



LIFT AND ESCALATOR  
INDUSTRY ASSOCIATION

# Industry in focus 2010



# Hail and farewell

**W**e live in a culture today which tends to encourage us to believe everything is safe – if not absolutely safe – and therefore we no longer need to think for ourselves. Whether crossing the road or entering a lift, this cannot be so in any absolute sense, especially if we consider almost half the lifts in service were designed to standards and technology of forty years ago. We do have a duty of care to ourselves as well as to others.

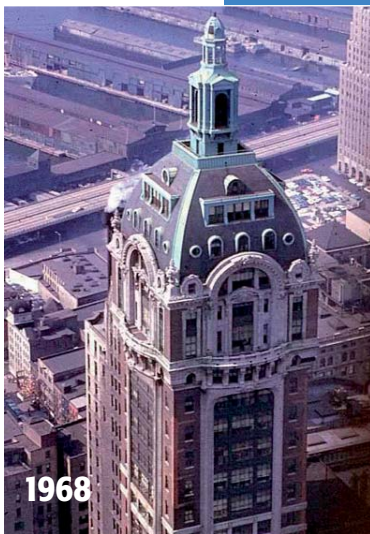
Safety must always be of highest priority but there are times where it has to be a shared responsibility. In the case of lifts this means involving not just the manufacturer or the maintainer but also the owner and the user. Whilst our record in the UK is a good one, we run

the risk of falling behind some other countries where a more pro-active approach to safety improvement is being taken. (Page 9)

Crossrail is an exciting construction project, the largest in Europe for many years. It will fulfil a need and complete an already complex network for passenger movement, bringing in new technology. At an early stage, much thought has been given to accessibility, keeping in mind an ageing population, those with disabilities and passengers who have to manage baggage and pushchairs. We are grateful to Rhys Vaughan Williams and Alan Groves for sharing with us design knowledge for such a large and innovative project. (Page 4-5)

It is especially pleasing that this year saw a Liftex to beat all previous events with visitor attendance increased by 15 per cent. In normal times this would be a good figure, in the present financial climate it rates as excellent, confirming the courage of exhibitor conviction and a positive attitude about the future. (Page 6-7)

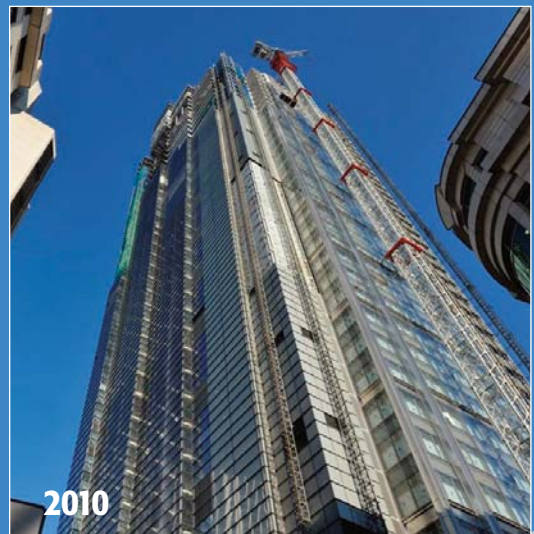
Finally, as the time is approaching when I hand over the reins as Managing Director of LEIA, I would like to take this opportunity to say that it has been an enjoyable and rewarding forty-two years serving the lift industry. The industry's strength is in the people that work for it and it has been my pleasure and privilege to represent such people and the industry as a whole.



1968



1982



2010

**1968:** David Fazakerley joins the National Association of Lift Makers, the year that the Singer Building, the tallest in New York and the first to have a lift with a telephone when built in 1908, is demolished.

**1982:** David Fazakerley marks the Association's 50th anniversary.

**2010:** the Heron Tower becomes the tallest building in the City of London and David Fazakerley retires from LEIA.

Photographs courtesy of:  
Techno-science.net (Singer Building)  
Nick Weall (Heron Tower)

## Valedictory to LEIA Managing Director

LEIA has had the great good fortune to be run for many years by a man committed to high standards in the lift and escalator industry. Managing Director David Fazakerley joined the National Association of Lift Makers in 1968 and he has helped steer the organisation through demanding and sometimes challenging times, from government reviews of industry performance, through NALM's merging with the British Lift Association to form LEIA in 1997, to responding to issues around competition law and managing the impact of the continuing raft of European legislation. He has supported members through economic recession, helped ensure that lifts continued operating

without falling foul of the Millennium bug and been instrumental in developing good practice guides and management advice for clients and users. His industry knowledge and diplomatic skills have been invaluable in supporting the organisation's Presidents carry out their tasks during their years in office, and in representing the UK industry in debates at national and European level. David Fazakerley will retire from LEIA at the end of 2010, leaving a successful, efficient and financially sound organisation well placed to represent the lift and escalator industry in the years to come. He will be missed.





## A profile of LEIA President, Andrew Evans

**A**ndrew Evans, the current President of LEIA, first became involved in wider lift industry affairs as a member of the maintenance committee of LEIA. An effective representative body is essential to the industry, he believes, not only to maintain standards amongst members, but also to drive innovation.

