligowski and B. L. Hoskins, "Elevator Messaging Strategies," in *National Institute of Standards and Technology (NIST),* 2012.

[16] M. J. Kinsey, E. R. Galea and P. J. Lawrence, "Human Factors Associated with the Selection of Lifts/Elevators or Stairs in Emergency and Normal Usage Conditions," *Fire Technology,* vol. 48, no. 1, pp. 3-16, 2012.

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THEORETICAL EVALUATION OF EVACUATION LIFT CAPACITY ASSESSMENTS

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Keywords: Evacuation Lift Capacity Assessment, Evacuation Lifts, Lift traffic analysis.

Abstract: Evacuation lift capacity assessments are a requirement of the London Plan Guidance which states buildings should "be designed to incorporate safe and dignified emergency evacuation for all building users".

Where designated in the approved Fire Strategy, lifts can be used for evacuation purposes and "a minimum of one lift per core, or more subject to capacity assessments" should be provided.

This paper proposes a theoretical methodology to assess the evacuation lift capacity for a 34-story typical office development in London, with the assessment required by the building's Fire Strategy in line with the London Plan Guidance.

A phased evacuation strategy has been specified by the Fire Engineer and theoretical lift traffic analysis has been undertaken to estimate the total time to complete Phase 1 of the evacuation, for a series of fire floors throughout the building.

This report will highlight the agreed assumptions for the development and total evacuation times, and provide information regarding the minimum required space-take for passengers who require lifts for evacuation within the refuge space provided in the protected lobby.

This study serves as a benchmark for building design and evacuation planning, emphasising the importance of incorporating theoretical traffic analysis in the early stages of development to ensure safety and compliance with fire safety regulations.

1. INTRODUCTION

Evacuation lifts are nothing new in the Buildings industry. They have been provided in varying capacities, to varying codes and standards, around the world for many years. Evacuation lifts are now coming to prominence in London, and other parts of the UK, to ensure dignified emergency evacuation is provided for all building users.

The purpose of this paper is to provide a summary of the methodology used to assess the evacuation lift capacity for an office development in London, in line with the building's approved Fire Strategy and London Plan guidance.

Theoretical lift traffic analysis using Elevate™ has been undertaken to determine the estimated total time to complete Phase 1 of the evacuation for an arbitrary series of fire floors at levels 6, 8, 20 and 33 in a 34-storey building. The series of floors have been chosen in alignment with the building's Approved Fire Strategy to indicate how evacuation may take place throughout the height of the building and is not representative of multiple fires happening in the building.

1.1. THE LONDON PLAN

The draft London Plan was introduced in 2018 which set out a comprehensive set of criteria to "consider the impacts on equality, the environment, health, community safety and natural habitats" [1] in London.

In 2021 the London Plan was formally introduced. Policy D5 of the London Plan sets out the requirements for *"the highest standards of inclusive design" stating that developments should "be designed to incorporate the safe and dignified emergency evacuation for all building users".* Policy D5 further states that *"where lifts are installed, as a minimum at least one lift per core (or more subject to capacity assessments) should be a suitably sized fire evacuation lift suitable to be used to evacuate people who require level access from the building"* [2].

Despite being issued in 2021, there is a lack of clarity on how to perform a lift capacity assessment and what an acceptable outcome/time to evacuate a building may be. As a VT consultant, it is understood that others, such as the Fire Engineer, London Fire Brigade and Building Control, will use the Evacuation Lift Capacity Assessment (where undertaken) to determine whether the theoretical Evacuation lift capacity is acceptable in line with the relevant policy documents.

"The London plan is a legally part of each of London's Local Planning Authorities Development Plan and must be taken into account when planning decisions are taken in any part of Greater London" [3] [4]. Depending on the Guidance provided by the Fire Engineer during the design stages, an Evacuation Lift Capacity Assessment will need to be considered and/or undertaken.

1.2. BUILDING SAFETY ACT

Following on from the Grenfell Tower tragedy in 2017, a renewed spotlight has been put on life safety in buildings in the UK. This tragedy has acted as a catalyst to ensure that life safety is at the core of building design and provided the requirement for an adequate evacuation strategy using lifts [5].

1.3. BS 9999, BS9991 AND PREN 81-76 (DRAFT)

The following documents are often used by Fire Engineers to define the Fire Strategy for the relevant development:

- BS 9991:2015 – Fire Safety in the design Management and use of Residential buildings – Code of Practice.
- BS 9999:2017 – Fire Safety in the Design, Management and use of Buildings – Code of Practice

At the time of writing this report (June 2024), BS 9999 is the only formal document which defines an Evacuation Lift and its usage. As such, where evacuation lifts are required as part of the Fire Strategy (notably to satisfy the London Plan), the Evacuation Lift will need to be designed and installed in line with the requirements as set out in BS 9999 [6]. Where evacuation lifts are required in a residential building, BS 9991 refers to the requirements as set out in BS 9999 [7].

These documents also currently define the only acceptable means of evacuation. This ensures that an operator will be available and use the lifts to evacuate the relevant population of the building. Section 1.4 will further define this operation. An operator is defined as a person who is trained to use the lifts in the event of an evacuation and their duties should include "taking control of the lift and operating the evacuation lift switch", "determining the part of the building as being the location of the fire, and determining the storeys in which people are awaiting assistance and proceed to move people requiring assistance to the final exit level" [6]. For the purposes of this report, it is assumed that an operator will always be available at this building and that this is included in the building management plan.

At the time of writing this report (June 2024) prEN 81-76:2023 (E) – Evacuation of Persons with Disabilities Using Lifts [8], has not been formally released by the British Standards Institute [9]. The following information may therefore not be applicable subject to the final release of this standard.

This standard defines usage cases for evacuation lifts, as well as requirements for the construction and installation of evacuation lifts. prBS EN81-76 proposes three types of operational modes for evacuation, these are "operator assisted evacuation", "automatic evacuation operation" and "remote assisted evacuation" [8].

1.4. BEHAVIOR OF EVACUATION LIFTS IN A FIRE / EVACUATION EVENT (BS 9999)

All the proposed evacuation lifts in this development are combined Passenger / Evacuation lifts in line with the building's Fire Strategy. The lifts will operate as standard passenger lifts where an emergency evacuation is not occurring. It should be noted that these lifts in this development specifically do not have firefighters functionality.

Once an emergency signal is received, the evacuation lifts shall be recalled to the designated evacuation exit landing as specified in the Fire Strategy and in compliance with BS 9999.

Once the lifts have been recalled to the designated landing, the lift doors will open to allow any passengers within the lifts to exit and stay parked at the designated landing with the doors open.

The lifts will then be changed into evacuation mode by the operator via the evacuation panels at the designated landing. This will allow the lifts to be controlled from the lift car via the car operating panel. Upon changeover, this will also ensure that the evacuation communication systems between the main evacuation floor and refuge spaces will become active.

