

Advice Leaflet 29
Fire Alarms - False Alarms From Automatic Fire Detection Equipment
(Unwanted Fire Signals)

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INTRODUCTION

If you are looking at this Public Advice Note, it is likely the fire and rescue service have responded to repeat fire calls at your premises due to false alarms caused by your fire alarm system.

The purpose of the West Yorkshire Fire & Rescue Service is to reduce the number of fire related deaths and injuries by preventing fire from starting or spreading. False alarms divert us from effective Community Fire Safety work, dealing with genuine emergency calls, valuable training exercises and puts fire fighters and members of the public at unnecessary risk.

Almost half of the calls to the fire and rescue service are false alarms, and most of these are due to false alarms from fire-detection and fire alarm systems.

If an automatic fire-detection and fire alarm system is used and maintained properly, its fast response to a fire that is just beginning can greatly reduce the risk to life and limit damage to property. However, features that provide this fast response can also cause false alarms.

About 90% of automatic fire-detection and fire alarm systems do not regularly cause false alarms. However, the remaining 10% are involved in most false alarms. Every false alarm causes disruption. This may affect your customer service, your productivity or the general routine of your organisation. The cost of false alarms in the UK is estimated to be about £1 billion a year. If you assessed the cost to your company you would probably be surprised. One medium-sized company found that the average false alarm at one of their sites cost them £1,200, and at another site costs amounted to around £126,000 in one year alone. However false alarms affect you, they could be a risk to the lives of others.

QUESTIONS YOU MUST ASK:

Owners, occupiers, or other persons with control of a building which has a fire alarm system, should have a satisfactory answer to these questions.

1. Who is responsible for the fire alarm system?
2. Who is responsible for supervising the fire alarm system?
3. Do you employ a competent person to maintain the fire alarm system?
4. Do you keep comprehensive records of fire alarm actuations?
5. Would your records show what caused each actuation and what was done to avoid a re-occurrence?
6. From your records, can you say whether or not you have a satisfactory system?

If you can't answer these questions, read on!

Advice Leaflet 29
Fire Alarms - False Alarms From Automatic Fire Detection Equipment
(Unwanted Fire Signals)

UNSATISFACTORY SYSTEMS

If your fire-detection and fire alarm system is well designed and maintained, it should produce no more than one false alarm a year for every 50 detectors fitted, and no more than one false alarm in any four-week period. For large fire-detection systems, we aim to reduce the level of false alarms well below that of one a year for every 50 detectors.

If your fire-detection system produces more false alarms than should be expected, the fire and rescue service would consider it to be unsatisfactory.

Under fire-safety law, employers and others responsible for buildings must provide effective fire precautions to protect employees as well as people who may be visiting or using their property. Your fire-detection and fire alarm system forms part of those fire precautions.

A system that causes false alarms may not be efficient as people will gradually lose confidence in the fire alarm and start to ignore its warning. So it is important that you recognise the importance of keeping the fire-detection and fire alarm system in good working order and removing the causes of false alarms. The advice in this public advice note will help you.

It is also worth remembering that if a genuine fire alarm is ignored (for example, because people mistake it for yet another false alarm), this can lead to death, injury and extensive damage. It is well known that many companies that suffer a serious fire will never effectively recover and will stop trading.

RESPONSIBLE PERSON, COMPETENT PERSON

The owners, occupiers, or other person with control over a building with a fire-detection and fire alarm system should agree which of them will be **responsible for the system**.

That person should then nominate a suitable person who agrees to be **responsible for supervising** the system.

The **person responsible for supervising** the system should have received appropriate training or have the skills, knowledge or experience needed to make sure that:

- the system remains in good working order and is properly maintained;
- faults are dealt with quickly and efficiently;
- those who have to take specific action when a fire alarm goes off have appropriate training;
- false alarms are investigated and action taken to solve any problem;
- activities which may affect the system (for example, processes which may produce heat or smoke, redecorating or a change in manufacturing processes) are controlled; and
- maintenance or other work is carried out on the system only by a **competent person**.

If the person nominated needs training, you can get advice from:

- the company that installed the fire-detection and fire-alarm system;
- the company that maintains the system; and
- your local fire and rescue service.

