August 2006

Kidde Fyrnetics



THE LANDLORDS' AND HOUSEBUILDERS' GUIDE TO FIRE AND CO SAFETY

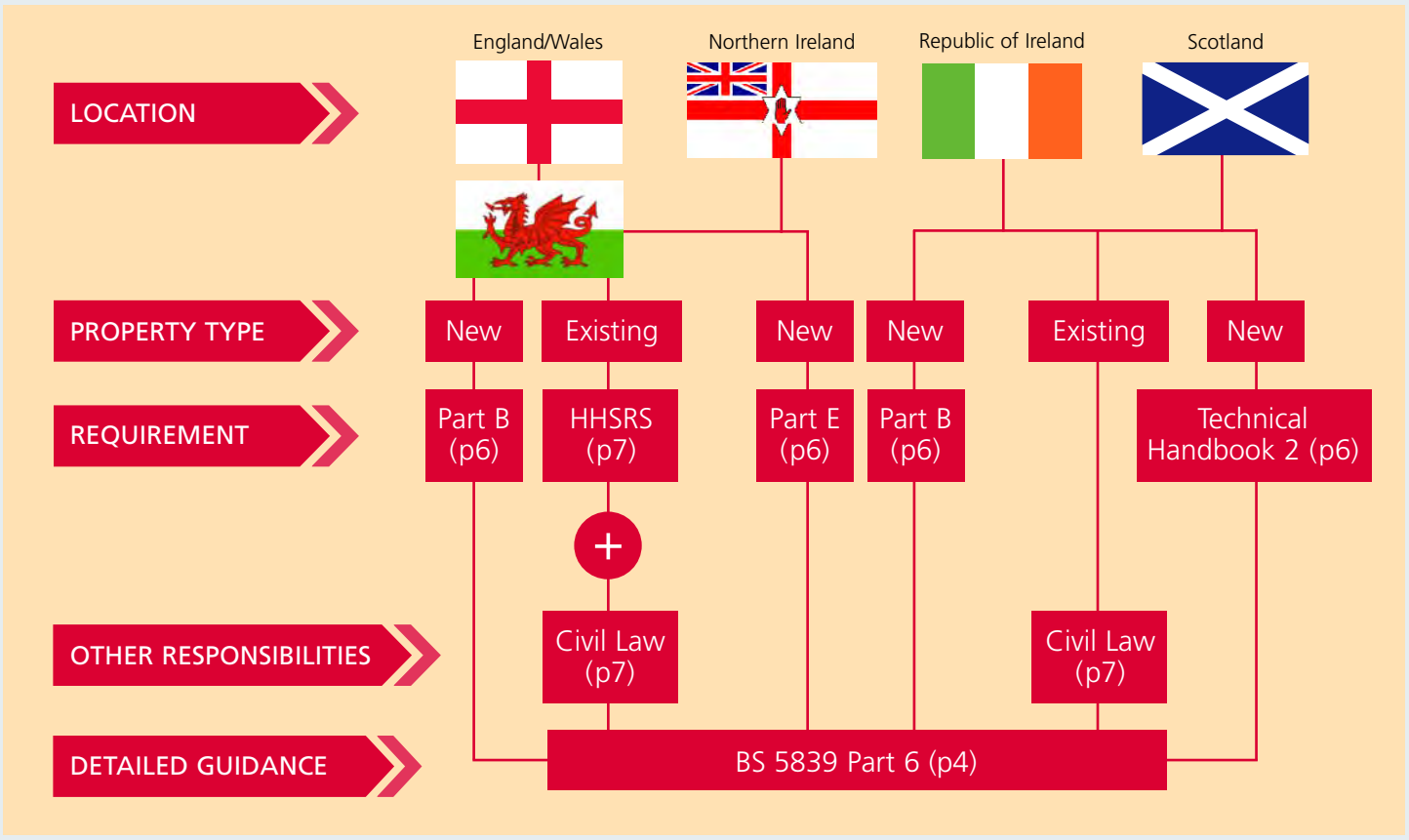
A comprehensive guide to smoke, heat and carbon monoxide alarms, making sense of:

- National Building Regulations
- Codes of Practice
- HHSRS and Decent Homes
- Civil Law Responsibilities

