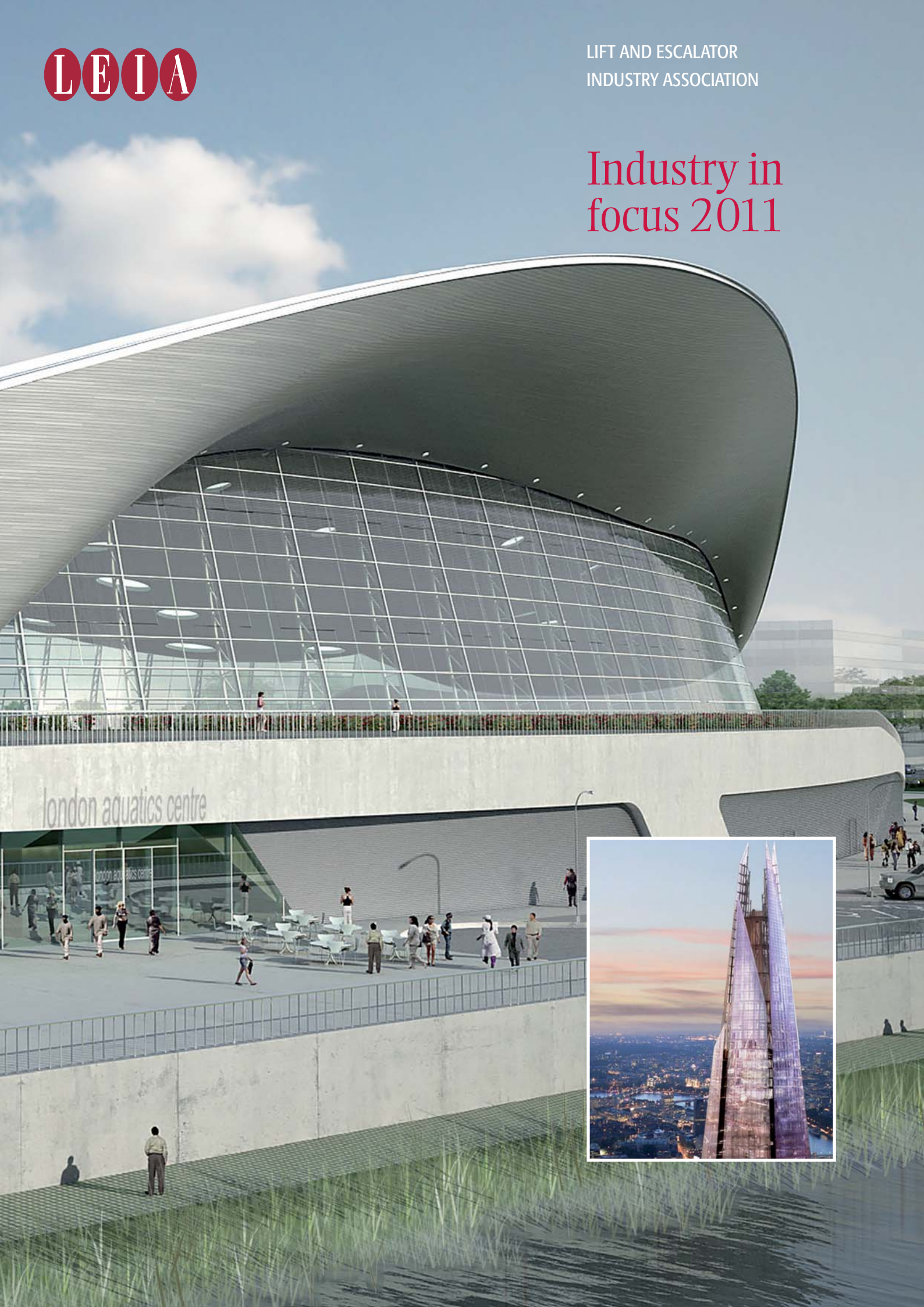
LEIA

LIFT AND ESCALATOR
INDUSTRY ASSOCIATION

Industry in focus 2011



President's view

Before beginning to write this article, I looked back at what I said in last year's Industry in Focus as newly appointed President of LEIA. There were three themes: workplace safety; working pro-actively with the industry at a time of economic uncertainty; and the need to respond to global challenges, particularly sustainability and life cycle costing.

Firstly, in regard to workplace safety, it was sobering to read again, "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." In recent months there have been three fatal accidents. So what has LEIA been doing since pledging to address the issue?

The answer is the LEIA Safety Charter (see page 3), designed to encourage a culture of constant vigilance amongst all involved in the lift and escalator industry. It is not a set of rules – many companies already operate their own rules in addition to complying with the Health and Safety at Work Act and British Standards. The LEIA Safety Charter is designed to complement these, not override them. By signing the Charter, our members will be demonstrating their commitment to that culture of constant vigilance, doing the right thing because they want to do it, rather than simply following rules.

Commitment and participation is also linked to my second objective, working pro-actively with members to face up to the economic realities and drive forward improvement and innovation. It is clear that government sees a private sector led future and there is no reason why LEIA and its members should not take a key role in helping to make UK plc strong and viable.

Which takes me to the third issue, global markets and challenges. Sustainability is a hot topic and there is some interesting research from the European Lift Association (see page 11) which highlights opportunities for lift and escalator companies.

The key word linking all these topics is quality. Quality across the board, bringing all the elements together with effective cost management, working with supply chains to deliver quality products and services at an appropriate budget. This means constantly challenging stakeholders and supply chain to find mutually satisfactory solutions with a competitive edge, communicating effectively with developers, contractors and clients to define and agree expectation and then providing imaginative solutions.

Talking of quality brings me to the topic that needs to be high on the LEIA policy agenda for the coming year – promoting the value of engineering. I believe that our industry has suffered from the demise of traditional apprenticeships and the over-simplification of modular training. Visiting a number of UK universities in the past few weeks has been a wake-up call for me. No wonder these little cities of enterprise and excellence are the envy of the world. So I look forward to working with people in the lift and escalator industry and the wider engineering community to create a climate of excellence, aspiration and commitment. Staying afloat is not enough, the industry must power ahead.

ANDREW EVANS, PRESIDENT, LEIA

From the Managing Director

My first few months as Managing Director have been very busy ones. Perhaps rather surprising, considering that after 19 years with LEIA and previously NALM as the Safety & Training Manager, not only do I know the staff and systems in the Association very well, but I also know and work collaboratively with the member companies within the Association.

