



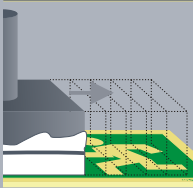
Everlux® news



Horizontal and vertical evacuation routes | How to sign them



Signs for handrails



Cleaning Resistance Test


Horizontal and vertical evacuation routes | How to sign them

This article presents safety signs that show evacuation routes. This implies a sign system generally called "Safety Sign System", and since it applies to safety, it must be photoluminescent. For the best and most efficient performance of the photoluminescent safety sign system the specifications of the place where they are going to be installed must be considered. The signs should be carefully selected taking into account their performance and efficiency in those conditions, that is: they will be easily seen by users and they will be efficient, since they will have to perform in the most diverse situations, even in cases of absence of light (black-out) and in the presence of smoke. Therefore, there is a need for the signs to be photoluminescent. Also with regard to the efficiency of the signs, also need to be taken into account the characteristics of the light in the places where the signs are going to be installed.



editorial

Another year is coming to an end and a new one will soon begin. In such troubled times as the ones we currently live in, we should analyse carefully the objectives we defined, the strategies we set up and the results we achieved.

In 2009  Everlux® has completed 20 years of existence, which is worth some analysis:

- It shows that our objectives to offer good quality photoluminescent safety signs have met the market demands;
- It shows that over these 20 years we have developed new solutions and new products which have improved the safety of people and buildings;
- It shows that we have accompanied the evolution of the market, its new needs and new legislation and we have invested in new and more efficient solutions, both in terms of new technologies, new products and new photoluminescent safety sign systems;

Signs for handrails

Vertical evacuation routes are generally badly or insufficiently illuminated, which makes it more difficult or impossible to use the handrails. This creates insecurity and may generate panic among users and consequently increases the evacuation time.

By signing the handrails with photoluminescent material, in places where light is deficient or non-existent, it makes the handrails visible, significantly increasing the level of confidence among users and reducing panic. With an efficient signing of handrails a significant reduction in the time of evacuation can be achieved.

Moreover there are buildings where these signs are particularly useful, namely healthcare homes and hospitals. Most users of these buildings are elderly people or people with reduced mobility and it is essential that the handrails are correctly signed, not only on the stairs but also along the corridors.

The use of photoluminescent bands and strips in these situations minimises the risk of accidents and ensures a more efficient evacuation in case of fire or other emergencies.

In some countries these situations are already covered by norms. For example the French norm NF X08-050-2 (figure 1) and the New York City Building Code RS 6-1 (figure 2) mention this signage method, defining that the photoluminescent bands and strips should have a minimum width of 25mm and a maximum gap of 100mm in case they are discontinued due to a change of direction of the handrail.

› Horizontal and vertical evacuation routes | How to sign them

This will allow for the correct stimulation of the signs so they can achieve the required values of luminance intensity and fulfill their purpose as a signing tool, that is, to be highly visible. (see Everlux News n° 2 – main article and millicandelas).

All national and international norms and laws specify that “from any point where we are, there should always be an evacuation sign visible”. This is the only way to minimize panic and to achieve the quickest and most efficient evacuation.

Horizontal evacuation: leads people on the same floor, to the exit, be it to the exterior of the building or to another area. Horizontal evacuation generally takes place along corridors.

Vertical evacuation: implies a change of floors, be it ascending (from lower to higher floors) or descending (from higher to the ground floor). Vertical evacuation generally

takes place using emergency stairs.

Safety signs to identify horizontal evacuation routes should be installed:

- at the beginning of the evacuation routes, from the point furthest away from the exit on that floor;
- in each change of direction that will have to be made;
- above each door to be used along the evacuation route.

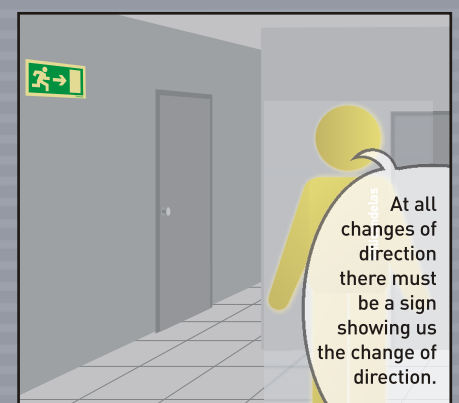
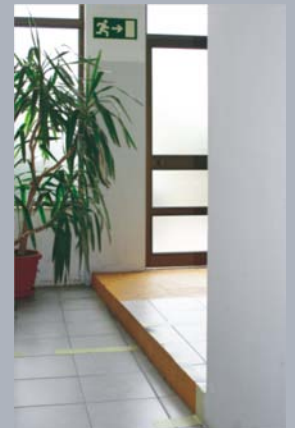
Since these signs will have to be visible in all circumstances, they should always be installed above 1.8m from floor level.