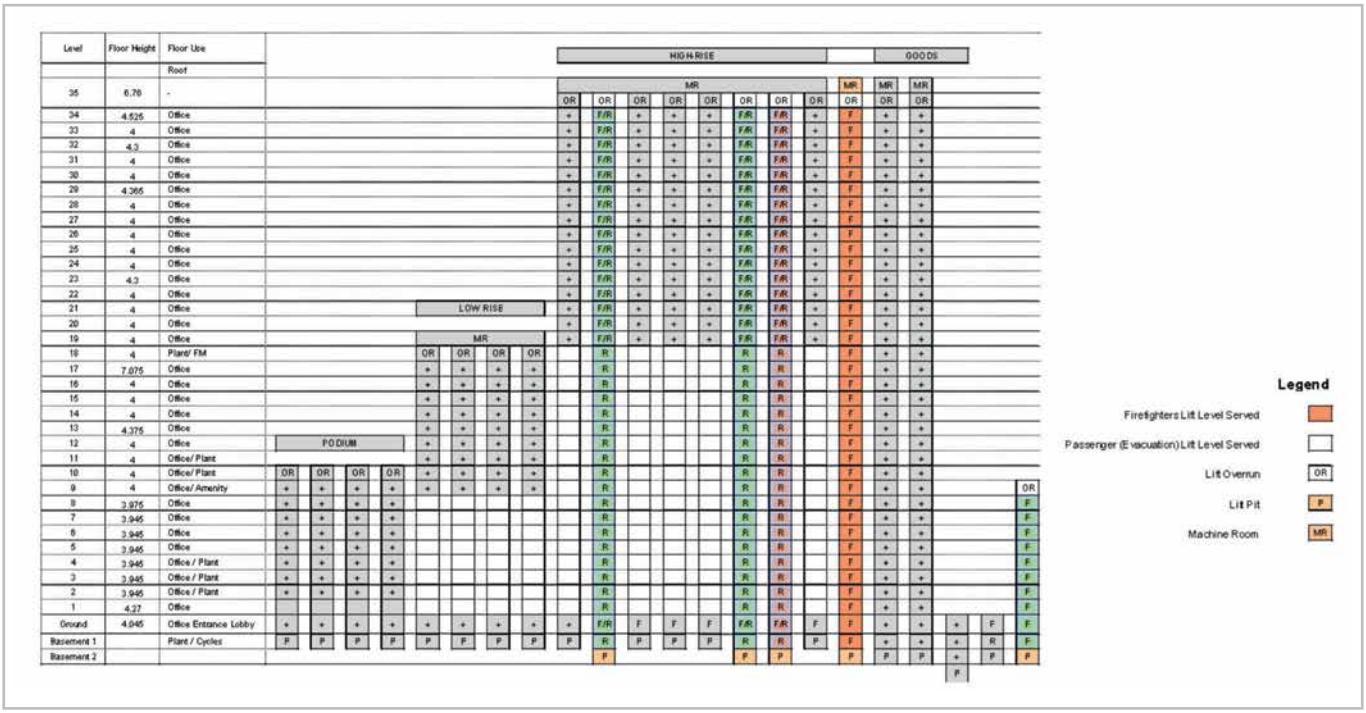
At the time of writing, the evacuation lifts are assumed to be BS 9999 compliant and installed as appropriate for operator-assisted evacuation. It should be noted that the publishing of EN 81-76 may place additional requirements on the operation of the evacuation lifts which may change the results of the analysis presented in this report.

2. BUILDING OVERVIEW

The development will comprise levels sub-basement (B2), Basement (B1), Ground (G), Levels 1-34 (L1-34) and roof plant areas. It is proposed that End of Trip (EoT) facilities are provided at B1, office reception at G, and office space at L1-16, 18 and L20-34. An office amenity will be provided at L9. Plant spaces are provided at L17, 19 and roof level.

Two combined Passenger / Evacuation lifts have been provided for the building within the central passenger lift cores. A third Passenger / Evacuation lift has been provided in a secondary core. These lifts will primarily function as passenger lifts until an emergency evacuation is required, where the functionality will be changed to evacuation mode.

The lifting strategy diagrammatic can be seen in Figure 1 below.



3. DESIGN CRITERIA

The designated Fire Strategy for this development requires a phased evacuation approach, with the evacuation lifts evacuating office users from their respective office floors to the main Evacuation Exit Landing at Ground.

The proposed evacuation plan will ensure that occupants on the fire floor and the floor immediately above the fire floor will be directed to evacuate immediately upon activation of the automatic fire detection system. Once the initial two floors are evacuated, phase 2 will commence where the next two floors are instructed to evacuate, starting with the floors above the fire floor and then working down the building. In the proposed evacuation scenario, an operator and designated person-assisted process will be undertaken, meaning that once lifts are in evacuation mode, it will require somebody to be in the lift at all times to operate the lift via the lift car controls.

The following assumptions have been agreed as suitable by the fire Engineer in RIBA Design Stage 3 and are proposed in line with how the evacuation scenario for this building is expected to unfold.

Agreement has also been made with the accessibility consultant on the project where applicable.

3.1. VACUATION LIFT PROVISION

The building consists of three cores; therefore, three passenger evacuation lifts have been provided within the initial building design, in line with the Fire Strategy requirements and the London Plan requirement for the provision of one evacuation lift per core. These lifts are proposed as follows:

PEL12 – 1 x 1275 kg (17P) Passenger / Evacuation lift at a rated speed of 5.0 m/s serving levels B1, G, L1-34. PEL12 will be provided with a clear internal lift car size of 1500 mm (w) x 1900 mm (d) and a resulting car area of 2.95 m^2.

PEL15 – 1 x 1275 kg (17P) Passenger / Evacuation lift at a rated speed of 6.0 m/s serving levels B1, G, L1-34. PEL12 will be provided with a clear internal lift car size of 1500 mm (w) x 1900 mm (d) and a resulting car area of 2.95 m^2.

PEL16 – 1 x 750 kg (10P) Passenger / Evacuation lift at a rated speed of 1.6 m/s serving levels B1, G, L1-8. PEL16 will be provided with a clear internal lift car size of 1100 mm (w) x 1600 mm (d) and a resulting car area of 1.76 m^2.

3.2. POPULATIONS

Between Levels B1, G, and L1-8 three evacuation lifts are provided. From L9-34, two evacuation lifts have been provided.

The populations per lift have been determined on a pro-rata basis as defined by the available lift car area. This means that PEL16 (750 kg / 10P) will transport 23% of the population who require the use of lifts for evacuation. PEL12 and PEL15 will therefore each transport 38.5% of the population who require the use of lifts for evacuation.

From L9-34 it is it is assumed that in an evacuation scenario, each lift will transport the same proportion of people as each lift has the same capacity. The assumed populations have therefore been halved.

The populations utilized in this assessment have been agreed by the Fire Engineer, as it is assumed that people will travel to the nearest evacuation lift and wait. Should there be a significant queue, they may travel to an alternative lift. The Fire engineer has assumed that the queue lengths will self-regulate in this way. Furthermore, a user who will require the lift for evacuation should have been made aware of their specific evacuation plan for the building.

3.3. USER PROFILES

In agreement with the Fire Engineer and Accessibility Consultant, the proposed quantity and mix of users who will require a lift to be evacuated have been defined.

These figures are based on The Department for Work and Pensions (DWP) Family Resource Survey which states that 15% of the population in the London area is classed as having some sort of disability. Of this 15%, 41% of respondents had a mobility impairment, and 34% had a stamina/breathing/fatigue impairment [10]. These figures form the basis of how many users are likely to need the lifts to evacuate the building.

This group of people have been split up into three distinct categories in line with the data provided by DWP:

- Occupants with mobility impairment.
- Occupants with stamina/breathing issues/fatigue.
- Occupants who use a wheelchair.

The total quantity of users assumed within the evacuation lift capacity assessment can be seen in Table 1.

Table 1 - Assumed Building Populations

Level	Mobility Impairment	Stamina / Breathing / Fatigue	Wheelchair users	Total Population to be evacuated per floor
Level 6	23	17	1	41
Level 7	23	18	1	42
Level 8	24	18	1	43
Level 9	36	27	2	65
Level 20	15	11	1	27
Level 21	15	11	1	27
Level 33	14	10	1	25
Level 34	14	10	1	25

3.4. PASSENGER AREAS

Table 2 below highlights the agreed passenger areas for each user group that has been utilized in the theoretical lift traffic analysis. As operator-assisted evacuation has been specified, an allowance must also be made for the inclusion of a driver within the lift car.