Advice Leaflet 29
Fire Alarms - False Alarms From Automatic Fire Detection Equipment
(Unwanted Fire Signals)

CAUSES OF FALSE ALARMS

False alarms from fire-detection and fire alarm systems can arise from many different causes, most of which can be dealt with by careful planning.

Typical causes of false alarms are:

- pollutants in the air setting off smoke detectors;
- extremely high temperatures setting off heat detectors;
- vandalism or malicious acts;
- mistakes in using the system;
- the equipment being faulty or not being maintained properly;
- fire detectors or red 'break glass' boxes being in the wrong place; and
- the fire-detection system not being appropriate for the building or how it is used.

False alarms can come from three main devices – smoke detectors, heat detectors and 'break glass' boxes.

SMOKE DETECTORS

Smoke detectors respond to smoke and any similar pollutants in the air. If you have smoke detectors in your building, you must make sure the people in the building know about them.

False alarms triggered by smoke detectors are often caused by:

- cooking;
- making toast;
- insects, particularly in the summer months;
- welding, soldering or similar activities;
- candles and open fires;
- steam;
- dust;
- aerosols; and
- a lack of effective maintenance and cleaning.

HEAT DETECTORS

These are generally used in kitchens, boiler rooms and similar areas where smoke detectors may be too sensitive and cause false alarms. They are set to allow for expected temperature levels in the protected area, and will trigger an alarm if the temperature goes above the expected level. False alarms may be caused by high temperatures in the protected area, or sudden increases in temperature.

BREAK GLASS BOXES

'Break glass' boxes do not usually cause false alarms as a result of faulty equipment. However, the glass can be broken deliberately or by accident. If you think there is a high risk of this because of vandalism or where the box is, they can be fitted with a transparent flap or cover that has to be lifted before the glass can be broken.

The actual cause of a false alarm may be easily identified and corrected. For example, if the cause is something someone has done (such as dust coming from maintenance work), you can take action to prevent this from happening again. However, you may need to take a more formal approach to analysing the cause of the false alarm.

Advice Leaflet 29
Fire Alarms - False Alarms From Automatic Fire Detection Equipment
(Unwanted Fire Signals)

ACTION TO TAKE

When the fire alarm sounds, everyone in the building should immediately follow the fire action plan (this plan must be well publicised within your building). A trained member of staff may then find out if there is a fire (you should have arrangements in place so that you will know quickly whether an alarm is genuine or false). If it is a false alarm, tell the fire and rescue service why it is a false alarm and be prepared to show them the cause. This will help them to deal with the situation in the shortest possible time.

If you cannot find the cause of the false alarm, follow the procedure described below.

- 1 Silence the fire alarm but do not reset the control panel, as this will get rid of the information you need to investigate the cause of the false alarm.
- 2 Check the message on the control panel and find out where in the building the false alarm came from.
- 3 As soon as possible after the false alarm, visit that area and locate the break glass box, heat detector or smoke detector that set off the alarm.
- 4 Try to find out why the break glass box or detector was triggered.

The information under the following headings may help you, but you may need to investigate further to find out the real cause (for example, vandalism or accidental damage to a break glass box or insects in a smoke detector).
- 5 If you are having difficulty finding the detector that was triggered, it may be in a duct or above a false ceiling. If a plan showing where all detectors are is available, use it to find the detector. Break glass boxes should be easier to find, as they should be in clearly visible positions.
- 6 If you cannot find the detector that was triggered, call in the maintenance company, as they should know where detectors are within the fire-detection system.
- 7 If the control panel does not show where the relevant detector is, or if no detector was triggered, call in the maintenance company as the problem may be due to faulty equipment.
- 8 **Accurately record all the information about the false alarm in the system log book. This is very important, as you may need the information at a later date.**
- 9 If false alarms continue, and you cannot find the cause or action you take is unsuccessful, analyse when the false alarms happen and where they come from. This will help you to see if there is any pattern that may help you to identify the cause (for example, cooking before meal times or a boiler switching on early in the morning).
- 10 Your investigations should show you that the false alarms are the result of faulty equipment, malicious acts, human error, or activities near detectors.

