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# Standards can be the motor for innovation

**The comprehensive set of standards makes lifts safe, briefs architects and makes owners accountable. Information from a lift manufacturer.**

Text:  
K bi Gantenbein  
Photo:  
Mike Niederhauser

Elisha Graves Otis was an unsuccessful inventor for many years. That all changed at the World Exhibition in New York in 1854. At this exhibition, a friend of Otis stood on a platform and was hoisted high into the air. Then Otis handed his friend an axe on a cushion to sever the rope holding that same platform. The rope broke. The spectators cried in horror, but nothing happened to Otis's friend, and the lift only dropped a couple of centimetres. An invisible fall arrester or governor device had prevented the platform from crashing down because Otis had attached the rope to a hard steel spring. The weight of the platform

had kept the spring tense until the rope tore. Then the spring relaxed and latched into the toothed gear rail next to the guide. All safe, gentlemen, proclaimed Otis. The non event was the highlight of the spectacle. Otis was not only guaranteed fame and respect, as the inventor of a lift which would enhance living and working in skyscrapers, he had also revealed the myth of technology: its success is always a hair's breadth from potential failure. What a lot of energy, skill and knowledge we exert trying avoiding that failure! Nevertheless, we still have an uneasy feeling when we board an aeroplane or get into a car or even a lift equipment not created for land animals. Bernhard Emch studied engineering and, as Director of the Emch Elevator Company, is the fourth generation of the family to manage the company. The folding doors close and the lift leaves.

### **Is that uneasy feeling you get in the lift cabin on the 25th floor understandable?**

**Bernhard Emch:** Based on the hundreds of thousands of kilometres which lifts travel annually, and based on hundred of thousands of passengers, the lift is the safest means of transport. It is more likely that lift fitters and service engineers feel uneasy, because, despite numerous workplace safety measures, about a hundred workers have had accidents in the last ten years. So, people who talk about safety should never lose sight of the workers in and around lifts.

### **Who is responsible for lift safety?**

The lift companies as manufacturers, the building proprietors as lift owners and the state as guardian. Legislation regarding lifts is a detailed catalogue of regulations based on product safety laws and accident insurance. Switzerland is unreservedly European in this case because we adopt laws and regulations in full from the EU. In addition, there are lift industry technical standards, laid down by the CEN Commission, the European Standards Association. They apply to building new lifts, not for renovation or repair. In 2017, two new standards, which compile all experience gathered in recent years, will replace the lift standards in force today.

### **What impact do new standards**

#### **have on architects and the building industry?**

About 90 percent of the new standards have an in-house impact. They concern the design and technical characteristics of components, testing the components and lift systems. About five percent concern the design and construction. For instance, there must be sufficient space in the lift shaft and on the lift roof so service engineers can work safely at all times. Finally, the last five percent of the new standards affect architecture and aesthetics: the walls of the shaft must be fitted with thicker laminated safety glass. Dainty profiles will make way for sturdier ones.

#### **More space in the lift shaft can have a considerable impact on spatial conditions. How does Emch inform architects about the building consequences?**

Every one of our lifts is tailor-made, whether it is brand new or remodelled. The architect cannot just download the lift shaft dimensions and add them to his plans. Our employees, of course, know the standards and develop the specifications with the architects. Our development department meticulously works out how spatial conditions, technical standards and construction dovetail.

#### **How do the amended standards affect the company?**

Work at Emch is divided into three roughly equal parts: new lifts, modernisation work, and maintenance services. The new standard applies only to newly built lifts, but there are consequences for the other areas, too. Amended standards are costly. Even a manufacturing company like Emch relies on clearly organised processes and automatisms. It takes a great deal of learning to alter habits. Development, planning, interface between architecture and building, sales, administration, all the cogs and wheels need readjustment. Innumerable documents have to be rewritten and learnt. No association does this task; each company runs its own training courses.

#### **The tight network of statutory and normative regulations determines technology. What differences are there between lift regulations and standards? How important are the factors which determine standards?**

Standards aim to prevent accidents from happening and to avoid any subsequent blame or liability. Regulations are laws which apportion blame or liability. Standards are negotiated as part of a complex process, and the oppor-

tunities are not the same for small lift manufacturers and large lift manufacturers. A large company can afford specialists who not only deal with the standards but also represent the company at the CEN. It is obvious that this does not have a detrimental effect on their company even when they are primarily interested in good standards for everyone. A middle-sized company like us, not to mention really small companies, is pushed to its limits.

#### **Does the tight network of standards allow any scope or does it just make everyone and everything the same?**

Standardisation offers Emch scope where we already have our strengths: Ours is not mass production, we create individual articles. So, we can develop our own processes. Standards can be the motor for innovation. They might turn out to be standards with time. Then we are, once again, one step ahead in technical development.

#### **Do the laws governing mass production not apply to individual articles?**

An industry standard covers every link in the production chain. But there are always gaps because something specialised is not the same as the common or garden. We specialise and use these gaps with our own developments. These developments must also undergo a clearly defined verification procedure and obtain a declaration of conformity, which confirms that this single solution fulfils the standards. Thankfully, this is how we create the knowledge and skills which make us stand out from major companies.

**Standardisation offers Emch scope where we already have our strengths: Ours is not mass production, we create individual articles.** Bernhard Emch

#### **What about the monitoring process for the standards? Who checks that the lifts are as safe as you promise?**

The lift manufacturer builds the lift and installs it. Then it belongs to the owner of the building. The owner operates the lift and is responsible for its safe running and is also held liable. With the exception of Zurich, Geneva and a couple of other cantons which have an authority responsible for regularly monitoring lifts and imposing conditions, building owners are not obliged to modernise and guarantee safety by ensuring that their lifts have state-of-the-art technology. In the other cantons, we draw the owners' attention to any defects we find during maintenance, but it is up to them to act on our advice. We are always available to all customers, but it is up to them to act. ●