Table 2 - Passenger Areas

User Group	Passenger Area (m^2)	Dimensions in plan (mm)
Mobility Impairment	0.48	600 x 800 [11]
Wheelchair Users	1.26	900 x 1400 [12]
Stamina/ Breathing/Fatigue	0.21	380 x 560 [12]
Operator		

Figure 2 below indicates the above sizes diagrammatically.

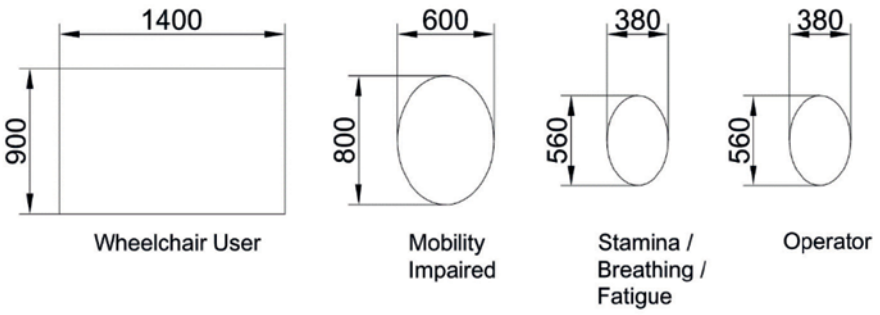


Figure SEQ Figure * ARABIC 2 Passenger Areas

3.5. LIFT CAR AREA

The analysis is based on the actual car area as defined in the building design in coordination with the Architect. As an example, PEL15 is provided with car dimensions of 1500 mm (w) x 1900 mm (d). This is not a standard ISO lift car and reflects the agreed lift car size. This lift car size results in a car area of 2.95 m².

As a driver will be in the evacuation lift at all times, the available car area for passengers to load into the lift should be reduced. In this scenario, the available car area has been reduced by 0.21 m², resulting in an available car area of 2.74 m².

The capacity factor by mass has been set at 80%, and the capacity factor by area has been set at 100% in line with standard car area and mass requirements as defined in BS EN 81-20 [13].

3.6. PASSENGER LOADING TIMES

Table 3 below highlights the loading and unloading times utilised within the theoretical analysis.

Table 3 - Passenger Loading Times

User Group	Passenger Area (m²)	Dimensions in plan (mm)
Mobility Impairment	2.6	2.6
Wheelchair Users	5.2	5.2
Stamina/ Breathing/Fatigue	2.6	2.6

3.7. PASSENGER ARRIVAL RATES

Due to the behaviour of the lifts in an emergency event, as defined in section 1.4, it is proposed that all users who require the lifts for evacuation will already be waiting in the refuge spaces, as it will take time to coordinate between the operator and designated persons at the landings to enable the evacuation to start.

The passenger arrival rates have been utilised such that all passengers will arrive in a 5-minute period, and queue for the lifts. A 5-minute delay has then been applied before the lifts start moving.

The 5-minute delay is only proposed for the purposes of this study to ensure all users are at the lifts. It is not proposed that it will take all users 5 minutes to access the refuge spaces. This allows time for the lifts to be changed into evacuation mode.

4. RESULTS

Table 4 below highlights the theoretical evacuation times from the assessed floors throughout the building. The time is taken from when the lifts start moving (after the 5-minute delay). As noted in section 1, the analysis has been undertaken to assess a single evacuation event in the building at any one time, with the worst-case analysis scenario time presented in the table below. The fire is assumed at the lower floor, with both the fire floor and floor above requiring to be evacuated in Phase 1.

The theoretical analysis has been undertaken using ElevateTM software.

Table 4 - Time Taken to Evacuate Assessed Levels

Levels Evacuated	Lift Reference	Time taken to evacuate (min:sec)	Trips Required to evacuate the levels per lift
L6 & L7	PEL12 & PEL15	6:20	5
	PEL16	5:23	4
L8 & 9	PEL12 & PEL15	11:53	9
L20 & 21	PEL12 & PEL15	7:30	5
L33 & 34	PEL12 & PEL15	8:52	5

The evacuation capacity assessment has been undertaken to satisfy the planning conditions in accordance with the approved Fire Strategy. Based on the assumptions above, the time taken to evacuate the building is stated as a fact, based on the assumed scenarios. It is understood that this data will be reviewed in line with the Evacuation Strategy by Building Control and the London Fire Brigade.

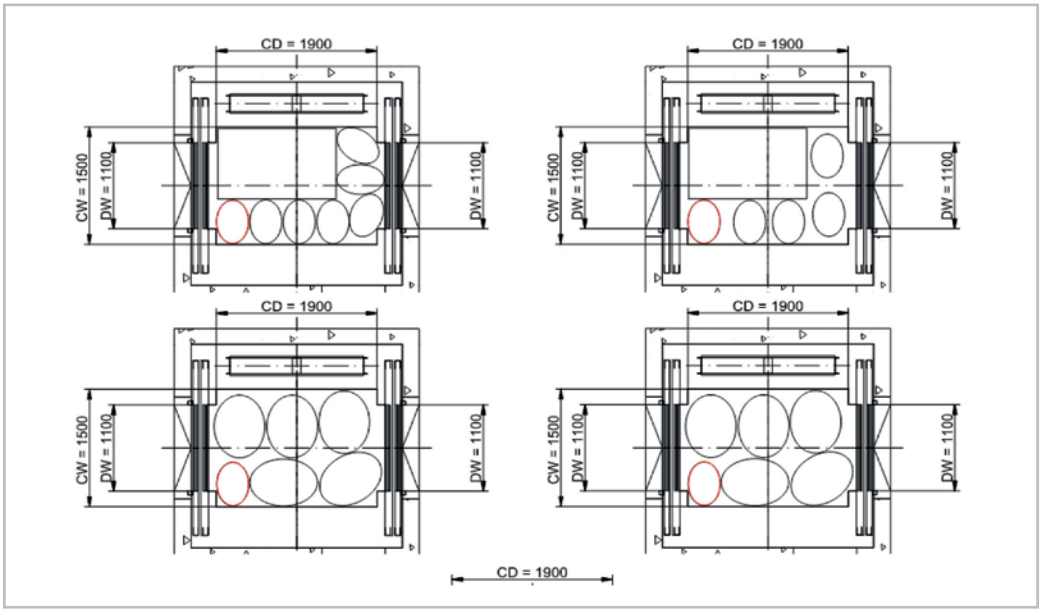
5. VALIDATION

5.1. NUMBER OF TRIPS

A simple validation based on the space take and number of trips has been undertaken to ensure the analysis is performing as expected.

Using the agreed passenger areas and lift car sizes, a graphical representation can be seen in Figure 3 below. This figure indicates that based on the number of passengers and the area they occupy, five trips will be required to fully evacuate Levels 33 and 34, providing the same result as the analysis.

Note the driver is highlighted in red.



Looking at the spatial plot from the Elevate™ analysis in Figure 4, it can be seen that five trips are required to evacuate levels 33 and 34.

