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Everlux® news

Safety in high-rise buildings

Signs for passenger and goods lifts

Environmental Safety and Health

Safety in high-rise buildings

Recently special attention has been given to safety in high-rise buildings, not only in matters concerning the building design and the measures to protect it against fire, but especially with regard to safety when evacuating people.

The recent accidents in the World Trade Centre in the United States, the Windsor Tower in Spain, the East Tower in the Central Park of Venezuela, etc, showed the high risks and the different specifications particular to this type of buildings.

A quick analysis of the risks of these buildings, in a non-exhaustive form, leads us to the following conclusions:

editorial

With regard to safety, what criteria should be used to make a decision – efficiency or efficacy ?

Efficiency refers to the relation between the results achieved and the resources used. In this case we could say that with a big reduction of resources we achieve slightly worse results and therefore that a certain option will be more efficient.
Efficacy consists simply in achieving a certain objective.
But with regard to Safety we cannot accept unsatisfactory results. In Safety, besides the efficiency, the efficacy must be always achieved at 100%. It is unacceptable to state that in an accident only "X" number of people have died or that in a fire only "Y" number of floors have been destroyed.

If there is any truth in the expression "you get what you pay for", when this is applied to the issue of Safety, apart from being the truth it is also especially dangerous.
It is dangerous because when we chose equipment and safety systems, we are making decisions which are going to safeguard people's lives and the assets of a company. It will be very difficult to justify that a member of staff or a client has died, that a factory or a hotel has burnt down, that a shopping centre or a tunnel was closed for several weeks, because at the moment of buying the products and equipment, we opted for a solution that was considered efficient (from a strictly

Signs for passenger and goods lifts

When we want to move in a building with several floors we generally use the lifts, regardless of it being the building where we work or any other building where we have to go.

pict.A

In both situations we rarely use the service stairs.
In case of a fire or any other incident we cannot use the lifts to exit the building. We have to make our way to the emergency stairs but, contrary to the lifts, we don't know so well where they are located! It is common for people in these situations to try to use the lifts to exit the building, unaware of the danger that such action represents.
Unfortunately, such cases do happen and with tragic consequences.
It is a well-known fact that in case of a fire the lift "shaft" works as a chimney where smoke, which is less dense than air, tends to rise. In addition, high temperatures or even flames can develop here.
We also know that in case of an emergency, after activating the alarm system electricity should be switched off and the lifts should descend to the exit floor where the doors should open and remain opened. Unfortunately there are many lifts that simply remain where they were when electricity is switched off.

Safety in high-rise buildings

a) They are generally multi occupied buildings (offices, residentials, hotels and apartments, businesses and restaurants) which increases the risk;
b) The density of occupancy is very high;
c) The evacuation times required are longer;
d) The definition of the evacuation routes will have to consider the impossibility for a complete evacuation of the building to take place immediately, as the building may be divided by fire;
e) The creation of heat, smoke and dust will occur with more probability and intensity;
f) The intervention of the emergency teams will only be possible by internal access, most likely using the same stairs that are used for evacuating the building.

By analysing the above and unfortunately from the experience gained from previous accidents and the resulting studies, we can see the high risks and the complex caracteristics of high-rise buildings.
The rules applicable to fire safety, which are mainly prescriptive, may not consider the specifications of these cases.

Norms apply to the most common situations and define the minimum level of requirements, not the ideal ones.
Safety in this kind of buildings and their occupancy will have to be analysed from the point of view of efficacy and from its results in relation to the specifications and the high risk.

After analysing the events at the World Trade Centre twin towers and especially the final report of the investigation carried out by the NIST – *National Institute of Standards and Technology of the Federal Building and Fire Safety of NY*, the State of New York, through its Building Department, published the legislation "LL 26 of 2004" on the compulsory use of photoluminescent signs when marking evacuation routes. The total efficiency of this kind of signs was demonstrated in the evacuation of the World Trade Centre towers and in the black-out of the UN building in 2003, as analysed in that study.