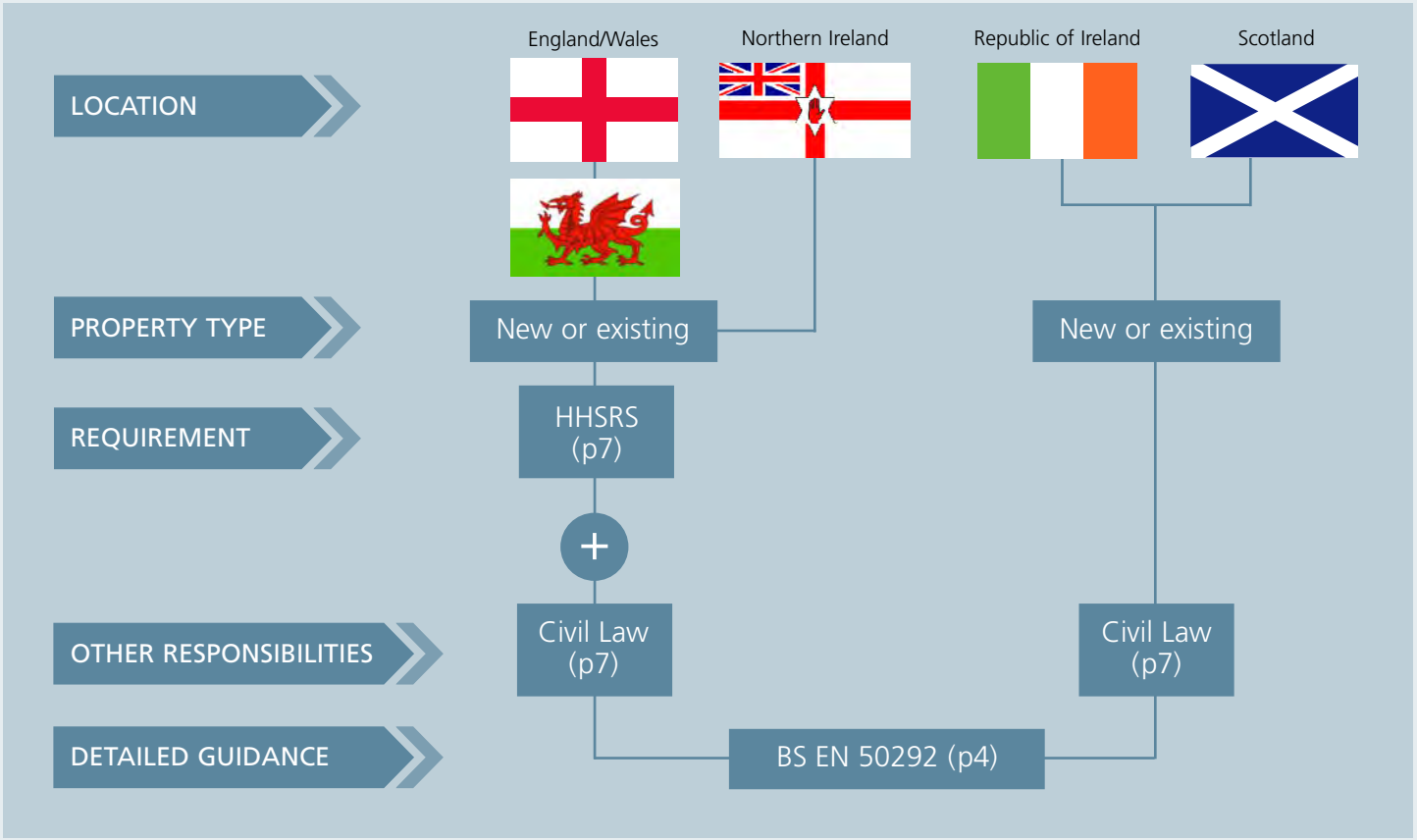
Intended for all housing providers, specifiers and installers including:

- RSLs and other landlords
- Housebuilders and developers
- Architects and Surveyors
- Building Control Officers
- Electrical Contractors

FIRE



CARBON MONOXIDE POISONING



INTRODUCTION

This guide aims to help all housing providers, specifiers and installers to understand fully their responsibilities for protection of occupants from death and injury resulting from fire or carbon monoxide poisoning. Although subject to different Standards and Regulations, there are good reasons for considering both fire and carbon monoxide risks together in this document, which should become apparent later.

In both areas, there are complex and confusing combinations of Standards and guidelines – sometimes conflicting – to consider. The diagrams opposite summarise the position and refer to specific sections in this document. However, there is a compelling case for universal minimum recommendations for smoke, heat and carbon monoxide alarms to ensure that all requirements are satisfied and responsibilities being met: these recommendations can be found at the end of this document.

THE NEED FOR SMOKE AND HEAT ALARMS

UK government statistics record that 327 people died in accidental house fires during 2004. In some countries where a public place smoking ban is in place, there are concerns that smoking and drinking at home will make the problem worse. The research also shows that while smoke alarm ownership increased rapidly from 8% in 1988 to 70% in 1994, this has slowed in recent years to around 80%. There is clear evidence that the level of harm suffered is influenced by the presence or absence of a functioning fire detection and alarm system. Smoke and heat alarms shorten the discovery time of the fire, are associated with lower fatal casualty rates and result in less property damage.