*"We straddle past and present in our business," he says, "and the industry is committed to maintain the huge amount of old equipment that is still in operation, as well as installing new systems. But technological advance is essential, with cutting edge design of lifts and escalators to help designers realise new buildings and structures and to keep people moving quickly and safely."*

Safety is a key issue for Andrew Evans. The industry is proud of its safety record amongst customers and the general public who use lifts and escalators, but there is a need to improve safety in the industry's workplace. *"It is important for LEIA to take the lead on this, not only by gathering the statistics but also analysing them and then driving improvement."*

Whilst safety in the construction process has improved over the past few years, there are still fundamental issues to address. It is not only the construction process that presents hazards, but also the ancillary activities, such as driving long distances or working at unsocial hours. The LEIA Review last year featured the responsibilities of employers running fleet vehicles and response maintenance services.

So what is Andrew Evans planning to achieve whilst President? Firstly he wants to reinforce the reasons why companies should be members of LEIA, both the large international organisations and the smaller, specialist firms that deliver excellent and essential services to the industry. *"There are important issues*



*that are not unique to my company" he says, "and we must work together as an industry to share experiences, lobby appropriately and become an influencing voice in our marketplace. There are choppy waters ahead, and it is important for LEIA to support companies in a challenging commercial environment."* Finding out not only what customers want, but also demonstrating what they need, is essential.

But it is a two-way relationship, he points out. LEIA members also need to take an active role, in committees or by sharing information appropriately so that accurate industry data can be generated to increase knowledge and raise standards. *"Globalisation is having an effect, and customers are raising the bar and looking carefully at Key Performance Indicators,"* comments Andrew Evans. *"This means that we must address issues such as sustainability and life cycle costing, as well as sustaining LEIA's commitment to training and looking to maintaining ethical values in our organisations, so that we continue to attract and keep the quality engineers we need to sustain our industry."*



*The Shard, designed by Renzo Piano and currently under construction in Southwark, London will become the tallest building in the European Union when it is completed in 2012. Picture: The Sellar Property Group.*

Looking to the future

# Capital connection

**L**inking London's suburban west to its suburban east, Crossrail is Europe's largest construction project and the largest sub surface project to be undertaken in London since the building of the Jubilee Line. Due for completion in 2017, Crossrail will provide rail links to all the major southern airports and direct links to the London Underground and Network Rail systems at various interchanges at seven new sub surface stations.

The new stations, at Paddington, Bond Street, Tottenham Court Road, Farringdon, Liverpool Street, Whitechapel and Canary Wharf together with further stations at Woolwich and Custom House, will form the Crossrail Central section of the project. The design allows for an expected increased passenger growth rate of 20%. To accommodate this number of passengers, Crossrail Central stations will have the longest sub surface platforms in the UK and allow for the arrival of trains every five minutes.

But as Rhys Vaughan Williams, Crossrail's MEP Engineering Manager, says, "It is one thing to get people to their destination but it is another to move them efficiently and comfortably within the stations en route. This is the job of the Vertical Transportation System."

The current design for vertical transportation at Crossrail Central incorporates 52 lifts and 92 escalators, to make it the most efficient sub surface line within London. Alan Groves is the Lift and Escalator Engineer at Crossrail, bringing his many years experience in the industry to

develop and manage the vertical transportation for the project.

## EASE OF USE

Dual entrances and ticket halls are proposed for step-free access to and from the platforms. From the ticket halls, it will be possible to travel directly to the Crossrail platforms or to interchange with other transport systems through intermediate concourse levels via further banks of escalators and lifts for passengers with restricted mobility (PRM) in compliance with the Disability Discrimination Act (DDA).

The design includes for a greater redundancy of units than usually found in this environment, allowing for lifts and escalators to be removed from service for

planned interventions without affecting passenger flows during peak hours.

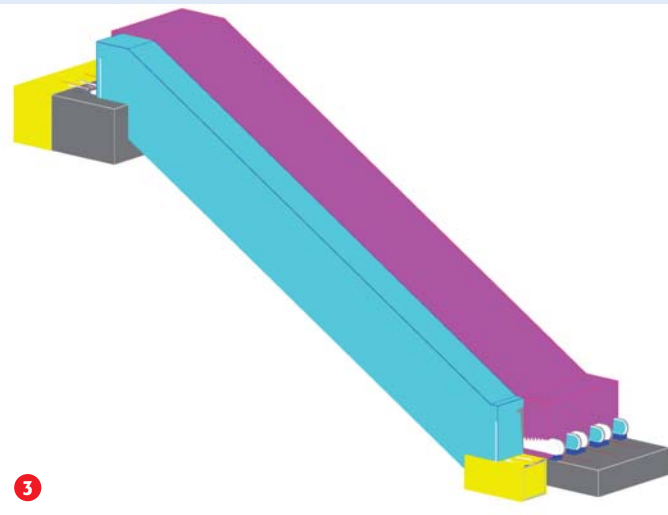
A layout common to all the stations will allow for passenger movement to the ticket halls via banks of three escalators and lifts that can accommodate up to 17 people, to assist not only those with impaired mobility but those passengers with heavy baggage and pushchairs, which represent up to 10% of the users. Alan Groves says, "We hope that by standardising the station layout and creating a light, airy and step-free environment, we will create an efficient and pleasant experience for passengers using Crossrail."