It is worth mentioning that there is a recommendation for the signing of evacuation routes of high-rise buildings to be special and more demanding than the ones generally applied, especially in the case of interior staircases. This is the only vertical evacuation route available in this type of buildings, and where all the users will

millicandelas

So we can see why in case of a fire there are so many deaths in the lifts and also that in the vast majority of the cases these deaths are caused by the inhalation of gases resulting from the fire (death by intoxication) or by the action of heat or flames.
To counter-act the natural tendency of people to look for the exit they are familiar with – the lift – we must remind them that in case of a fire, lifts should never be used. The way to do this is not difficult and is a legal requirement – a sign should be fixed close to the button used to call the lift, drawing attention to the prohibition to use the lift in case of a fire.


pict.B

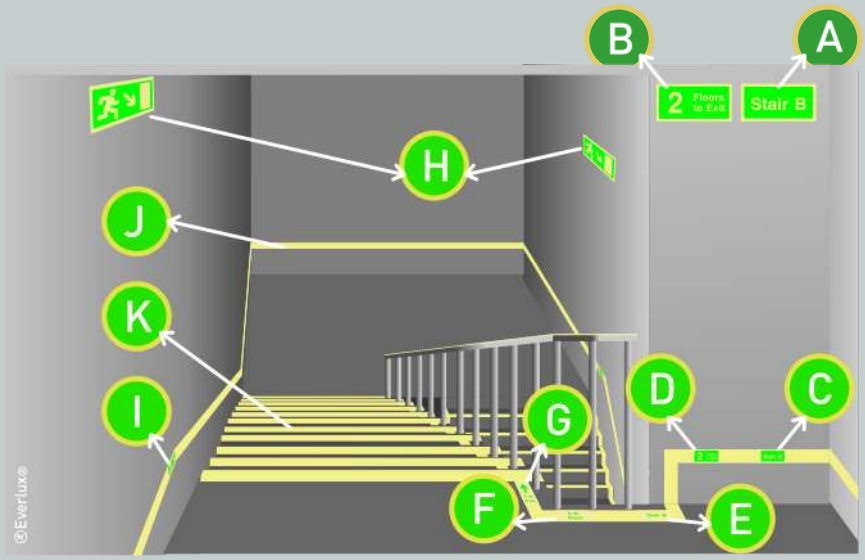
The sign in picture A shows not only that prohibition but it also complements the information showing the correct alternative for a safe evacuation: the use of the emergency stairs. In the case of goods lifts, the situation is similar although for other safety reasons. In most cases, people are not even allowed to use goods lifts, as shown in picture B.

In these cases the safety issues are already safeguarded in normal situations and therefore they also apply in the case of a fire. The sign "do not use hoist to transport people" is therefore an indispensable sign in the Safety Signs area.

concentrate, and is at the same time the access route for the fire-fighters, therefore special attention should be given to:

1. Signs in the interior of staircases
2. Identification of the floor/storey
3. Signing of the number of floors to the exit
4. Signing of the evacuation route
5. Marking of the evacuation route with marking strips on the walls
6. Signing of the steps
7. Signing of the hand rails

Everlux® has developed a complete sign system to sign stairs and evacuation routes (see picture 1) in accordance with these requirements.



Picture 1
A – high-level sign identifying the stairs – Everlux®
B – high-level sign showing the number of floors to the exit Everlux®
C – low-level sign showing the staircase incorporated in the aluminium frame marking the evacuation route – rigid-plastic Everlux®-LLL
D – sign incorporated in the aluminium frame marking the evacuation route, showing the number of floors to the exit – rigid-plastic Everlux®-LLL
E and F – signs showing the stairs and floor number incorporated in the floor marking - Everlux®-LLL in self-adhesive polycarbonate
G – information on the number of floors to the exit, incorporated on the floor marking – Everlux®-LLL in self-adhesive polycarbonate
H – high-level sign showing the direction of the stairs for the evacuation route – Everlux®
I – signs at floor level for stairs incorporated on the marking strips showing the evacuation route – rigid-plastic Everlux®-LLL
J - strips marking the evacuation routes - rigid plastic Everlux®-LLL
K - self-adhesive strips on the floor marking the evacuation routes - in self-adhesive polycarbonate (see Everlux®-LLL catalogue pages 26 to 30)

› Editorial

economic point of view) instead of another that would guarantee its efficacy.