Of the 24% of alarms which failed to operate, there is a wide difference in performance: battery-operated alarms have a 45% failure rate, while mains-powered alarms have a failure rate of 13% – highlighting the importance of hard-wired smoke alarms with back-up power. In over 3,000 fires, the smoke alarm operated but did not raise the alarm – often because a person did so first. But in a quarter of cases there was no person within earshot of the alarm, reinforcing the need for better audibility and more alarms or other interconnected sounding devices, particularly within bedrooms.

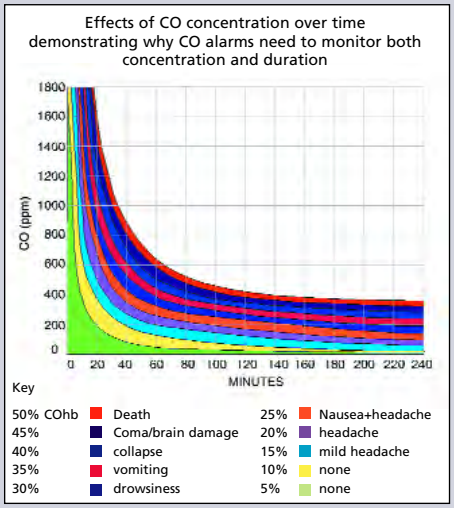
THE NEED FOR CARBON MONOXIDE ALARMS

According to the Health and Safety Executive, carbon monoxide (CO) poisoning causes an estimated 50 deaths and 200 serious injuries annually in Britain. Other organisations have recorded higher fatality and injury levels and all these figures reflect just what we know about: CO poisoning is certainly under-diagnosed by doctors and often not recognised by coroners, as it simulates other conditions.

CO is odourless and colourless. It bonds with haemoglobin in the blood to gradually replace essential oxygen, preventing the uptake of oxygen into the blood, resulting in headaches, nausea, unconsciousness – and finally death. While exposure to high concentrations leads to collapse, long-term exposure to lower concentrations can result in symptoms similar to flu or food poisoning. As the chart shows, lower level exposure over a longer period can prove fatal just as higher level, short-term doses. Surviving victims of CO poisoning may well be left permanently unwell and disabled through neurological damage.

Nothing can replace an effective heating maintenance programme – mandatory in the UK under the gas safety regulations, with heavy fines for non-compliance - to avoid CO in the home. But installation of CO alarms that provide an audible warning at exposure levels well below those critical to healthy adults not only saves lives but also helps satisfy landlord's responsibilities and avoid action for damages in today's litigation-conscious society.

Heat alarms should be fitted in all kitchens - without exception.



Without question, hard-wired interconnected smoke and heat alarms save lives.

A carbon monoxide alarm is an essential safety component in any home.

BS CODES OF PRACTICE AND DETAILED GUIDANCE

British Standards take the form of guidance and recommendations, and are not in themselves mandatory – although they may be referred to in specifications and used as a benchmark in many situations including legal proceedings and HHSRS (discussed later).

BS 5839 Part 6:2004 – FIRE

Fire detection and fire alarm systems for buildings – Part 6: Code of practice for the design, installation and maintenance of fire detection and fire alarm systems in dwellings is the code of practice that superseded the 1995 version and introduced several significant changes, several still not reflected in some national regulations. It covers both new and existing dwellings whether for single families or houses in multiple occupation (HMOs) consisting of self-contained units.

While BS 5839 Part 6 is based on a risk assessment approach for each situation, it recognises that in most cases guidance given in the code can be applied as a minimum standard. However, if there are risk factors additional to those encountered in typical examples, a specific risk assessment may be called for. Although principally concerned with systems for the protection of life (Category LD, covering 'Life' and 'Dwellings'), it also offers guidance on property protection (Category PD).

Grades of System

Essentially, Grade addresses the reliability of a system in terms of its power sources.

Grades A-C	more complex systems outside the scope of this guide
Grade D	interlinked mains smoke/heat alarms with back-up power
Grade E	interlinked mains smoke/heat alarms, no back-up power
Grade F	interlinked battery powered smoke/heat alarms

Grade F may be considered for some existing dwellings but not unless there is a 'reasonable certainty' that batteries will be replaced when necessary. Grade E is inappropriate where there are likely to be periodic interruptions to mains power (for example, for non-payment or with coin-operated meters).

Categories of System

This defines in which areas detectors (i.e. smoke/heat alarms) are required. It does not address the issue of audibility of sounders within the alarms (discussed later).

Category LD1	throughout the dwelling including all escape route circulation areas and any areas where fires might start, including roof voids (but not sanitary accommodation)
Category LD2	all escape route circulation areas and any areas where fires might start (such as Kitchens and Living Rooms)
Category LD3	all escape route circulation areas

Clearly, LD1 is the ideal although a good level of protection can normally be obtained from LD2. With LD3, the evacuation time once fire is detected in the circulation area might be quite short and also might not prevent death or serious injury of occupants of the room where fire originates.