However, to make sure that LEIA operates effectively for its membership and sustains the standards of professionalism expected by the customers and users of lift and escalator industry, there is a constant need to stay abreast with (and sometimes ahead of) the technological, economic and political changes that are taking place.

I have been to meet our European colleagues at the Annual European Lift Association General Assembly which included discussions on a range of issues including safety of existing lifts, accessibility issues in tourism and energy efficiency. Two of the areas that have been researched in some detail affect us all, as consumers and as providers – namely the impact of the increasingly ageing population in the UK and throughout Europe (see page 8)and also the demand for effective and measurable energy efficient lifts and escalators.

A particular topic of ongoing concern is safety in the industry, and I am pleased to endorse the publication of the LEIA Safety Charter and work with the Committee and the President to develop ways of getting this vital message heard throughout the industry and its users (see page 3).

Meanwhile despite the challenging economic times we are facing and the impact of cuts to funding for public sector projects in particular, it is heartening to see the extraordinary construction achievement that is Olympic Park, now well on track for London 2012. On a smaller scale, but nonetheless demonstrating impressive skill and creativity in delivery, is the Shard. The construction of this iconic building is clocking up a remarkable number of 'firsts' as it rises up above the roofs and spires of London.

LEIA is also moving forward with plans for Liftex 2013. Based on feedback from members, we are not only maintaining the customary three year cycle but also looking to develop new ideas and activities for this major industry event. LEIA is delighted to have secured the services of specialist company Catalyst Events, at this important time for the industry. The team comes with a great track record of delivering professional trade events and will be working closely with the industry and its customers over the coming months to develop thoughts and ideas for the programme.

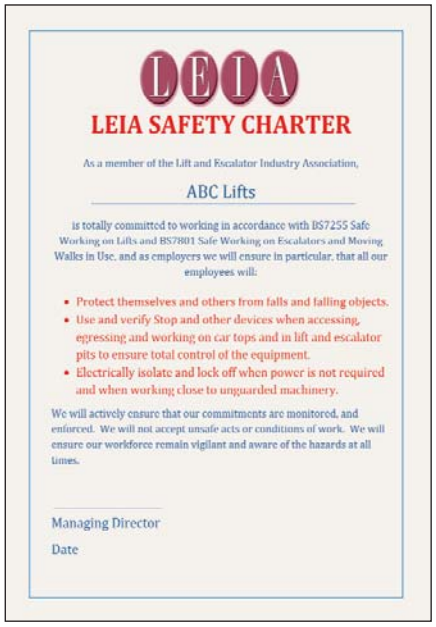
I hope you enjoy reading the contents of this latest *Industry in Focus* and I look forward to receiving your comments or feedback on the issues that are raised.

TERRY POTTER, MANAGING DIRECTOR, LEIA

Signing up to safe working

Reflecting the Association's commitment to safe working throughout the lift and escalator industry, LEIA has introduced a Safety Charter to reinforce the essential control measures required for working in particularly high risk areas. The LEIA Safety Charter supports the recommendations laid down in the Association's Lift & Escalator Site Handbook, which in its turn elaborates on the good practice enshrined in the code of practice British Standards 'BS7255 Safe Working on Lifts' and 'BS7801 Safe Working on Escalators and Moving Walks in Use.'

All LEIA member companies working on equipment within the scope of these standards



LEIA SAFETY CHARTER

As a member of the Lift and Escalator Industry Association,

ABC Lifts

is totally committed to working in accordance with BS7255 Safe Working on Lifts and BS7801 Safe Working on Escalators and Moving Walks in Use, and as employers we will ensure in particular, that all our employees will:

- Protect themselves and others from falls and falling objects.
- Use and verify Stop and other devices when accessing, egressing and working on car tops and in lift and escalator pits to ensure total control of the equipment.
- Electrically isolate and lock off when power is not required and when working close to unguarded machinery.

We will actively ensure that our commitments are monitored, and enforced. We will not accept unsafe acts or conditions of work. We will ensure our workforce remain vigilant and aware of the hazards at all times.

Managing Director

Date

are expected to work in accordance with the recommendations, as a minimum. The LEIA Safety Charter does not attempt to override any of the requirements of the British Standards, but gives emphasis to priority measures to avoid very serious incidents.

Lawrence Dooley, Safety Manager at LEIA, says, "By signing the Safety Charter, and sending a copy to LEIA, member companies demonstrate their commitment to safe working at all times, undertaking to review their working procedures to ensure compliance with the standards and recommendations."

The LEIA Safety Charter is designed to prompt further questions concerning working safely, not to be an end in itself, where only one aspect of a hazard is considered. The Charter identifies three main hazard areas which are central to many serious incidents experienced in the industry:

- Falls/falling from height
- Moving masses
- Electricity

Are you working safely?

Falls/ falling from height covers the need to ensure safety at landings. Where there are gaps around cars and doorways, are they big enough to slip through? Can something be unintentionally (or deliberately) dropped down a gap and injure somebody working below? Do engineers have the right equipment to prevent this?

Moving masses covers the movement of cars, counterweights, sheaves, motors, ropes, chains, frames and all the parts that make up lifts and escalators. Before allowing these to move (or operate), is everybody clear or has the stop button been pressed to prohibit movement?

Electricity is a well-known but 'invisible' hazard. Do engineers have the equipment and awareness to lock off and tag out the controls before working? Live working is to be avoided, but if it is absolutely necessary, is there a system in place to work safely with the right equipment?

Shared experience

In 2010 the Technical Committee of LEIA took the decision to publish its product information notices on the public area, as well as the members only area, of the LEIA website. By openly sharing information about lift and escalator products that have been recognised as having a technical issue in use, the Association on behalf of its members is demonstrating a pro-active approach to safety.

The information is listed by manufacturer and product reference, and contains information gathered from 1990 onwards, including reports from the Health & Safety Executive, which welcomes the openness of the action undertaken by LEIA. The information refers only to LEIA member company products and the Association stresses that any corrective action should only be undertaken by a competent lift or escalator engineer as appropriate.