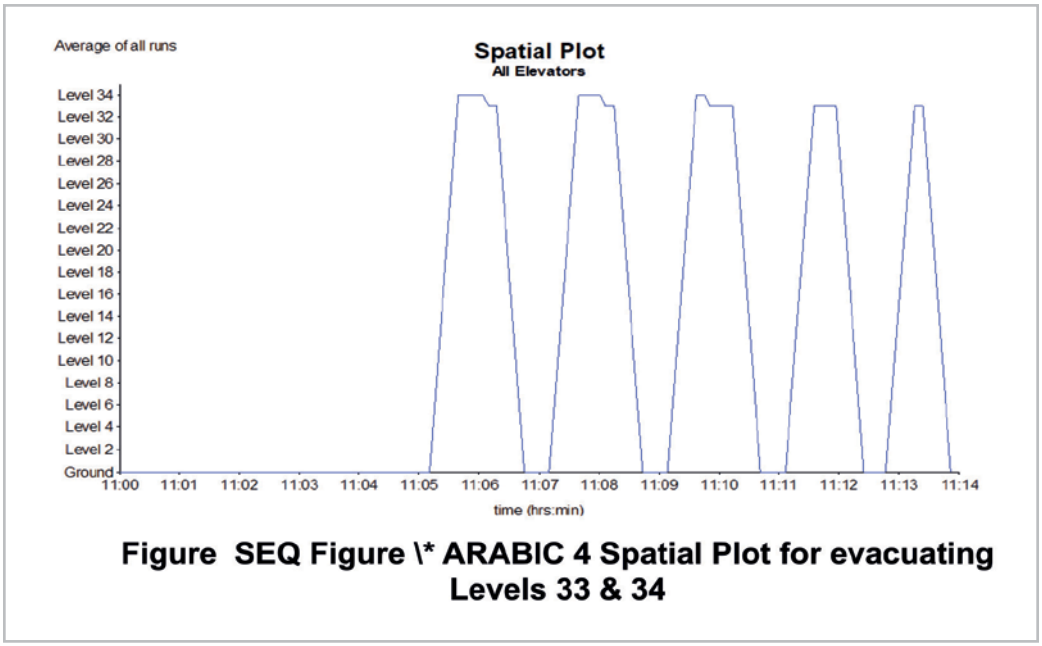


Figure SEQ Figure * ARABIC 4 Spatial Plot for evacuating Levels 33 & 34

It should be noted here that the spatial plot indicates that the lift will stop at Level 33 in the first two lift journeys, however, the lift has filled up at L34 and is unable to collect any passengers from L33 in these two journeys. The impact of this will be explained further in section 5.2.

5.2. ROUND TRIP TIME

As the evacuation scenario only considers two floor levels plus ground and provides a pure down peak traffic condition, a round trip time calculation can be a useful way of validating the lift traffic analysis [14].

The following calculation in Table 5 is based on a simplified scenario, where it is assumed that all users are evacuated from one floor only. The example calculation assumes that all users (a total of 26 per lift) are evacuated from Level 34. Whereas, the actual analysis presented in this report assumes 13 people at Level 33 and 13 people at Level 34 per lift.

Table 5 - Round Trip Time Calculation

Evacuation Floor	Level 34
Travel distance from FSAL (m)	125.4
Rated Speed (m/s)	6
Acceleration (m/s^2)	1.2
Travel Time (s)	25.9
Actual Car Area (m^2)	2.95
Available Car Area (m^2)	2.74
(Actual car area – 0.21m^2 from driver)	
Total Passenger area (m^2)	11.34
Average loading time per trip (s)	15
Number of Trips Required	5
Round Trip Time (s)	103.2
Time to evacuate floor (min:sec)	8:00

When compared with the simplified traffic analysis scenario of evacuating 26 users from Level 34 only, the total times are comparable. The analysis indicates a total time to evacuate one floor of 8 minutes and 16 seconds and that 5 trips are required. The closeness of these results indicates that the theoretical traffic analysis is behaving in the way that it is expected.

The problem however is that when compared with the results presented in this report for the actual scenario, there is a reasonable variance (11% difference from RTT calculation). It would of course initially be expected that evacuating two floors would take longer than a single floor. Looking at the spatial plots of the actual analysis scenario (L33&34) in Figure 4, it can be seen that the lift is stopping at both Level 33 and 34 in the first three journeys. Delving deeper into the data, for the first two journeys, the lift is filling up at level 34, and then stopping at level 33, where it is unable to collect any more passengers. In the third journey, it can collect the remaining passengers at L34, and then start collecting passengers from Level 33. This provides an evacuation time of 8 minutes and 52 seconds. This total time can be adjusted to exclude

the stopping at Level 33 in the first two journeys. The data provided from the analysis indicates that the lift stops and does not fill up for a total of 26 seconds. Once adjusted, this provides a time of 8 minutes and 26 seconds. In the real-world scenario, the evacuation will be undertaken by a lift operator and driven from the lift car, therefore in this scenario the lift will not stop at L33.

Table 6 - Summary of Validation Results

Scenario	Time taken to evacuate (min:sec)	% Difference from RTT calculation
Round Trip Time – Evacuating One Floor only (L34)	8:00	-
Analysis – Evacuating One Floor Only (L34)	8:16	+3%
Analysis – Evacuating Levels 33 & 34	8:52	+11%
Analysis – Evacuating Levels 33 & 34 – Adjusted for lift not able to answer calls	8:26	+5%

6. INTERPRETATION OF RESULTS/VALIDATION

The fact that slight inefficiencies seem to be built into the analysis may not actually be a bad thing. When we think of an evacuation scenario, we must also consider human nature. The analysis aims to show a best-case scenario, but with humans operating the lifts, it is likely that there will be inefficiencies with loading the lift and prioritising the correct users.

Theoretically, the operator should know who is waiting at the lifts and how many, due to the provision of the communication systems in the associated refuge spaces. However, it is likely that until the operator arrives at the floor(s), the situation cannot be fully assessed.

Any accidental inefficiencies in the analysis may coincidentally provide a total evacuation time that is closer to a real-world scenario. Evacuation studies would however be required to validate this statement.

It may be possible that the evacuation results could be improved by utilizing firefighters lifts within the building, or where one lift has finished evacuating its required zones and is idle, assuming it is safe to do so, it may be possible for people waiting or evacuation lifts in other cores to utilize an available lift. This would need to be risk assessed and agreed upon in line with the evacuation plan.

7. ANALYSIS LIMITATIONS

The theoretical lift traffic analysis undertaken is not representative of the actual evacuation scenario defined in the developments Fire Strategy and in line with BS 9999. The dispatching algorithm does not allow the designer to select the order/priority of floors to evacuate, or the priority of users. In the case study presented, the spatial plots indicated that the level above the fire floor is being evacuated first, and then collecting passengers at the fire floor. Whilst there is theoretically no impact on the final time to evacuate in the first phase, the order of evacuation in the second phase is likely to be significantly impacted due to the specific order of evacuation of the remaining 32 floors of the building.

The dispatcher is also not able to tell that the lift is full (by available car area). This is due to the increased passenger areas from a typical 0.21 m^2, therefore resulting in the lift stopping at a level while full. This would also have a significant impact on the Phase 2 results.

It is also not a fully realistic scenario as operator-assisted evacuation is being utilised for this building.

8. IMPLICATIONS

8.1. DESIGN IMPLICATIONS

As the scenario assumes that all users who require evacuation are waiting for the lifts before the lifts are operational, queueing and circulation space should be considered. Table 7 below tabulates the minimum required protected lobby space in front of each evacuation lift. This data is of key importance to inform the buildings design of the core/ protected spaces.

Further consideration is needed in coordination with the Architect and Fire Engineer where the protected lobbies lead to the escape stairs. Circulation will also need to be considered for those evacuating the building via the stairs.

BS9999 states that "it is essential that the location of refuges and of wheelchair spaces within refuges does not have any adverse effects on the means of escape provided in the building" [6].

Good design should also consider managed strategies to ensure good communication between the operator and the designated person at the landings, frequent evacuation testing and ensuring users who require the use of the lift for evacuation are aware of the requirements. Discipline at the refuges must be maintained where queueing, and this is likely up to the designated person at the landings, ensuring order and determining priority.

Table 7- Queue lengths and minimum areas in protected spaces

Level Evacuated	Maximum Queue Length at Each Lift	Minimum area required in protected lobby (m^2)
L6	15	7.05
L7	15	7.05
L8	34	11.01
L9	32	14.10
L20 & 21	14	6.15
L21	14	6.15
L33	13	5.67
L34	13	5.67

8.2. COMMERCIAL IMPLICATIONS

Whilst this report provides a study relating to an office development, evacuation lifts are now required to be considered/ provided in all types of developments where lifts are provided.