Advice Leaflet 29
Fire Alarms - False Alarms From Automatic Fire Detection Equipment
(Unwanted Fire Signals)

EQUIPMENT FAULTS

If you can't identify the cause of the false alarm, or if there seems to be a fault in the system, turn the alarm off but do not reset the control panel. (If you have to reset the control panel, make special arrangements with the company that installed or maintains your system to collect as much information as possible before the control panel is reset.) The information on the panel will help you to find the problem. If your equipment seems to be faulty, call in the company that installed or maintains your system so they can take appropriate action.

If your alarm system automatically alerts an alarm receiving centre (an ARC), contact the ARC straight away. Tell them you are having problems with your system and agree how they should handle any further alarms (to avoid needlessly calling out the fire and rescue service) until the problem has been fixed.

Effective, regular maintenance, including cleaning the inside and outside of smoke detectors, will help to prevent equipment faults from happening in the first place.

MALICIOUS ACTS

This cause can be the most difficult to identify and often needs to be investigated carefully. Examples of malicious acts include:

- unnecessarily breaking the glass in break glass boxes;
- unauthorised people having and using test keys for break glass boxes; and
- deliberately directing smoke (for example, from a cigarette) into a smoke detector.

HUMAN ERRORS

Examples of human errors include the following.

- Building contractors carrying out hot or dusty work close to smoke detectors or heat detectors.
- The fire-alarm system not being switched off while it's wiring is being altered.

Note: If you are planning on making changes to your fire-detection and fire alarm system, consult the West Yorkshire Fire and Rescue Service to find out if the changes would affect any fire-safety arrangements in the building. Also consider how the changes could affect the other fire precautions in your building.

- Unsecured control panels being activated, usually as a result of the panel's key or a similar device being left in the panel.

These incidents can usually be tackled by changing working practices (for example, issuing permits to work) or giving information and training to staff and contractors responsible for buildings.

Advice Leaflet 29
Fire Alarms - False Alarms From Automatic Fire Detection Equipment
(Unwanted Fire Signals)

ACTIVITIES NEAR DETECTORS

Many false alarms result from activities carried out near fire detectors, particularly smoke detectors. A common example is burning toast in a toaster. More examples are given under the headings “smoke detectors” and “heat detectors”. This type of alarm can be tackled by carrying out the activity elsewhere, fitting a temporary cover on a detector while the activity is being carried out, changing the type of detector or moving it, or changing the way the fire-alarm system responds when a detector is triggered. If you use temporary covers on detectors, these should be fitted only by approved staff and removed carefully as soon as possible after the activity has ended. You can get more advice from the company that installed or maintains the system.

You should consider all the activities that go on in your building and develop a plan to avoid false alarms. Make sure you have proper arrangements in place for training staff on work processes and practices, the fire precautions you have, and how work processes and practices may affect the fire-alarm system if they are not carried out properly.

MAINTENANCE

Like all electrical systems, your fire-detection and fire alarm system will be effective only if it is maintained and regularly checked by a competent person. Poor maintenance will not only lead to false alarms, it may also lead to a genuine fire alarm being ignored or missed. It can also reduce the life of the system. All these problems lead to extra costs for you. Guidance on maintaining your system, together with guidance on reducing false alarms, can be found in BS 5839 Part 1 – 2002 Code of Practice for design, installation, commissioning and maintenance of fire-detection and fire alarm systems (Note; BS 5839 Part 1 – 2002 Edition regarding maintenance and testing is retrospective, all systems even if designed and installed to previous edition must be maintained to the standard in this later edition).

ANALOGUE ADDRESSABLE SYSTEMS

When the time comes to replace your fire alarm system, consider installing an analogue addressable system. These systems have a degree of inbuilt ‘intelligence’ to facilitate constant self-monitoring and latest state reporting. Such systems do not activate sensor units. This reduces false alarms.

Where fire alarm calls are routed to the West Yorkshire Fire and Rescue Service through a Fire Alarm Company’s Central Station, it is the policy of the Fire Authority that the Company should use ex directory telephone numbers. The numbers are provided on the basis of an annually renewable contract. This facility may be withdrawn if the number of false alarms exceeds an agreed level.

WHERE DO I GO FOR MORE HELP?