Derek Smith, LEIA Technical Director, says "LEIA believes the wider dissemination of safety related information is in the best interests of the entire industry and its customers, supporting efforts to improve safety in all areas."

http://www.leia.co.uk/techinfo/prodinfo

2013 liftex INTERNATIONAL 22 – 23 MAY EXCEL LONDON

Save the date

LEIA is delighted to announce the new dates for LIFTEX International 2013, which will take place in London from the 22 – 23 May 2013. Following extensive research amongst LEIA members, exhibitors and visitors to the last show, by popular demand the event will remain on a three year cycle.

Commenting on this decision Terry Potter, Managing Director of LEIA said, "The industry has given us a very clear signal that their wish is to keep the exhibition on a three year cycle. As the trade association representing their needs, we welcome this direction and look forward to building on the established success of Liftex to deliver an even better show for the industry."

As part of the move forward for the event a new event organiser has been appointed to expand and develop the show. CatalystEvents have a long and proven track record within the exhibition, event and conference market and they will be working on new ideas on how the event can be improved for all sectors. Ideas include an expanded seminar programme to conference level, plus CPD qualifying workshops and an important focus on UK and European issues that affect the whole industry. The main thrust for 2013 exhibition will to deliver new innovative ideas to draw in the buyers from home and overseas, thus increasing its importance as the lift industry event to attend.

Terry Potter said, "We are delighted to have secured the services of CatalystEvents at this important time for the industry. The team come with a great track record of delivering professional trade events and no doubt many of you will be meeting them over the coming months as they put together the programme and ask you for your thoughts and ideas."

So put 22 - 23 May 2013, in your diary now and get ready for the expanded and innovative event for your industry.

For further information contact:
Gill Collins at LEIA, gill.collins@leia.co.uk

The Shard – inspiration, innovation, transformation

FROM A footprint that seems improbably small, shoehorned between a major teaching hospital and a busy railway terminus, the tallest building currently under construction in Western Europe soars above London. Known as the Shard because of its fine, angular, crystalline facades, the building is the iconic core of the London Bridge Quarter development and will provide office, retail, residential and hotel space linked to a transformed transportation hub of mainline and underground trains and bus services.

Designed by the Renzo Piano Workshop for the developers Sellar Group, the Shard's distinctive profile is said to have been inspired by historic depictions of London's historic skyline: the 18th Century paintings by Venetian artist Canaletto of the church spires clustered around St Paul's Cathedral and the tall masts of sailing ships on the Thames.

Canaletto: The River Thames with St. Paul's Cathedral on Lord Mayor's Day, c.1747-8

Such innovative design demands innovative construction methods, especially for a building on a constrained site that will reach a height of 1,016 ft on completion. It is not surprising that vertical transportation is an important element in such a design, both during construction and in use. The Shard will have 44 lifts and eight escalators to serve the people living, working and visiting the multi-use building, including high speed lifts to transport the public to the viewing galleries to enjoy the spectacular vistas stretching for 40 miles across London.

The lifts are contained within the slip-formed concrete 72 storey central core, the main structural element that also houses the main service risers and escape stairs. The UK's first jump lift construction technique is being applied, utilising these permanent lift shafts to transport workers and materials while the higher levels continue to be constructed, the travel distance for these lifts increasing incrementally as their shafts get taller. The jump lift system enables the lift shafts to be used to aid construction at the same time as they are fitted out with permanent cars and put into service as construction progresses.

Pete McCartney of lift maker KONE commented on the challenges in delivering the innovative jump lift system. "It is essential to have a completely waterproof lift shaft at all times, which is demanding for a system which is running in parallel with the construction process rather than after a building has been made weathertight.

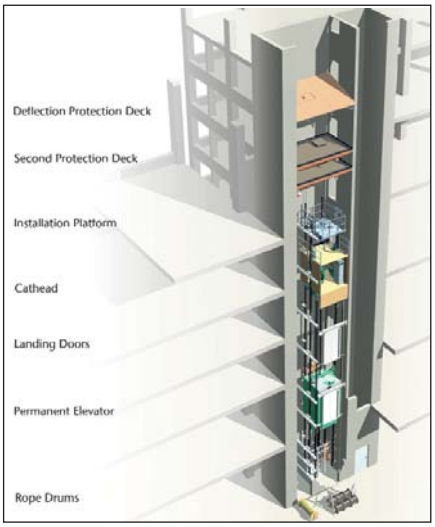
"The other challenge was how best to maintain safe working conditions, but after careful planning and collaboration, we have built in strict protocols for secure use and also for rescuing people if problems occur between the various stop levels in the shaft."

The combination of safety and planning is frequently referred to when discussing vertical transportation at the Shard. As Roger Beswick of Mace commented, "Significant time was spent at the planning stage, to ensure that the system would be right from the start. Then when the lifts were being installed, everything was kept extremely secure with access available only to a very few KONE people. Security of operation remains very strict. So in a way, the lift system has been a rather secret, invisible but essential

part of constructing this building."

There will be a total of five jump lifts, the largest of which will be equipped to transport 45 people, with a capacity of 3,500kg in weight of people and materials and will operate up to level 35. The highest of the jump lifts will go up to level 66. As Pete McCartney says, "The benefit of jump lifts is that they are quick in operation, comfortable and not affected by adverse weather conditions, and so maintain the people flow within the site at the maximum level."

Whilst the jump lifts will carry a substantial proportion of people and materials during



construction, the system cannot accommodate larger and heavier elements, in particular the glass cladding panels which create the striking facade. This presented another challenge, because the constraints of the site prevented the use of a conventional hoist which would have extended approximately 25 metres out from the building by the time it reached the top. So another innovative solution has been found.

The world's first inclined hoist has been developed, specifically for the Shard, which is inclined by six degrees to climb flush with the building. After delivery by the inclined hoist, each of the 11,000 glass panels will be slotted into place from the internal floors, removing the hazards posed by external erection methods. Use of the hoist is stopped only if wind speed rise above 35 miles per hour. (Winds of more than 25 miles an hour stop use of the 255m high tower crane, the UK's tallest.)

As Tony Palgrave, Construction Director for Mace, says: "We continually challenge the norm in order to develop better ways to deliver this landmark project. This strategy is an ideal example of our commitment to innovation and led to a highly efficient method of delivering men and materials to the workface."

International consultants Lerch Bates have been advising the Sellar Group on vertical transportation at the Shard since the project was first proposed some 12 years ago. European Chairman Adrian Godwin, based at the company's UK headquarters, says, "At a very early stage we were convinced of the need to design in several sky lobbies where users would transfer from fast shuttle lifts to slower local lifts that would stop at their ultimate destination floors. In this way, we could move more people more quickly up the tower and again save space. The Shard actually has three upper sky lobbies."

