



Safety Norm for Existing Lifts
EN 81-80:2019

WHITE PAPER

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Introduction

Lifts, escalators and moving walks are used more than 1 billion times a day in the European Union. It is the most used vehicle for travelling, and the safest by far. The community of the travelling public appreciates the mobility and accessibility that lifts, escalators and moving walks provide to all groups in the community. They also expect that their journeys are made as safe as possible, but this goes without saying and the ride comfort is so high today with the new smooth ride experience and perfect levelling accuracy that the user does not even realize or perceive that he is entering or leaving a lift (conversations continue, documents or business cards are exchanged, introductions made and lots of laughter heard on travelling lifts, etc.).

The lift brings us together. It is one of the few meeting points in today's vertical cities. That is where vertical neighbours get to know each other, that is where people meet, that is where life goes by, uninterrupted.

More than six million lifts are in use today in Europe, to the satisfaction of the immense majority of users. But not everything is perfect. In many countries, more than half the existing lifts are 25 years old or even older. Only few of them have been modernized to meet current requirements and the state of the art in safety and performance. Unfortunately, accidents, even fatal accidents still happen every year. The lift industry is aiming at making the lift ride absolutely safe and for everyone the "No Compromise on Safety" philosophy, is the base. The lift may not fail "sometimes". It should never fail. The users give their own life to the lift and does not expect to encounter any problems. And so, it should be. Contrary to most other transport means, lifts are used mostly by persons who are not the owner or the "driver" of the vehicle.

Ageing lifts can be made safer, more energy-effective, more reliable and comfortable through regular maintenance and through improvements, e.g. modernizations and technical updates.

This document is a revision of information materials produced in the spring of 2013. It is a milestone in the long process that, through best practices exemplified further in this document, will strengthen the focus on the safety level on existing lifts. Primarily focusing on lifts that do not carry the CE marking, in other words lifts that were not installed in the era of the European Lifts Directive, but date from before the turn of the century, from 1997.

The fact that some lifts installed in the late 1800's are still functioning is a reminder of the incredible sturdiness and safety of lifts. Even though the average lifetime of a lift is longer than any other common transportation means, the definition of user safety has changed and evolved significantly during the same period of time.

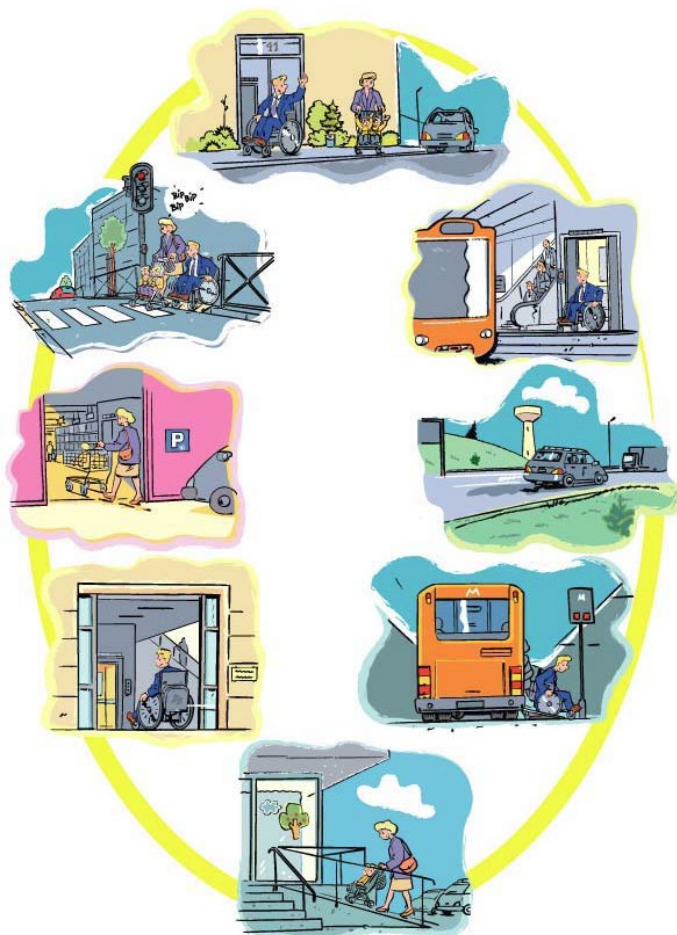
1. Purpose of this White Paper

There is a need for technical and social solutions to facilitate every day's life and to comply with the requirements of an inclusive society. These solutions will impact on all residents of urban societies and people in their work environments, be they young or old, healthy or with restricted mobility. These solutions shall constantly evolve and change according to the "state of the art" in the community.

Building owners and builders are in a key position to provide the necessary infrastructure.

Vertical passenger lifting means and related services are an integral part of the accessibility chain of buildings and of society as a whole.