The Heavy Duty 'Metro' escalators with rises up to 26 metres form an integral part of the station design, giving a commonality of approach throughout the Crossrail Central design for passenger routing. Escalators will comply with the latest DDA options with handrail and skirting lighting supplying the relevant step lux levels and up lighting mounted at the corner of the side wall and decking panels to light the overhead areas.

Coloured glass balustrades are proposed, to give passengers easy to follow, visual directions throughout their journey. The use of glass will also be encouraged in the design of the public lifts, the cars to be mainly glazed with a through car layout.

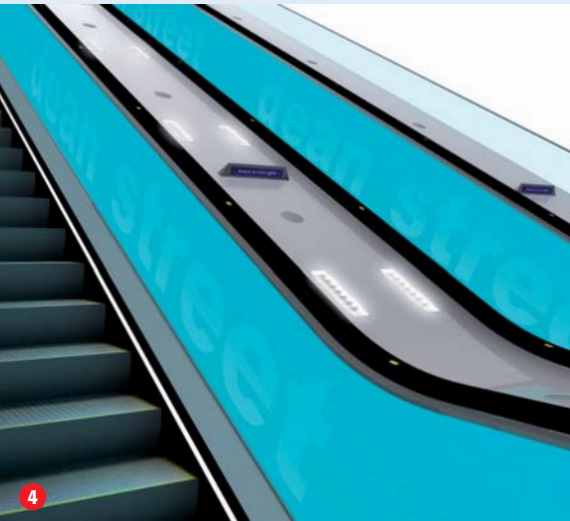
## INCLINED LIFTS – A UK FIRST

Alan Groves is delighted that Crossrail is to introduce inclined lifts into the station designs at Farringdon and Liverpool Street.



- 1 Proposed Crossrail station at Canary Wharf.
- 2 Escalator configuration
- 3 Sketch showing the inclined lift running parallel with escalator





4



5

"Although widely used overseas, this is the first time that inclined lifts will be used on a UK rail/metro system," he says. The decision followed discussions with local communities and authorities, during which it was concluded that the PRM passenger routes first proposed were excessively long and could place passenger safety at risk. The design places the inclined lifts to the side of the escalator bank so that the crossover of passengers is kept to minimum. Designed to fit within the envelope of an escalator, so that any future requirement for an extra escalator is made possible, the lifts will follow the incline of the escalators of 30°.

#### DEALING WITH EMERGENCIES

Dual power supplies will be provided to prevent lift power failures, supported by a UPS battery drive that will move the lift to the nearest landing in case of total power loss. It will be possible for all lifts to be used for passenger evacuation under operator controls.

Dual power supplies will also be provided for all escalators, as recommended in BD2466 Guidance on the emergency use of lifts or escalators for evacuation and fire and rescue service operations. A system to allow continuous running of the escalator for this purpose is being reviewed. The guidance considers the implications and opportunities to improve safety in light of the evacuation of the World Trade Centre in 2001 and is therefore intended to improve safety by increasing redundancy and diversity of the vertical means of escape.

Fire fighter shafts, with lifts for emergency evacuation and movement of materials for maintenance purposes, will be provided at both ends of each station, with at least one lift having a capacity of 2000kgs. These lifts may also be used for the movement of PRMs if no other lifts are available.

Intermediate access shafts to the tunnels will be supplied with a fire fighter or evacuation lift; these will also be used for maintenance access to the tunnels as required.

#### WHOLE LIFE DESIGN

Rhys Vaughan Williams is committed to embedding whole life design in the project. "The escalator and lift systems will be designed around off the shelf components to the highest standards available, then enhanced to meet the high passenger volumes of a London sub surface railway. This will mean that the cost will be slightly higher than the standard unit, but it is proposed that both lifts and escalators procurement will include a reviewable 25 year maintenance contract to ensure that a full whole life design of 40 years will be achieved."

Following consultations with the major UK suppliers and other European Metro systems, Crossrail (CRL) has developed Technical Specifications for both Lifts and Escalators. The design concept is to use electric traction, Machine Room Less lift technology, together with a Heavy Duty 'Metro' unit for escalators, incorporating the latest efficient and sustainable designs

to meet the requirements of the BREEAM Bespoke 2008 Assessor manual.

*"All lifts, including the inclined lifts, will use Permanent Magnetic Synchronised Motors with a variable voltage gearless drive for efficiency. PRM*

*Lift cars will have a clear entrance of 1100mm with two piece centre opening door drives and travel at 1m/s. The lifts and escalators are*

*designed to meet BS EN 81-1, BS EN 115-1, respectively, and the CRL Technical Specifications, with additional requirements added in the course of supplier discussions."*

The escalators will utilise efficient inverter geared drives. Dual motors will be used to give a balanced drive system to extend the machine life. The escalator units will utilise 'lubrication free' chains and sealed bearings to add to its sustainability and 'green' design.

