

Development, regression, and further evolution of lift safety standards

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Background

Immediately after the Lift Directive 95/16/CE came into force, at the end of June 1999, the President, Secretariat, and technical advisor of the first European association of the SMEs' in the lift sector, ELCA, had the opportunity to meet with the EC desk officer in charge of the Lift Directive implementation. ELCA had been founded just one year before, in 1998, on the acknowledgement that all the important matters and discussions concerning lifts would be dealt with in Brussels. In most cases, the European Commission would be directly involved. Moreover, the new European standards EN 81 – 1 and EN 81 – 2 had just been published and harmonised: they were expected to provide a possible means of compliance with the Essential Health and Safety Requirements (EHSR) of the Directive.

The environment for the European lift SMEs was quickly changing and, they had to make the appropriate move to cope with such big change. Since then, many things have happened, very often in relation to the need to ensure that the development of the lift safety standards are in line with the indications given in the Lift Directive. Most of the players involved in such exercises had a lot to learn, because of the **new approach introduced by the EHSRs of the Directive**. These EHSR were indicating performance requirements and no longer prescriptive ones, as it had been done by lift safety standards. This opened a fairly long period of rather harsh debates on the most appropriate interpretation of some EHSRs, especially of those that seemed to be limited only to a few, quite short, items in Annex 1 of the Lift Directive. **There was a special focus on the consequent apparent lack of appropriate instructions and of the availability and information on the use of special tools**. SMEs thought they should have been more clearly specified in the relevant safety standards EN 81 – 1 and EN 81 – 2.

The discussion in ISO

While these discussions were going on in Europe, at ISO TC 178 there were several activities to identify the main differences among the major worldwide safety standards for lifts. The target was to find **convergence on commonly agreed procedures for the verification of conformance of newly installed lifts, worldwide**. This work took quite a long time as the experts highlighted for each specific national standard all the specific items, they did not consider sufficiently equivalent to similar items provided by the other standards. At the end of the convergence process, it was agreed that **the latest versions of the European standards EN 81-1 and EN 81-2 were the most comprehensive and acceptable compendium** of all the necessary safety requirements for lifts. Therefore, they were taken as the basis for the commonly agreed ones, acknowledging they could be slightly modified to the satisfaction of the other national teams.

Only recently, further to the debates concerning the standard ISO 8100-20 on the Global Essential Safety Requirements for lifts, it was evident that, in this standard, **several important requirements were missing**.

We strive to have all the specific requirements supplied with all lifts containing the documentation for instructions, maintenance, repair and use of special tools, i.e. those tools that need to be supplied by the manufacturer when the lift is handed over to its owner.

European standards EN 81-20 and EN 81-50

A lack of **proper documentation** can also be found in **European standards EN 81-20 and EN 81-50**. This is because, in the latest published version, there are only limited indications that mainly refer to the standard *EN 13015 - Maintenance for lifts and escalators - Rules for maintenance instructions*. In our opinion, in EN 13015 there are only vague and generic indications on how to write such instructions, not really about the specific content of each specific instruction to be provided for a specific lift.

The recent refusal by the European Commission, to harmonize the text of a set of standards for lifts, including EN 13015 and the new revision of standards EN 81-20 and EN 81-50, highlighted that **they do not fully comply with the recent Mandate M/549**. This is the Mandate given by the European Commission to CEN for the revision of all the lifts' safety standards to make them comply with the requirements of the recently updated Lift Directive 2014/33/EC. This Mandate highlights, among other important issues, **the need to specify, in the safety standards for lifts**, which are the instructions that must be provided, as required by the Directive, by the installer with every lift being placed on the market.

The North-American market

In the Working Groups developing the standards, there are very knowledgeable experts from companies operating also in the North American market. We assume that, for that market, they are bound to implement the mandatory prescriptions of the local safety standards for lifts. These are the A 17 family in USA and CSA B44 in Canada, for instructions and special tools. It might appear very strange that they never highlighted the need to comply with similar prescriptive requirements. In fact, in those standards there are whole sections dedicated to such requirements that are mandatory and are clearly identified and explained with all the necessary details. For instance, ever since the early versions of the North American standards, there is a specific section, **section 8.6**, that provides almost seven pages of specific instructions on how the lift manufacturer has to detail the instructions for “**maintenance, repairs, and replacements**” of each lift. These instructions include also the details on how to prepare a specific manual for the planned maintenance operations. These operations are to be carried out for any specific lift, according to the instructions of the lift manufacturer, for the whole operational lifetime of the lift.

More specifically, item **8.6.1.2 General Maintenance Requirements**, in clause **8.6.1.2.1**, requires that a **Maintenance Control Program** shall be provided, giving precise indications to keep the equipment in line with the requirements of section **8.6**.