Minimum Levels of Protection

BS 5839 Part 6 tabulates the minimum Categories and Grades recommended for different categories of housing, summarised below. This is considered appropriate for groups of dwellings with varied occupant characteristics or new-build where occupants are unknown. It is also used for individual, occupied homes, but may be modified to a higher standard resulting from a risk assessment. Also, if the risk to occupants is high (e.g. if they suffer from any mental or physical disability) LD1 or LD2 is always appropriate. If there is any doubt about the appropriate system, specialist advice should be sought and a risk assessment carried out. All alarms must be interlinked.

The minimum standard for most situations covering:

- new homes or
- existing where structural fire precautions may not comply (see below)
- with up to three storeys
- and no single floor over 200m^2:

Grade:	**D** (mains with back-up)
Category:	**LD2** as follows:
Hall (ground floor)	Optical
Landings	Optical
Kitchen	Heat
Living Room(s)	Ion/Heat

The above also applies to:

- one/two storey HMOs with no single floor over 200m^2
- or individual dwelling units in larger HMOs
- or single storey dwellings over 200m^2.

BS EN 50292:2002 – CARBON MONOXIDE

Electrical apparatus for the detection of carbon monoxide in domestic premises – Guide on the selection, installation, use and maintenance offers the latest guidance on CO alarms for dwellings. It stresses that CO alarms are not a substitute for good installation and regular servicing of fuel burning appliances or cleaning of flues, and that they are not intended to be used as an alternative to a smoke alarm.

Selecting Room Locations

The number and locations of CO alarms will depend upon the dwelling layout. It is essential that:

1. carbon monoxide reaches the alarm from the source to trigger it
2. the alarm sounder must be capable of alerting occupants and waking those who are asleep.

Ideally, a CO alarm should be installed in every room containing a fuel-burning appliance and in other areas to give warning such as well-used remote rooms and all bedrooms. If this is not viable, CO alarms should be considered in any room containing a flueless or open-flued appliance and where the occupants spend most time and/or sleep. As an absolute minimum there should be at least one on each level and preferably in bedrooms.

Selecting Positions within Rooms

Recent research shows that CO is normally emitted warm and so will tend to flow upwards, determining best locations as upper wall level or ceilings. CO alarms in the same room as a fuel-burning appliance should be located close to, but at least 150 mm from the ceiling and above any door or window. A ceiling mounted unit should be at least 300 mm from any wall. The unit should also be at a horizontal distance of between 1 m and 3 m from the potential source. If there is a partition in a room, the unit should be located on the same side of the partition as the potential source. CO alarms in rooms with sloped ceilings should be located at the high side of the room. Units in bedrooms or rooms remote from the fuel-burning appliance should be located relatively close to the breathing zone of the occupants. Positioning should allow viewing of all the light indicators.

CO alarms should not be fitted:

- in an enclosed space (for example in a cupboard or behind a curtain)
- where it can be obstructed (for example by furniture)
- directly above a sink
- next to a door or window
- next to an air vent or extractor fan
- in an area where the temperature may drop below – 10 deg C or exceed 40 deg C
- where dirt and dust may block the sensor
- in a damp or humid location
- in the immediate vicinity of the cooking appliance.

For existing dwellings, BS 5839 Part 6 differentiates between those with structural fire precautions (such as fire rated partitions, ceilings and doors) that meet BS 5588 Part 1 or national Building Regulation guidance (such as Approved Document B) and those that do not. If there is any doubt about the compliance of any aspect of structural fire precautions, the higher alarm standard should be adopted (in reality, most cases) – generally LD2/D. There may be financial savings in specifying a lower Category/Grade in some situations and this is recognised by BS 5839 Part 6 but it does frequently point out that specific circumstances may still justify LD2/D: ultimately, the responsibility for choosing a lower standard is the specifier's.

Minimum Grades and Categories for:

- existing homes where structural fire precautions definitely comply
- and with no single floor over 200m^2:

Up to 2 storeys	Owner occupied	F (battery)	LD3
Single storey	Rented	F (battery)*	LD3
3 storey	Owner occupied	D (mains with back-up)	LD3
2 - 3 storeys	Rented	D (mains with back-up)	LD3
4 or more storeys		D (mains with back-up)	LD2

* although with specific battery life and access requirements

LD3/D also applies to:

- one/two storey HMOs with no single floor over 200m^2
- or individual dwelling units in larger HMOs
- or single storey dwellings over 200m^2.

Types of Alarm

The Code of Practice reviews various types of detector/alarm unit including the following.

Ionisation Smoke Alarms – sensitive to small smoke particles from rapidly burning, flaming fires but less so for smouldering fires and smoke that has travelled some distance. Some organisations are already taking on board an EC directive that encourages alternatives to ionisation smoke alarms because of the small amount of radioactive components within them.

Optical Smoke Alarms – also known as photo, sensitive to larger particles from smouldering fires and less prone to nuisance alarms than their ionisation equivalents, especially from steam. Nuisance alarms result in disabling and death/serious injury.