*"The preventative maintenance strategy allows for ongoing replacement of components and full refurbishment at planned interventions," says Alan Groves. "The objective is not only to manage costs but to minimise disruption, by carrying out the work during short overnight closure periods, with extended engineering periods planned by early or weekend closure of no more than one ticket hall at a time."*



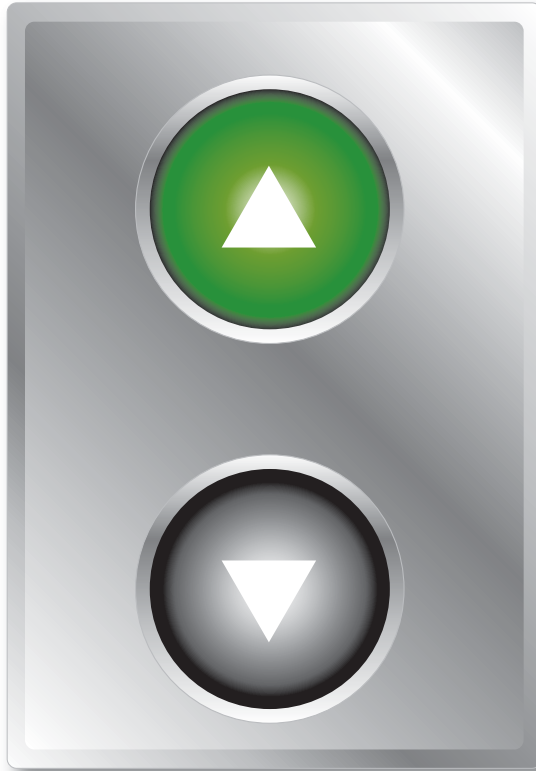
4 Illuminated blue panels for escalator showing station graphics

5 Impression of the Crossrail interchange at Paddington Station

# Liftex continues to ride high

**W**hen the organisers of Liftex 2010 gathered to plan the event some 18 months ago the climate was decidedly more challenging than it was in 2007, when the most successful Liftex ever had taken place. Concern over the state of the economy and uncertainty about how the lift and escalator sector would fare were understandable, but the view was taken to take a strong and positive approach to the promotion and delivery of Liftex 2010 with a carefully targeted and more creative marketing campaign to raise awareness.

From the beginning it was appreciated that maintaining confidence during the worldwide recession would necessitate a doubling of effort. The effort paid off, culminating in a retention of the high number of exhibitors gained in 2007, with 81 companies, including first time exhibitors, coming from countries such as: China, Denmark, France, Germany, Ireland, Italy, Lithuania, The Netherlands, Slovenia, Spain, Turkey and USA. Liftex has now become a truly international event for the UK



marketplace with plenty of potential for further growth.

Says Bob Hudson, of event organisers Room 13, *"Equally important to retaining exhibitor support, was attracting the right number of appropriate visitors. At an early stage, a sophisticated promotional campaign was launched, including display advertising in all the major trade press, direct mail and e-mail contact with thousands of potential visitors, plus an extensive on-line campaign."*

This campaign, coupled with a state of the art registration system, brought excellent pre-registration results. All registered visitors received regular updates and fast track access to the show through automated badging machines. There were 2,498 visitors to the exhibition, an increase of 15 per cent compared with Liftex 2007, which was very well received by the exhibiting companies and created a lively atmosphere on the show floor.

Facilities including an improved cafe area with free internet zone, wifi access and presentations including the giant plasma screen featuring exhibitor





## WHAT PEOPLE SAID

*"The exhibition was a great success for us and we are glad to have been a part of it."*

YVONNE BENNETT, ATWELL INTERNATIONAL.

*"I definitely think that the exhibition was successful and will ultimately result in new business for my company."*

RICKY WILLIAMS. COMPUTERIZED ELEVATOR CONTROLS CORP.

*"10/10 for show organization, (the facilities were) very impressive and efficient. Top class!"*

ERIC TANGUY, SODIMAS S.A.

*"A worthwhile show, good level of quality visitors. More LEIA members should attend, it certainly exceeded our expectations."*

CRAIG PILKINGTON, WESSEX LIFT CO. LTD

*"Only positive comments, especially from the point of view of the organization of the show, much better than other events where we exhibit."*

LES FISH, ZIEHL-ABEGG UK LTD

products were facilities well used and appreciated by visitors and exhibitors alike.

*"We carried out a survey immediately after the exhibition with all exhibitors and visitors to gauge levels of satisfaction and preferences to help*

*with the planning of future events," says Bob Hudson. "We have had very positive feedback from exhibitors, and once the results of our surveys have been analysed, we will announce future dates and plans in order to continue building the success of Liftex."*

## SPECIALIST FOCUS

Liftex provided a good opportunity to talk to some of the exhibitors to find out how they are managing their businesses in challenging economic times. The mood was upbeat, particularly amongst some of the specialist suppliers to the industry, who are taking an innovative approach both to product development and to marketing strategy. One company for example has found a variety of applications for its protective curtaining, ranging from stately homes to private jets, from lifts in high rise offices to the walls of historic buildings. The company has also expanded into overseas markets for its customers, whilst keeping its manufacturing base in the UK.

