Department for
Communities and Local Government

Housing Health and Safety Rating System

Guidance for Landlords and Property Related Professionals

housing

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May 2006

Department for Communities and Local Government: London

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Introduction to the Guidance

This document has been prepared in light of the Housing Act 2004 (the Act) for those owners and landlords who have a limited number of properties. The Act changes the way local authorities will assess housing conditions. They will now look at the condition of properties using a risk assessment approach called the Housing Health and Safety Rating System (HHSRS). This HHSRS does not set out minimum standards. It is concerned with avoiding or, at the very least, minimising potential *hazards*. This means that landlords should also review conditions regularly to try to see where and how their properties can be improved and made safer.

This guidance is aimed at non-specialists, in particular private landlords, because their properties are most likely to undergo an HHSRS inspection. In addition to their statutory duty to keep the housing conditions in their area under review, a local authority also has a duty to inspect a property if they consider it appropriate to do so. And an authority must also consider whether there is any action it might need to take under HHSRS in relation to HMOs which are subject to mandatory licensing – it must do this as soon as is reasonably practicable following a licence application, and in any event within five years.

Part 1 of the Act provides local authorities with new duties and powers to tackle poor housing conditions. The idea behind the Act is that local authorities will give priority to dealing with the greatest risks to health and safety in *dwellings*.

When local authority officers inspect a dwelling they will look for any risk of *harm* to an actual or potential occupier of a dwelling, which results from any *deficiency* that can give rise to a hazard. They will judge the severity of the risk by thinking about the *likelihood* of an occurrence that could cause harm over the next twelve months, and the range of harms that could result. The local authority officer will make these judgements by reference to those who, mostly based on age, would be most vulnerable to the hazard, even if people in these age groups may not actually be living in the property at the time. This means even a vacant dwelling can be assessed and that if the dwelling is rated as safe for those considered to be most vulnerable it will be safe for anyone. The HHSRS score is calculated following an inspection. The score does not dictate what action will be taken by the local authority to remedy the hazard. The government has issued statutory Enforcement Guidance to local authorities on the actions that they can take and the factors they should consider to decide which action is the most appropriate (a brief explanation at page 14 of this guidance).

Officers will use the formal scoring system within HHSRS to demonstrate the seriousness of hazards that can cause harm in dwellings. The scoring system for hazards is prescribed by the Housing Health and Safety Rating System (England) Regulations 2005 (SI 2005 No 3208) and is also set out in the statutory HHSRS Operating Guidance for local authorities. The Regulations can be obtained from the Stationery Office, while the Operating Guidance is available from the publications sales centre in Wetherby. If there are risks to the health or safety of occupants that the officer thinks should be dealt with, owners and landlords will have to put

matters right. If the officer finds a serious hazard (i.e. one in the higher scoring bands A – C, called a Category 1 hazard in the Act) the local authority will be under a duty to take one of the courses of action outlined in the section on enforcement in this Guidance. Category 2 hazards (i.e. those in scoring bands D - J) will be ones that the officer judges are not as serious. For these less severe hazards local authorities will still be able to take action if they think it necessary.

It is believed that responsible landlords will need, and want, to be able to identify those factors that may increase the likelihood of an occurrence and affect the spread of harm. This guidance is to help them to understand **what** local authority officers are inspecting for and **how** they assess the dwellings. This should help landlords to identify those areas where they need to do necessary work before the local authority carries out an inspection and requires remedial works. Definitions of some of the terms used in this guidance are given in Appendix 1.

The landlord's responsibilities

The landlord has to look after:

a) The exterior of the dwelling and structural *elements* of the dwelling, and

b) The inside facilities which are part of the dwelling.

INSTALLATIONS INSIDE THE DWELLING THAT ARE LOOKED AT

- **Water, Gas and Electricity**. These items must have whatever is needed for their proper use. All equipment necessary to supply these utilities must be fully, safely and correctly installed. Any removable equipment or appliances which use gas or electricity are **not** counted as "installations" unless these are provided by the landlord.

- **Personal Hygiene** covers installations such as proper wash hand basins, showers and/or baths.

- **Sanitation and drainage** covers lavatories, WC basins, drains, waste pipes, rainwater goods, inlet gullies and inspection chambers.

- **Food safety** covers sinks, draining boards, work tops, cooking facilities (or cooker points and space for cooking facilities), cupboards and/or shelves for storing cooking and eating utensils and equipment. It also includes food storage facilities (which these days are usually just electricity sockets and refrigerator space).

- **Ventilation** covers elements such as airbricks, trickle vents, opening lights to windows and mechanical and non-mechanical ventilation equipment.

- **Space and water heating** installations covers any kind of fitted space heating appliance(s) or central heating system. Moveable heaters provided by the occupier are not included. Installations for heating water cover any kind of fitted water system for providing the instant or stored heated water. Kettles and other appliances of that kind are **not** included.

Identifying hazards

Hazards arise from faults or deficiencies in the dwelling which could cause harm.

An understanding of two things is needed when it comes to recognising and testing for hazards.

- The basic physical and mental needs for human life and comfort, and
- How the dwelling as a whole, and each individual element in the dwelling has an effect.

In short, a dwelling should be able to supply the basic needs for the everyday life of the range of households who could normally be expected to live in a dwelling of that size and type.

The dwelling should not contain any deficiency that might give rise to a hazard which interferes with, or puts at risk, the health or safety, or even the lives, of the occupants.

So, to test whether a deficiency is connected to one or more hazards what is needed are:

a) An understanding of the functions and workings of each element of the unit, and

b) The ability to assess or test whether the deficiency will cause a hazard.

Causes of hazards

The first step in checking the state of a dwelling is an inspection to identify deficiencies that could cause problems for the dwelling as a whole.

It might be that the deficiency arises because of the way the dwelling was designed or built in the first place, or because of wear and tear, or because of a lack of care and repair over a period of time. As far as HHSRS is concerned, a deficiency becomes important when it can be seen that its effect is able to cause harm, i.e. when it results in a hazard. It is possible for **a single** deficiency to have an effect on, or contribute to, more than one hazard. For instance, a badly maintained ceiling could lead to the hazards of:

- **Excess cold** (because of increased heat loss),
- **Fire** (by allowing fire and smoke to spread to other parts of the dwelling),
- **Lead** (from old paint),
- **Domestic hygiene, pests and refuse** (by providing access and breeding places for pests, which are a source of infections), and
- **Noise** (because of an increased passage of sound between rooms).

So, a single deficiency can have a greater or lesser effect on a particular hazard.

Again, **several** deficiencies may be responsible for or contribute to the same hazard. For example:

- A badly maintained ceiling,
- A door that does not fit properly, and
- The absence of a smoke detector.

Each may contribute towards the single hazard of **fire**, helping smoke and flames to spread to other parts of the dwelling without being detected.