Heat Alarms – respond more slowly to fires than smoke alarms but are less likely to give false alarms and require less maintenance.

Carbon Monoxide Fire Detectors – outside the scope of this document and not to be confused with carbon monoxide alarms (discussed later).

Selection of Alarm Types

The Code recommends which types of detector/alarm unit are most suited to specific areas, based on their performance characteristics.

Circulation Spaces (Halls and Landings) – Optical Smoke Alarms
Kitchens – Heat Alarms
Principal Living Room(s) – Heat Alarms or Ionisation Smoke Alarms
Bedrooms – Optical Smoke Alarms

Other Requirements

All specifications, statutory requirements by enforcing authorities, instructions and the relevant system certificate from the installer should clearly state:

- The Grade of System
- The Category of System
- For Category LD2, the rooms in which alarms should be located

Selecting Positions within Rooms

Smoke and heat alarms should preferably be ceiling-mounted at least 300mm (horizontally) from walls or light fittings. For LD3 systems, no point within the circulation area should exceed 7.5m from the nearest alarm. There should also be a smoke alarm between each bedroom and every other room (except sanitary accommodation).

Audibility

BS 5839 Part 6 discusses audibility of alarms in detail, particularly in bedrooms with closed doors. Alarms in circulation space must be within 3m of all bedroom doors and generate 85dB(A) at the doorway. Part 1 of the same standard recommends a sound level of 75dB at the bedhead but Part 6 recognises that doors attenuate sound by at least 20dB, so this cannot be achieved without an alarm/sounder within the bedroom.

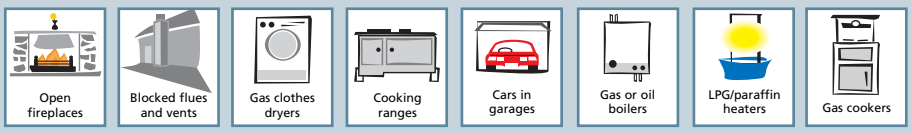
Generally, BS 5839 Part 6 dismisses the need for an alarm/sounder in bedrooms, justified by an apparent lack of evidence that lives are being lost. This misplaced approach (challenged by draft Part B) is discussed further on page 8.

GUIDANCE ON CO SOURCES

CO can be produced by any fuel burning appliances resulting from the incomplete combustion of carbon based fuels including bottled or mains gas, coal, oil and wood. Typical appliances include boilers, water heaters and wood burning stoves, as well as extended use of fireplaces and ovens. Other unfixed appliances introduced by occupiers are also a danger, including LPG and paraffin heaters, clothes dryers and charcoal or gas grills and hibachis operated in enclosed spaces. With fixed appliances, problems often occur from blockages and back-drafts in flues or loose, blocked or inappropriate vent pipes. Indications of problems include slow burning or extinguished solid fuel appliances, sooty stains around the appliance or orange/yellow gas flames instead of blue. Cars running in open or enclosed garages, particularly when integral or attached to the house, also pose a threat.

The main difficulty with CO is that the dangers are often far from obvious and it comes from a surprisingly wide variety of sources – not just gas appliances, which for rented (but not owner-occupied) housing must be checked annually under the CORGI regime. So, there are very real dangers in homes both old and new. Shared flues can cause unexpected problems and there have been instances of CO from flues discharging onto common areas effecting neighbouring properties, whether alongside or above the source – sometimes with lethal consequences. In multi-occupancy and multi-storey buildings, carbon monoxide produced in one area may be transported to and leak into another part of the building, e.g. across roof spaces, between floors, along ducting and in shared flues. In other cases, flue outlets have been interfered with by, for example, 'pirate radio' station operators while fixing illegal antennae on apartment blocks.
A wide diversity of other CO poisoning sources have also been recorded ranging from barbecues operated in confined spaces to fast food shop outlets effecting neighbours – and even overheating electric storage heaters. Other factors can also have a serious impact including wind direction and velocity (particularly gusts), temperature inversion (where exhaust gases can be trapped near the ground), negative pressure from exhaust fans and simultaneous operation of several appliances (which then compete for internal air for combustion).

As the UK government's Chief Medical Officer has stressed – CO poisoning can occur in any type or age of property, including brand new, owner-occupied housing. The idea that it is limited to just older buildings, poorer households and student 'digs' is entirely false. Today, things are also being made worse by installation of double-glazing and the sealing up of buildings for energy conservation, so reducing scope for air intake. Further changes to energy conservation and related ventilation regulations will continue this trend in new homes. Here, moves towards air-tight buildings with controlled ventilation will make the domestic environment more sensitive to air pressure changes, so increasing the risk of CO from heating appliances and integral garages.



NATIONAL BUILDING REGULATIONS

Generally, compliance with National Building Regulations is mandatory for all new building work, extensions, changes of use and some alterations. To assist with compliance, Approved Documents, Technical Handbooks and other documents are published (although other means of complying can be adopted). The most recent editions of these documents are referred to in the guidance that follows.

