

Visual alarm devices and the challenges of open spaces

Fire is one of the most catastrophic events that a home or business owner can face and it can potentially have devastating effects on lives, property and business.

Fire detection and alarm systems are designed to provide early warning of the outbreak of fire therefore enabling appropriate fire fighting action.

Fire alarm systems

Fire alarm systems often include some form of visual signal element, such as a flashing light, to reinforce the audible alarm signal (from a bell or electronic sounder) or a verbal message (from a voice alarm system).

There are certain situations in which the appropriate visual alarm element is necessary to provide warning and alert people to danger and may be more important than the audible signal. These include instances when warning must be given to the deaf or those who are hard of hearing, or in areas with a high level of ambient noise.

Visual alarm devices (VADs)

The purpose of a VAD within a building is to visually alert people of a fire emergency to enable them to take appropriate measures. BS EN 54-23:2010 (*'Fire detection and fire alarm systems. Fire alarm devices'*) is the product standard for VADs and specifies the requirements, test methods and performance criteria in a fixed installation to provide a visual warning of a fire between the fire detection and fire alarm system and the occupants of a building.

The need for VADs will be identified as part of a business and building's fire risk assessment. As with all fire alarm systems, there are numerous challenges that must be considered in the design and installation of VADs.

One such challenge is the illumination of the entire volume of the open space where the alarm must be visible. VADs must produce sufficiently intense light to give an effective

warning i.e. so that an individual located anywhere in the space, looking either towards or away from a VAD, would be alerted in the event of a fire.

A cuboid open space, for example, can be protected with ceiling mounted or wall mounted VADs. If ceiling mounted devices are the preferred option, then a number of devices (depending on the size of the space) will need to be installed on the ceiling to ensure that at the four walls and the floor, the required minimum illumination is met or exceeded. Alternatively if wall mounted devices are used, the devices should be located on the walls around the perimeter of the space at regular intervals to ensure that the light requirements are met throughout the protected space.

The coverage volume test from BS EN 54-23:2010 is used to measure the light output from devices at a selection of well distributed points to ensure that they illuminate the specified volume.

LPCB Code of Practice

While BS EN 54-23:2010 specifies the minimum requirements for the VAD performance, LPCB has produced, with the involvement of the Fire Industry Association (FIA), '*Code of Practice for Visual Alarm Devices*'. These guidelines are needed to ensure that VADs, which are tested and approved to BS EN 54-23:2010, are appropriately installed in the service environment.

The guide also provides recommendations for the planning, design, commissioning and maintenance of VADs in and around buildings (other than single family dwellings).

The LPCB Code of Practice provides guidance on the use of BS EN 54-23:2010 compliant VADs and also considers a number of other factors that must be taken into account such as the ambient light levels in the space and items located in the protected space that may shadow the light from the VAD.

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Notes for Editors

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