Alternatively, there may be similar kinds of deficiencies in different places in the dwelling which will have an effect on the same hazard. For instance, there might be dampness in the walls of several rooms within the dwelling. In this case the addition of those deficiencies of damp and mould growth will influence the assessment of the severity of the hazard, so the more widespread the damp and mould the greater the likelihood that harm could be caused.

Again there may be deficiencies to steps to the entrance path to the dwelling or to the main stairs inside the dwelling or to the rear steps. It is how far the combined effects of the deficiencies bring about the hazard of falls connected with stairs that will be assessed or tested.

Advice on what is to be looked at when assessing the possible contribution of a deficiency to a hazard can be found in the 'Causes and Preventive Measures' sections of the Hazard Profiles in the Appendices to this guidance (and can be found in more detail in Annex D to the HHSRS Operating Guidance).

Using the HHSRS means that even an unoccupied dwelling can be checked. It is the dwelling by itself which is checked, not the dwelling with the current occupants. So, the hazard score produced by the local authority officer stays with the dwelling even if there is a change of occupiers and stays until work has been done to minimise any hazards.

It is possible that, in some cases, the activities of occupiers of a dwelling may have an effect on the possibility of a hazardous *occurrence* or upon how bad it would be if it occurred. Because under the Act the local authority will be concerned with making an owner take action to remove or lessen the effect of a hazard, the HHSRS looks only at those areas which come under the responsibility of the owner (or landlord) even where the owner lives in the dwelling. It may be that landlords will want to make sure that tenancy agreements set out what is required of tenants so as not to prejudice their own health and safety.

The landlord (or owner) is not responsible for the state of fixtures or fittings belonging to the occupier unless they have been taken over by the landlord (or owner) and are not removable.

What are hazard bands?

The full system used by local authority officers uses numbers to represent the likelihood of an occurrence as the result of a hazard and to represent the possible spread of harm. In this way a score is produced to reflect the inspecting officer's judgement as to the severity of a hazard, but these are more conveniently put into bands covering ranges of scores. The bands (and the scores) allow the severity of very different hazards to be compared, for instance damp and mould, with carbon monoxide.

The bands range from A (scores of 5,000 or more), which is the most dangerous and life threatening, down to J (scores of nine or less), the least. More detailed information about these can be found in the *HHSRS Operating Guidance*. The Act imposes a duty on local authorities to take appropriate action in relation to hazards falling in bands A – C (that is hazards with scores of 1,000 or over). Although not under a duty to do so, they are also able to act in relation to other hazards (those in bands D – J, scoring 999 or less).

Testing for or assessing the hazards

When a dwelling is being assessed for conditions which could cause a hazard the local authority officer should take account of:

- The average likelihood for a particular hazard for that type and age of dwelling given in the main guidance,
- Any deficiencies (i.e. conditions or faults) which may increase the likelihood of an occurrence, and
- How serious the outcome of such an occurrence will be to the age group(s) most at risk.

Any decisions made by the local authority officer about the likelihood of a hazard occurring in a dwelling in the next twelve months will be based on the deficiencies identified. When the officer has made that decision, a number is used to represent a range of likelihoods.

The range of different injuries and health conditions which could arise from the occurrence of a hazard has been put into four HHSRS classes based on how serious they are. As well as thinking about the likelihood, the officer will think about how severe would be the result of an occurrence. The inspector will calculate the severity of the result of a hazard by deciding which out of the four classes of harm is the most likely outcome, then which is next most likely and so on.

The numbers used to represent the officer's decisions on the likelihood and the outcomes are used to get a score. (Exactly how this is done is prescribed in the Regulations, as well as being explained in the *HHSRS Operating Guidance*.)

The cost of any work that might be necessary is not taken into account in scoring a hazard, it is only the danger to health or safety that is considered. In fact sometimes a very serious hazard can by put right quite cheaply – for example a safety catch on a dangerous window can make it safe.

If it is found that it is very likely that there will be an occurrence within the next twelve months which could have serious results for the age group(s) most at risk (e.g. where the score is 1000 or over) then the local authority must take the most appropriate action in relation to the hazard. Often this might mean that they will require the landlord to undertake whatever work they consider to be necessary to remove, or minimise, the risk.

HMOs – buildings which contain a number of flats or similar dwellings

The HHSRS is applied to any form of dwelling whether it is self-contained or not, in a large building or not. The local authority officer only has to examine the dwelling and the parts and areas, shared or not, which form part of that dwelling.

When rooms and areas are shared, the check or **assessment** has to look at any possible increase in the likelihood and/or outcomes which could happen as a result of the sharing. It must also take into account the number of other dwellings sharing rooms and areas. For instance, the chance of a risk of infection might be greater because of sharing, or a person living in the dwelling that is being rated may be under stress because of the sharing.

Guidance on enforcement action

INTRODUCTION

This part of the guidance offers a summary of the HHSRS enforcement guidance that has been given to local authorities. This is only meant to provide a straightforward introduction and explanation to the enforcement options. If more details are needed then see the full *HHSRS Enforcement Guidance*, or get advice from a competent expert.

An HHSRS assessment is the first step taken by local authorities if they believe a dwelling contains hazards. The assessment will inform the decision on the most appropriate action that an authority can take to remove or at least minimise any hazards.

The local authority will be guided by three main points when making an enforcement decision:

a) The HHSRS hazard rating,

b) Whether the local authority has a duty or power under the Act to take action depending upon how serious the hazard risk is, and

c) The best way of dealing with the hazard having regard to the enforcement guidance.

The idea behind enforcement is to make the property safer for the range of potential occupants as well as for the current occupant. Whatever method of enforcement is chosen will be a means to this end. The local authority will need to take a view on whether hazards can or should be reduced, or removed entirely, how they might be removed or reduced, and if they cannot, what other action is necessary.

Local authorities are encouraged to comply with the Enforcement Concordat and give clear advice to the owner or manager on what is required of them and to provide an opportunity to discuss the circumstances of a case before formal action is taken.

Local authorities are under a duty to take action in the case of category 1 hazards. If necessary (or if the owner/manager requests) the local authority may carry out any necessary remedial work themselves and reclaim the costs. They also have powers to take action in the case of all category 2 hazards (i.e. those which carry lower risks).

Local authorities also have the power to make a reasonable charge as a means of recovering certain expenses incurred in taking enforcement action. There is no statutory limit but the charge needs to be reasonable.

HOW DOES THE LOCAL AUTHORITY IDENTIFY THE NEED FOR ACTION TO DEAL WITH HAZARDS?

This can be done:

- As a result of an overall assessment of the area (including a Neighbourhood Renewal Assessment, see the revised NRA manual on this, available from the Publications Sales Centre);
- As a result of a request by an individual, such as a tenant or the owner of an adjoining property;
- As the result of a complaint by another agency such as the Citizens Advice Bureau (CAB); and
- A result of a request for assistance by the owner or tenant to deal with various aspects of home repair, adaptation, or improvement.