Adrian Godwin also speculated that, within the timescale of the project's design and construction, double deck lifts with destination hall call control would become available. His prediction has proved to be correct, with this world-leading technology being pioneered within the Shard. The technology creates space savings and increases traffic handling capacity in high-rise structures, particularly useful in multi-use buildings where occupiers require dedicated lobby and lift access. All cars serving the lower 28 storeys of the building are double decked, apart from the goods and firelifts.

"The innovative design and construction of the vertical transportation reflects the demands of creating this iconic global landmark building. At the same time the lift makers and consultants form part of a high quality team of contractors that are working together to deliver the Shard, as part of the London Bridge Quarter development, on budget and on time," Irvine Sellar, chairman Sellar Group.

Issues around building and fire regulation are complex and the head of London Borough of Southwark's Building Control department is working closely with the client, the London Fire Brigade and the various specialist consultants. Because of the building's unusual height, lift evacuation is necessary for a fire event with a managed evacuation. The Shard is the first high rise building in London to have evacuation lifts since the BT Tower was constructed in 1964. Full evacuation of the building is designed to take place only for an extreme non-fire event, e.g. terrorist alert. Only the firelift will travel from top to bottom of the building, all others will break at various points. Large fire resisting refuges at high and mid-level collect, and allow transfer of, persons from upper levels (including via staircases) to access evacuation lifts. These will stay in operation during a fire occurrence and after fire service arrival, enabling more rapid escape from the building than by using the staircases.

Building up to count down

London2012 buildings nearing completion

Hot off the press

For the first time in an Olympic Games the facilities for the myriad of journalists covering the event will be co-ordinated on one site. The Main Media Complex in the north-west corner of the Olympic Park for London2012 will provide a base for more than 20,000 reporters, photographers, broadcasters and support staff.

The 29,000sq m Main Press Centre (MPC), which will cater for 5,600 journalists, is moving steadily towards its finish date in summer 2011. The press facility will be based next to its broadcast counterpart – the 55,000sq m International Broadcast Centre

Courtesy of the ODA

(IBC). There will also be a temporary conference room between the IBC and MPC that will cater for up to 700 journalists at a time.

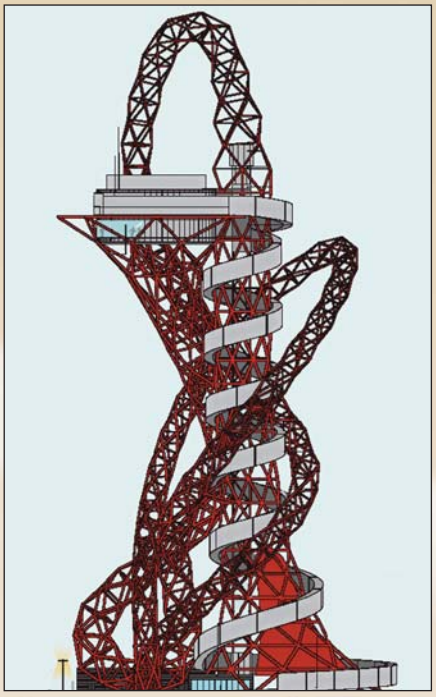
Because the media will be working around the clock, the complex will have a temporary catering village, including a 4000-seat restaurant and a 200m-long 'high street', with outlets such as banks, newsagents, travel agents and a post office.

As Olympic Delivery Authority (ODA) Chairman John Armitt says, 'This is the first time press and broadcasters will be based in the same area and marks a significant effort to make the best use of space within the Olympic Park. The buildings are designed to be converted into business facilities after the Games to serve the community for years to come."

Looping the loop

The tallest building on the Olympic site is now taking shape. Conceived as a work of public art and a visitor attraction rather than a sporting venue, the ArcelorMittal Orbit is designed by international artist Anish Kapoor and renowned structural engineer Cecil Balmond.

Sponsored by steel company ArcelorMittal, the structure is formed of nine kilometres of continuous steel tube, painted a deep red, connected via 900 connection plates. and



bright steel bolts to loop and inter-loop to form a complex swirling tower. The tower incorporates two viewing platform, one at 80m to include exhibitions, the other at 76m to provide a flexible space for functions and special events. The lower platform will have glass clad sides and be fully enclosed whilst the upper viewing platform will have an outside terrace as well as an inside area.

The one perpendicular element of the 114.5m high structure is the independent steel lift shaft, containing two cars to carry visitors to and from the viewing platforms. Each car has two porthole windows, one at child height and the other at adult height, allowing those passengers who wish to see the view unfold to do so without disturbing others who prefer to retain an element of surprise at the summit (or who suffer from vertigo!)

In keeping with the minimalist approach to the tower's design, the lift shaft has no cladding and the cars are industrial and robust. Visitors can choose to walk down from the top of the tower via the irregular spiral staircase, which also provides emergency access and escape. Car to car rescue will be implemented in the event of one lift becoming stuck.

Arup are the structural engineers for the Orbit, including the lift design. Vertical Transportation Director Julian Olley says, "The design of the lift installation has been a fascinating challenge, and one that it has only been possible to solve through the cooperation and creative thinking of the many stakeholders."

Although the tower's design gives the impression of a suspended spiral, the steel structure actually crosses back on itself and touches the ground in three points, rather like a tripod, making it a very stable structure. Nevertheless one of the key practical considerations was the effect of wind loading on the structure. While the Olympic Stadium next door does give some shelter, the structure will be exposed to high winds and at 97km/h visitor lifts will be closed. Due to its intrinsic

Courtesy of ArcelorMittal

Courtesy of the ODA

properties, steel is both a versatile and high performing material making it the natural construction material for the ArcelorMittal Orbit.

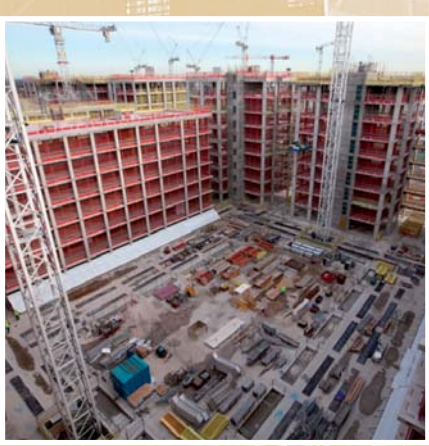
Living the dream

During the Games, the Athletes' Village will provide apartments for around 23,000 athletes and officials. After the Games, the Village will deliver the legacy of 2,818 new homes, including 1,379 affordable homes, together with new education and healthcare facilities, shops and restaurants, leisure facilities and large areas of open space.