Another specialist supplier has focused its attention on sustainability, expanding its range of low energy, recyclable lighting and batteries. Again it is a privately owned UK business, proud of its customer service – but not afraid to express frustration about the slow pace with which some are responding to the environmental challenge. Liftex also provided an excellent promotional opportunity for one specialist firm, set up recently by three experienced industry individuals. Too young to qualify for LEIA membership – companies need to show sound trading for three years or more - the firm felt that the investment in its stand and attending the exhibition was well worthwhile.



# Improving escalator and walkway safety

**E**scalators and moving walks are long life products and it is estimated that in Europe there are some 37,500 units that were installed more than 20 years ago. As a consequence, many units do not have the safety features that have been developed by industry in recent years. To encourage improvements to existing escalators and moving walks, the Central European standards making body CEN, has been developing new rules, entitled Safety of escalators and moving walks EN115, Part 2.

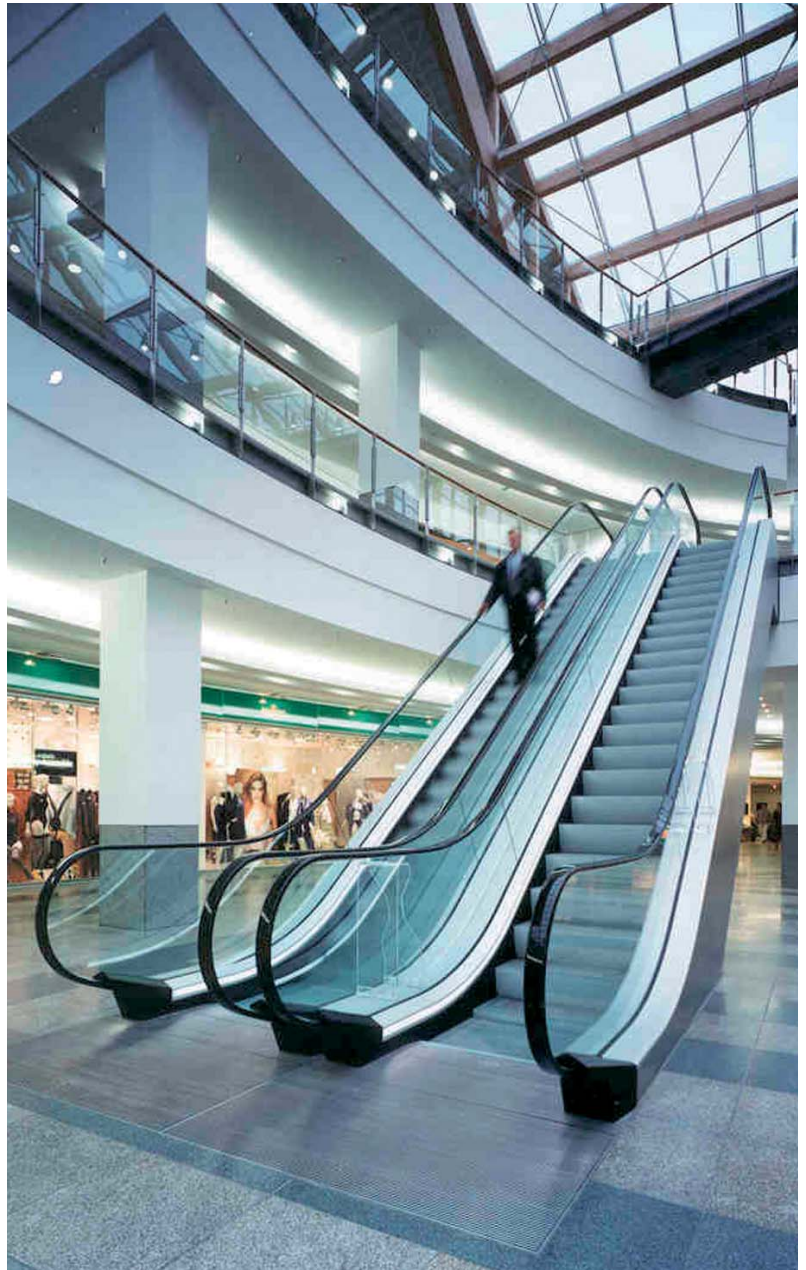
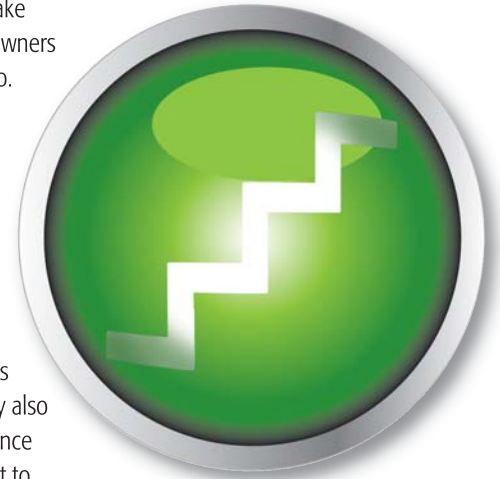
Escalators and moving walks are a relatively safe form of transport, especially when you consider the number of persons moved. However, when accidents occur they are often to children or elderly persons and can be serious. With this in mind the new document sets out to inform interested parties of the improvements that can be realistically made to reduce the probability of an accident occurring and where possible to limit the seriousness of any injury.