There are currently no national building regulations requiring carbon monoxide alarms in homes in the UK or Ireland. This could change and it is not the case in some other countries: for example a growing number of American States require CO alarms in all housing.

In the case of fire safety, National Building Regulations are in place that generally claim to be based on the BS 5839 Part 6 Code of Practice. However, as shown below, there are serious shortcomings in some cases – notably the absence of heat alarms in all Kitchens, where most domestic fires start. There is also a temptation for housing providers to use National Building Regulations as a benchmark on existing housing. This is a dangerous mistake with fire detection: as the Code of Practice shows, a higher standard may be justified in existing homes to take into account the lower level of structural fire protection (doors, partitions, floors and so on).

REPUBLIC OF IRELAND – PART B

A new publication *Technical Guidance Document B, Fire Safety* took effect in June 2006 and refers extensively to the BS 5839 Part 6 Code of Practice: therefore, compliance with the Code of Practice will meet the requirements. System Grade D is the minimum standard, as Grades E and F (mains only or battery powered) are not acceptable for new homes. The Category of system (minimum LD2) is determined by the height, size and type of dwelling as summarised below.

Minimum Levels of Protection

Two dwelling types are identified, as follows.

Up to 3 storeys above ground level:

Grade:	**D** (mains with back-up)
Category:	**LD2** as follows:
Hall (ground floor)	Optical
Landings	Ion*
Kitchen	Heat
Living Room	Ion

Over 3 storeys above ground level, large houses or higher risk:

Grade:	**D** (mains with back-up)
Category:	**LD1** as follows:
Hall (ground floor)	Optical
Landings	Ion*
Kitchen	Heat
Living Room	Ion
Bedrooms	Optical
All other habitable rooms	Ion

* Optical alarms are recommended in BS 5839 Part 6:2004

All alarms must be interlinked.

Audibility requirements reflect those in the Code of Practice (discussed later).

NORTHERN IRELAND – PART E

The current *Technical Booklet E: 1994 (as amended 2000)* refers extensively to the BS 5839 Part 6 Code of Practice: therefore, compliance with the Code of Practice will meet the requirements.

Minimum Levels of Protection

Other than houses or flats with any storey exceeding 200m^2 (which require Grades A or B systems, outside the scope of this document), requirements are as follows:

Grade:	**D** (mains with back-up)
Category:	**LD2** as follows:
Hall (ground floor)	Optical
Landings	Optical
Kitchen	Heat
Living Room	Ion

All alarms must be interlinked.

Audibility requirements reflect those in the Code of Practice (discussed later)

SCOTLAND – TECHNICAL HANDBOOK 2

Section 2 of *the Domestic Technical Handbook, 2006* offers the latest guidance on meeting the requirements of the Scottish Building Standards, a completely new regulatory system.

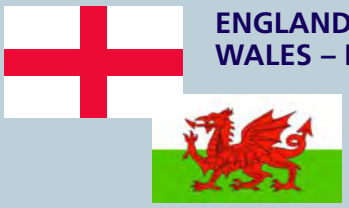
The guidelines are broadly in line with the recommendations of BS 5839 Part 6:1995 for a Grade D Category LD3 system which falls well below the minimum standard for new housing in the current Code of Practice. Worryingly, Scotland had more than twice as many fire deaths per head of population than any other part of the UK in 2004 with 19 per million compared with just 7 per million people in England and 8 per million in both Northern Ireland and Wales.

Minimum Levels of Protection

Other than houses or flats with any storey exceeding 200m^2 (which require a Grade B system outside the scope of this document), requirements are as follows:

Grade:	**D** (mains with back-up)
Category:	**LD3** as follows:
Hall (ground floor)	Optical
Landings	Optical
Kitchen	No requirement

Audibility requirements reflect those in the Code of Practice (discussed later).



ENGLAND AND WALES – PART B

The current *Approved Document B: 2000 (as amended 2002)* falls well below the minimum standard for new housing in the Code of Practice, although it refers to that document. Only Grade E is required, which **may** have a secondary power supply, and Category LD3.

Minimum Levels of Protection

Other than houses or flats with any storey exceeding 200m^2 (which require a Grade B system outside the scope of this document), requirements are as follows:

Grade:	**E** (mains)
Category:	**LD3** as follows:
Hall (ground floor)	Optical
Landings	Optical
Kitchen (if unseparated from circulation areas)	Heat

All alarms must be interlinked. Loft conversions to one or two storey houses require interlinked alarms.

Audibility requirements reflect those in the Code of Practice (discussed later).

In July 2005, a consultation document was issued with proposed changes to Approved Document B. Disappointingly, this failed to address the conflicts with the Code of Practice. Kidde Fyrnetics and others have recommended to government that this be addressed in the final document when published.