A local authority has a specific duty to consider whether there are category 1 hazards in HMOs which are subject to mandatory licensing (those with three or more floors and five or more tenants). They should carry out this assessment as soon as is practicable after a licence application has been received and no later than five years.

The local authority can consider financial or practical or other non-enforcement procedures to help owners to deal with hazards. The approach to be taken by a local authority should be set out in their private sector housing policy that has to be published with summaries freely available.

Local authorities and landlords are encouraged to work together to maintain property in good repair, and enforcement is seen as a last resort.

Sometimes a programme of works is the best approach and the local authority has the power to make a judgment about priorities, i.e. dealing with the most serious problems first, and with less serious ones over a longer time frame.

ENFORCEMENT OPTIONS OPEN TO THE LOCAL AUTHORITY

First, the local authority will weigh up the risk from any hazard(s) in the dwelling that might affect the potential occupant most at risk. The authority will also consider matters such as the most practical solution, and the age of the property. In deciding the most appropriate enforcement method (but not for deciding whether a hazard exists), the authority will also consider matters such as cost of the works necessary to deal with the hazards. It will then take the most suitable form of action, which will be one of the following:

1. Serve an improvement notice

This is a possible course of action for dealing with category 1 or 2 hazards and must at the very least remove any category 1 hazard(s). It will not require work to start sooner than 28 days from when the notice is served. It may, if necessary, be suspended until an agreed date or event. For example it could be suspended until the current occupant moves out of the property. It can cover more than one hazard, and perhaps require different completion times. Once the necessary work has been done to their satisfaction, the authority must revoke the notice. Failure to carry out the required works in the Improvement Notice within the specified time frame is a criminal offence.

2. Make a prohibition order

This is a possible course of action which can be taken to deal with a category 1 or 2 hazard. It might prohibit the use of **part** or **all** of the premises for various specified reasons. This might be appropriate:

- Where the conditions are a serious threat to health and/or safety but practical repairs are not possible because of cost or other reasons;
- To limit the maximum number of people who occupy the dwelling because of defects or where the facilities, e.g. washing, sanitary etc., are unsatisfactory for the number of people who live there; and
- To prohibit the use of a dwelling to a particular vulnerable group (until such time as improvements have been made).

As with improvement notices, prohibition orders can also be suspended and made to come into operation after a specified event (such as when an occupant moves in or out of the property.

Someone who allows premises to be used against the terms of the order commits an offence.

The local authority will take a number of factors into account before serving a prohibition order, including:

- Listed or protected buildings,
- Neighbouring buildings,
- Potential alternative uses of the premises,
- Existence of a conservation or renewal area,
- The effect of complete prohibition on the well being of the local community and the appearance of the locality, and
- How easy it is to re-house displaced occupants.

3. Emergency action

Where there is a category 1 hazard and the local authority is satisfied that the hazard involves an imminent risk of serious harm to the health or safety of occupiers, the local authority can use emergency measures to get work done or prohibit the use of the dwelling (or a part) and so protect those occupiers. Using its powers the authority can carry out immediate remedial action, and though it is possible to appeal, in practice, any appeal is likely to be heard after the action has been taken. The authority can also serve an emergency prohibition order, which has immediate effect.

4. Serve a hazard awareness notice

This option is in the nature of advisory action where the authority wants to draw attention to the need for improvements. It could be a possible, though unusual, response to a category 1 hazard.

The notice must give details of the hazard concerned and what is needed to deal with it.

5. Demolition orders

Requiring the demolition of the property is another of the possible responses to category 1 hazards. In deciding whether to take this action, the authority looks at:

- How easy it is to re-house displaced occupants;
- The demand for and possible long-term use of the dwelling if the problem was put right;
- The possible use of the cleared site;
- The local environment;
- The suitability of the area for continued residential occupation;
- The effect of a cleared site on the appearance and character of the neighbourhood; and
- The Neighbourhood Renewal Assessment guidance.

6. Clearance

The local authority may look at the range of Category 1 hazards in a residential area and how far such buildings are dangerous or harmful to the health or safety of the people who live there.

In deciding whether an area is to be cleared the authority will take into account:

- The likely long-term demand for housing in the area;

- The number of houses where serious hazards cannot be put right;
- Building density and street patterns;
- The overall demand for, and availability of, housing in the wider neighbourhood;
- The number of hazard-free premises, residential and non-residential, in the same area;
- Whether it would be necessary to acquire land surrounding or adjoining the proposed clearance area, and whether this added land could be had by agreement with the owners;
- The presence of any listed buildings;
- The results of legal consultations;
- The effects of clearance on commercial premises; and
- The suitability of the after-use(s) of the site taking into account the wider neighbourhood, the degree of support by the local residents and the potential for private investment in the area.

WHAT ABOUT HMOS?

The same enforcement actions will apply to these as to other forms of housing but see the *HHSRS Operating Guidance* for more details.

APPENDIX I

List of words used in the document and their meanings

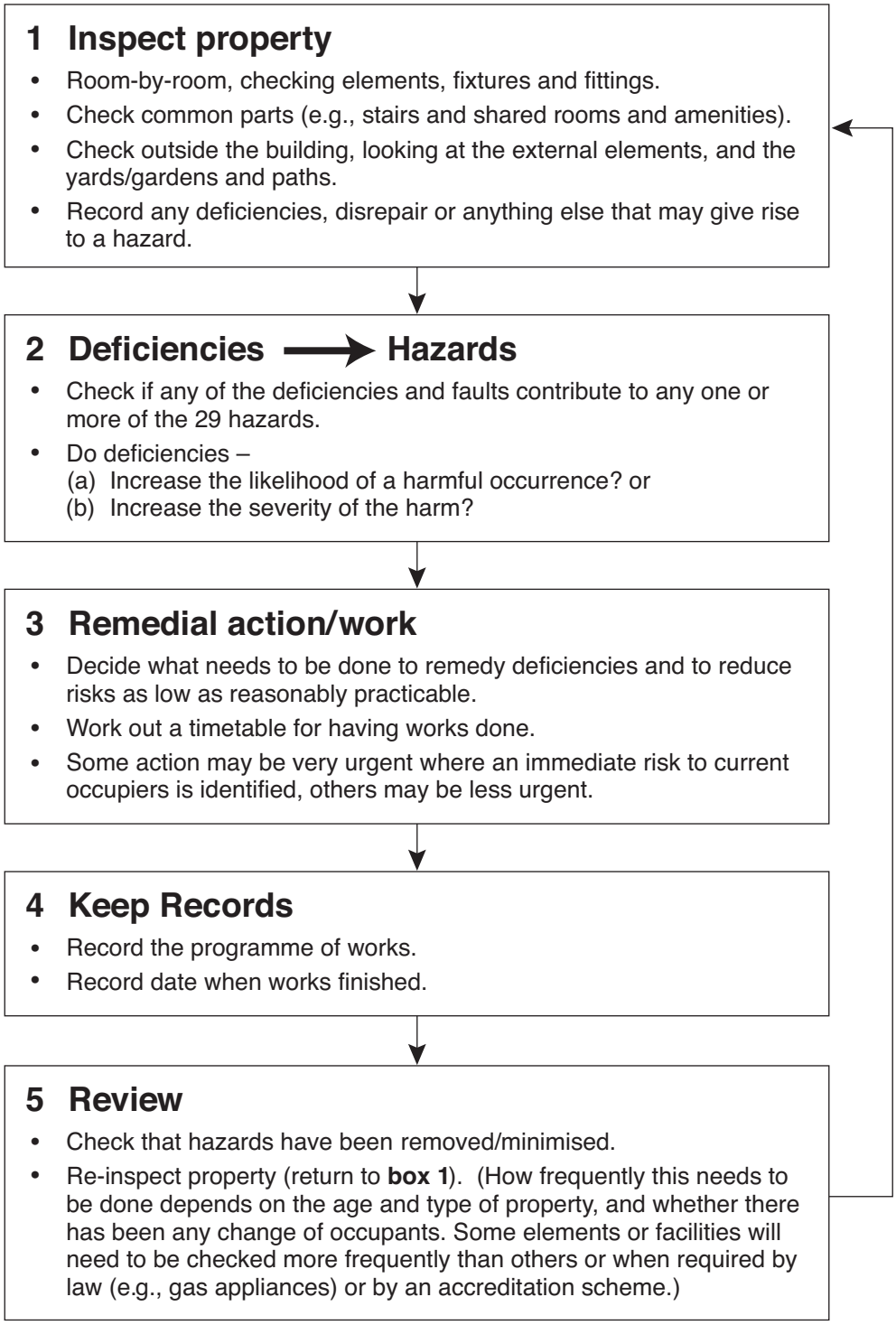
Note: The meanings given here are to help understand this guidance.