Each development should be assessed on a project-by-project basis by a competent Fire Engineer [15] and be suitably Fire Engineered to ensure that the solution is correct, supported by a whole range of specialist designers.

Lobby sizes need to be considered to allow adequate queueing and circulation space. As lobbies are provided as Gross Internal Area (GIA), as opposed to Net Internal Area (NIA) (space that is lettable), larger protected lobbies reduce the overall available lettable space in buildings. This has a significant impact as even a few square meters per floor can have a significant cost impact and reduce floorplate efficiencies, particularly in tall buildings.

Additional lifts may also be required in the building to satisfy the London plan requirement for "at least one evacuation lift per core", despite not being required from a theoretical lift traffic analysis point of view. Whilst this can improve the evacuation lift capacity and mitigate redundancy issues, given the high costs of installing and maintaining a lift, this can lead to significant cost uplifts which may not have been expected in the early-stage designs. The basis of this report assumes that Firefighters lifts are not included within the evacuation procedure, and the assumption therefore is that where a core is provided, a minimum of two lifts are required (1 x Firefighters lift and 1 x Evacuation lift).

Whilst life safety is non-negotiable, floorplate efficiencies and overall values of buildings are what drive the construction industry. Whilst the industry adjusts itself to these new requirements, this may lead to projects going on hold, or terminating altogether because the costs just do not add up.

9. DISCUSSION

9.1. WHAT DO THE RESULTS MEAN?

The London Plan requires an evacuation capacity assessment. Unfortunately, it does not inform a VT designer or other relevant specialist e.g. Fire Engineer, how to undertake the assessment. It also does not tell the designers what an acceptable time to evacuate is.

This information is currently as yet not defined, and we do not have the answers. Hopefully, as time goes on and planning implications are further understood, more information will come to light.

It is however on us, as the VT world, to help form these cases and scenarios in a way that is accepted throughout the construction industry.

In the assessed development, the majority of the structure and all the protected cores are designed to withstand a fire event for up to two hours. The Fire Engineer has therefore assumed, that any time of less than two hours is likely to be acceptable to evacuate the whole building. Consideration however should be given to the effect of people being held within a burning building and whilst the structure may be safe, this may cause a significant amount of panic and shorter timeframes may be required to be considered.

In comparison with this assumption, the Health Technical Memoranda for the Design of Hospitals, states that "in an emergency situation, it should be possible to clear all visitors from the hospital in 15 minutes" [16].

9.2. USERS WHO REQUIRE A LIFT FOR EVACUATION

It is difficult to quantify how many users are likely to use the lifts.

The Department for Work and Pensions Family Resource Survey states that 15% of the population in the London area is classed as having some sort of disability. Of this 15%, 41% of respondents had a mobility impairment, and 34% have a stamina/breathing/fatigue impairment [10]. These figures form the basis of how many users are likely to need to use the lifts to evacuate the building.

There is however a further complication in this. It is expected that as the building gets taller, more and more people will require the use of a lift with circa 70% of people expected to consider using the lifts for a building of this height (34 storeys) [17]. This would lead to significant strain on the evacuation lift capacity and further consideration is needed. This implication was discussed with the Fire Engineer in the design phases and should be seriously considered when undertaking evacuation lift capacity assessment.

As yet, the correct populations to use in assessments of these types are to be formally defined. It is also likely that this will depend on a case-by-case basis, e.g. a care home would have different considerations compared to an office. More studies are required across disciplines to ascertain this.

The car loading and unloading values have been agreed upon by the accessibility consultant. Where the lift is full, the loading and unloading times may become extended. Wheelchair users may also need to turn around in the lift to exit which, again, may lead to extended times.

9.3. PHASE 2 OF EVACUATION

The current understanding of a managed evacuation scenario is that after the fire floor and the floor above are evacuated, the floors above will then be evacuated in Phase 2 and then the floors below the fire in a sequential order.

Analysis can be undertaken to assess this scenario using the logic presented in this report, however, given the dispatch algorithms and control logic in the theoretical lift traffic analysis software, it would be difficult to provide a meaningful result. A bespoke dispatch algorithm would likely be required to present this accurately.

An alternative strategy for the Fire Industry to consider may be that of safe refuge zones. These may be located every 5-20 floors and is a common strategy in places where supertall buildings are built. This will significantly improve the lift handling capacity and evacuation performance where users can be grouped together.

9.4. OPERATOR-ASSISTED EVACUATION

It may not be possible to guarantee that an operator is always available. This is particularly pertinent for a residential design, where a 24-hour concierge (operator) cannot be guaranteed. Other forms of evacuation will be required such as remote evacuation, however at the time of writing the definition of evacuation using lifts in BS9999 or BS 9991 does not allow for this. It is assumed that in the future where remote evacuation is specified in the fire strategy, the model presented in this report is not applicable.

9.5. IMMINENT RELEASE OF BS EN 81-76

Whilst the public draft has been made available, it is not known what will be contained within the final version of this code. Remote evacuation may be provided within this standard (as contained within the draft release). The saving grace is that it is likely that remote evacuation will take place in residential developments where there is less demand on the lifts as the floorplates are not occupied as densely as offices.

The implications of this are unknown and an alternative strategy for carrying out evacuation capacity assessments would need to be defined where remote evacuation is specified in the Fire Strategy.

REFERENCES

[1] Greater London Authority, "The London Plan 2021," 2021. [Online]. Available: https://www.london.gov.uk/programmes-strategies/planning/london-plan/new-london-plan/london-plan-2021. [Accessed April 2024].

[2] Greater London Authority, "The London Plan," 2021.

[3] Greater London Authority, "London Plan Overview and Introduction," [Online]. Available: https://www.london.gov.uk/programmes-strategies/planning/london-plan/past-versions-and-alterations-london-plan/london-plan-2016/london-plan-overview-and-introduction. [Accessed 07 May 2024].

[4] Greater London Authority, "Building Safety Act (1)," Greater London Authority, 28 June 2022. [Online]. Available: https://www.london.gov.uk/who-we-are/what-london-assembly-does/questions-mayor/find-an-answer/building-safety-act-1. [Accessed 10 June 2024].

[5] RICS, "Building Safety Act Frequently Asked Questions," 03 May 2024. [Online]. Available: https://www.rics.org/news-insights/building-safety-act-faqs. [Accessed 07 May 2024].

[6] British Standards Institue, "Fire Safety in the design, management and use of buildings - Code of practice," BSI Standards Limited, 2017.

[7] British Standards Institution, "Fire Safety in the design, management and use of residential buildings - Code of practice," BSI Standards Limited, 2015.

[8] British Standards Institue, "prEN 81-76:2023 - Evacuation of persons with disabilities using lifts," BSI Standards Limited, 2023.

[9] British Standards Institue, "BS EN 81-76," BSI, 2024. [Online]. Available: https://standardsdevelopment.bsigroup.com/projects/2021-01833#/section. [Accessed 23 05 2024].

[10] Department For Work and Pensions, "Family Resources Survey: financial year 2022 to 2023," 26 March 2024. [Online]. Available: https://www.gov.uk/government/statistics/family-resources-survey-financial-year-2022-to-2023/family-resources-survey-financial-year-2022-to-2023#disability-1. [Accessed 10 June 2024].

[11] P. Buxton, Metric Handbook - Planning Design Data, New York: Routledge, 2022.

[12] British Standards Institution, "BS 8300-2:2018," British Standards Limited, 2018.

[13] British Standards Institue, BS EN 81-20: Passenger and Goods Passenger Lifts, British Standards Institue, 2021.

[14] CIBSE, "Transportation Systems in Buildings," in *CIBSE Guide D: 2020,* London, Chartered Institute of Building Services Engineers, 2020, p. 58.