- This paper provides useful input to improve this "Mobility Chain", with a particular attention given to the vertical passenger lifting means which are present everywhere in the built environment as illustrated below:



- Today available codes of good practice and national laws, based on the transposition of existing European Directives and Recommendations can help achieve this higher implementation level. Allow us to list up the most important among which are:

- EN 81-80:2019 “Rules for the improvement of safety of existing passenger and goods passenger lifts” or so called “SNEL” (Safety Norm for Existing Lifts). SNEL is the known abbreviation for the specialists of the lift industry in Europe, when they refer to EN 81-80.
- Use of work equipment Directive (UWED, 89/655/EC amended by 95/63/EEG and 2001/45/EC);
- Product liability Directive (85/374/EC of 25th of July 1985);
- Product safety Directive for the consumers (2001/95/EC of 3rd of December 2001);
- Directive 89/391/EC of 12th of June 1989 on the introduction of measures to encourage improvements in the safety and health of workers at work.
- Derived Recommendations from the SNEL, defined by the stakeholders of the European Lift Industry, based on robust data analytics, e.g. “Incidents & Accidents Statistics” over years.

- This White paper can be used as a guideline for:

- National authorities to determine their own programme of implementation in a step by step process via a filtering method in a reasonable and practicable way based on the level of risk (e.g. extreme, high, medium, low) and social and economic considerations.
- Owners to follow their responsibilities according to existing regulations (e.g. Use of Work Equipment Directive - UWED).
- Owners to upgrade the safety level of existing lifts on a voluntary basis even if no particular national regulations exist.
- Maintenance companies and/or inspection bodies to verify and inform the owners on the safety level of their installations.
- National authorities, owners and maintenance companies and/or inspection bodies to get inspired by initiatives already undertaken by other member-states that have already adapted SNEL in national regulations or legislations.
- Members of the European or national Parliaments or other public officers.
- The European Commission and other European bodies e.g. the European Economic and Social Committee.
- Associations or other stakeholders.

2. Background

In 2003, the European Committee of Standardization (CEN) has added to its well-known European Standard for new lifts, EN 81-1/2, the key standard for the safety of existing lifts, EN 81-80:2003 – the so-called “SNEL”. This standard was the result of several years of work by committed safety experts from the lift industry, government authorities, third party inspection bodies, consumers’ organizations and insurance companies. Since then, the main lift norm EN 81-1/2 is being replaced by the norm EN 81-20/50, but the on-going process keeps its references for existing lifts to EN 81-80. This creates need to upgrade the EN 81-80:2003 standard as well. The EN 81-80:2019 version reduces the safety gaps of existing lifts and nearer the safety level, which EN 81-20/50 defines for new lifts placed on the market.

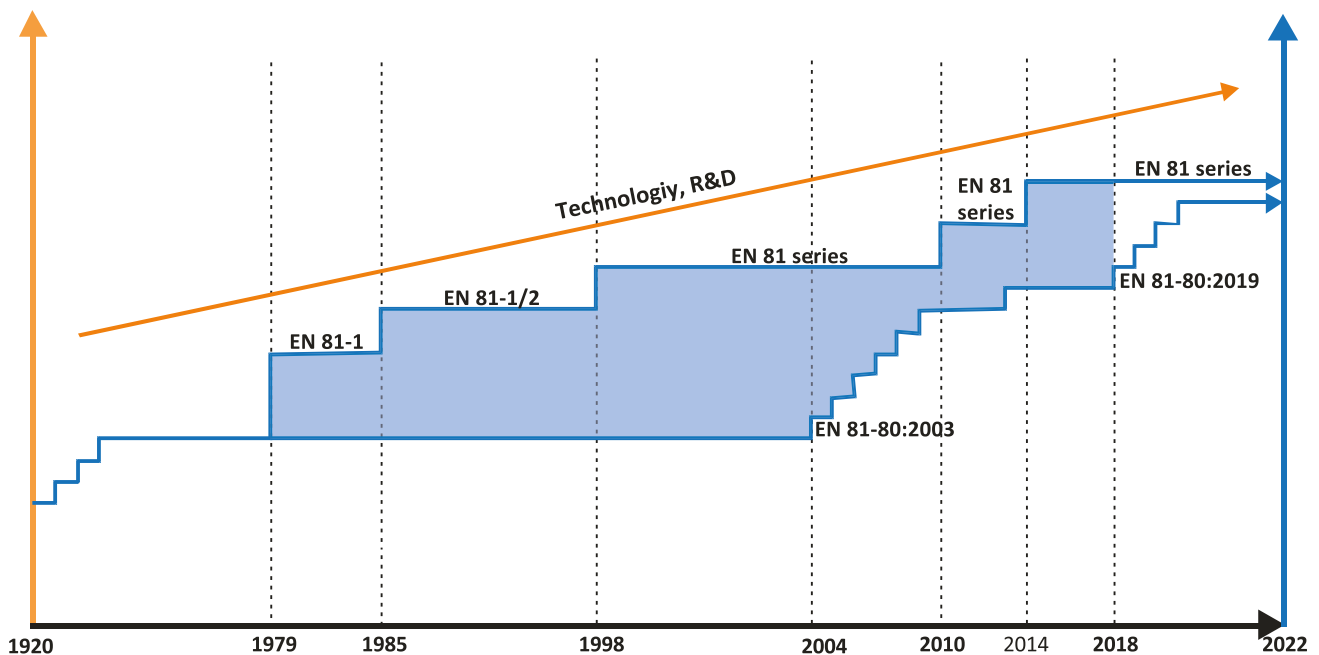
EN 81-80:2019, *Safety rules for the construction and installation of lifts – Existing lifts – Part 80: Rules for the improvement of safety of existing passenger and goods passenger lifts*, categorizes various hazards and hazardous situations, each of which has been analysed by a risk assessment. It then provides a list of corrective actions to improve safety progressively.