- *Dwelling* – any place which is used or meant to be used for living purposes.
- *Element* – any basic part or equipment of a dwelling such as a wall, window, staircase, bath, lighting or heating.
- *Deficiency* – a failing of some kind – when an element does not come up to an acceptable standard for whatever reason or is not present.
- *Harm* – and *classes of harm*. This is a physical or mental effect, like an illness, condition, symptom or injury to a person's health. It also includes temporary illnesses and injuries. In HHSRS, harms are grouped into four *classes* depending on how bad they are.
- *Hazard* – the danger that can happen as the result of a deficiency in the place and which could cause harm. (There are 29 categories of hazard in the HHSRS.)
- *Hazard* score – a number given to an **overall** risk from a hazard.
- *Hazard* rating – the band into which the hazard score falls.
- *Likelihood* – how likely it is that something will occur to cause harm, especially to certain groups, **within twelve months** after the survey.
- *Occurrence* – this is the occasion or length of time when a person is exposed to the hazard.
- *Risk* – the link between the likelihood of an occurrence and the **ranges** of harms occurring during the following twelve-month period.
- S*pread of Harms* – the range of possible *health* effects (i.e. classes of harm) which could occur. (These can be seen in greater detail in the *HHSRS Operating Guidance).*
- V*ulnerable Group* – a particular group of people based upon age who could live in the dwelling for whom the risk of a hazard is greater than for most people. For the HHSRS it does not include those registered disabled.

APPENDIX II

Assessment Process

This is a suggested process that a landlord could adopt to minimise the chances of any unacceptable hazards.



APPENDIX III

Profiles of potential health and safety hazards in dwellings

INTRODUCTION

The hazards are arranged in four main groups depending on the kind of threat to health. These groups are divided still further depending on the nature of the hazards themselves. Outline profiles for some of the more common or serious hazards are given here, together with a note on the other less common or serious hazards. (Greater detail and explanation for all hazards can be found in Annex D of the *HHSRS Operating Guidance*).

The profiles also summarise what can be done to help in the assessment of *hazards*.

For the more serious or common hazards, each profile gives:

- What the *hazard* covers – the potential for harm from the *hazard* that can affect health and includes examples of typical injuries and illnesses which may result from it;

- What *deficiencies* might cause a *hazard;*

- What can help to avoid or minimise the *hazard;*

- The relevant matters affecting likelihood and harm outcome, i.e., those features of a dwelling which may increase the likelihood and the seriousness of the outcome of a *hazard*. In many cases the same dwelling features can affect both the likelihood of an occurrence and the severity of the outcome; and

- *Hazard* assessment – i.e., advice on how to assess the seriousness of the *hazard*.

A Physiological requirements

Hygrothermal conditions

1 DAMP AND MOULD GROWTH

Includes threats to physical and mental health from:

- House dust mites
- Mould or fungal growth

Both are caused by dampness and/or high humidity.

Possible health effects

- *Breathing difficulties* caused by house dust mite and mould;
- *Depression and anxiety* because of the conditions;
- *Asthma, rhinitis, etc.; and*
- *Fungal infection* which could affect people taking treatment for cancer.

Causes of dust mite and mould and fungal growth

Both are related directly to dampness which is caused by:

- Reduced ventilation levels;
- Increased humidity, especially beyond 70 per cent; and
- Warmer indoor temperatures in winter because of dwelling design in renovated houses.

Preventive measures that could have a significant effect on **likelihood** and **harm outcomes** relating to **moisture production** and **ventilation**:

- Damp proof courses, membranes and detailing around doors and window openings;
- External fabric kept in good repair to avoid rain penetration;
- Frost protection for pipes and tanks;
- Properly installed baths, sinks etc., with

- Properly installed drainage;
- Properly installed and maintained rainwater goods;
- Properly ventilated roof and under floor spaces to ensure timber remains air dry;
- Adequate extraction of moisture laden air during peak times, like cooking and bathing and laundry;
- Continuous low-level background ventilation where necessary;
- Sufficient means of ventilation to cope with moisture from normal domestic activities without the need to open windows that could lead to heat loss, noise and security risks; and
- Appropriate ventilation for dwellings of high occupant density.

Indoor temperatures

If most of the conditions above are met then raising indoor temperatures, taking into account energy efficiency and cost of heating, can significantly reduce dust mite problems. So an efficient heating system appropriate for the fabric (thermal properties) of the building is important.

Hazard assessment

There are many variables, such as design, condition and repair of the dwelling, as well as location and prevailing weather, room sizes and so on, that can make assessment difficult.

What about flats and HMOs?

Preventive measures are particularly important here because of the likelihood of occupants having to be more confined to one or two areas; thus making them more vulnerable to any dampness etc., that might be present.

2 EXCESS COLD

This covers the threats to health when temperatures fall below the minimum satisfactory levels for relatively long periods.

Health effects.

A healthy indoor temperature is around 21˚C. There is small risk of health effects below 19˚C. Below 16˚C, there are serious health risks for the elderly, including greatly increased risks of respiratory and cardiovascular conditions. Below 10˚C a great risk of hypothermia, especially for the elderly.