However, the consultation draft includes one new provision that 'in order to improve audibility, a smoke alarm should also be fitted in the main (largest) bedroom' – effectively as a sounder. Audibility is discussed in more detail on page 8.

HHSRS

The housing fitness regime is being replaced by a risk assessment procedure introduced by the Housing Act 2004 – the *Housing Health and Safety Rating System (HHSRS)*. It took effect in England in April 2006 (at the same time as mandatory licensing of HMOs) then subsequently in Wales. It may apply in Northern Ireland as well but not until it is fully implemented in England and evaluated. The underlying principle of the HHSRS is that any residential premises should provide a safe and healthy environment for any potential occupier or visitor. To satisfy this principle, a dwelling should be designed, constructed and maintained with non-hazardous materials and should be free from both unnecessary and avoidable hazards.

The HHSRS Regulations prescribe the manner of inspections and method of assessing hazards. HHSRS also replaces the fitness standard as an element of the Decent Home Standard. Local authorities have a duty to keep housing conditions under review and, if there is reason to think that a hazard exists (for example, complaints from tenants), should use HHSRS to make an assessment and, if necessary, take enforcement measures. HHSRS applies to both public and private sector housing.

Inspections are carried out by Environmental Health Officers and other surveyors. Inspectors record 'faults' (the failure of building elements to meet 'ideals' identified in HHSRS – generally meeting current British Standards or Building Regulations), the potential they have to cause harm (i.e. 'hazards'), any remedial action and the likelihood of an occurrence over 12 months which could harm a vulnerable group. There are 29 hazards identified and discussed in detail within HHSRS, and four 'classes of harm' with the highest being Class I (death or other extreme harm). Several different faults can contribute to a single hazard.

CO alarms are recognised in HHSRS as a means of working towards 'Decent Homes'.

Faults that are not the responsibility of the landlord or owner are excluded (e.g. a tenant's defective mobile gas heater).

A score is developed for each hazard using a weighting for each class of harm (e.g. 10,000 for Class I, 1,000 for Class II) combined with the assessed risk or likelihood (e.g. 1:100) and percentage 'spread' of each of the four classes of harm. The assessment process is usually carried out using dedicated computer software based on national statistical data covering each of the 29 hazards. Scores are then banded from A-J (e.g. band A covers 5,000 or more) with Bands A-C described as 'Category 1' and D-J as 'Category 2'.

Local authorities must take action with Category 1 hazards while Category 2 hazards are discretionary. A 'decent home' must not contain a Category 1 hazard.

Fire and carbon monoxide poisoning are identified as 2 of the 29 hazards. An 'ideal' for fire is that 'there should be sufficient properly designed and appropriately sited smoke and/or heat detectors with alarms in every dwelling. These should be properly maintained and regularly tested.' BS 5839 Part 6:2004 is relevant here, in preference to building regulations. Similarly for CO 'properly sited and maintained carbon monoxide detectors of a suitable type will warn occupants of danger, enabling them to take action to prevent further build-up of the gas or escape from the dwelling.'

A lack of effective smoke, heat or CO alarms is cited as one of the 'relevant matters' affecting the likelihood and harm outcome. It is unclear how inspectors will allocate hazard scores and there are real concerns that 'faults' are either not identified or ignored as the tenant's responsibility. We have already seen that the dangers of carbon monoxide are far from obvious, while most of the sources of domestic fires (such as smoking, misuse of kitchen equipment and tenant's defective electrical equipment) are excluded from HHSRS assessment anyway.

Hard-wired alarms such as the Kidde Slick® fast-fit range are essential to avoid tenant interference.

There is therefore a strong case for high scores in the absence of appropriate alarms. Similarly, installation of smoke, heat and CO alarms to British Standards could substantially reduce a hazard (perhaps from Category I to II) at a much lower cost than other remedial measures, so meeting 'Best Value' criteria.

Kidde Fyrnetics hard-wired smoke, heat and CO alarms linked with the Smart Interconnect facility help meet all landlords' obligations and 'Best Value' criteria.

CIVIL LAW

This document explores a variety of different regulatory requirements for housing providers to install smoke, heat and CO alarms. But just because Parliament has not spelled out such a duty in every case this does not mean that, in those cases where it has not, no legal liability can follow when alarms are not installed. This is because the civil law imposes a duty on everyone in business, no matter what that business is, to take all reasonable measures to ensure the safety and well-being of all those they know are likely to be affected by their activities.
For a copy of the legal opinion obtained by Kidde please email:
kiddefyr@ukgateway-.net

It is self-evident that the failure to install smoke, heat or CO alarms, even if no Act of Parliament says they must, is taking chances with the inhabitants' property, possessions and, most seriously, their lives. It should be remembered too that there is no limit at all to the amount of damages that a court can award if a business fails in its duty of care.