According to EN 81-80:2003 the lift should be audited against a checklist of 74 risks, the revised standard – EN 81-80:2019, has 85 risks, some even covering lifts which were placed on the market according to the Lifts Directive 95/16/EC even having CE-marking.

The identification of a risk or hazardous situation can be carried out in the course of any periodical survey or special examination on a given installation, but only technically competent and sufficiently trained persons should be allowed to carry out these examinations. This can be subject to national legislations or regulations.

Once the risks of the installation have been identified through this pro-active assessment or safety audit, improvements can be made (if necessary) by a “step by step” upgrading which can naturally be combined with any modernization being carried out. In addition, preventive maintenance and repairs are necessary ongoing processes.

STEP BY STEP APPROACH OF SAFETY FOR EXISTING LIFTS IN EUROPE



SNEL is an important safety instrument that shows its long-term impact in many countries in Europe. SNEL and its various applications throughout the continent and abroad (Hong Kong, Australia and others) also serve as a benchmark and an example to other countries inside and outside of Europe.

SNEL has to be applied as a technical guide package, to promote the progressive (when?) and selective (what?) maintaining and/or improvement of the safety of existing lifts. This can be seen in decreased accident trend in countries which actively promote SNEL, e.g. by making defined SNEL measures mandatory, even by law or regulation. Thanks to these actions a very clear increase in the European lift safety and accessibility for lift users, lift workers and third-party inspectors shall be reached.

Member States, building owners, lift industry and third-party inspection bodies have a vital interest in understanding the implications of SNEL. They must link up with closely related EU and national existing regulations.

The core message here is that SNEL needs to be applied in a pro-active way. This allows the application of the well-known prevention principle, of taking the necessary and sufficient measures to ensure a safe situation.

This “SNEL” approach, once integrated and well applied, makes the lifts safer for all of us.

The creation, at Member State level, of a specific national law or decree, referring to or based upon this EN 81-80 standard, can give a more mandatory character to it.

3. European Recommendation 95/216/EC (reference to)

When the European Commission (EC) produced the first Lifts Directive, 95/16/EC, all stakeholders knew that the document was only destined to regulate the installation of new lifts, but the very large stock of lifts that equipped the existing buildings throughout Europe remained under the sole responsibility of national governments. Still, the EC, after consultation of the various stakeholders, including EEA and ELA at the time, decided to add a short one page “Recommendation” 95/216/EC with the 10 recommendations to make existing lifts safer, whatever their age. It is only a Recommendation, since the European Commission only sees to the further integration of Europe and not to the existing set of national regulations that remain the responsibility of the member states.

This has been the basis for the lift industry experts, when they set to the huge task of identifying risks that lifts could pose. The Committee of experts provided a carefully detailed list of 74 risks, both to users and to workers. The “10 recommendations” document was the basis for their work on the new norm, the Safety Norm for Existing Lifts EN 81-80:2003 (SNEL).

In 2014 the Lifts Directive 95/16/EC was replaced by the Lifts Directive 2014/33/EU. There has not been developed any additional recommendations according to the new Lifts Directive.

Due to the existence of EN 81-80:2019, it is recommended to use this standard as a basis to improve the safety and accessibility of existing lifts.

4. Statistics about the European Lifts portfolio

Europe is the leading continent by far for the number of lifts installed. The installed basis (more than 6 million lifts) represents some 50 % of the number of lifts installed in the world. This is changing rapidly due to the urbanization of Asia, particularly China, where more than 600.000 lifts were installed in 2018, while Europe only installed some 150.000 units in the same period and America some 50.000 units.