In order to sign vertical evacuation routes, signs should identify all

changes of direction and all changes of floor level. Whenever users have to go up or down a flight of stairs, regardless of how many steps there are, these changes in floor level should always be signed.

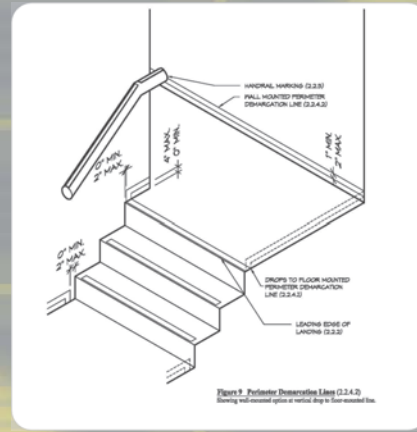
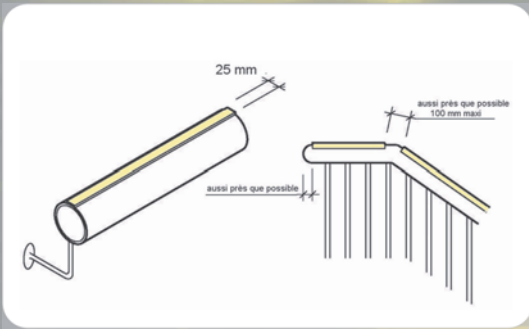
These signs should be installed before the beginning of the stairs, above the first step in the direction of the evacuation route and at a height of 1.8m above floor level.

All signs previously mentioned should



> Figure 1 – French norm NF X08-050-2 of 2008

Figure 2 – New York City Building Code Reference Standard RS 6-1

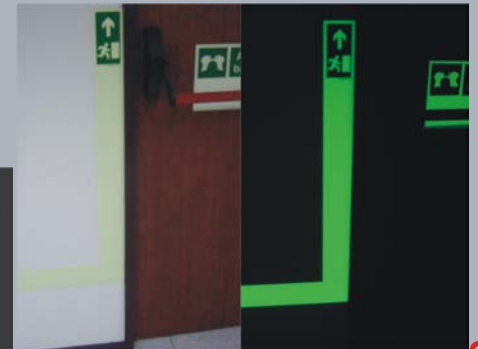


illumination (see article in Everlux News n° 1).

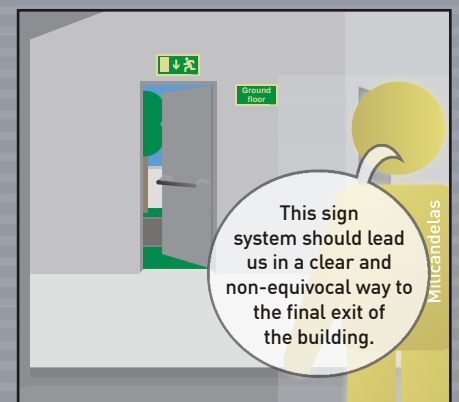
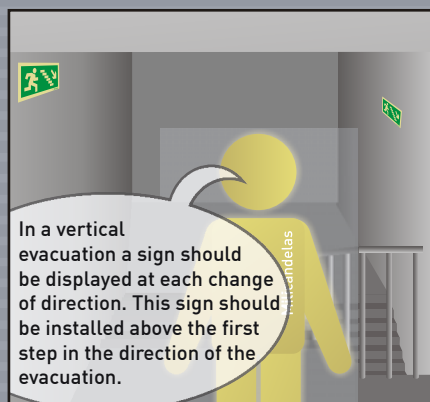
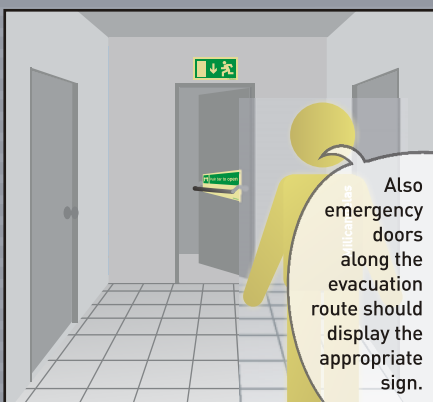
Finally, in order to achieve a correctly signed evacuation route, all doors should display the way they open. This will allow the user to know exactly how to operate the door mechanism in order to open it and on which side the handle is located. Also for this situation, which is crucial during an evacuation, the photoluminescent sign system at floor level provides the solution:

always be installed at a high level, but it is important also to consider the possibility of an evacuation in a smoke situation and in this case all these signs may be obstructed by smoke, apart from the fact that people may have to stoop or crawl so as not to breathe in the toxic gases of the smoke. To solve this difficulty, low location evacuation signs should be used (⊗ Everlux®-LLL).

the strips that show the evacuation route, when placed on the walls and finishing close to the edge of the door, on the side of the opening handle, rise up to 1.2m showing the location of the handle and at the same time the side the door opens.