Cardiovascular conditions (e.g. heart attacks and stroke) account for 50 per cent excess winter deaths. Respiratory diseases (e.g. 'flu, pneumonia, bronchitis) account for another third.

Excess cold can also cause an increase in blood pressure/reduce resistance to infection because of the effect of cold air on bronchial lining and immune system/worsen symptoms of rheumatoid arthritis.

Causes

- Main causes appear to be changes in outdoor temperature among other factors;
- Sleeping in cold bedrooms greatly increases health risk;
- Dwellings with low energy efficiency ratings (poor insulation);
- Greatest risk is in properties built before 1850, lowest in more energy efficient dwellings built after 1980;
- Absence of central heating/poor inefficient heating systems; and
- Excessive damp which reduces thermal insulation.

Preventive measures that can have an effect on **likelihood and harm outcomes:**

- Appropriate levels of thermal insulation to minimise heat loss. Level depends on location/exposure/relationship to other dwellings/buildings orientation;
- Appropriate heating system safely and properly installed and maintained and controllable by occupant;
- Appropriate/properly installed/maintained occupant controllable low-level background ventilation without too much heat loss/draughts;
- Means for rapid ventilation at times of high moisture production in kitchens/bathrooms through fans;
- Properly sited/sized permanent openings (e.g. air bricks/open-able windows); and
- Properly fitting butt-jointed floor boarding/doors/windows.

Note: there may have to be a 'trade-off' regarding windows because of security/external noise levels etc.

What about flats and HMOs?

Centrally controlled space heating systems should operate in a way that makes sure occupants are not exposed to cold indoor temperatures. Occupants should be allowed to control temperature within their dwelling

Hazard assessment

- Dwelling is assessed on the basis that it is fully occupied by the most vulnerable age group;
- Only the dwelling characteristics/energy efficiency/effectiveness of the heating system are considered as these are within the control of the owner; and
- Other factors such as dampness/disrepair to the structure/space/water heating systems.

3 EXCESS HEAT

This category includes threats from *excessively high indoor air temperatures.*

Effects on health as temperatures rise

Include increase in thermal stress, increase in cardio vascular strain and trauma, and increase in strokes. Mortality increases in temperatures over 25^{0}C. Although not common, problems can occur in the UK.

Causes

- Ventilation conditions;
- Thermal capacity of the dwelling – smaller dwellings are more prone than larger;
- Large areas of south facing glazing; and
- Faulty or sub-standard heating controls.

Helpful preventive measures that could have an effect on **likelihood and harm outcomes:**

- Large areas of south facing glazing could have shuttering or blinds to control heat in summer months;
- Means of cooling during hot summer weather, either by natural ventilation or air conditioning; and
- Controllable heating systems.

Hazard assessment – should take account of:

- Provision for natural ventilation especially for night-time;
- Provision/condition of any mechanical ventilation/air conditioning system;

- Level and position of insulation;
- Extent and direction of glazing; and
- State of repair of heating system.

What about flats and other HMOs?

It seems that many flats and bedsits can be affected as these are more likely to be dwellings which:

- Are badly insulated;
- Those located directly under an un-insulated roof;
- Have only a south facing direction; and
- Have heating systems not under the control of the occupier.

Pollutants (non-microbial)

4 ASBESTOS AND MMF

Includes the **presence** of and **exposure** to asbestos fibres and Manufactured Mineral Fibres (MMF, which include rockwool and glass fibre blankets) in dwellings. (White, blue and brown forms of asbestos fibres are included, that is chrysotile and both forms of amphibole.)

Health effects

These typically tend to occur a long time after first exposure. Inhalation of asbestos fibres can cause damage to the lungs and, at the more extreme, cancers. They can affect the pleura (the protective membrane surrounding the lungs) causing plaques and fibrosis – not in themselves harmful but may point to something more serious. These are included as Class IV Harms. They can also cause forms of fatal lung cancer, including mesothelioma. MMFs are skin, eye and respiratory irritants and may cause dermatitis. There is some uncertainty about whether they can cause lung cancer.

Causes – Asbestos

- Part of a wide range of building products found in most traditionally built houses and flats. Generally in locations not likely to be disturbed so airborne fibre levels tend to be low;

- More of a problem in non-traditionally or 'system built' flats built between 1945 and 1980, because of sprayed coatings and partitioning as well as chrysotile materials in positions at risk from damage or disturbance. So, airborne fibre levels are higher; and

- Buildings most affected are high-rise council estates built in the 1950s and 60s.

MMF

Mostly used in loft and cavity wall insulation.

Modern products release few, if any, fibres and are not bio-persistent so risk is minimal.

Preventive measures that could have a significant effect on **likelihood and harm outcomes** relating to:

Asbestos:

- Damaged or likely to be damaged or disturbed asbestos should be assessed for repair, sealing, enclosure or removal by licensed (HSE) contractors;

- Existing asbestos can be managed in situ (covered or protected and the condition monitored) if it is in good condition and unlikely to be damaged/worked on/disturbed;
- Keeping a record of asbestos location in the building; and
- Protecting it from damage by occupants.

MMF:

- Minimal possible exposure to fibres during maintenance/installation/removal.

Hazard assessment

Asbestos:

Should take account of:

- Its location,
- Potential for damage,
- Extent of any *present damage* for possible fibre release, and
- Checking whether *chrysotile* or more lethal *amphibol.*

MMF:

- Visual examination for damage/disturbance.

5 BIOCIDES

These are *chemicals* used to treat *timber* and/or *mould growth* in dwellings. (They are also used to kill pest infestations, such as *insects* and *rodents, however, these biocides are not considered for the purposes of the HHSRS.)*

Health effects

Figures are based on people living in new/refurbished dwellings as these are more likely to be at risk. The potential for harm to human health depends on the particular biocide which is being assessed. People are usually affected *by inhaling* but *skin contact* and *swallowing* can also be factors. Obviously the greatest risk is to the operatives who apply the chemicals, but occupants of treated dwellings can be at risk also. Guidelines and references may be found in the *HHSRS Operational Guidance.*

6 CARBON MONOXIDE AND FUEL COMBUSTION PRODUCTS (NITROGEN DIOXIDE, SULPHUR DIOXIDE AND SMOKE)

These are all linked to the (partial) combustion of gas, oil, solid fuels for heating and cooking in dwellings

Health effects – can vary

Carbon Dioxide

- Inability of blood to take up oxygen;
- Headaches, dizziness, nausea etc.;
- Some symptoms may be confused with 'flu' or depression;
- Increased chest pain in people with ischaemic heart disease;
- May impair foetal growth; and
- High concentrations can cause unconsciousness and death.

Nitrogen dioxide

- Respiratory damage;
- Aggravated asthma; and
- Increased risks of bacterial and viral infection of the lung

Sulphur dioxide

- Bronchitis and breathlessness as a result of open fires;
- Aggravated asthma.