Country	2018		
	Employees	Existing lifts	Total Population
Austria	2.269	122.000	8.823.054
Belgium	2.480	110.318	11.429.336
Bulgaria	2.500	84.000	7.084.571
Cyprus	300	19.106	858.000
Czech Republic	2.240	135.280	10.618.303
Denmark	786	40.626	5.733.551
Estonia	150	5.170	1.309.632
Finland	1.500	65.000	5.523.231
France	17.000	580.000	64.979.548
Germany	17.000	765.000	82.114.224
Greece	3.400	422.100	11.159.773
Hungary	1.450	39.211	9.721.559
Ireland	562	24.370	4.761.657
Italy	23.000	972.000	59.359.900
Latvia	350	6.210	1.949.670
Lithuania	390	8.640	2.890.297
Luxemburg	375	13.200	583.455
North Macedonia	305	10.750	2.065.769
The Netherlands	2.750	99.000	17.035.938
Norway	1.309	39.530	5.305.383
Poland	4.000	118.079	38.170.712
Portugal	2.450	154.467	10.329.506
Romania	2.900	48.346	19.679.306
Slovakia	1.100	47.992	5.447.662
Slovenia	450	10.764	2.079.976
Spain	18.900	1.044.450	46.354.321
Sweden	3.607	126.370	9.910.701
Switzerland	4.100	255.000	8.476.005
Turkey	28.000	485.200	80.750.000
United Kingdom	12.200	303.000	66.181.585
TOTAL	157.823	6.155.178	600.686.625

The European lift industry (including Turkey) maintains some 6 155 000 lifts with a total number of personnel of round about 158 000 employees.

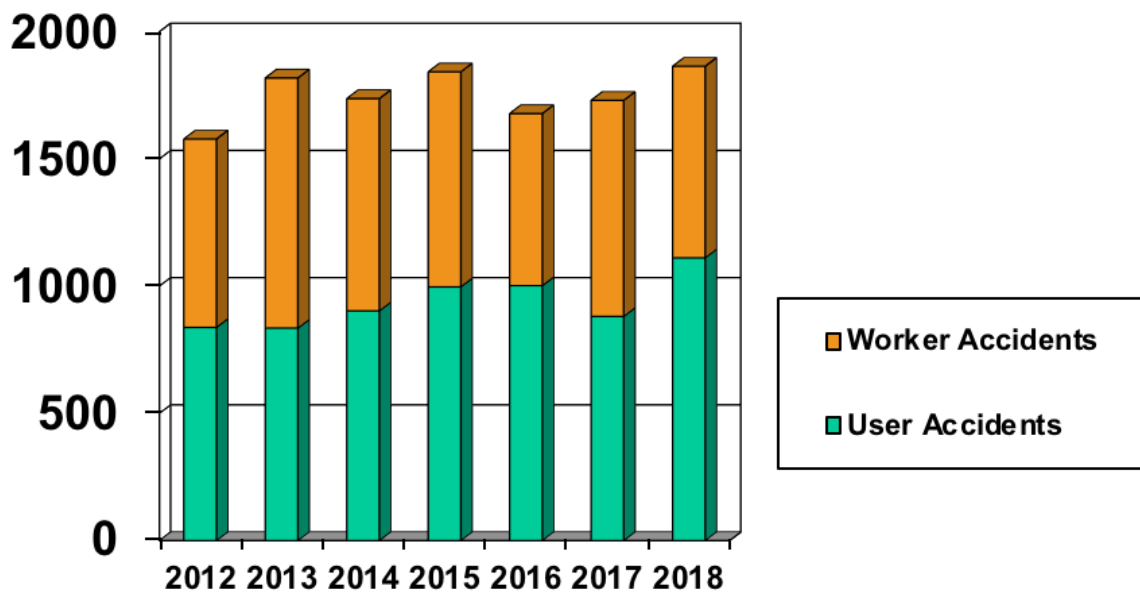
The average age of existing lifts is above 25 years.

Europe also has a large share of the new generation of MRL lifts (Machine Room Less) compared to other continents, North America remaining very traditional for the types of lifts installed, except for the high-rise applications in city centres.

The fact that the lift stock is on average much bigger in Europe than in North America and much older than in Asia, statistically implies a higher risk of accidents for the European lift users and workers. Fatal accidents of users and workers unfortunately happen every year, though in a limited number (between 10 and 20). Serious accidents are numerous, and the number of incidents is very high, but impossible to define precisely, since most of these incidents and “near misses” in the use of lifts are not reported by the victims. The statistics for workers are more reliable, since these must be reported for Health & Safety reasons, in order to improve equipment and practices.

Out of experience, the Statistical Committee of ELA, which works closely with the national lift associations, applies a table of accidents & incidents, for workers and for users.