This Photoluminescent Low Location Lighting sign system at floor level allows not only the signing of the evacuation routes but also their



> Editorial

- As we focus in meeting the needs of the market, we are constantly providing new and better services in the areas of training, technical and commercial support and also in providing new solutions. We aim to excel in all of these services.

The results we have achieved in these past 20 years, the experience we have acquired, the know-how we have obtained and the recognition we have received make **Everlux** even more motivated to keep its objectives of excellence in the service we provide to our clients and in the constant search for the best solutions in photoluminescent safety signs.

Hope our bright partnership continues throughout 2010 and wish you a prosperous new year.

Cleaning Resistance Test

These instructions for use are also applicable to photoluminescent safety signs. Cleaning is a process that the products will have to go through during their life time so it should be guaranteed that their characteristics will remain the same, from the functional and safety point of view (photoluminescence, colour, ease of reading) as well as from the aesthetic point of view (with no deterioration).

In certain countries norms have already been developed to guarantee signs to be resistant to the normal wear and tear and not to discolour or fade after a period of being used, so "Resistance to cleaning" is a compulsory test for the characterisation and certification of the photoluminescent safety products. An example of this is the French norm "NF X08 050-2: 2008 - Systèmes de Sécurité Photoluminescents - Partie 2: Définition des produits et équipements de sécurité photoluminescents". ("NF X08 050-2: 2008 - Photoluminescent Safety Systems - Part 2: Definition of the photoluminescent safety products and equipments"). This norm states that the products classified as resistant to the cleaning process are subject to the test defined by the European norm "EN ISO 105-X12: 2002 - Tests for colour fastness - Part X12: Colour fastness to rubbing".

What is the cleaning resistance test?

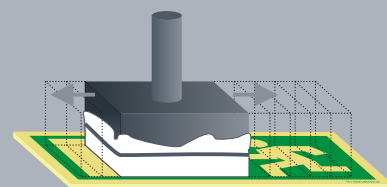
Basically, the test specified in the above European norm (EN ISO 105-X12: 2002), tries to test the colour fastness by testing it under friction, i.e., trying to assess if the coloured areas fade or if there is any staining due to a colour transfer from one area to another.

The test method involves two tests, a dry test and a damp test, i.e., a friction test with a dry cloth and another one with a damp cloth (soaked in isopropyl alcohol).

In both tests the friction of the coloured surface will have to be made with a friction finger with a controlled strength of 9N (Newton), at a speed of 1 cycle per second, for 15 seconds.

The friction finger should apply a constant pressure moving from one side to the other in a straight line along the surface to be tested.

After the test, the results are assessed and what the French norm (NF X08 050-2: 2008) forecasts is that the coloured products will remain within the acceptable levels (with no significant change in colour) and that their photoluminescent characteristics will remain within the advertised limits (with no loss of photoluminescence when compared with the initial characteristics).



To quantify the colour damage the international norm "ISO 105-A02:1993 - Tests for colour fastness - Part A02: Grey scale for assessing change in colour" is applied. The measurement of the colour alteration is made by comparing the difference between the colour of the initial sample and the colour of the sample after being tested. To do this a specific piece of equipment is used, the "spectrophotometer" and the measurements are presented in colour coordinates CIELab.

The assessment is then made using the same norm (ISO 105-A02:1993) which has a scale from 1 to 5, where 5 represents the absence of colour alteration.

Everlux products have been tested by an accredited Portuguese laboratory and were classified as level 4-5 in both tests ("dry" and "damp"), thus showing colour fastness and a high resistance to cleaning. Also, their photoluminescent properties suffered no loss.

Also in Brazil, the norm applicable to photoluminescent products, the "NBR 13434-3:2005 - Sinalização de Segurança Contra Incêndio e Pânico - Parte 3: Requisitos e métodos de ensaio", ("NBR 13434-3:2005 - Safety Signs Against Fire and Panic - Part 3: Requirements and testing methods"), defines the minimum performance requirements and the testing methods required for signs in order to guarantee their reading and integrity. This norm sets a series of tests concerning the resistance of the products to chemical agents and to washing, such as with water, window cleaning detergent, washing-up liquid, oily solutions (oils) among others.

Everlux products were tested with all these cleaning agents according to the international norm for testing "ISO 2836:2004 - Graphic Technology - Prints and printing inks - Assessment of resistance to various agents" and no alteration was found in the colour of the signs.

The technical characteristics, the certificates and the results of the above tests can be made available, to provide the market with more information and to guarantee their technical quality and their compliance with the national and international norms and legislation that are applicable to photoluminescent safety signs.