[15] Building Engineering Services Association, "Building Safety Act Competencies & Requirements," BESA, 2024. [Online]. Available: https://www.thebesa.com/building-safety-act/competence-and-requirements. [Accessed 10 June 2024].

[16] NHS Estates, "Health Technical Memorandum 2024," HMSO, 2024.

[17] E. G. &. P. L. M.J. Kinsey, "Human Factors Associated with the selection of Lifts / Elevators or stairs in Emergency and normal usage conditions," Fire Safety Engineering Group, London, 2010.

BIOGRAPHICAL DETAILS

Kristian Farr BEng (Hons) MEng, LCIBSE EngTech

Kristian started his career as a Graduate Vertical Transportation Engineer in 2020.

Now a Senior Engineer for Sweco, Kristian has worked on the design, development and commissioning across a wide range of projects from small existing developments to landmark projects such as a 1,000,000 ft²+ new build office development.

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WITH THE LIFT INDUSTRY MENTAL HEALTH CHARTER

In this edition's column Ted focuses on building mental resilience, suggesting some effective ways to enhance our mental strength.

Recently my human decided to climb a mountain - Unfortunately my legs were too short and the trip up might have been too difficult, although A N Other dog was there! After seeing the photos I decided that staying at home with my brothers was the better option….. Upon his return he said how hard the walk up was given the conditions, and it made me reflect on the time he was away.

With my human away, I did feel a bit lost, and I didn't know where to sleep at night or whose lap to sit on! During this time, I had to build some mental resilience, developing skills and strategies to cope with stress and adversity.

Here are some suggestions:

1. Develop a support system: Cultivate strong relationships with friends, family, or support groups. Having a reliable network can provide emotional support and practical assistance during tough times.

"Although my human was away, I had a great support system in my other family members"

2. Practice self-care: Engage in activities that promote well-being, such as regular exercise, balanced nutrition, and adequate sleep. Taking care of your physical health can significantly impact your mental resilience.

3. Cultivate mindfulness: Techniques like meditation, deep breathing and mindfulness can help manage stress and improve emotional regulation. Being present and aware can make it easier to handle challenges.

"Getting the right amount of sleep is a must have for me!"

4. Set realistic goals:
   Break larger tasks into manageable steps and celebrate small achievements. This can help build a sense of accomplishment and maintain motivation.

   "Eat the shower gel was a goal I managed to achieve but it wasn't a popular outcome…"

5. Develop problem-solving skills:
   Strengthen your ability to approach and solve problems effectively. This can involve critical thinking, creativity and resourcefulness in finding solutions.

6. Maintain a positive outlook:
   Practise gratitude and focus on positive aspects of your life. A positive mindset can help you navigate difficulties with greater ease.

7. Seek **Professional Help:**
   Don't hesitate to reach out to mental health professionals if you're struggling. Therapy and counselling can provide valuable tools and perspectives for managing stress.

   "It was a real struggle and there were times when I could have done with him being here"

8. Learn from experience:
   Reflect on past challenges and identify what helped you cope. Applying these insights to future difficulties can enhance your resilience.

9. Build flexibility:
   Stay open to change and adapt your strategies as needed. Flexibility can make it easier to handle unexpected events.

   "Whilst he was away I developed new strategies on getting food and remaining flexible and ready to go"

10. Practice self-compassion:
    Be kind to yourself and recognise that it's okay to make mistakes and experience setbacks. Self-compassion helps maintain a balanced perspective and reduces self-criticism.

Building resilience is an ongoing process, and incorporating these practices into your daily life can help you become more adaptable and better equipped to handle life's challenges.

PLEASE SEE SOME LINKS BELOW ON BUILDING RESILIENCE AND MENTAL HEALTH SUPPORT:

Resilience in the Workplace: How To Build It in 6 Steps \| Indeed.com

Managing stress and building resilience - tips - Mind

Lift Industry Mental Health Charter - Mental Health Support, Virtual Mental Health Services (liftmentalhealthcharter.com)

The Lift Industry Mental Health Charter

The Lift Industry Mental Health Charter is an initiative which is focused on bringing together the lift industry to support mental health. This includes all lift companies, lift consultants and lift suppliers across the lift industry and their employees. Working together to support the people within the industry with their mental health will make the industry a safer and more supportive place to work.

Clear your mind,
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www.liftmentalhealthcharter.com

A LIFE IN THE DAY

Talking coaching, careers and female representation with Jools Black

HOW LONG HAVE YOU BEEN IN YOUR ROLE, AND WHAT WAS YOUR JOURNEY TO GET THERE?

I am Business Development Manager at A&A Electricals. I've been there for a year now, but I've been in the lift industry since 2012, when I started at Gartec as a temp. I've worked for Artico, Stannah, Cibes and then Shorts where I was for four years as their sales manager. I found my field of expertise, which I like to call 'the gentle art of persuasion', rather than sales! I don't actually sell anything, but I'm good at listening and supporting our customers, offering solutions and guiding them in the right direction. I reckon I must know about 1000 lift people around the country because of the jobs I've had. If I can't help you, I know someone who probably can!

WHAT HAVE BEEN SOME OF YOUR PROUDEST MOMENTS ALONG THE WAY?

When I worked for Stannah, I visited a disabled man who hadn't left his house for four years due to his disability and lack of accessibility. He had been told that there was nowhere a lift could be fitted in his house. Those who know me, know that I never give up, and I found a place to put the lift, badgered the council day and night to fit it, and finally got their agreement.

Jools, Alice and Gemma

I was also honoured to become a Trustee of the Lift Industry Charity, who offer financial support to the families of those working within the UK lift industry who are injured or lose their life. I work a lot behind the scenes and am looking forward to our dinner and dance in October, welcoming over 200 lift professionals for a worthy cause.

Another proud moment was prior to starting my journey within the lift industry, when I worked for Mercedes Benz at the local dealership, taking care of their warranty processing. This dealership had the second-worst customer service score in the country, but I saw that if each individual just made one small difference, the impact would be immense. I trained, mentored and encouraged staff within three branches, and they became some of the best in the country. I love bringing out the best in people, and that was 365 days of just working alongside the teams to show them how great they could be.

WHAT DO YOU LOVE MOST ABOUT YOUR JOB?

I love being with people, discussing solutions and how we can work together to get customers where they need to be. I go in and understand what their business is about, and then I can see what solutions might help them. Building relationships is so important, and it means that our customers will achieve better results and increase their sales. I listen a lot – although I'm known for talking too much!

WHAT IS THE MOST IMPORTANT FACTOR IN YOUR DAY-TO-DAY ROLE?

It's building those relationships. Listening and understanding what each customer needs is vital. For me, personally, it's crucial to manage my day effectively, breaking it into chunks, remembering to eat and take breaks. I never give myself enough time to do the things I want to, though, and now I've turned 60, I'm trying really hard to prioritise. I moved to the country to hike and ride my bike, so my goal is to spend a bit more time on me and my own passions and hobbies.

WALK US THROUGH A TYPICAL DAY AT WORK FOR YOU.

If I'm going out on the road, I'll be up at 4am, leave by 5am (with rollers still in my hair!) and I'll see my first customer around 9 or 10am. I try and see three to four customers each day, for two days a week, or two customers for three days a week. A&A have given us the tools to produce very useful reports to demonstrate to the customer our value and how we can assist them in their buying.

Whilst I am on the road, the days are long, traffic seems to be worse than ever, so I'll usually get home around 9pm, or stay overnight in a hotel. Then it's catching up on emails, and trying to relax. I suffer with insomnia, so I'm trying all the remedies at the moment.

WHAT IS IT LIKE AS A WOMAN WORKING IN A MALE-DOMINATED INDUSTRY?