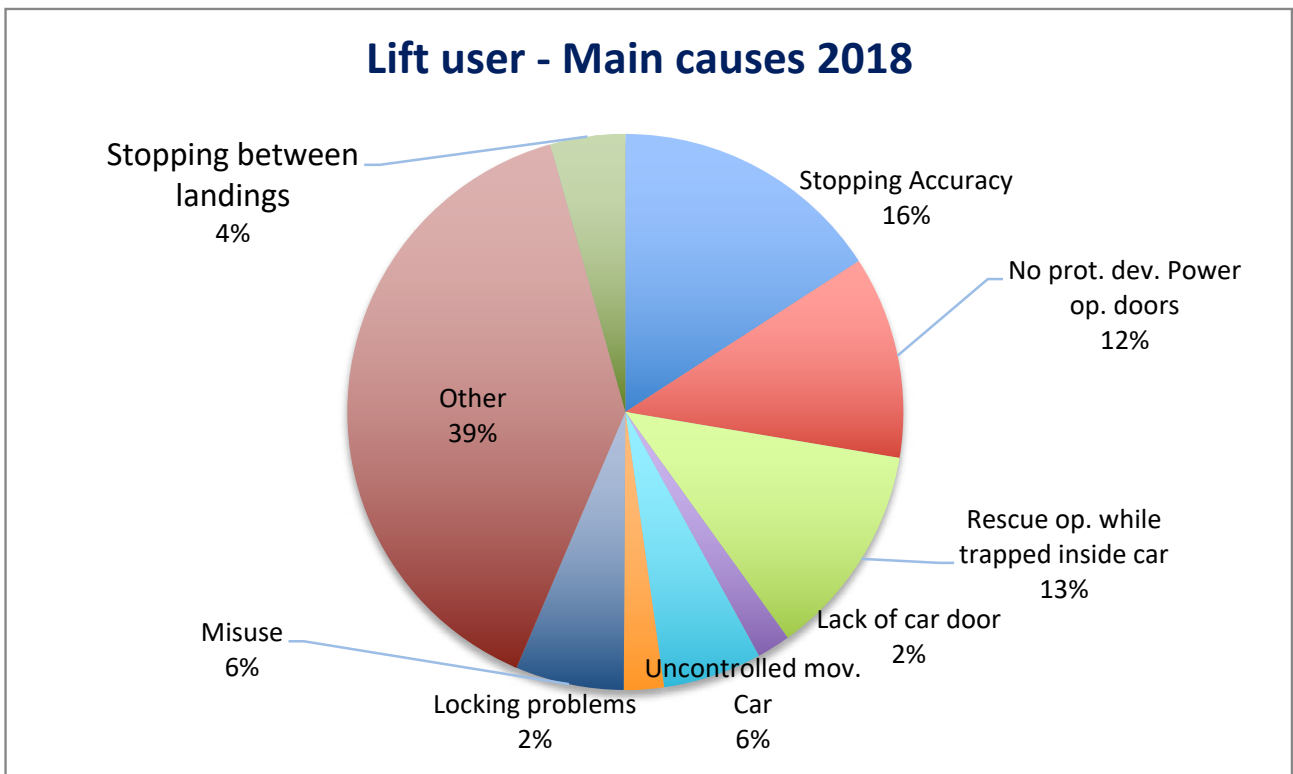
The main causes for accidents are linked each year to the SNEL risks in the ELA statistics and communicated to all member associations, in order to improve specifically on the main causes and eradicate them.



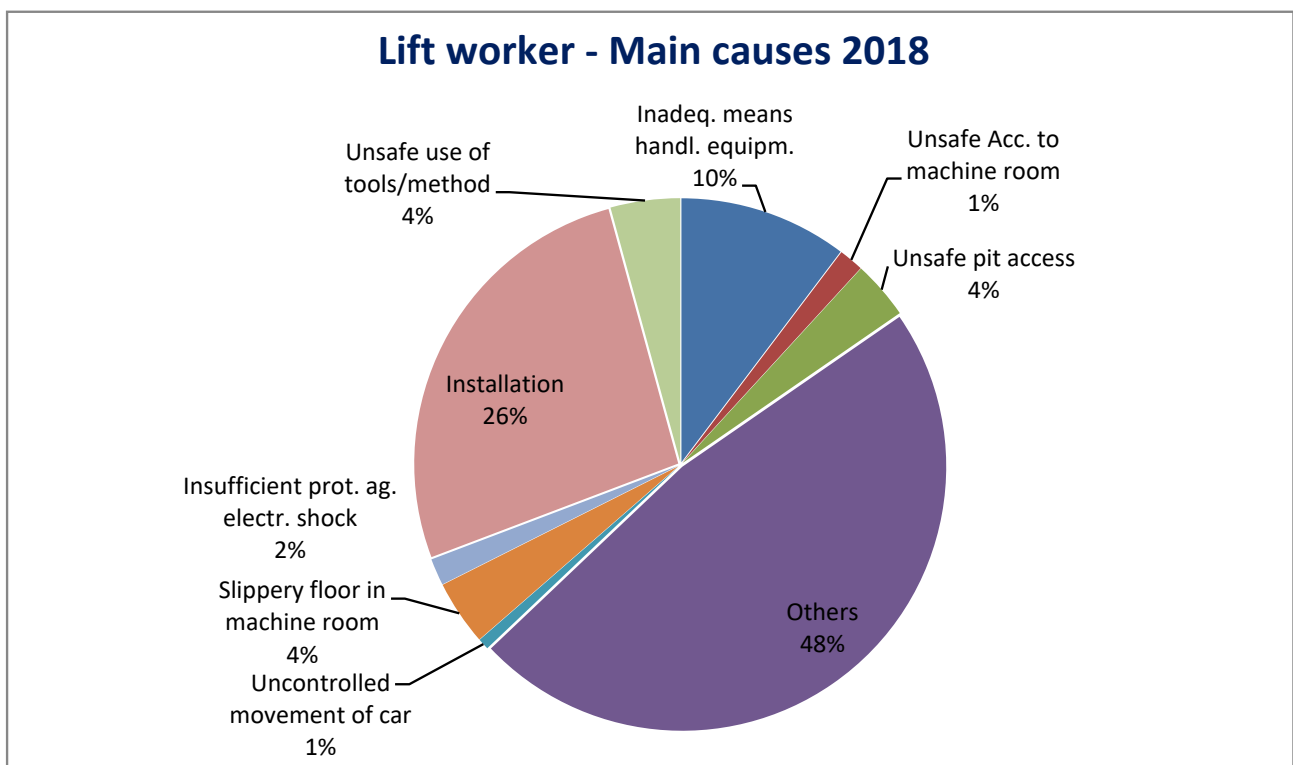
The total number of accidents registered by ELA Statistical Committee in 2018 were 1864, whereof 39 were fatal.

