

METROPOLITAN EXPO

TECHNICAL REPORT OF REQUIREMENTS / FIRE PROTECTION MEASURES

FOR TWO-STOREY EXHIBITION STANDS

(SPECIAL EXCEPTIONS TO REGULATION'S MANUAL)

under the BUILDING FIRE PROTECTION REGULATIONS

(PD 41/2018 & PD 71/1988)

The purpose of this report is to inform, prevent and protect premises from fire and the effects it may have.

The following specifications apply to exhibition stands with ceiling:

- 1. The covered space of the stands must not exceed 30 sq.m.**
- 2. The maximum permitted area of all floors of the stands is defined as 2% of the total gross space allocated per hall**
- 3. A Static Construction Study by a qualified engineer or architect is necessary**
- 4. Fire protection measures**

A. PASSIVE FIRE PROTECTION

4.1. SAFETY LIGHTING

The installation of safety lighting of escape routes and emergency exits is required in accordance with the requirements of ELOT EN 1838 "Lighting Applications - Safety Lighting".

The safety lights and the direction indicator lights will have at least 1.5 hours of autonomy in the event of a power failure and a self-test button.

In escape routes with a width of up to 2m, the illuminance of the floor along the central axis of the escape route will not be less than 1lx and for the lateral zone of the escape route, with a width of at least half the width of the escape route, the illuminance of the floor will not be less than 0.5lx. In addition, the uniformity of minimum to maximum lighting intensity U_d must be 1:40, along the length of the central axis of the escape route.

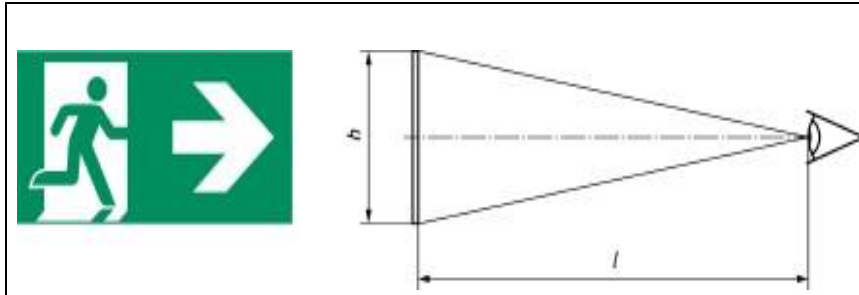
The safety lights will have CRI=40.

Safety lights must provide 50% of illuminance within 5sec and full illuminance within 60sec, in accordance with ELOT EN 1838.

Especially at points of firefighting equipment, a safety light should be placed nearby, at approximately 2m, so that the illuminance is 5lx.

Viewing distance

As an internally illuminated sign can be seen at a greater distance than an externally illuminated sign of the same size, the maximum viewing distance (see Figure 1) shall be determined by using the following formula:



$$l = z \times h$$

Figure 1 l : the observation distance, h : height of the indicator light, z : distance factor (fixed $z=100$ for external illumination, $z=200$ for internal illumination).

Note: For better readability, the safety sign should not be placed higher than 20° above the horizontal surface.

4.2. INSCRIPTIONS AND ESCAPE EXIT SIGNS.

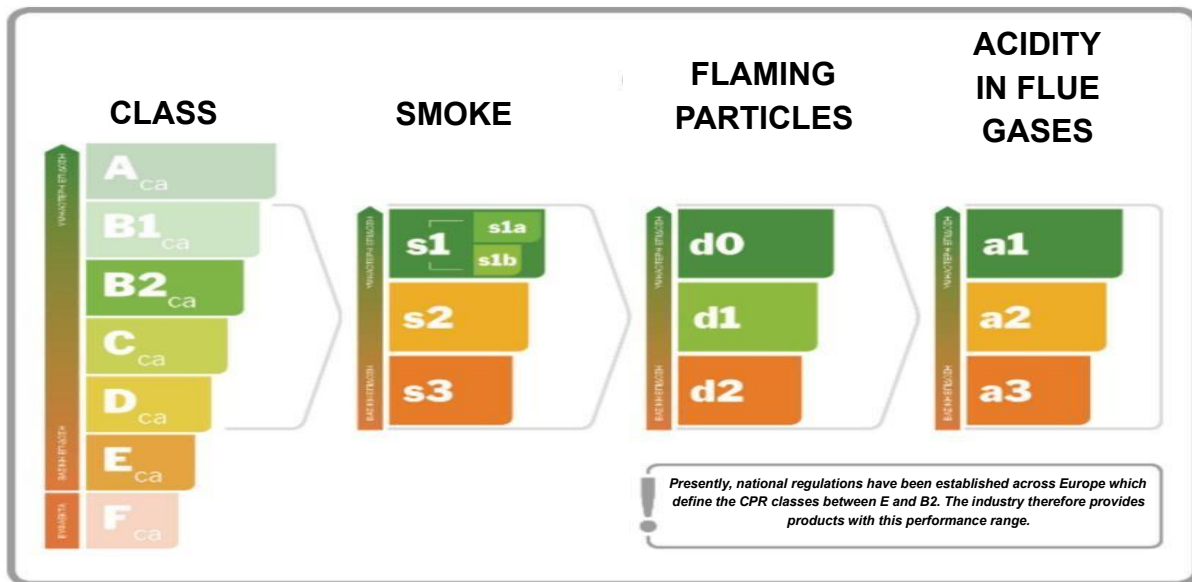
On each level of the two-storey structure:

a) The rescue and assistance signs, as well as the signs concerning the firefighting equipment with their inherent characteristics must be placed - installed in accordance with the standard ELOT EN ISO 7010: "Graphical symbols - Safety colours and safety signs - Registered safety signs", as applicable after taking into account the provisions of PD 105/1995 (GG Series I, No 67) "Minimum specifications for safety and/or health signs at work in compliance with Directive 92/58/EEC".

b) Safety marking of escape routes, emergency exits and firefighting material/equipment is required.

4.3. ELECTRICAL CABLES

The electrical cables of stands with ceiling must meet the minimum reaction to fire requirements (Euroclass) D_{CA-S2} , d_2 , a_2 , in accordance with Table 14 of PD 41/2018 and the ELOT EN 13501-6 standard



B. ACTIVE FIRE PROTECTION

4.4. PORTABLE FIRE EXTINGUISHERS (CE AND EN 3-7

CERTIFICATION) On each level of the two-storey structure:

- Portable Fire Extinguishers: **regardless of square footage, minimum number of two pieces** with an extinguishing capacity of at least 21A-113B-C (6 kg Dry Powder Fire Extinguisher)
- Due to the electrical installations in stands with ceiling **one 5kg carbon dioxide fire extinguisher should be added** to extinguish a fire originating from electricity.
- The fire extinguishers will have a sticker marking the date of maintenance or supply and hung on a floor or wall base at a height of 0.80-1.20m, always with the corresponding sign at a corresponding height that will be visible from a distance (desired height 1.60-1.80m)

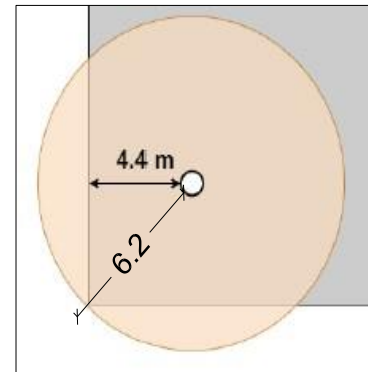
4.5. AUTONOMOUS FIRE DETECTION SYSTEM

Autonomous fire detectors should be installed on the ground floor ceiling of the two-storey stands.

The autonomous smoke detector should be EN 14604 or VDS certified and shall be battery operated and have a test button for full testing during installation. The housing of the detector is made of high strength and non-flammable plastic. The detectors will be placed in such a way that they leave no empty space in the corners of the ceiling or on walls with a coverage area of 60 square metres.

The maximum horizontal distance between any point in the protected area and the nearest smoke detector is 6.2m.

In a square layout they will be placed at a maximum distance of 8.8m between them, and not more than 4.4m from any large obstacle or wall.



In corridors less than 2m wide, detection in the centre is considered sufficient, so detectors can be placed at 12.4m intervals between them and 6.2m from the end of the corridor.

On sloped ceilings and for detectors placed on or near the top, the previous horizontal distances may be increased by 1% for each degree of slope with maximum increase of 25%.

The following specifications must always be strictly adhered to in two-storey stands:

1. **Ceilings on the 1st floor of the structure are prohibited.**
2. The **minimum net height of the ground** floor in two-storey structures should be **2.3m**. and the maximum height of the two-storey construction in total up to 5m.
3. Maximum enclosed space around the perimeter of the 1st floor up to 50% of the total surface area of the floor.
4. The covering of each ceiling should be fixed horizontally and only as one level. Loosening of any fabric covering should be avoided.
5. The materials with which the ceiling areas will be covered must be at least in category B1 (as flame retardant - non-flammable) and must not drip during combustion, in accordance with DIN 4102-1 with limited development of smoke and/or in accordance with EN 13501-1 as minimum category B/C – s2, d0.
6. A test certificate for the building material category, the fire, smoke and droplet formation behaviour of the material used and/or the certificate VdS, must be kept at the exhibition stand from the assembly period onwards. In addition, samples of the materials used must be kept ready for fire testing on site.
7. Areas with an increased risk of fire within the exhibition stands (e.g. kitchens, storerooms, cloakrooms, utility rooms etc.) must always have open ceilings.
8. In the case of rooms, tents, containers and similar closed on all sides and with closed ceiling spaces on the ground floor, an autonomous sprinkler system and smoke or differential heat detectors must be installed, even if the ceiling area is less than 30 sq.m.