The new document includes a checklist that interested parties can use to identify areas where an existing unit is falling behind current safety standards and those of new products. Each item in the list is given a priority status (high, medium or low) calculated by using the ISO 14798 risk assessment methodology developed for such products. The priority status is especially useful to those responsible for the safe operation of such equipment. It will assist them in an un-biased manner to priorities improvements they may need to make in order to meet their statutory obligations to users of the machine.

It is anticipated that the document will be published in the second or third quarter of 2010 although how it will be adopted and implemented in the UK is unclear at this time. An Annex provides implementation advice on how each member state should consider its existing stock and age of escalators and conveyors, together with setting appropriate improvements and implementation time schedules. It

appears unlikely that the UK will take this approach and will leave it to owners to determine when and what to do.

The Safety Assessment Federation (SAFed) has, in conjunction with LEIA and other interested parties, been developing guidance on the subject of escalators and moving walks, this being aimed at inspection bodies and owners amongst others. Some of the items contained in EN115-2 will probably also be mentioned in the SAFed Guidance but its approach is slightly different to that of the CEN document, which is more precise in its description of the hazards.





# Do you have a lift built before 1998?

**T**he lift today is fundamentally different from what it was 12 years ago, and indeed, until 1999 lifts had changed very little since the early 1960s. As in the motor industry, lift technology has moved on in leaps and bounds. But unlike the motor car, where last year's model usually looks rather different to this year's, most lifts look much the same as they did years ago - a box going up and down in a shaft. So it is not surprising that many lift owners do not recognise the change that has taken place.

The change has been driven by the European Lift Directive that came into operation in 1999 in all EU member states, implemented in the UK by the Lift Regulations 1997. It is this legislation, more than any other that has moulded the modern lift into what it is today.

In the lead up to the introduction of the new legislation, there was some concern that the European standards would arrive at common but low levels of safety, with the UK industry thinking that its products, designed to British standards such as BS5655, were very much the state of the art. However, this has proved not to be the case. The legislation is framed to encourage industry to develop innovative design solutions that raise the level of safety to the high level that today's society expects.

## LITIGIOUS CLIMATE

In parallel with the focus on safety, there is an increasing tendency in society to embark on litigation. If something goes wrong or someone is injured, there is a growing assumption that somebody is at fault who should make compensation. The consequence of this is that if there is a lift accident, the owner or person responsible for its operation is very likely to be pursued in the courts.

The court will seek proof that the person who claims to have been injured in a lift was in fact injured in or by it. In its deliberations, the court will consider many issues but the important points are to determine who is responsible for the condition of the lift. In particular, the

court will want to judge whether it was compliant with modern safety standards that, if applied, would have avoided or reduced the severity of the injury. However, the courts usually have limited knowledge of lifts so they look to evidence written by experts in the particular field to define what is considered safe in today's society. This means they refer to the current state of the art standards, the European EN81 series.

The EN81 series is a complex set of standards which sets the benchmark for safe lift design across more than half the globe and will continue to do so with ever increasing global influence. Put simply, the features required for a safe lift are defined in the EN81 series.

## CALCULATING THE ODDS

Lifts usually carry more persons over more journeys than is generally recognised. The significance of this is that the more operations are performed, the more likely an incident will occur - along with a subsequent claim.

For example, a small eight-person lift installed in a five-storey apartment block, with two apartments per floor, each housing four persons, typically makes 100 journeys per day. On these 100 journeys, the lift carries occupants of the building along with visitors and service providers such as postmen who visit the building on a daily basis

On this reckoning, this small lift carries some 36,500 persons over the course of a year. Over ten years, this figure becomes 365,000 persons, any one of whom may trip or fall, collide with doors or have other mishaps. Will an accident occur? Probably. If you gather together 365,000 people and give them a simple task to do will any of them do it wrong? Probably. Is it likely you will have a claim against you? Yes - and if your lift is pre 1999 and has not been updated, then a claim is very likely to be successful.

Could you move the responsibility to another party, such as your maintenance company? Maybe - but only if you can prove they were not doing their job

properly and that you carried out your responsibilities fully. This requires demonstrating that you have conducted a suitable risk assessment as the law requires, identified relevant risks and put in place reasonable measures to minimise the risk. Will you be able to offer a reasoned defence? Probably not, if you cannot show that you took reasonable measures to ensure the equipment was safe.

## MANAGING THE RISKS

There is a considerable amount of legislation related to lifts and the responsibilities of an owner/operator. Amongst the more important is the Health and Safety at Work Act applicable to all lifts, the Provision and Use of Work Equipment Regulations (PUWER) applicable where the equipment is used by workers during their daily activities and the Lifting Operation and Lifting Equipment Regulations (LOLER) applicable where PUWER applies.