The analysis of the reported accidents shows again for 2018 a clear link to the SNEL risks.

The charts following points out the main risks for lift users as well as for lift workers.



Nearly 50% of all registered causes can be directly related to measures covered by the SNEL. More frankly said, those accidents – even fatal accidents - and/or pain caused, could have been avoided, if modernization efforts were fulfilled timely.



Also, for the lift workers, SNEL measures covers almost 50% of the risks of fatal accidents.

5. Other positive aspects when implementing SNEL

In EN 81-80:2019, clause 5 describe methodology for improving the safety of existing lifts using risk profile and priority levels for successfully defining the “when” and “what” status of each predefined SNEL risk.

The definition of priority levels, categorized as extreme, high, medium or low, will depend on previous country history of lift regulation and applied standards, accident statistics, specific product knowledge and social expectations. Thus, implementation of EN 81-80 per country, based on the defined risks, will vary in content and scheduling, to allow for any local differences in the assessment of those risks.

Today, this process, which has been applied successfully in several European countries is an on-going process in most EU Member States. Using the national filtering as recommended by the experts who wrote the norm, will bring a de facto safety harmonization of the existing lifts. It will be a great step towards European integration.

Our aim is to make the European Commission and national decision makers be convinced by the fact that the upgrade of the lift stock, based on EN 81-80:2019, can mean several additional benefits at the same time like energy efficiency and improved accessibility to persons with disabilities and with impaired mobility, who can remain at private home longer and therefore reducing costs for the society.

5.1 Energy consumption

Energy efficiency is required from all equipment of the building in today’s society. Energy has become paramount in the fight against global warming and the reduction of CO2 emissions. Since the building stock is responsible for roughly half the emissions of CO2 in Europe, through heating and direct emissions, but also through indirect emissions, when producing electricity used by the building equipment, from heating and cooling to running lifts and escalators.

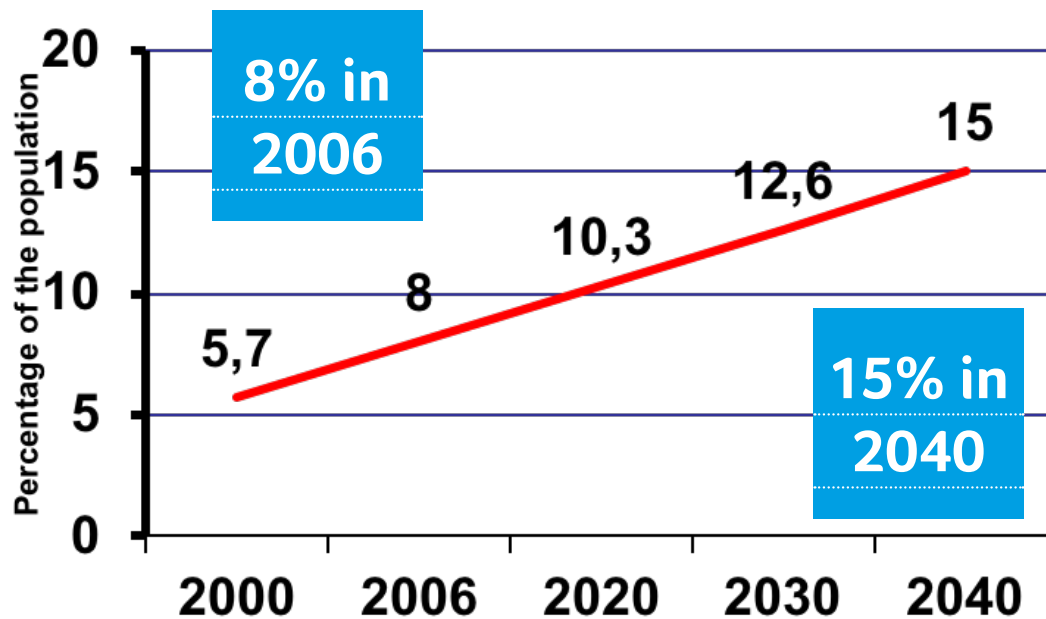
When upgrading a lift following measures taken through SNEL-activities, it is also seen that new components with new technology – state of the art technology have a positive effect also in terms of energy savings and not only on the safety level of the lift.