If you have followed the guidance in this public advice note and false alarms are still causing a problem, the West Yorkshire Fire & Rescue Service can give you advice (see below). You should also ask the company that supplied, installed or maintains your system to investigate the matter and take appropriate action. The relevant company’s contact details should be on or next to the fire-detection and fire alarm system control panel or printed in the system log book. If you cannot find their contact details, BFPSA can recommend suitable organisations.

If your fire-detection and fire alarm system has been provided as a condition of any fire-safety law, you may have to consult the West Yorkshire Fire and Rescue Service before you make any changes to your system.

Advice Leaflet 29
Fire Alarms - False Alarms From Automatic Fire Detection Equipment
(Unwanted Fire Signals)

THE UNWANTED FIRE SIGNALS REDUCTION TEAM

As part of the Integrated Risk Management Plan, The Director of Fire Safety has set up a team with the objective of driving down unwanted fire signals in West Yorkshire.

The team monitor, advise and if necessary take action against the occupiers of buildings from which an unacceptably high number of unwanted fire signals have been received.

To reduce the unacceptable high number of false alarms received by WYFRS it has been necessary to introduce a policy governing the installation, maintenance and use of such systems. The policy is based on a nationally accepted model agreement drawn up by the Chief Fire Officers Association (CFOA) and endorsed by the Office of the Deputy Prime Minister and is part of a national strategy to utilise the Fire and Rescue resources in the most effective manner.

THE FOLLOWING IS A SUMMARY OF REMOTELY MONITORED FIRE ALARM SYSTEMS POLICY;

The policy implements a progressive registration of RMFAS (Remotely Monitored Fire Alarm Systems) with WYFRS. This registration enables WYFRS to gather information on the size and scope of the system and risk it is protecting. WYFRS will issue a '**Unique Reference Number**' (URN) for use by the alarm-receiving centre to identify the premises when a fire signal is passed to the Command and Control Centre. Also the issuing of a URN significantly reduces the call handling time and consequently produces a more rapid response by the Fire and Rescue Service.

The policy requires that RMFAS are maintained to appropriate British Standards and Codes of Practice and from 1 April 2008 new systems will be designed, installed, commissioned and maintained to appropriate British Standards and Codes of Practice by a third party 3rd party certificated company.

It is also a requirement of the policy that users take responsibility for their system and their duties under current legislation and British Standards. The Fire and Rescue Service may use their statutory enforcement powers to ensure this takes place.

The policy will be introduced in phases (see annex B of the WYFRS Policy www.westyorkshire.gov.uk) with the systems that cause a false alarm requiring to be registered first. A summary of the phased implementation plan is shown below:

From 1st April 2005

- Users of remotely monitored fire alarm systems that have a false alarm will be required to register for a URN.
- Systems which require a URN will have to be "maintained" by a fire alarm maintenance company, as detailed in British Standard (BS) 5839 – 1: 2002 – *Fire detection and fire alarm systems for buildings*, with reference to 'a competent person'.
- The system shall have a nominated "*responsible person*" who is responsible for the operation, user maintenance and management of the fire alarm system, and who is the focal point in your premises for all matters pertaining to the fire alarm system. The duties of the "*Responsible person*" are detailed in British Standard (BS) 5839 – 1: 2002 – *Fire detection and fire alarm systems for buildings*, Section 7 – *User*

Advice Leaflet 29
Fire Alarms - False Alarms From Automatic Fire Detection Equipment
(Unwanted Fire Signals)

responsibilities. Your fire alarm maintenance company will have a copy of this standard, and a shortened version of the duties and suggested model log book format is included in the “Fire Alarms – General” and is available on our web site www.westyorksfire.gov.uk

- **There should be at least 2 key holders** (who may or may not be the “*responsible person*”, trained to operate the fire alarm, **and must be able to attend the premises within 20 minutes and be contactable by telephone and preferably with their own transport**. The key holders shall also have the ability to gain access to all areas of the premises. The key holder shall be able to fully operate and reset the fire alarm system. Where the Fire and Rescue Service hold personal information relating to you and your key holders in connection with your remotely monitored fire alarm system, the requirements of The Data Protection Act 1998 will be strictly adhered to.