Causes

All these result from an incomplete or improper combustion of the fuel or blockages or other defects to the flue.

Carbon monoxide in dwellings:

- Incomplete combustion of all fuels containing carbon, gas, oil and solid fuels.

Nitrogen dioxide

- Produced by gas and oil burning appliances.

Sulphur dioxide

- Has a distinct smell and produced mainly by oil and solid fuel burning appliances.

Additional comments

- Open flued appliances can discharge combustion gases back into rooms which contain too powerful extractor fans;
- Flueless appliances including cookers;
- Appliances in disrepair;
- Inadequate ventilation;
- Ventilation in disrepair;
- Flues not properly serviced/cleaned/maintained;
- Flues in disrepair;
- Inappropriate flue outlet sites;
- Extractor fans in dwellings with open flued appliances; and
- Lack of/defects in carbon monoxide detectors.

Preventive measures affecting **likelihood** and **harm outcomes** relating to:

Carbon dioxide, nitrogen dioxide, sulphur dioxide

- Proper installation and maintenance of gas/oil/solid fuel burning appliances;
- Adequate air supply for such appliances;
- Proper siting and connection with adequately sized flues;
- Adequate ventilation in rooms with such appliances;
- Regular maintenance of flues;
- Gas heating appliances to be fitted with flues for correctly balanced flow of air inside and out;
- Ventilated lobby between integral garage and living accommodation; and
- Properly sited and maintained carbon monoxide detectors.

Hazard assessment should be:

- Visual inspection of gas/oil/solid fuel appliances to check if the fuel is burning properly;
- Visual inspection of flues, particularly for smoke or soot stains around joints;
- Visual inspection of ventilation arrangements; and
- Further investigation and safety report from a qualified engineer if there are indications of above average risk.

7 LEAD

There are two main sources around dwellings – *paint* and *water pipes*. Other sources of lead might include *soil*, especially around older buildings with *flaking external paintwork* and areas around *industrial premises* using (or having previously used) lead. There may also be lead traces in soil close to busy roads because of the exhaust fumes from leaded petrol.

Health effects

When lead is taken in it builds up in the body. It is known to have *toxic effects* on the nervous system and blood production. It is known to have a detrimental effect on mental/intellectual development causing mental retardation and behavioural problems in children.

Figures show that children are particularly vulnerable to this hazard because of the ease with which their physiology accepts lead.

8 RADIATION

The main source of *harmful radiation* in dwellings is from *radon gas*. Radon is colourless and odourless, and it is not possible to detect it, either in the air or the water, without testing and measurement. Radon can be dissolved in water, particularly in private water supplies, but it is airborne radon that poses a more significant threat.

Health effects

Probably the second most important cause of lung cancer after smoking, by-products or radon decay enter the lungs and initiate cancer. Figures indicate that five per cent of lung cancers could be traced to residential radon exposure. There is a possibility also of malignancies (e.g. leukaemia/acute lymphatic leukaemia/skin cancer). Variations in radon gas exposure depend to a great extent on geographical location where some regions are more affected by radon occurring naturally than others.

9 UNCOMBUSTED FUEL GAS

This *hazard* includes the threat of *asphyxiation* resulting from the escape of fuel gas into the atmosphere of a dwelling.

It does *NOT* include hazards linked with poisoning associated with *incomplete combustion* of gas back into a dwelling, nor *explosions* resulting from un-combusted fuel gas.

Health effects

Asphyxiation when the occupants are unable to breathe because of the build-up of unburnt fuel gas in the dwelling. The critical oxygen level is 14 per cent (normal levels being around 21 per cent).

10 VOLATILE ORGANIC COMPOUNDS (VOCS)

Are a range of organic *chemicals* that are *gaseous* at room temperature and found in a wide variety of materials in the home.

Formaldehyde is included in this hazard. People in newly built/refurbished dwellings are most likely to be exposed to VOCs.

Hazard effects

Some may cause *short-term irritation* and *allergic reactions* to the eyes/nose/skin/respiratory tract.

Higher concentrations can result in *headaches/nausea/dizziness/drowsiness*. VOCs can aggravate asthma.

B Psychological requirements

Space, security, light and noise

11 CROWDING AND SPACE

Includes all the hazards associated with *lack of space and crowding*. It takes into account the *psychological needs* for both *social interaction/privacy*. It also looks at the effects of crowding on space requirements for household activity.

It does *not* include any assessment of the provision of sanitary/kitchen facilities in relation to the dwelling. These are looked at elsewhere (see Personal Hygiene/Food Safety, Profiles 16 and 17)

Health effects

Crowding and lack of space has been linked to *psychological distress and various mental disorders*. It is also linked to *increased heart rate, increased perspiration, intolerance, inability to concentrate*, *hygiene risks, accidents and spread of contagious disease*.

12 ENTRY BY INTRUDERS

This hazard is concerned with keeping a dwelling secure against unauthorised entry and maintaining its safety.

Health effects

These include mental harm/stress/anguish (emotional impact after burglary affects more than 75 per cent of victims). The worry and fear of being burgled tends to be caused by knowing people who have been burgled and by publicity about crimes (assessed as Class IV harm). Injuries where the victim is attacked by the burglar (aggravated burglary).

Causes

- Location – where local area has high levels of poverty and crime;
- Poor lighting around dwelling area;
- Doors and windows – poorly constructed/fitted/in disrepair/inadequate locks;
- Lack of viewers to external doors;
- Lack of/broken security chains to external doors;

- No caretaker/entry phone system to block of flats; and
- Lack of/defective burglar alarm systems

Preventive measures that can affect **likelihood** and **harm outcomes**:

- Design of estate/area around dwelling to reduce hiding places, as far as possible (e.g. fences etc.) for burglars and intruders;
- Well-lit and defined pedestrian routes;
- Dwelling made safe against unauthorised entry so as to delay and deter intruders and make the occupants feel safer;
- Window locks/dead locks;
- Security lights/indoor grilles; and
- Spy holes/chains on entrance doors.

Hazard assessment

Links level of physical security features at dwelling to local overall crime rate. Fear of crime as well as risk of actual burglary should be taken into account.

Note: Balance has to be made between security risks from other hazards, e.g. locked doors and windows and means of escape in the case of fire.

What about flats and HMOs?

Concierge, caretaker systems and entry-phone controls have been found to reduce crime/fear of crime.

Assessment should look at whole building security as well as that between individual residents of the same building.

13 LIGHTING

Includes threats to *physical and mental health* associated with *inadequate natural/artificial light.*

It also includes the *psychological effect* linked with the *view through glazing* from the dwelling.

Health effects

Figures suggest that 100,000+ people are affected by *Class IV harms* annually.

Distinct types of health conditions can be caused by inadequate light, e.g. *depression and psychological effects* because of lack of natural light/lack of window with a view/stress caused by intrusive artificial external lighting at night.