As an example, dealing with stopping accuracies, one measure can be to exchange the drive system, e.g. “two speed drive” to a “frequency-controlled drive system (ACVF)”. This raises the safety level of the lift, but certainly also brings energy savings.

5.2 Accessibility (access to the building)

There is a growing trend in our population: people live longer. The senior citizens require access and both groups, people with disabilities and impaired mobility expect safety without the need of assistance.

SENIORS 75 +



People despite age and mobility problems wish to stay in their homes where they have been living for many years. Accessible lifts are fundamental to keep accessibility from the dwelling to the public road, it is necessary to keep good social relationships that is a major concern to increase the life time of senior citizens. In addition, costs to maintain them at home by improving accessibility and ergonomics of their environment are really less than costs of specialized structures.

By integration of accessibility rules (from EN 81-70) EN 81-80 "SNEL" combined with EN 81-82 "Rules for the improvement of the accessibility of existing lifts for persons including persons with disability" are key documents to achieve this goal.

5.3 Liability issues - Rights and obligations of the different parties

5.3.1 The different parties

The degree of liability depends on national legislation and the specific facts of each case. However, one should consider that many parties (lift company, maintenance company, lift owner, third party, government, etc.) are potentially involved when it comes to an accident resulting from one of the SNEL identified risks and caused by insufficient safety measurements applied to lifts (often based on SNEL).

Intensive dialogue with lawyers and/or law firms is an important first action for a smooth application of the national legislation.

A starting point is to verify how for example the European Directives and Recommendation mentioned hereunder are today transposed into national law.

The most relevant ones are:

- The “10” Recommendations (95/216/EC);
- Use of work equipment Directive (89/655/EC *, 95/63/EC*, 2001/45/EC* and 2009/104/CE);
- Product liability Directive (85/374/EC of 25th of July 1985);
- Product safety Directive for the consumers (2001/95/EC of 3rd of December 2001);
- Directive 89/391/EC of 12 June 1989 on the introduction of measures to encourage improvements in the safety and health of workers at work.

*no longer in force but relevant for existing lifts depending on installation date.

Furthermore, it is important to know how the justice deals with existing national and European legislation, the state-of-the-art safety philosophy, jurisprudence and applicable existing national and new European standards.

These objectives can be worked out by making an inventory of potential “Frequently Asked Questions”. To illustrate this, it should be clear which parties are involved when an accident occurs. Let us suppose, for example, that a risk analysis has been done as scheduled by the law, but the required upgrade has not been done accordingly.

The question is then: who is responsible in the case of an accident with injury, or in worst case if death occurs as a result?

Who are the major involved parties in case of accident?

- Victim: lift user, lift technician or inspector
- Lift/maintenance company: installation, maintenance, repair, modernization
- Administrator: owner or his/her representative
- Third party: inspection body, insurance company
- Government: competent authorities

5.3.2 What if SNEL is not applied?

If SNEL has not been applied well, we should be aware that in the case of lift accidents, court decisions will rely on criteria and facts. The court will relate the application of the state-of-the-art technology which in the case of existing lifts means SNEL.

Lift owners, lift industry and third-party inspection bodies have a vital interest in mastering all implications of SNEL, including links with closely related EU and national existing regulations.

If nothing is being done on ageing lifts, the number of fatal and serious accidents will increase, in conjunction with the obsolescence of equipment and the ageing of the population.

5.3.3 Once SNEL has been integrated and well applied in your country: follow up

Once SNEL has been implemented as national legislation, many questions from all kinds of sources will come up.

The main objective of having a smooth application of the new regulation is to have the legislation interpreted consistently by all parties. Therefore, a continued dialogue between all parties is required in order to re-adjust the practical work if necessary.