The accommodation is provided in 11 residential blocks, each roughly the size of a football pitch, and providing inspirational views over Olympic Park. Each block is made up of between six and eight mid-rise buildings around a traditional courtyard area , clustered around courtyards and open spaces.

Every apartment will provide comfortable accommodation and state-of-the-art communications facilities, including internet access and wireless networking. All the apartment blocks will be fully accessible and equipped with modern lifts.

Due to the scale and time schedule of the London 2012 Olympic Village, a balance has been sought between standardisation and individual design. So whilst each of the accommodation blocks has a different architect, there is a requirement for them to select some elements from an agreed list. This includes the lifts, an essential requirement for the mid-rise accommodation, which will be sourced from one company offering specific sizes but with a choice of finish appropriate to the end use of the different units.



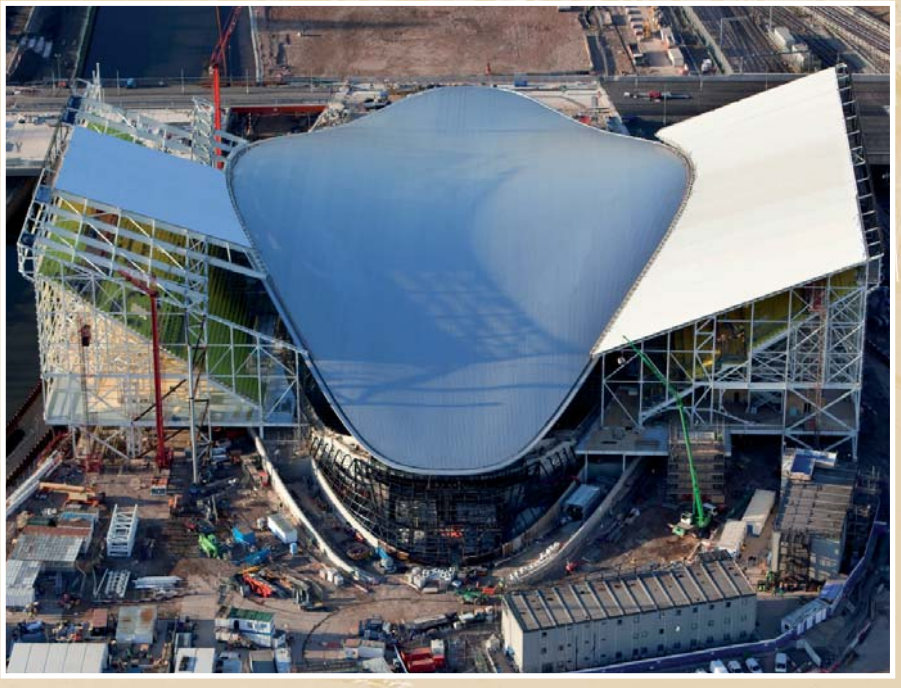
Courtesy of the ODA

In the swim

The Aquatics Centre with its distinctive undulating roof will be the main 'Gateway into the Games', hosting swimming, diving, synchronised swimming, water polo finals and the swimming discipline of the Modern Pentathlon. Designed by international award winning architect Zaha Hadid, the Aquatics Centre will have a capacity of 17,500 during the Games, reducing to a maximum of 2,500 in legacy, with the ability to add 1,000 for major events. The Aquatics Centre will provide two 50m swimming pools, a diving pool and dry diving area - facilities London does not have at present.

Following intensive consultation with disability groups the design has been developed to ensure the Aquatics Centre will be fully accessible during the Games and in legacy. The Aquatics Centre will include six lifts during the Games, four of which will be temporary leaving two remaining in legacy. All the lifts hold 17 persons and comply with the EU disabled access lifts standards. The access is designed to require a maximum wait for disabled spectators of just a few minutes.

The training pool has moveable floors throughout and the competition pool has a section of moveable floor. The dive pool also has a moveable floor. Consultation is under way with a specialist consultant regarding a pool lift.



Courtesy of the ODA

TALK about accessibility and the reaction of many is that this an issue synonymous with disability. But it is important to recognise that ease of movement, whether in the home, the workplace or in places of entertainment is an important – and growing - issue for a wider cross-section of society. Responding appropriately to this need offers great opportunities for the lift and escalator industry.

For example one sector of the economy that is proving to be resilient is driven by the growing number of affluent old-age citizens (also known rather more appealingly as the 'silver foxes'). This is the more positive aspect of the demographic challenge facing society than the more familiar one of concern about fewer younger people available to support more and more older dependents. This is a challenge not only for the UK but for many other countries in Europe.

Back in 2005 for example, the theme for the Annual Assembly of the European Lift Association (ELA) of which LEIA is a member, was *'The ageing European population: opportunities for the lift industry?'* Professor Dr Monica Haussler-Sczepan gave a powerful combination of research, academic rigour and commercial reality. Citing a comparative study between East and West Germany it was established that people aged 55 or over living on the 5th floor or above only rarely have access to a lift. In the East 39% of this group have use of a lift and in the West only 12% of the members of this group. She commented, " If we take the German East-West relationship as typical of European trends this would mean that 'good old Europe' is indeed growing old whereas the new regions in the East have necessarily become more modern, because they are starting from scratch."

Four years later, ELA President Michel Chartron raised the issue again in his presentation at the General Assembly in Madrid. He pointed out that affluent older people tend to buy more expensive apartments on the top floor of buildings – therefore lifts are essential. Older people also prefer to stay at home as long as possible, which the state should also prefer, on grounds of economy. So there is a need for greater implementation of innovative but realistic solutions available, such as fitting lifts in stairwells, or externally. Moreover, as stairs are the place where most accidents happen in any building, new residential buildings and individual houses should at least have a space reserved for lifts.

Michel Chartron described how in Sweden, with its population of nine million, there are 75,000 residential buildings of three storeys or more without a lift. A subsidy was proposed which would have paid 30% of the installation costs, but was then cancelled, resulting in media headlines describing thousands of older or disabled citizens being stuck in their apartments.