In difficult economic times what is more important: efficiency or efficacy?
In times like these, there is a tendency to emphasize cost with a view to "saving", "to spend less money and obtain more", "to have the cheapest product so as not to lose sales".
If we analyse previous economic crisis we can see the flaws of this strategy. Those who in times of crisis opted for lower quality products with lower prices, rarely survive the crisis, and when they do, in the following stage of economic growth they are easily overtaken by those who have always valued service and quality.
Sooner or later the lower quality will be recognised, and the characteristics of bad quality, of non-conformity, the lack of efficacy, will become the image of the product, of the supplier, and of the company who installed it.
Once again, "you get what you pay for"!
It has always been the main objective of ®Everlux® to develop and manufacture the best photoluminescent Safety Signs, which can achieve the highest safety levels in the most varied situations through their total efficacy.
However, we are equally concerned with the efficiency of the ®Everlux® solutions and to that extent, we have always guaranteed the best delivery period and the best catalogues, which have greater technical details, more information on norms and legislation, better solutions for the installation of signs, etc. We have also developed a detailed website, which is continually being updated. At a project level, of engineering and architecture, we have always been and always will be available for any training session or presentation.

Environmental Safety and Health

®Everlux® products are produced by an advanced technological process, using non-toxic and environmentally-friendly chemical materials.

The photoluminescent pigment is made of a composition of alkaline earth aluminate, phosphorous-free, without any radioactive substance.
®Everlux® photoluminescent signs are in accordance with British Standard BS EN 71-3:1995 "Safety of Toys - Specification for migration of certain elements". This standard establishes all the requirements and test methods for measuring the migration of toxic elements for the safety of toys, in order to minimise the proximity of such toxic elements to children. All the materials with a possible oral or physical contact are considered by this standard.

This standard is used due to its requirements concerning the concentration of toxic elements in products for children. Fulfilling this standard provides reassurance that ®Everlux® products are safe in matters concerning toxicity.
®Everlux® products were tested by an independent laboratory that measured the levels of toxicity according to the requirements of the standard, as can be seen in Picture 2.
The results comply with what is required by the standard, and so ®Everlux® signs are perfectly safe in terms of toxicity.
Our certificates are therefore evidence of the quality of our products and of our personalised service.

Element	Maximum Permitted (mg/kg)[1]	Concentration of migrated elements in Everlux Signs (mg/kg) [2]
antimony (Sb)	60	<22 (LD)
arsenic (As)	25	<0.09 (LD)
barium (Ba)	1000	<14 (LD)
cadmium (Cd)	75	<2 (LD)
chromium (Cr)	60	4
lead (Pb)	90	<1 (LD)
mercury (Hg)	60	<25 (LD)
selenium (Se)	500	<44 (LD)

pict.2

Picture 2 - Limits of migrated elements in toy materials (according to the European Norm EN 71-1:1995)

[1] mg of element per kg of toy material
[2] mg of element per kg of ®Everlux® Safety Sign
LD – detection limit

The use of organic solvents (present in regular inks and serigraphic varnish) has had legal restrictions due to the release of volatile organic substances to the atmosphere, which has been an important environmental and health issue. A reduction or even the elimination of the release of these solvents has lately been the subject of discussion and regulation.
Following an increasing environmental concern, the ®Everlux® production process is a clean process in accordance with environmental health and safety (either in the work or the external environment), by using environmentally friendly products.
The residues and/or production spares are treated and/or forwarded to licensed destinations, in accordance with the European Environment Regulations.
®Everlux® has partnerships with licensed entities for this purpose.

®Everlux® has also a partnership with a packing residues management company, Sociedade Ponto Verde ("Green Point Company", similar to Valpak UK, Ltd). The Green Point system details the responsibilities and processes among several countries. Its aim is to utilise and recycle packing residues, which contribute to the decreasing volume of residues sent to landfill. Manufacturers of packaging ensure the recovery of the packaging residues, by recycling them.

It is the constant interest in "Environmental Safety and Health" issues that makes ®Everlux® change and grow. We invest in the development and updating of our technologies and manufacturing process by using the latest technical developments. This commitment is also reflected on the ®Everlux® quality policy:
- Totally satisfy our clients
- Continually improve our working procedures
- Ensure the satisfaction of our employees and encourage their ambition
- Not to compromise the relationship with our suppliers
- Show respect for society and the environment.

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