It is indicated that the **Maintenance Control Program**, which shall be made accessible to the lift personnel, shall specify at least:

1. the scheduled intervals at which the examinations, maintenance, and tests of equipment shall take place, considering the need that such procedures and intervals shall be consistent with:
 - the ageing and wearing out of the equipment, its design and original quality,
 - its average usage, in addition to the environmental conditions,

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- any possible improvement of technology
- 2. the need to regularly lubricate, clean and adjust the relevant components, in addition to maintaining the installation in compliance with the specifications of section 8.6 by repairing or replacing any defective or worn components, when necessary.

At the lift controller, Instructions shall also be provided concerning how to find the location where the **Maintenance Control Program** can be retrieved, how to fill in the reports on corrective actions and, also, any other information that shall be made available to the responsible party.

Practically, in item 8.6.1.4 **Maintenance Records**, clause 8.6.1.4.1, it is specified that there shall also be, at the lift site, **a logbook in which the description and dates of all the maintenance and testing operations shall be recorded**. This, in addition to all the relevant information concerning, for example, dates of call-backs or other reports given to the lift personnel, including also the relevant corrective actions taken, if any.

Section 8.7 - Alterations, also includes more than ten pages with the **description on how to modify existing lifts according to a new version of the standard**. A quick investigation in which we involved some companies based in Canada confirmed that the lift inspectors, who have to check the compliance of the lifts with the applicable standards, would never allow any units to be placed on the market, **if the whole set of instructions had not been properly provided to the lift owner**. It is then quite surprising that most of such experts insist to keep to the minimum the number of instructions to be mentioned in the new European standards. It seems that they even try to oppose the legitimate requests by the European Commission responsible to verify the compliance of such standards with the EHSRs of the Lift Directive. The fact that in the North American markets the inspectors verify all the documentation of the lifts, is certainly based on the assumption that the presence of such documentation is fulfilling an Essential Health and Safety Requirement that is intended to allow the owner of the unit to freely select the organisation servicing his lift.

This is indeed a legitimate expectation of the lift owners. **Thanks to the detailed instructions provided by the manufacturer before starting the operation of the lift, the owner is assured about the safe and efficient operation of his/her lifts for their whole operational lifetime**, independently of whether the lifts are maintained by their manufacturer. The requirements necessary for the instructions as listed above, are indeed a set of Essential Safety Requirements and the inspectors in the North-American market duly refuse to let the lift operate in their absence, as they would do if any of the other, more explicit, safety requirements were not properly implemented. Indeed, **such instructions, when properly implemented, provide the necessary level of safety of each lift also for the years to come**.

The Chinese market

In China, the lift safety standards were fully based on the EN 81-1 and EN 81-2. With the tremendous growth of the Chinese market of new lifts, from 120k lifts/year in 2009 to 650k lifts/year in 2018, the limited number of knowledgeable maintenance and repair personnel could hardly cope with the number of new units. On the other hand, the lack of appropriate instructions, typically the operating and life-saving ones that should be provided with each lift according to the requirements of the appropriate standards, did not help the service newcomers, and led to an increasing number of major accidents and a proportionally high number of fatalities (an average of 40 per year). As a consequence, the authorities and the lift associations decided to **develop their own safety standards for installation and maintenance of lifts**. If the revised



European standards duly include, as required by the Lift Directive, the need to provide the necessary operating and life-saving instructions for each lift, this decision might be reverted. Nevertheless, we understand the need for the Chinese authorities and operators to eliminate the risky situation of having lifts placed on their market without the appropriate amount of life-saving instructions, in line with the ones originally assumed as necessary by the other major standards and also by the European Lift Directives.

We still trust the ability of CEN to quickly adapt to this urgent need and to improve the existing lift safety standards according to the EC Mandate M/549 and, more broadly, to market needs.

Latest ongoing developments

The more recent evolution on the exchange of data between lifts and their service centres, either directly or via internet-based means, is further sparking new ways to carry out lift monitoring, maintenance operations and their planning. These means, at present, tend to be a sort of proprietary tools that are considered by the lift manufacturers as belonging only to them. If the data produced by the lifts during their operation, independently of who is servicing it, would be made available only to their manufacturer, they may not be easily retrievable or understandable by any third parties selected by the lift owners.

This might indeed cause great detriment to the lift owners, because they may not be able to have the same maintenance operating procedures and actions, by any third-party service providers, as those planned by the original manufacturers. This although the third parties might be usefully updated by the use of those data produced and made available by the lifts. If this is this case, the need for the lift installers to provide complete instructions to the lift owners, shall include also **appropriate means of accessing the data produced by the lifts during the whole of their life.** In addition, the availability of a common, or easily interpretable, “language” to be used for the exchange of information between lifts and service centres shall be included in the set of instructions. This seems to be the only way to guarantee the lift owners that, in the whole life of the lift, **the level of safety or efficiency of their operating units will not be endangered by a lack of or an insufficient initial set of mandatory instructions.**

A further question comes to mind: would the North-American lift safety standards be further updated to cope with these newly developing situations?

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