In order to ensure that a lift is compliant, it must not only be regularly maintained by a competent maintainer, but also given an independent safety inspection by a lift inspection company. Owner and maintainer must keep records of inspections and repairs. Most importantly, a detailed risk assessment should be carried out, in order to manage the risk as well as to plan and budget for upgrading where required

There are tools available such as 'Rules for the improvement of existing lifts BSEN81-80' to assist owners in identifying the relevant risks and classifying them into High, Medium or Low risk items. If you can show at the early stages of a claim that you act in a reasonable manner, keep the equipment in good condition and up to date it is likely that a 'no win, no claim' against you will go away.

Lastly, if you think all this is unnecessary because any claim against you will be covered by your insurance, read your policy in detail - you may be surprised what it does not cover.

**Derek Smith**  
LEIA

# All change in vocational training

**L** EIA has been working closely with SEMTA, its Sector Skills Council, to ensure that the government's new vocational qualifications system is introduced in the most timely and appropriate way for the lift and escalator industry. The new Qualification Credit Framework (QCF) sets out how all regulated vocational qualifications are structured, titled and quality assured. The intention is to deliver a more streamlined process that is easier for learners and employers alike to understand and use than the existing National Qualifications Framework, which closes for registrations at the end of 2010.

The changeover process for the lift and escalator industry has been greatly helped by the fact that SEMTA's awarding body with EMTA Awards Ltd (EAL), which awards more than 70% of engineering N/SVQs, is one of the first Sector Skills Councils in the UK to be given QCF Submitting Body status.

The Education and Training Committee of LEIA reviewed the timings, impact and content of units under the new framework and concluded that the change should not greatly affect the way the industry operates its vocational qualifications. Working with EAL and the Qualifications and Curriculum Authority (QCA), LEIA carried out a pilot exercise to introduce a Lift and Escalator Tester Qualification at NVQ Level 4. Remaining industry qualifications will be launched commencing August 2010, with all levels available by January 2011.

Jas Sall, external verifier at EAL for the lift qualifications, says *"The QCF aims to make the qualifications system easier to understand and use for employers and learners. It promotes better understanding of vocational qualifications through standardised qualification titles, and, the consistent approach across all awarding organisations will make it easier for employers to see how difficult it was for a learner to achieve a qualification and*

## NEW TESTER QUALIFICATION

QCF Level 4 (difficulty)

14 to 20 Credits (how long it will take)

Certificate in Performing Testing Operations in the Lift & Escalator Industry (content)

## HOW IT IS ACHIEVED

4 Mandatory Units plus 1 Option (from choice of 2)

### Mandatory Units

Understanding requirements for health & safety in the Lift & Escalator Industry (credit value = 2)

Meeting the requirements for health & safety in the Lift & Escalator Industry (credit value = 2)

Obtain, evaluate and report on data and information in the Lift & Escalator Industry (credit value = 3)

Making decisions by exchanging information with others in the Lift & Escalator Industry (credit value = 2)

### Optional unit

Performing testing operations on existing/modernised equipment in the lift and escalator industry (credit value = 5)

Performing commissioning tests on new equipment in the lift and escalator industry (credit value = 6)



*how long it took to complete."*

The general titles of the new awards will in the main be unaffected by the change, as will the layout of the new units that make up the award, so they will remain familiar to the learner and assessor. Each unit will include information on its credit value and the QCF level. There is, however, a change in status of the person undertaking the qualification. Under the NVQ framework, the title of the person was 'candidate', under QCF the person will be known as 'learner'.

Under QCF there are three sizes of qualification, based on time to complete, namely Award, Certificate and Diploma.

All lift industry qualifications will be at Diploma level. The simplified QCF system means that learners will be awarded credits for each module undertaken, which they can accumulate at their own pace and in a way that most effectively matches their knowledge, strengths and career goals. The title of a qualification in the new QCF will show clearly:

- How difficult it is (Level)
- How long it will take the average learner to complete (One credit equals 10 hours)
- Its general content (Title)

To give an indication of the level of difficulty of the units and qualifications in the new framework, GCSE (grade A\*-C) = NVQ Level 2, GCE A levels = NVQ Level 3 and a PhD = NVQ Level 8.



# Current status of European standards as they relate to lifts, escalators and moving walks

OJ is the Official Journal of the European Union. Publication in the OJ provides harmonised standards with a legal status providing a presumption of conformity with a particular directive.