There is another influential market that can drive the need for more lifts, says Michel Chartron. This is the European tourism market, where people with means – usually travelling in pairs or small groups – expect to be able to move around easily. According to European Union (EU) figures, the tourism industry indirectly generates more than 10 per cent of the EU's Gross Domestic Product. Here the picture is more encouraging, with better progress on accessible transport – Chartron cites London Underground and the Madrid Metro as good examples – than on housing.

What next?

In 2010 the report *Housing our Ageing Population: Panel for Innovation* was published, with ten key design elements considered essential to achieve objectives. Lifts were not mentioned, a point quickly taken up by a number of housing professionals reviewing the report in the sector's press. With the current cutbacks on local government spending, there will be pressure to reduce budgets wherever possible, making the need for persuasive long term argument for providing vertical transportation more freely available.

At the beginning of 2011, two research projects were announced within days of each other. Newcastle University is carrying out a groundbreaking study into health and social care provision for the UK's ageing population. Led by Professor Feng Li, of Newcastle University's Business School, the £2 million project will investigate how sustainable assisted living technologies and services can help older people remain independent in their own homes for longer. Lifts and escalators will not feature in this work.

At the beginning of 2011, the UK 's Technology Strategy Board and the Design Council announced their Home and Away partnership, launching a £600k investment seeking to generate innovative solutions to help people live independently for longer. This may provide opportunities for lift makers to develop new products.

As Professor Dr Monika Haussler-Sczepan of the University of Applied Sciences, Mittweida in Germany pointed out succinctly, "The European society will carry on ageing - indeed you will not find any other market in the future!"

CASE STUDY

The Hong Kong Housing Association has a stock of about 710 000 public rental housing units in some 160 estates. The stock is a combination of new estates and others that were built some 40 years ago. To monitor the structural integrity of the older estates and to carry out the necessary structural improvement works, a Comprehensive Structural Investigation Programme is carried out to determine whether they should be redeveloped or preserved.

Once the estate is given a clean structural bill of health, the next step is to carry out an Estate Improvement Programme (EIP) which focuses on rejuvenating the older estates by upgrading existing provisions to suit the tenants' needs. Works include enhancement of recreational facilities to cater for the ageing population, provision of barrier free access such as the addition of lifts and tactile guide paths, increased signage and facelifts to the external façade and public areas, and greening to provide a pleasant environment for tenants.

A typical site is Choi Hung Estate which, like many other older estates in Hong Kong, is conveniently located and has a spacious layout enhanced with mature trees planted in the 1960s. However, before the EIP there was no lift access to all the floors in some of the blocks. Now new lift towers have been added to all the low blocks. It was not easy to come up with suitable locations and designs for these lift towers given the various site constraints such as limited space for construction work and the difficult geotechnical conditions.

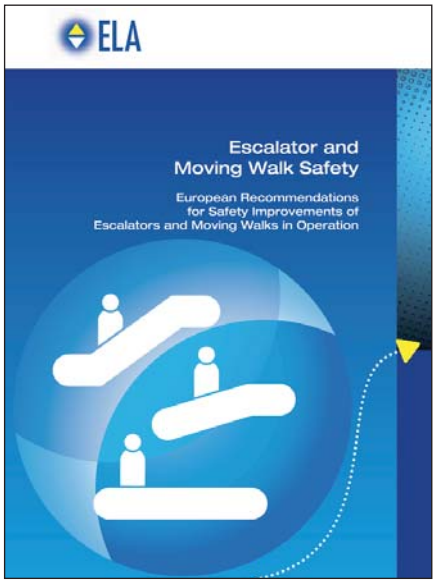
But as Hong Kong Housing Association's Managing Director says, "I was delighted to hear that with the collaboration of the Estate Management Advisory Committee and input from local tenants and district councillors, the new lift towers were finally completed last year and have been thoroughly welcomed by tenants."

Escalator and moving walk safety

IN THE eyes of the general public – and indeed many owners of transportation products - one escalator or moving walk may seem much like another. However, this is not true. In the interests of safety, the industry analyses accidents and events in order to develop modern products that incorporate improvements and new features. But there are many installations of considerable age that are still in regular use, which have not benefitted from this technical updating.

In fact, there are more than 75,000 escalators and moving walks in operation in the European Union, of which over 50% were installed in the last century. In the UK there are some 7,500 units which handle approximately 75,000,000 passenger movements each day. As passengers ride on the product they are unlikely to be aware that the risk they are exposed to varies depending on the age of the equipment, but rightly expect operators and suppliers to find ways of reducing that risk and improve safety.

In response to this obligation, a new



European standard BS EN 115-2:2010 was published in 2010. It defines a common approach to improving safety and describes clear procedures for achieving acceptable safety levels in existing units. Based on risk assessments, this standard categorises various hazards and hazardous situations, and also lists risks and corrective measures which can be implemented in a sensible step-by-step manner by escalator and conveyor owners.

The European Lift Association (ELA) has produced a brochure, which describes the key risks and corrective measures for achieving acceptable safety levels described in BS EN 115-2:2010.

LEIA considers the brochure to be an excellent tool for owners and operators that clearly identifies to laypersons where risks may lie and how to reduce them.

Society's expectations of safety are continually evolving. What was considered safe in 2000 may not be considered as safe today. New technologies and social expectations have led to today's state of the art for safety, which is based on the European Machinery Directive 2006/42/EC as expanded in the harmonised BS EN115-1 standard for new products. Now BS EN 115-2 Rules for the improvement of safety of existing and moving walks has been published. LEIA fully supports the introduction of this standard that aims to improve safety levels in older products and recommends that persons responsible for such equipment respond appropriately to the advice it provides.

Common Sense, Common Safety

LEIA's commitment to maintaining high standards of safety and training throughout the industry is reflected in the work of its five specialist committees. This edition of *Industry in Focus* highlights some of the outputs of this work, including the Safe Working Charter (page 3) and the brochure on safety improvements to existing escalators and moving walkways produced by the European Lift Association (ELA) of which LEIA is a member.

Nevertheless, the impact of an increasingly litigious society on commerce and industry combined with the low standing of health and safety in the eyes of the public presents a number of challenges to businesses seeking a practical and effective balance. The report Common Sense, Common Safety by Lord Young, following his review of the working of the 1974 Health and Safety at Work Act, makes refreshing reading.

