

How do you go about designing an Evacuation Alarm System to comply to BS8629?



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A chartered electronics engineer with over 40 years experience in Emergency Lighting and Fire Detection and Alarm systems.

His main expertise has been in product design, both circuit and system levels, but, until recently, he has served on many UK and European standards committees, as both chairman and technical expert. He has also been active within appropriate trade association technical committees. He currently runs an engineering consultancy company specialising in electronic design, technical support and training.

Several manufacturers are offering an evacuate alert solution in their product range.

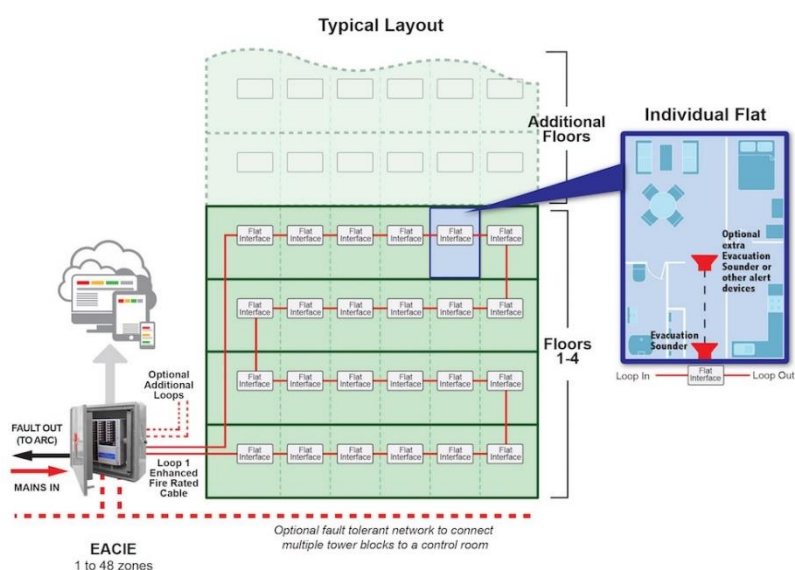
Each product will have its own performance limitations and features, which need to be taken into account when considering the design of the system.

The first stage in the design is to determine the number of flats. How similar or different each flat is with respect to the others, will quantify the likely number of alarm devices that are required to meet the sound pressure levels in each flat. The total alarm load can then be determined, assuming a worst-case situation of all the evacuation alert devices operating at once.

It is then necessary to make an allowance for optional evacuation alert devices that might be requested by a portion of the building occupants. Whilst some changes to the system might be tolerated, it is likely that the client will want the basic infrastructure to be capable of supporting a defined number of optional devices. This may be specified by the client.

The main Evacuation Alarm Control and Indicating Equipment ("EACIE") location

must be determined, and a survey of the building is needed to establish what risers are



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available to install the system wiring, and whether the number of risers gives adequate cable segregation to meet the system integrity requirements.

Once this information is known it is then necessary to decide whether a networked EACIE is needed to allow for sufficient power and volt drop within the building, or whether the system can be designed with a single EACIE.

BS 8629 gives detailed recommendations on the location of short circuit isolators and the minimum number of loops that would be required for the building. This will determine the cabling arrangements and where junction boxes and isolators are needed.

Worst case current requirements and cable volt drops can then be calculated for worst case circuits or each circuit, depending on the preference of the designer.

The proposed system must then be reviewed to ensure that it can be installed and commissioned in an efficient manner, allowing for all of the integrity tests that might be expected from the client.

Maintenance and servicing facilities must be considered to ensure that the system will comply with the Construction Design and Management ("CDM") regulations, both during installation and throughout its life.

Some manufacturers offer radio-based systems, which are particularly attractive for retrofits. However, the system must be capable of operating in fire conditions and similar systems, such as emergency communication systems and disabled refuge systems operate on more pessimistic parameters than typical fire alarm systems because of the known impact that fire can have on radio communications.

Consulting a compliance expert will ensure that you comply with the design, installation and ongoing maintenance requirements of a system.

Got a question about evacuation systems? Need help installing a fire alarm or emergency evacuation system? Get in touch today!

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