Find below a list of elements to be taken into account when the law starts to be applied:

- a) The application of the norm gives the possibility to building owners to perform an assessment of all lifts according to EN 81-80:2019. Based on the results, a plan for step by step upgrading should be done.
- b) An interaction between inspection bodies, lift companies and civil servants should be organized to answer all questions and provide guidance to avoid technical distortions in the right application of the law.
- c) Lift companies, inspection bodies and local authorities are encouraged to plan the impact on their resources and time schedules within their organization.
- d) All possible scenarios regarding liability and legal aspects are to be listed. This exercise is part of the preparation work as well. This includes the analysis of the possible consequences if the legislation is ignored;
- e) Exceptional cases, such as very old lifts, need to be considered case by case, as the upgrade can lead to huge costs out of proportion in comparison with the value of the lift or even impossibility for instance if the lift is part of an historical building.

All parties should be aware that transposing SNEL into national legislation is driven by “safety”, as the fundamental reason to legislate is triggered by a standard that aims at improving safety of existing lifts! Still, it is to be noted that energy efficiency and accessibility might be improved as an additional benefit.

6 Information about SNEL

Since the publication of the standard EN 81-80, defining different risks to be tackled on existing lifts, the European Lift Association has made information available to its members, the industry and the public in general, in order to promote the improvement of safety and accessibility on existing lifts.

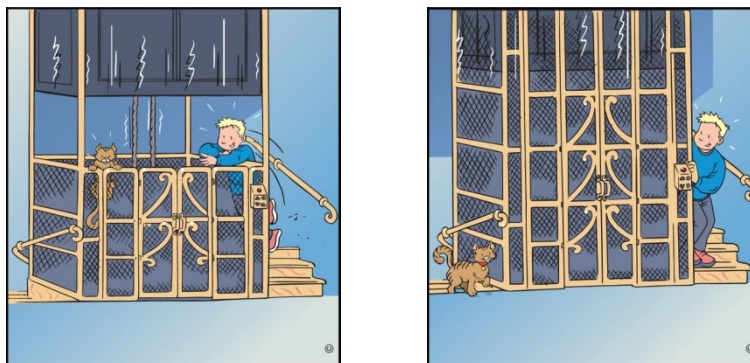
6.1 Scope of information

There are two types of information documents available at ELA and on its website (www.ela-aisbl.org), aimed at different stakeholders and their level of knowledge of the issues at stake:

- **Technical application documents and guidelines** on how to progressively upgrade the existing stock of lifts.

- **General brochures, illustrations and documents:**

- Most of the main risks listed in SNEL have been illustrated by the artist Zack in cartoons made available to all ELA Members, free of charge, showing the risk itself and how it can happen on the one hand, and the improved situation, once the risk has been dealt with. See the example below: where a fatal accident of this type took place in 2011.



- The website section on the SNEL contains a “Q & A” document.
- The best way forward is working with “Best practices” and trying to repeat the successes reached by some Associations/Member States, while avoiding the hurdles that appeared during the process in other Member States.
- The essential documents for each Member State that legislated are of course the national “Laws & application decrees”. Each law, decree, guideline or recommendation issued by Member States or regions is available in the original language and in a (free) English translation on the ELA website (Members only section). It is a great help for legislators and lift associations that want to pass new legislation improving the safety of existing lifts, to benchmark the different legislation in place throughout Europe, thanks to the English translation of all laws, decrees and recommendations.
- Information material published by ELA and by several countries, to promote SNEL or accompany the publication of legislation. They are available on the ELA website too (members only section). They might give ideas to others on the best communication ideas to be used.

6.2 What SNEL is - What it is not

SNEL is:

Despite its non-harmonised status, it is to be considered as equally important as other existing EN-standards for lifts.

Furthermore, this standard is about the progressive and selective improvement of the safety and accessibility of existing lifts.

This standard helps to define the areas with safety gaps towards today's level of safety and the priority where to start an upgrading of the existing lifts.

SNEL is not:

This standard does not have an EU mandate related to a European Directive (e.g. the Lift Directive 2014/33/EU), since it concerns existing installations only. Therefore, this standard has not been published as a harmonised EU Standard.

Furthermore, this is a safety standard and is not to be considered as a European modernisation standard for existing lifts.

7 Survey of existing regulations based on SNEL

Member States that have analysed their existing legislation with the “filter” that EN 81-80 provides, and have legislated accordingly, filling the voids in terms of safety of users and of workers, have selected different ways and timetables to apply the legislation:

- Adopting a timing step-by-step for safety upgrading over different periods, starting with the higher risks.
- Choosing to work by year of installation, each year of application getting the lifts of a certain period in the past, starting with the oldest lifts and going back in time to the most recent lifts.
- Having a system in place for many years, through which the notified bodies make a recommendation (not compulsory) to the lift owner for all lifts used for work.
- Producing a recommendation for the most important risks, which is a step in the right direction.

Even if the safety upgrading is not compulsory, the liability for the lift owner in case of accident is a strong incentive to adapt the safety level of the lift.

With this document, ELA intends to support the national lift associations in implementing SNEL and through this increase the safety level of existing lifts.



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