Lord Young stresses that none of his recommendations apply to hazardous occupations, pointing out that the present system, although probably overly bureaucratic, has been effective in reducing accidents at work to the extent that the UK has the lowest number of non-fatal accidents and the second lowest number of fatal accidents at work in Europe.

However, Lord Young believes that the growth of unreasonable claims is largely the result of the way in which sensible health and safety rules that apply to hazardous occupations have been applied across all occupations. "The result is that businesses now operate their health and safety policies in a climate of fear. The advent of 'no win, no fee' claims and the all-pervasive advertising by claims management companies have significantly added to the belief that there is a nationwide compensation culture."

Lord Young highlights the role that the Health and Safety Executive (HSE) and local authorities have in promoting a common sense approach to health and safety. He also criticises the lack of qualification standards for health and safety consultants which often results in an overcautious approach leading to excessive and unwarranted costs to business and the voluntary sector.

He calls for professionalising health and safety consultants with a qualification requirement that all consultants should be accredited to professional bodies. "Initially the HSE could take the lead in establishing the validation body for qualifications, working with the relevant sector and professional bodies. However, this function should be run by the professional bodies as soon as possible."

Other recommendations include:

- consolidating the current raft of health and safety regulation into a single set of accessible regulations
- opening the delivery of inspections to accredited certification bodies, reducing the burden on local authorities and allowing them to target resources at high risk businesses
- the HSE should also re-examine the operation of the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 to determine whether this is the best approach to providing an accurate national picture of workplace accidents.

More information can be found at: http://www.number10.gov.uk/news/latest-news/2010/10/lord-young-report-55605.

Major payment changes in the pipeline

Professor Rudi Klein
Chief Executive
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MAJOR changes to payment processes in the construction industry will come into force on 1 October 2011. This is the date on which Part 8 of the 2009 Local Democracy, Economic Development and Construction Act will be implemented. Part 8 amends the Construction Act which came into force on May 1998.

Shortcomings of the Construction Act

If there was a poll of firms in the construction industry the majority would probably conclude that the Construction Act has been very successful.

In support of this they would cite the restrictions on withholding payments, the (limited) ban on pay when paid, the statutory right of suspension for non-payment and adjudication.

But, since the Act came into force, shortcomings have emerged. These can be summarised as follows:

- Payment notices – indicating the amount the payer intends to pay – are rarely issued since there is no statutory sanction for non-issue.
- Where there are disputes between the payer and payee (and there is no provision for an architect's/engineer's certificate) over amounts due, the only way to resolve them is to go to adjudication for a decision; this undermines the aim of the Act which was to define the amount that would be payable by the final date for payment.
- The ban on pay-when-paid was being circumvented by pay-when-certified provisions that make the timing of or entitlement to payment dependent upon the issue of an architect's/engineer's certificate under the head contract.
- Adjudication was becoming too costly as a result of lawyers arguing over whether or not the adjudicator had the power to decide the dispute.

Defining the final amount to be paid

The payment provisions have now been completely re-vamped. The basic obligation of the paying party is to pay the **notified sum** on or before the final date for payment. All contracts will have to specify **who** is to issue this notice. This could be the payer, payee or a specified party such as an architect. The notice must be issued no later than five days after the payment due date.

Notified Sum

The payer/payee/specified person must state the sum in a notice which he considers to be or to have been due at the payment due date. A key requirement of this payment notice is that it must set out the basis of the calculation of the specified sum. It is not enough to simply state that the sum of £100 is due; an explanation of how this figure has been arrived at must be provided.

What happens if the contract states that the payer is to issue a notice and he fails to do so within five days of the due date? His excuse is that he has gone on holiday and has forgotten to issue the notice. On the expiry of the five days the payee can issue his own notice. If the contract allows the payee to make an application beforehand, that application will automatically stand as the default notice.

What about withholding notices? Well, we will have new terminology; **a notice to pay less**. Irrespective of who has issued the original notice, the payer will have the right to subsequently issue a notice to pay less than the notified amount. This notice will have to be issued within a period before the final date for payment, such period to be stipulated in the contract. The notice must state the amount that the payer considers due on the date it is served and must set out the basis of the calculation.

It is worth noting that these notices to pay less will, therefore, require rather more information about how the sum has been arrived at than is currently the case with withholding notices.

Other changes to payment provisions

There are two other key changes. To deal with the problem of pay-when-certified clauses, the Act has been amended to outlaw such provisions and similar conditional payment provisions. The impact of this will be immediately felt in the context of sub-contract retention provisions. Often the release of sub-contract retentions is made conditional upon a certificate such as a *Certificate of Making Good Defects*. This is, in effect, a pay when certified provision. Under the amended Act this type of retention arrangement will be outlawed.

Finally, the suspension provisions have been strengthened. If the payee has to suspend his contract for non-payment he will be able to recover reasonable costs and expenses incurred during the period when he was inactive because of the suspension. This could, conceivably, include the cost of any legal advice sought before he exercised the right of suspension.

Moreover it is now made clear that he can suspend **any** or **all** of your contractual obligations. If the contract, for example, requires the payee to issue any paperwork to his client or customer such as a warranty or an O&M manual, the payee could refuse to issue such documentation until outstanding payments have been discharged.

Changes to adjudication provisions

There are concerns over the increasing costs associated with going to adjudication. Adjudication was intended to be a quick and inexpensive means of sorting out disputes on a temporary basis. Although the adjudicator's decision was binding, parties could still have the dispute re-heard in arbitration or litigation. In practice the adjudicator's decision usually concludes the matter.

The increased cost of adjudication is partly due to legal challenges to the powers or jurisdiction of the adjudicator. One popular challenge is to claim that the contract was not wholly in writing and, therefore, the adjudicator could not deal with it. The protection provided by the Act was made available to those parties entering into written contracts. Court decisions have made clear that this requirement really means that all the contract has to be in writing. Hence adjudicators have been challenged if a party claims that some of the contract had been agreed orally or by word of mouth.

This limit on the scope of the Act has now been swept away. Any contract whether written or oral or partly written/partly oral will come within scope of the Act. This, therefore, will help in reducing challenges to the adjudicator and, thus, reduce the cost of adjudication.

Will the changes make a difference?