I've worked in it for so long! I'm lucky, I build good relationships and most of the guys I work with truly respect me. The issues we still face are around female-specific PPE and the ladies toilets always being furthest away on site – especially going through the menopause, a toilet stop is a must! All these little things add up to a non-equal work environment and there are simple steps that could be taken. But I do find that I can do things within the industry that men can't! I build relationships in a different way, and my expertise and experience in bringing people together if discussions have stalled, gives me an advantage. Us women do have a way of being the glue that sticks things together. For me, being a women in a male-dominated industry has been an advantage.

I think that it's essential that we get into schools and colleges and shift perception and show girls the huge umbrella of the lift industry and all the opportunities out there, otherwise we risk there being a huge gap as our older generation retires.

There are so many women now working in the industry, both at the forefront and behind the scenes. It's a delight to get together with them, and I'm trying to arrange a ladies networking event later in the year. There are so many people that don't know each other, and it would be a good opportunity to get to know each other.

ARE THERE ANY RISING THEMES OR TRENDS YOU'RE NOTICING WITH THE LIFT INDUSTRY?

The biggest thing I've noticed is the need for training. LEIA courses are great, but I think there's a gap for training new starters. The Micropedia that Gina Barney produced is a great tool for any new starter, but more training is required. This is an area I'm passionate about and will be working on in the future and into my retirement.

The biggest thing I've noticed is the need for training. LEIA courses are great, but I think there's a gap for training new starters.

I also think there's a huge opportunity to boost and improve customer service across the board, really taking time to make conscious decisions about how we serve our customers.

WHAT'S NEXT FOR YOU?

I completed a foundation degree in coaching last year, and it is my true passion. I have plans to work in coaching, facilitation, trouble shooting and generally helping people reach their potential. I thought, 'Why not concentrate on the industry I've been working in?' I know them, they trust me and there's so much scope to help people develop. I'm also passionate about customer service within the industry. If you give great customer service, you'll always have customers.

A NIGHT TO REMEMBER

A brilliant night was had by all at the Lift Industry Charity Dinner Dance on Saturday 5th October at the Delta Marriott in Waltham Abbey.

As Dave Cooper (above with LIN editor, Pat) reminded us in his welcoming speech the mission of the charity is to provide, often essential, initial financial support to the families of those working within the UK lift industry who are injured or lose their life.

And those attending dug deep to support our industry raising £16,500 for this vital charity. A hotly contested auction saw big money pledged for abseiling in Northampton, Ronnie Scott tickets, a stay in a cottage in the Cotswolds and a wildlife ranger experience amongst others.

Thank you to all the sponsors who supported the event so generously. A massive thank you to Jools Black (A&A Electrical) and Paul Masterson (PIP Lift Services) and the Charity Trustees for all their hard work in planning and delivering a really fun evening - and through to the morning for some!

It was fantastic to meet up with so many different companies and put faces to names as well as admire how well we all scrub up and have moves on the dance floor!

Already looking forward to next years!

All photos by Blacks Productions. *www.blacksproductions.co.uk.*

TO MAKE A DONATION
https://www.liftindustrycharity.co.uk/donations/










ELEVATOR PITCH

Today we're meeting David Pickering, Founder and Director of Vertical Dynamics lift consultants, who offer expert advice and bespoke solutions across a wide range of sectors. Whether planning a new development, modernising an existing lift or designing a bespoke maintenance contract, Vertical Dynamics offers a range of services to suit your needs.

We caught up with David, post-Olympics, at the Eiffel Tower in Paris, for a little journey to take in the incredible views over the city.

DOORS CLOSING, GOING UP...

FIRSTLY, TELL ME ABOUT YOUR ROLE – WHAT DOES IT INVOLVE?

The typical role of a consultant is project management, design, surveys, compliance, fault finding and trouble shooting. As I've set up my own company, I find myself as marketing, web design, sales, making the tea… everything! There's nothing I dont do! My wonderful business partner (and wife) looks after most of the invoicing, administration and business management… but I still have to make the tea!

COULD YOU OUTLINE YOUR JOURNEY TO WHERE YOU ARE TODAY?

I've been in consultancy for a while, for 22 years now! Before that I was a lift engineer in Dublin. I started as an apprentice, with my four year apprenticeship, then completed a lot of LEIA courses, and eventually my supervisor suggested I go 'all in' and do an MSc. I thought that any challenge was a good one! So I went back and forth to the University of Northampton, and when I was there, I met Dave Cooper, who offered me my first job, giving me my break in consultancy. A week and a half after our interview in Gatwick airport I was standing outside his office with my entire life in the back of a Fiat Punto, wondering what I was doing! I've never looked back – and now my company's around four months old.

WHAT'S ONE OF YOUR PROUDEST ACHIEVEMENTS?

Aside from my kids! Career-wise, graduating from my MSc still brings back fond memories. And helping various people on the way with education has been important to me. I'm honestly hoping that my proudest moment is still to come, when Vertical Dynamics is well and truly successful.

WHAT'S ON YOUR DESK RIGHT NOW?

Absolutely everything! I'm still at the stage of building the company, so a lot of processes, systems, documents and templates, we're developing them as we go along, refining as we go. There's so much to consider - we recently had Safe Contractor approval, so now it's building the company and everything that goes along with it, on top of the day-to-day job of bringing the money in! It's a pretty jam-packed desk at the moment.

WHAT DO YOU LOVE MOST ABOUT YOUR JOB?

The variety and the geekiness! I like the idea that one day you're sitting at your desk designing something or running a traffic simulation and the next you're in a building, getting your hands dirty doing a survey. Every day is a slightly different day. I like the variety of people you meet too – from clients in suits to guys on the ground in their overalls, it's a great mix.

OUTSIDE OF WORK, WHAT'S YOUR FAVOURITE ACTIVITY?

I'm a season ticket holder of Brighton and Hove Albion, together with my two kids, and I do a little bit of running, cycling and I like to read too. My son is really into his films, and we've been enjoying going to see lots of old films that are being re-shown in the cinema.

WHICH OLYMPIC SPORT WOULD YOU CHOOSE TO COMPETE IN?

It would have to be something you can do when you're small – I'm short! Maybe football or cycling – I'd give anything a go – anything except that horse dancing nonsense – no Strictly Come Horse Dancing!!

IF YOU COULD CLICK YOUR FINGERS AND BE ANYWHERE IN THE WORLD, WHERE WOULD IT BE AND WHY?

Cuba. I went there many moons ago and it felt like a spiritual home. Everything about it – the people, the culture, music, it was all amazing. The weather was fantastic and the rum – I'd never drunk rum till I went to Cuba – but it has to be Havana Club!

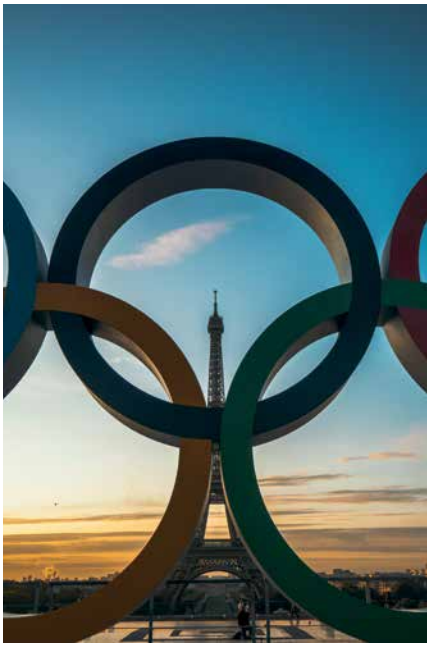
IF YOU COULD HAVE DINNER WITH ANY FICTIONAL CHARACTER, WHO WOULD IT BE AND WHY?

I think it would have to be another geek – someone clever and adventurous. Maybe Indiana Jones, that's one of my favourite fun films – I think I could have a good conversation with him – or Tony Stark. A dinner party with them would be good fun!