INTERPRETING RESPONSIBILITIES

With both HHSRS and legal action under civil law, generally current British Standards will provide the benchmark for interpreting what reasonable steps a landlord should take in protecting tenants. As we have seen, Building Regulations are not appropriate for existing buildings and none apply to CO alarms. Although BS 5839 Part 6 recommends hard-wired smoke/heat alarms in most cases, it does allow battery-only units where structural fire precautions meet current Building Regulations. In this case, it is the landlords' responsibility to ensure that all ceilings, partitions, doors, etc., really do comply – not an easy task – otherwise, installation of battery alarms will put them at risk. Furthermore, alarms not wired into the property may well be excluded as 'fixtures' covered by standard tenancy agreements (with requirements not to remove or interfere with them).

There is a strong case in favour of installing hard-wired alarms in every case to ensure that landlords' responsibilities are met in full.

MEETING RESPONSIBILITIES

Housing providers, specifiers and installers have clear responsibilities to fit smoke, heat and carbon monoxide alarms to protect occupants, even if not spelled out in legislation. The minimum requirements to meet those responsibilities can be found in the latest national Building Regulations or British Standards. However, national Building Regulations for fire are only appropriate for new buildings, extensions and major alterations not existing homes. In any event, some national Building Regulations remain out-of-step with British Standards, with sub-standard requirements for fire safety, and there are no regulations requiring CO alarms. British Standards provide the most up-to-date, comprehensive guidance for smoke, heat and CO alarm systems, and form the basis of the recommendations below.
In addition, allowance should be made as far as possible for anticipated changes to the building and its usage over time – i.e. future-proofing.

Audibility

However British Standards fail to address the problem of occupants being able to hear triggered alarms, particularly to wake them at night – an issue which Kidde has been lobbying about over the last few years. The drive for better acoustic privacy within housing is leading to better sound reduction from partitions and particularly internal doors and doorsets that can substantially reduce audibility of landing-located alarms at the bed-head where it is needed.

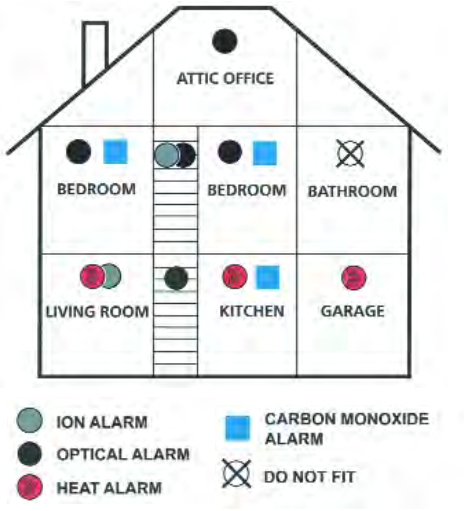
Draft Approved Document B (for England and Wales) tries to address this with just one additional smoke alarm in the main or largest bedroom, interlinked with others in the home, primarily to act as a sounder. Of course, this proposed provision cannot ensure that a single additional smoke alarm is, in reality, located in the bedroom occupied by the family member best suited to react to an alarm. For example, research has shown that young children can sleep through loud alarms while elderly people and others with hearing impairments may also not respond. There is therefore a compelling case for smoke alarms or sounders, interconnected with other alarms, in all bedrooms.

Smart Interconnect – the Complete Solution

The issue of audibility can be addressed cost-effectively with the unique Smart Interconnect feature that enables a number of Kidde Fyrnetics hard-wired CO, smoke or heat alarms to be interconnected within a home. When a smoke/heat alarm is triggered by a fire, all the interconnected alarms (including CO alarms) activate to alert occupants of danger, giving whole property protection. When a CO alarm is triggered by carbon monoxide, all interconnected CO alarms activate. The new hard-wired CO alarms have different, distinct alarm sounder patterns for carbon monoxide and fire (as required by BS 5839 Part 6:2004) – supported by different digital display messages on one model. Using Smart Interconnect, Kidde CO alarms can be used in bedrooms as sounders for the smoke/heat alarm system as well as warning of carbon monoxide – a most cost-effective solution meeting Best Value criteria.

RECOMMENDED COMPREHENSIVE PROTECTION

The following diagram illustrates a comprehensive system for both fire (to BS 5839 Part 6:2004 – Category LD2, Grade D) and CO safety (to BS EN 50292:2002), with excellent audibility.



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Tel _____ Fax _____

Email _____

Have you a colleague you would like us to send information to?

_____

☐ Do you wish Kidde to phone you?

☐ Do you wish to be added to our mailing list?

☐ Do you have a current project you need information/assistance on?

☐ Would you like us to present to your organisation on residential fire & CO safety?

LITERATURE:

☐ Rechargeable Smoke & Heat Alarms

☐ Rechargeable CO Alarms

☐ Residential Safety Update

☐ Further copies of this Guide

Kidde Fyrnetics

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HHSRS/HOD/806