Note; The Fire and Rescue Service attends all remotely monitored alarm activations and upon arrival at the premises will carry out a dynamic risk assessment of the scene to determine if there is a fire. If there are signs of fire or any suspicion that it is a genuine alarm the Fire and Rescue Service may forcibly enter the premises in the absence of a key holder, and commence fire fighting action as necessary. Where there are no signs of fire the Fire and Rescue Service will endeavour to remain at the scene for not less than twenty minutes (where possible) pending the arrival of the key holder but cannot be committed to remain thereafter. It is your responsibility to ensure the key holder is given the relevant training to carry out the role including what to do upon arrival if the Fire and Rescue Service have already left the scene.

WITHDRAWAL OF OUR RESPONSE TO EXCESSIVE FALSE ACTIVATIONS PASSED BY THE REMOTELY MONITORED FIRE ALARM SYSTEMS (RMFAS)

The policy includes monitoring of all false activations passed by the Remotely Monitored Fire Alarm Systems (RMFAS), should an unacceptable level of false alarms persist, it may be necessary to consider the withdrawal of our response to activations from that RMFAS unless confirmation that there is a fire is received from another source (i.e. telephone call).

Note; receipt of a call to a confirmed fire will always result in a full attendance based upon a risk assessment of the danger to life and fire fighting needs relevant to your premises.

Should this withdrawal of response occur the owner/occupier of the premises is advised to contact their insurance company and fire alarm maintenance company and inform them of the withdrawal of this facility as soon as possible.

Following a reduction in attendance response level and after visit from the Fire and Rescue Service you will be required to prepare a plan to reduce the number of false alarms and to carry out any remedial action in conjunction with your fire alarm system maintainer to resolve the false alarm issue. Once this has been completed and the amount of false alarms falls to an acceptable level you should apply to the Fire and Rescue Service to restore your system to the higher level of attendance.

The Fire and Rescue Service may use their statutory enforcement powers. if they do not deem the action plan is likely to solve the false alarm issue. Failure to provide an effective means of detection and giving warning in case of fire could be considered an offence under the Workplace (Fire Safety) Regulations 1997 (as amended).

Advice Leaflet 29
Fire Alarms - False Alarms From Automatic Fire Detection Equipment
(Unwanted Fire Signals)

From 1st April 2007

- All maintenance companies maintaining systems which have an URN will be required to be a member of a 3rd party UKAS certificated inspectorate which has the scope for the CFOA approved fire system schemes in their scope.
- All ARCs sending alarms to fire and rescue service mobilising centres to be 3rd party UKAS certified to abridged BS 5979: 2000 (see CFOA Policy, Annex F clause F.3 iii.)

From 1st April 2008

- Any system without a URN may have to register for an URN.
- All new systems to be designed, installed and commissioned by a 3rd party certificated company with BS 5839 Pt 1 within their scope.

CFOA promotes 3rd party UKAS certification schemes as a means of demonstrating competence. The list of schemes recognised by CFOA for designing, installation, commissioning and maintenance are listed in Annex E of the CFOA policy.

In brief, the current CFOA approved schemes are:

For design, installation, commissioning and maintenance:

- BAFE adopted LPS 1014 – *Requirements for certificated fire detection and alarm systems*
- BAFE adopted SP 203 – *for the design, installation, commissioning and maintenance of fire detection, alarm and suppression systems.*
- LPS 1048 – *Requirements for certificated sprinkler installers, supervising bodies and supervised installers.*

For monitoring are:

- LPS 1020 – *Requirements for alarm receiving centres*
- BS 5979:2000- *Code of Practice for remote centres receiving signals from security systems.*

FOR THE ATTENTION OF FIRE ALARM COMPANY MAINTAINERS

From the 1st April 2005 all fire alarm company maintainers will be required to comply with BS 5839 Pt 1 2002 or equivalent for the means of minimising false alarms. This coupled with the CFOA requirement that all systems issued with a URN should be maintained by persons competent to do so. Thereby ensuring that their company is inspected by a 3rd party UKAS accredited inspectorate with the required CFOA approved scope is a means of showing compliance to the CFOA requirements.

It is important that they are fully conversant with the requirements of the CFOA policy so that they understand what CFOA expects as customers will contact them to discuss their fire alarm system, if they have had an excessive number of false alarms. They will need to solve their false alarm problem to stop a reduction in the fire and rescue response Level to activations from their fire alarm system. Full details of the policy are available on the Chief Fire Officers Association web site, at www.cfoa.org.uk.