Eyestrain from glare and lack of adequate natural/artificial light. *Discomfort* caused by certain types of artificial light/*possible photo convulsive reactions.*

14 NOISE

This includes threats to physical and mental health from exposure to noise in the home caused by a lack of sufficient sound insulation. It does not cover unreasonable noisy behaviour of neighbours (domestic or commercial).

Health effects

Figures show that a significant number of people have problems with noise from road traffic/neighbours/people outside. Men tend to react with outwardly directed *aggression/annoyance/aggravation/bitterness/anger* etc. Women tend to suppress their reactions saying they are *tense/fraught/anxious.* It appears that night-time traffic noise is more dangerous to health than day-time noise exposure.

Noise can affect both physical and mental health. Physical health effects include raised blood pressure and headaches. Mental health effects include *stress/sleep disturbance, lack of concentration/anxiety.* In extreme cases, victims can be driven to *suicide* and *assault* due to *aggravation.*

Causes

- Noise tolerance may in part be determined by age/sex/working status/lifestyle/personality; and
- Noise levels can be measured, but people differ in what sources they find offensive.

Tolerable

- Neighbours in daytime, some traffic noise or routine home deliveries.

Intolerable

- Loud, continuous or apparently unnecessary noises which seem to go on indefinitely;
- Seemingly inconsiderate noises, especially at night;
- Emotive, frightening noises, shouting or violent rows;
- Night time traffic noise;

- Location of dwelling in particularly noisy environment;
- Inadequate internal insulation;
- Inadequate levels of external sound insulation;
- Disrepair of windows/internal/external doors allowing increased noise penetration;
- Inappropriate siting of plumbing/fittings/facilities;
- Noisy equipment or facilities; and
- Overly strong door closers resulting in banging.

Preventive measures that can affect **likelihood** and **harm outcomes**

- Double/secondary glazing and lobbies to external doors where there are high outside noise levels (e.g. traffic);
- Possible triple glazing near airports/sources of very high noise levels;
- Insulation of upper floor/ceiling/roof space where aircraft noise is likely;
- Plumbing from WCs/cisterns sited away from separating walls;
- Bathrooms/WCs in flats not sited above living rooms/bedrooms; and
- Better construction/conversions of partitions and party walls especially in flats/maisonettes.

Hazard assessment (with noise meters if possible)

- Overlap of domestic noise between one dwelling and another (e.g. toilet flushing/television/conversation etc.) will be assessed for poor sound insulation; and
- Traffic/other external noise also considered.

C Protection against infection

Hygiene, sanitation and water supply

15 DOMESTIC HYGIENE, PESTS AND REFUSE

This is concerned with protection against infection.

Includes hazards resulting from:

- Poor design/layout/construction of the dwelling so that it is difficult to be kept clean and hygienic;
- Access into and harbourage within the dwelling for pests; and
- Inadequate and unhygienic provision for storage and disposal of household waste.

Note: hazards connected with sanitation and drainage, domestic water, personal washing facilities and food safety are considered in other profiles.

Health effects

These can include *gastro-intestinal disease* (from spread of infection), *asthma* and other allergic reactions (from allergens), *stress* (because of difficulties in keeping the home clean and from accumulations of refuse) *food spoilage* from insect *infestation* (e.g. cockroaches), *infections* (spread by insects and rats and mice) and *nuisance*.

Causes

- Inadequately stored/accumulated refuse allowing access to insect/rodent/pests/birds/squirrels/foxes/cats/dogs;
- Service ducts and holes around pipes e.g. central heating harbour insects and provide access between dwellings in blocks;
- Access to open drains by rodents;
- Access for rodents by means of ill-fitting doors and windows;
- Uneven and/or cracked internal walls and/or ceilings allowing access for pests;
- Missing/damaged brickwork including airbricks to external walls and other disrepair to external walls and roof;
- HMOs are particularly vulnerable to certain kinds of insect pest.

Preventive measures that can affect **likelihood and harm outcomes**:

- Design/construction/subsequent maintenance of building should help it to be kept clean preventing build-up of dirt and dust;
- Personal washing/sanitation/food preparation/cooking/storage areas should be capable of being maintained in a hygienic condition;
- Reduction of the means of access by pests into buildings to a minimum;
- All internal surfaces easily cleaned/pest resistant material to be used where possible;
- Dwelling exterior free of cracks and unprotected holes, otherwise grilles/other methods to be used for protection;
- Service ducting/roof/floor spaces to be effectively sealed but with suitable access if treatment is needed;
- Drain openings, WC basins to be sealed with an effective water tight seal;
- Drainage inlets for waste and surface water to be sealed;
- Any points in walls penetrated by waste, drain or other pipes or cables to be effectively sealed;
- Holes through roof coverings, eaves and verges to be blocked to deny ingress to rats/mice/squirrels/birds. Necessary holes to be covered by grilles;
- Adequate and closed storage for refuse awaiting collection or disposal outside dwelling;
- Suitable storage for refuse within the dwelling;
- Storage to be accessible to occupants but not be a danger to children; and
- Refuse facilities should not cause hygiene problems.

What about HMOs?

- Should be a clearly defined area for refuse containers – in the open air/away from windows/ventilators, and in shade or shelter;
- Chutes may be used or waste storage containers with free ventilation;
- Communal chutes are recommended with HMOs of more than four-storeys. Should discharge into large containers within a store;
- Stores should be designed to reduce invasion by pests; and

- Should be designed so as not to let air from the store enter any living space.

Hazard assessment

Considers the overall combined risk from possible infestations and problems connected with refuse disposal and domestic hygiene generally.

16 FOOD SAFETY

Includes threats of infection resulting from inadequacies in provision and facilities for storage/preparation/cooking of food.

Health effects

- *Food poisoning* ranging from *mild stomach* upset to *death* from infectious gastro intestinal disease;
- *Severe diarrhoea/vomiting/dehydration;*
- Fifty per cent of food poisoning cases annually arise in the home.

Causes

- Cracks/chips/other damage to internal surfaces of sinks and worktops prevent thorough cleansing and permit pathogenic and food spoiling organisms;
- Damp affected surfaces may degrade and become crumbly/flaky and support growth of micro-organisms;
- Humid conditions can cause food to decay more quickly;
- In HMOs tends to be more confusion over responsibility for kitchen cleanliness; and
- In HMOs higher risk of infection where higher number of people share facilities.

Preventive measures that can affect **likelihood and outcomes**

Generally kitchen facilities should be in a properly designed room or area to cater for safe and hygienic preparation and cooking of food.

Storage

- Suitable storage for food to slow down deterioration and decomposition;
- Facilities should be of adequate size for the number of occupants for hygienic storage of fresh foods;

- Should be facility for food cupboard/larder and refrigerator and freezer with appropriate sockets;
- Such facilities should have smooth impervious surfaces for easy cleaning and maintaining in hygienic condition;
- Separate shelves for different foods; and
- Facilities should be cool and dry and protected from direct sunlight.