AND FINALLY, IF YOU HAD TO CHOOSE YOUR FAVOURITE LIFT, ANYWHERE IN THE WORLD, WHICH ONE WOULD IT BE?

The Eiffel Tower. These lifts are great, the design is a little weird – they're pulled by ropes, but the ropes are driven by hydraulic rams, and these run horizontally, so the way it's roped, it's done underground and the hydraulic jack pulls the ropes to the top of the tower, which then pull the lifts. It's a really interesting configuration, and it's essentially the same now as it was when they were first introduced, so they're quite unique.

Well, the view from the top is stunning, at dusk, just as the lights are coming on all around Paris. I reckon we should treat ourselves to a drop of rum before we head back down again to the city below.



Eiffel tower Olympic Rings picture: Photo by Luca Dugaro on Unsplash

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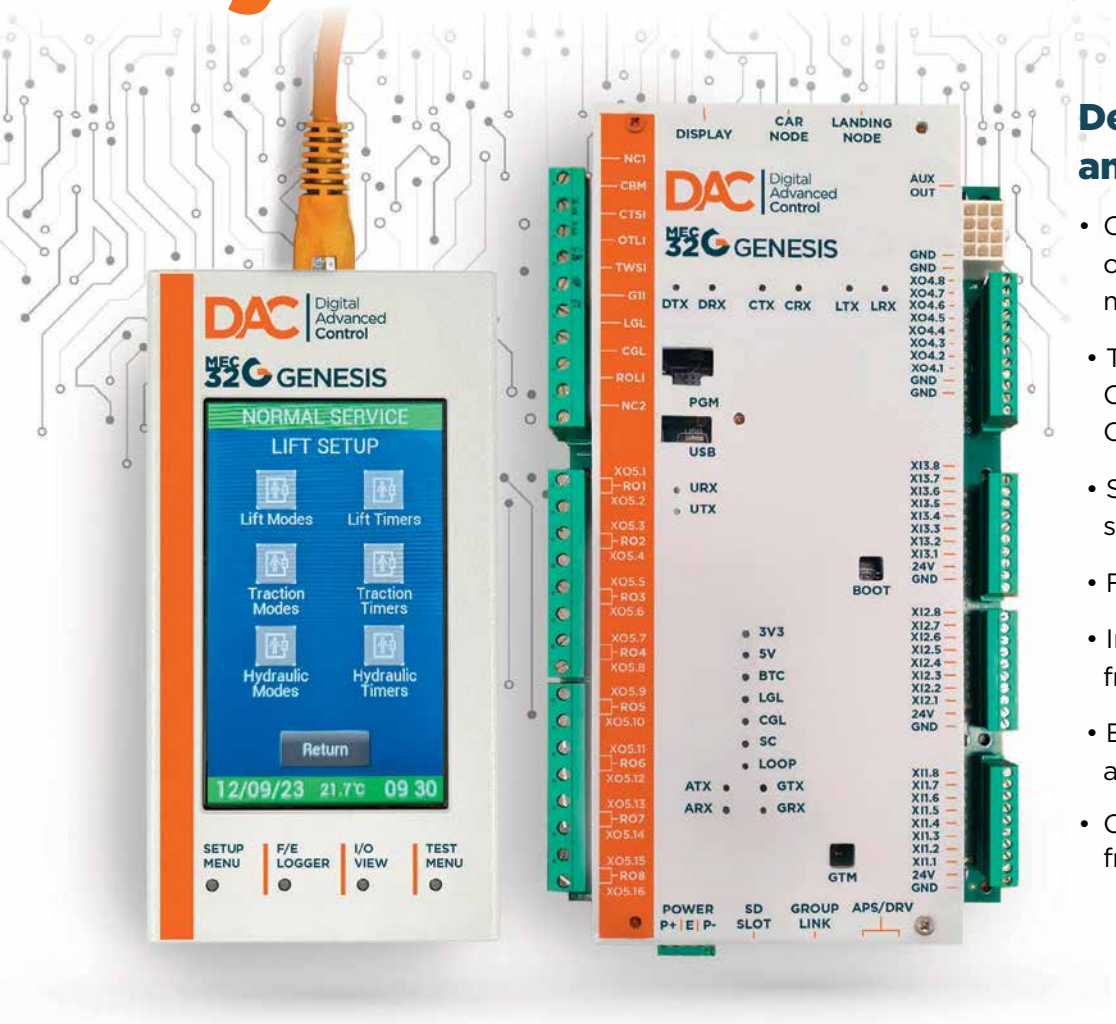

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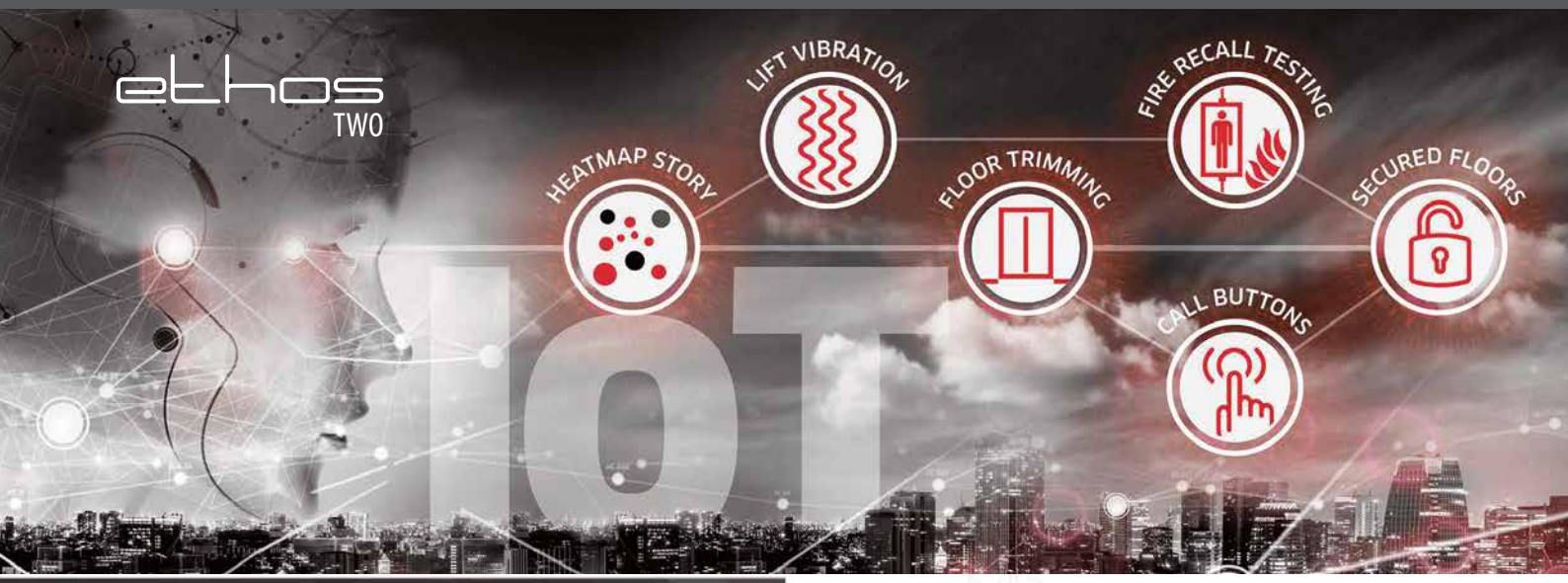

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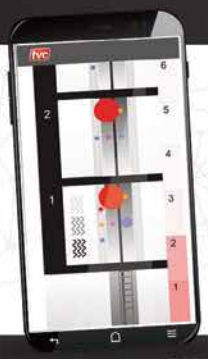

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