Advice Leaflet 29
Fire Alarms - False Alarms From Automatic Fire Detection Equipment
(Unwanted Fire Signals)

CONCLUSION

If you comply with the above advice you will be assisting the fire and rescue service in providing a more efficient and effective service to the community. Failure to do so may result in a reduction of attendance to your premises and/or result in enforcement action being taken against you under current Fire Safety Legislation. A fire alarm system that is generating an unacceptable number of false calls is doing so because of a reason, and thus may not be considered to be suitable and sufficient in the circumstances. The reasons can be identified and appropriate modifications made, whether to the fire alarm system, practices and processes or behaviour of people, and the Fire and Rescue Service will be pleased to assist you in resolving these matters as expediently as possible. It is in everyone's interest that your fire alarm system performs as it is designed to do, and as a result raises the alarm only when it should do so.

Each application for a Unique Reference Number is subject to an administration fee payable by the system user. For the current charge please refer to the Registration Form. All remotely monitoring fire alarm system monitoring centres operating under this policy must utilise a dedicated ex-directory lines nominated by each fire brigade. An access fee may be chargeable and will be recovered as an annual fee.

Note: These administration charges do not represent a charge for our attendance at fire alarm calls, nor do they form a contract with the occupier of the premises for response to calls.

More information regarding approved companies can be obtained from;

NSI (National Security Inspectorate)
0845 006 3003 or 01628 637512
www.nsi.org.uk

LPCB (Loss Prevention Certification Board)
Tel No 01923 664100
www.redbooklive.com

SSAIB (Security Systems & Alarms Inspection Board)
Tel No 0191 2963242
www.ssaib.org

Other useful links

CFOA (Chief Fire Officers Association)
Tel No 01827 302300
www.cfoa.org.uk

BFPSA (British Fire Protection Systems Association)
Tel No 020 8549 5855
www.bfpsa.org.uk

Advice Leaflet 29
Fire Alarms - False Alarms From Automatic Fire Detection Equipment
(Unwanted Fire Signals)

FURTHER INFORMATION

A guide to reducing the number of false alarms from fire detection and fire alarm systems can be obtained from the Communities and Local Government. www.communities.gov.uk

Further guidance on the specification, installation and maintenance of detection and alarm systems together with the free leaflet 'Avoiding unwanted false alarms generated by automatic fire detection systems' which can be obtained from:

British Fire Protection Systems
Association
55 Eden Street
Kingston Upon Thames
Surrey KT1 1BW

Tel: 020 8549 5855
Fax: 020 8547 1564
e-mail: info@abft.org.uk
web: www.bfpsa.org.uk

British Standard BS 5839-1:2002 Fire detection and fire alarm systems for buildings, Part 1: Code of practice for system design, installation, commissioning and maintenance, Section 3 Limitation of false alarms can be obtained from British Standards Institution:-

British Standards Institution (Sales)
389 Chiswick High Road
London W4 4AL

Tel: 0208 996 7003
e-mail: cservices@bsi-global.com
web: www.bsonline.techindex.co.uk

If you require any further information or advice on automatic fire and smoke detection equipment or clarification on any items referred to in this note, please contact your local fire station.

All enquiries relating to contracts between Fire Alarm Companies and the Fire Authority should be addressed to:

The Communications Officer
West Yorkshire Fire & Rescue Service
Oakroyd Hall
Birkenshaw
West Yorkshire
BD11 2DY

Tel: 01274 682311

Advice Leaflet 29
Fire Alarms - False Alarms From Automatic Fire Detection Equipment
(Unwanted Fire Signals)

USEFUL CONTACTS

Local fire station:

Fire alarm maintenance company:

BFPSA – British Fire Protection Systems Association
Tel: 020 8549 5855
Web: www.bfpsa.org.uk

Reducing false alarms will save you and the fire and rescue service money, will reduce wasted efforts and may save lives.

ACKNOWLEDGEMENTS

Some of the contents of this public advice note are Crown copyright from the source “A guide to reducing the number of false alarms from fire-detection and fire-alarm systems”.