



Guidance on the Life Expectancy of a Fire Detection and Alarm System

FIA Guidance for the Fire Protection Industry

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This question arises when either a user or a maintenance company are considering when to replace a mature fire detection and alarm, (FD&A) system. BS 5839-1 does not define any fixed lifetime for the components of an FD&A system. This is because BS 5839-1 does not restrict the technology that is used and different technical solutions may produce a different life expectancy. The expectation is that the equipment manufacturer will be the best guide to an expected lifetime for a particular product. Manufacturers are also likely to have an obsolescence policy regarding spares and support for maintenance, however this is a separate and purely commercial issue.

Even if a manufacturer recommends a guideline lifetime a user is not expected to replace a system just because it has reached this date, the main issue is the system reliability. While system components continue to prove serviceable during routine maintenance there is no compelling reason to change them. However, where faults and failures seem to be age related and particularly if they are becoming more frequent, this may indicate a time to change. Where a faulty component could result in a lengthy downtime or require a major refit because they are no longer directly replaceable, it may be prudent to consider a planned replacement.

It is important to remember that a poorly maintained FD&A system that is giving false alarm signals may cause a loss of faith in the system to the extent that it may become ineffective and this would not then be meeting the requirements of the fire safety legislation.

In general it is considered that manual call points and heat detectors are robust devices that would not be expected to deteriorate even over extended periods well in excess of 10 years. However CO detectors have a limited life, and manufacturers will define a recommended replacement period, (see BS 5839-1, 21.1.4).

Other components may also have a defined lifetime and manufacturers will provide a recommendation. BS 5839-1, 25.4 b) recommends that the batteries used for a standby supply in a CIE should be of a type having a life of at least four years. To help record this information the model for a system logbook given in BS 59839-1, Annex G includes an area to list the expendable components replacement periods.

The main influence on the life expectancy of most detectors will be the environment: A smoke detector in a very clean sterile environment will probably also last a very long time, however in a dusty and dirty environment the detector may have a relatively short life.

The life expectancy of alarm devices may depend on the number of hours of operation and this is particularly the case for mechanical bells or visual alarm devices that use discharge tubes. Occasional brief operation during routine testing will have little effect on the life of a device, but frequent operation for extended periods may cause damage to some devices. This could result in a reduced or distorted sound output or reduced light output. If the FD&A system has been left in a fire condition for a long period in an unoccupied building a retest of sound levels may be advisable.

Different types of fire detector are suitable for different parts of your premises so discuss your requirements with an appropriately qualified and experienced specialist. Fire detection & alarm systems should be installed by companies with third party certification to either the LPS1014 or SP203-1 scheme which prove their competence in that area.