| REFERENCE AND TITLE OF STANDARD   | DIRECTIVE IF ANY TO WHICH THE STANDARD IS HARMONISED   |
|---|--|
| <b>BS EN 81-1:1998 + A3 2009</b><br>Safety rules for the construction and installation of lifts - Part 1: Electric lifts. Subsequently amended by EN 81-1:1998/A3:2009  | Harmonised under the Lift Directive  |
| <b>BS EN 81-2:1998 + A3 2009</b><br>Safety rules for the construction and installation of lifts - Part 2: Hydraulic lifts. Subsequently amended by EN 81-2:1998/A3:2009   | Harmonised under the Lift Directive  |
| <b>BS EN81-3: 2000 + A3 2008</b><br>Safety rules for the construction and installation of lifts - Part 3: Electric & Hydraulic Service Lifts  | Harmonised under the Machinery Directive   |
| <b>BS EN 81-21 2009</b><br>Safety rules for the construction and installation of lifts - Part 21: New passenger and goods passenger lifts in existing buildings   | Harmonised under the Lift Directive  |
| <b>BS EN 81-28:2003</b><br>Safety rules for the construction and installation of lifts - Lifts for the transport of persons and goods<br>Part 28: Remote alarm on passenger and goods passenger lifts   | Harmonised under the Lift Directive  |
| <b>BS EN 81-40:2009</b><br>Safety rules for the construction and installation of lifts- Special lifts for the transport of persons and goods<br>Part 40 Stair lifts and inclined lifting platforms intended for persons with impaired mobility  | A harmonised standard under the Machinery Directive  |
| <b>pr EN 81-41:2009</b><br>Safety rules for the construction and installation of lifts -Special lifts for the transport of persons and goods - Part 41: Vertical lifting platforms for use by persons with impaired mobility  | Awaiting publication   |
| <b>BS EN 81-58:2003</b><br>Safety rules for the construction and installation of lifts - Examination and tests - Part 58: Landing doors fire resistance test  | Harmonised under the Lift Directive<br>This standard is now accepted under the UK building regulations |
| <b>BS EN 81-70:2003</b><br>Safety rules for the construction and installation of lifts - Particular applications for passenger and good passenger lifts<br>Part 70: Accessibility to lifts for persons including persons with disability. Subsequently amended by EN 81-70:2003/A1:2004 | Harmonised under the Lift Directive  |
| <b>BS EN 81-71:2005</b><br>Safety rules for the construction and installation of lifts - Particular applications for passenger lifts and goods passenger lifts<br>Part 71: Vandal resistant lifts Subsequently amended by EN 81-71:2005/A1:200  | Harmonised under the Lift Directive  |
| <b>BS EN 81-72:2003</b><br>Safety rules for the construction and installation of lifts - Particular applications for passenger and goods passenger lifts<br>Part 72: Firefighters lifts   | Harmonised under the Lift Directive  |
| <b>BS EN 81-73:2005</b><br>Safety rules for the construction and installation of lifts - Particular applications for passenger and goods passenger lifts<br>Part 73: Behaviour of lifts in the event of fire  | Harmonised under the Lift Directive  |
| <b>BS EN 81-80:2003</b><br>Safety rules for the construction and installation of lifts- Existing lifts. Part 80 Rules for improvement of safety of existing passenger and goods passenger lifts.  | A non harmonised European standard   |
| <b>DD CEN/TS 81-82: 2008</b><br>Safety rules for the construction and installation of lifts- Existing lifts. Improvements of the accessibility of existing lifts for persons including persons with disability.   | A non harmonised European standard that is to be issued in the UK as a Draft for Development           |
| <b>BS EN 115-1: 2008 + A1:2010</b><br>Safety rules for the construction and installation of escalators and passenger conveyors. Subsequently amended by EN 115:2008   | Harmonised under the Machinery Directive   |
| <b>BS EN 12015:2004</b><br>Electromagnetic compatibility - Product family standard for lifts, escalators and moving walks - Emission  | Harmonised under the EMC Directive   |
| <b>BS EN 12016:2004</b><br>Electromagnetic compatibility - Product family standard for lifts, escalators and moving walks - Immunity.<br>Subsequently amended by EN 12016:2004+A1:2008  | Harmonised under the EMC Directive   |
| <b>BS EN 13015:2001</b><br>Maintenance for lifts and escalators - Rules for maintenance instructions. Subsequently amended by EN 13015:2001/A1:2008   | Harmonised under the Lift Directive  |
| <b>BS 5655-6:2002</b><br>Lifts and Service lifts Part 6: Code of practice for the selection and installation of new lifts   | A national standard not connected to a directive and therefore not harmonised                          |
| <b>BS 5655-11:2005</b><br>Lifts and Service lifts Part11: Code of practice for undertaking the modification to existing Electric lifts.   | A national standard not connected to a directive and therefore not harmonised                          |
| <b>BS 5655-12:2005</b><br>Lifts and Service lifts Part12: Code of practice for undertaking the modification to existing Hydraulic lifts.  | A national standard not connected to a directive and therefore not harmonised                          |
| <b>BS 5656-2:2004</b><br>Escalators and moving walks - safety rules for the construction and installation of escalators and moving walks<br>Part 2: Code of practice for the selection, installation and location of new escalators and moving walks                                    | A national standard not connected to a directive and therefore not harmonised                          |
| <b>BS 7255:2001</b><br>Code of practice for safe working on lifts   | A national standard not connected to a directive and therefore not harmonised                          |
| <b>BS 8486-1:2007</b><br>Examination and test of new lifts before putting into service- Specification for means of determining compliance with BSEN81 -1 electric lifts   | A national standard not connected to a directive and therefore not harmonised                          |
| <b>BS 8486-2:2007</b><br>Examination and test of new lifts before putting into service- Specification for means of determining compliance with BSEN81 -2 hydraulic lifts  | A national standard not connected to a directive and therefore not harmonised                          |
| <b>BS 7801:2004</b><br>Escalators and moving walks- Code of practice for safe working on escalators and moving walks  | A national standard not connected to a directive and therefore not harmonised                          |

Note 1 The letters BS EN denotes the British publication of a European Norm (standard)

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