The changes to the payment provisions can appear to be complex. The lift industry and its customers will need to come to grips with them in order to ensure that the payment process runs smoothly. Nonetheless the new provisions will now define the amount to be paid at the payment date so that everybody should know where they stand. This, after all, was the aim of the legislation as originally drafted. The outlawing of pay-when-certified and like provisions will deal a blow to anti-avoidance mechanisms and the re-enforcement of the suspension provisions is, of course, welcome. In time of great uncertainty and a predicted rise in insolvencies in 2011 these measures are much needed[1]. Hopefully, they will not arrive too late.

[1] There were 565 corporate failures in the construction sector in the last 3 months of 2010 making it the worst affected sector for insolvencies. Next came manufacturing with 410 and retailing with 399 (figures courtesy of PricewaterhouseCoopers).

Energy efficiency

Until relatively recently, energy efficiency has not been seen as a major driver for technological change in lift and escalator manufacture. Vertical transportation has been seen as a very modest consumer of energy compared with other costs of buildings and infrastructure. Lifts and escalators also operate with a long lifetime, for example it may take between 15 and 30 years before major retrofitting of lifts becomes necessary. As a result lift companies have focused on issues such as compact design, ride comfort, security and reliability.

However, there is increasing interest in energy efficiency, and according to a recent research project led by the European Lift Association (ELA), there is technology available that offers potential savings in energy consumption for both lifts and escalators. But take-up of this technology is proving to be slow.

The Energy Efficient Elevator and Escalator project (E4 project) included a comprehensive review and analysis of existing lift and escalator technology, the findings of an energy monitoring exercise (carried out on 74 lifts and seven escalator installations in four countries) and a set of conclusions and recommendations on how to address greater take-up of energy efficient technology in the sector. In addition there are some innovative suggestions for energy efficient action.

The main conclusions of the E4 report are that the lack of reliable data on energy consumption of equipment hampers informed debate and that there is a general lack of awareness and knowledge of the energy efficient technology available. Other barriers to the take-up of energy-efficient technology, eg lack of time, reliability of technology, or legislation, only play minor roles. However whilst the lack of capital is not seen as a a major problem, price is crucial.

Standby consumption

The Secretary General of ELA, Luc Rivet, comments, "The most important and immediate area of improvement is the drastic reduction of consumption of lifts when they are not used. Lifts can stay for hours in standby; it is therefore totally useless to have the lights on in the car and the shaft, to have continuous pressure on the automatic doors and to have other essential parts of the lift in a relatively highly-consuming standby mode.

The industry is aware of it and many new generations of "green" components are appearing on the market to enable manufacturers to create sleep modes and "light" sleep modes that will slash consumption of lifts."

Communicating information and knowledge is challenge for an industry where the user chain is complex. In addition to the manufacturing and maintenance companies, other stakeholders and players are involved in the process of choosing a new installation or in the decision making processes related to retrofitting an existing one.

The E4 project players

Energy-Efficient Elevators and Escalators (E4) is a project supported by the European Commission's Intelligent Energy Europe Programme. The partners were: The European Lift Association (ELA) of which LEIA is a member, the Italian National Agency for New Technologies, Innovation and Sustainable Economic Development, the Fraunhofer Institute for Systems and Innovation Research (Germany), the Polish National Energy Conservation Agency (KAPE) and the research and technology transfer unit of the University of Coimbra (Portugal). The project was targeted at the improvement of the energy performance of elevators and escalators, in the tertiary sector buildings and in the multi family residential buildings. Elevators and escalators are the crucial element that makes it practical to live and work several floors of above ground.

The E4 authors point out that the scope of the present study is obviously limited and results give a simplified picture of the European lift and escalator market. The EU consists of 27 heterogeneous countries, in regard to size, population density, demographic structures, as well as economic development – these and other factors have strong implications for the lift and escalator market. However the findings raise useful issues for further debate. For more information or copies of the full report, contact ELA.

Overall conclusions

1. A European standard for measuring the energy consumption and calculation of energy demand of lifts and escalators is needed. This kind of standard is the basis for comparisons between more and less energy-efficient technology and the existence of a standard will already contribute to raise some awareness.
2. Lifts and escalators should become subject to legislation and regulation concerned with the energy efficiency of buildings, namely, they should be specifically mentioned in the Energy Performance of Buildings Directive (EPBD).
3. Campaigns and material directing attention to the issue of energy efficiency of lifts and escalators is needed to support decision-making processes. The most important groups to be addressed in these campaigns are, on the one hand, those involved in decision-making of installations for new buildings, i.e. general contractors, architects and construction engineers, on the other hand, those involved in maintaining lift and escalators services in buildings, building administrators and operators.

Regeneration

Elevators do not only consume energy, they may also generate electricity when they are going up or down, depending on the loading condition. This is advantageous for several reasons: a) this electricity may be used by other devices, b) the energy created when the elevator is going down can be turned into electricity and fed to the grid, meaning less effort is needed for cooling – thus even less energy is consumed.

From a technical point of view, today it is neither complicated nor expensive to include regeneration in the lift system. It is a useful feature to increase energy efficiency for many installations, especially those with a high traffic. However, precise knowledge about regeneration is scarce, even among manufacturers of lifts, and potential costs vary greatly. Moreover the impact of legislation is unclear in several countries, ie whether it is legal to feed electricity into the grid which is not consumed by other electrical devices immediately. The report authors propose more investigation into these issues.

Further potential to save energy can be found at the interface between lift and building. Lift shafts usually contain shaft vents which are or were considered necessary for ventilation and in case of fire. However, they also act as connections to the outside, i.e. letting in hot air in the summer and cold air in the winter. Intelligent solutions to prevent this are available on the market, but are not installed very frequently.

Accessibility and alternatives to lifts

The European population is ageing, awareness of accessibility issues is rising and people are constantly expecting more comfort in their everyday environment. Thus the demand for vertical transportation is expected to grow in the coming years. Lifts are an important mean of enabling everyone to have access to the built environment. (See also page 8.)

However non necessary installation and use of lifts is an issue that should also be considered when energy efficiency for lifts is being discussed. For instance, in hotels or office buildings, staircases are sometimes hard to find and less attractive to use; thus everybody takes the lift, even healthy people. If staircases were as obviously indicated as the lift it may sometimes be possible to reduce a bank of lifts, for example from three to two, reducing energy consumed by vertical transportation without limiting accessibility.

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Photograph courtesy of Zaha Hadid Architects