Preparation areas

- Should be adequate sized sink/dual sink free from cracks/chips/other damage plus drainer;
- Hot and cold water;
- Suitable drainage for waste water;
- Suitably sized work tops, securely fixed; smooth impervious surface, easily cleanable; and
- At least four appropriate power sockets associated with the worktop(s) as well as two for general use.

Cooking

- Facilities should be of adequate size for the household with appropriate connections for fuel (gas or electricity);
- Should be capable of being readily cleansed and maintained in hygienic condition.

Design, layout and state of repair

- Kitchen floor should be reasonably smooth and impervious for easy cleaning and maintaining in a hygienic condition;
- Corners and junctions should be sealed and covered to avoid uncleanable junctions;
- Wall surfaces should be smooth, or with impervious finish and easily cleaned, especially those adjacent to cookers/sinks/drainers and worktops;
- Joints between sink/drainer/worktop and adjacent wall should be sealed and water tight;
- Layout/relationship of facilities should ease the stages of preparation, cooking and serving;

- Adequate and appropriate lighting especially over the facilities; and
- Suitable ventilation of whole of kitchen area, especially the cooking area.

What about flats and HMOs?

Much the same provisions as for single dwellings but shared facilities need adequately sized oven/hob/space.

Hazard assessment will focus on:

- Facilities available,
- Ratio of facilities to (potential) occupants,
- Ease with which safe food practice can be maintained by occupants,
- Whether people using kitchen are part of same household or not, and
- That shared facilities increase risks because of lack of communication/ co-operation.

17 PERSONAL HYGIENE, SANITATION AND DRAINAGE

Includes threats of infection/threats to mental health associated with the above, including personal washing and clothes washing facilities.

Health effects

These include:

- *Gastro-intestinal illness*; more rarely *skin infections. Mild stomach upsets* through to *death* from diarrhoeal and gastro-intestinal disease;
- *Severe dysentery* (between 2,000 and 20,000 notified cases per annum);
- *Stress and depression* resulting from poor maintenance, particularly where occupant has little control over the situation; typically the situation in rented dwellings and where facilities are shared.

Causes

Personal hygiene/sanitation

- Deficiencies within the facilities themselves increase the risks/excessive sharing of facilities such as too few sanitary closets for number of occupants;
- Cracks/chips/other damage to internal surfaces of facilities; and

- Possibly hands in contact with WC seat/basin.

Drainage

- Discharge of untreated foul waste onto paths/gardens; and
- Waste water discharged onto paths/gardens.

HMOs

- Increased risk of infection when sharing personal hygiene/sanitation facilities, especially where there is infectious illness in households;
- Higher risk of infection because of higher ratio of people to facilities;
- Possible leaking facilities may be unknown to the users but affect different dwellings in same building.

Preventive measures that could affect **likelihood and harm outcomes**

Personal hygiene

- Sufficient numbers of properly connected/fitted baths/showers for (potential) occupants;
- Bathroom/shower room to have privacy/heating/lighting/ventilation;
- Sufficient number of suitably connected and sited wash hand basins for occupants;
- Suitably connected, easily cleaned sinks with proper waste drainage for each dwelling/household; and
- Appropriate facilities for washing machine/clothes drying/adjacent power sockets/vent outlets.

Sanitation

Provision of

- Properly installed/securely fixed/easily cleansed WC basin with hinged lid/seat of impervious material;
- Connected to a properly working flushing system;
- Connected to proper/adequate drainage system;
- Number of sanitary closets to be related to number of levels in dwelling and the number of persons (irrespective of age);

- Sanitary compartments separate from bathrooms;
- Compartments/bathrooms to be ventilated to external air; and
- Lockable doors from inside to compartments/bathrooms but openable in emergency.

Drainage

- Wastewater to be discharged into properly designed trapped drainage inlets/vertical drains connected to the main sewerage system;
- Properly designed soakaways for private treatment or storage system for foul sewage;
- Systems to be ventilated to prevent siphonage of traps and facilities connected to sewer; and
- Surface water to be discharged into properly designed trapped drainage inlets connected to main drainage system.

Hazard assessment

Considers the **overall combined risk** from personal hygiene, sanitation and drainage.

What about flats and HMOs?

As is the case with all hazards, assessment is made for each individual dwelling separately and takes account of relevant deficiencies with shared facilities.

18 WATER SUPPLY

This is limited to the supply after delivery to the dwelling and concerned with water for drinking/cooking/washing/cleaning/sanitation.

Health effects

Main problems in the UK result from contamination of water:

- *Gastro-intestinal illness* associated with drinking water – (campylobacter/cryptosporidium);
- *Respiratory infection* – typically caused by legionella and commonest result of infection is an *acute pneumonia* (Legionnaires Disease) with 10 – 15 per cent of cases proving fatal.

Preventive measures that can affect **likelihood** and **harm outcomes**:

- Water pipework and storage facilities provided and maintained according to requirements of BS 6700;
- Plumbing systems to meet requirements of Water Supply Regulations 1999;
- Stored private drinking water supplies regularly sampled and analysed;
- Tanks covered to prevent ingress of contamination (i.e. birds/insects etc.);
- Appropriate materials used for pipework/storage tanks/fittings; and
- Proper maintenance of water filters and softening systems.

HAZARD ASSESSMENT

- Visual examination of the installations and fittings within the dwelling for supply of water, then checking the water visually and for odours;
- Quality;
- In HMOs checks to be made on temperature of water in pipes/cold water cisterns, hot water vessels/tap discharge; water sampling as appropriate.

D Protection against accidents

Falls

19 FALLS ASSOCIATED WITH BATHS ETC

Includes any fall associated with bath/shower/similar facility, whether that fall is on the same level or from one level to another.

Health effects

Most common injuries that result from bath falls are *cuts/lacerations/swelling/bruising/fractures.*

Possible death weeks/months after the initial injury as a result of *cardio-respiratory illness*, including *heart attack/pneumonia.*

20 FALLING ON LEVEL SURFACES ETC

Includes falls on any level surface such as floors/yards/paths.

Also trip steps/thresholds/ramps where the change in level is **less** than 300mm.

Health effects

Physical injury such as *bruising/fractures/head/brain/spinal injuries.*

Extent of the injury depends on *distance of the fall/kind of surface fallen on* (e.g. stone/concrete/ceramic tiled floors/carpets etc.).

Following a fall, the health of an elderly person may deteriorate generally and death after an initial fall injury can be *cardio-respiratory.*

21 FALLING ON STAIRS ETC

Covers any fall associated with a change in level greater than 300mm and includes falls associated with:

a) Internal stairs or ramps within the dwelling;

b) External steps or ramps within the immediate area of the dwelling;

c) Internal common stairs or ramps within the building containing the dwelling unit and giving access to the dwelling or shared facilities; and

d) External steps or ramps within the immediate area of the building which contains the dwelling unit and giving access to that dwelling or shared facilities.

Does not include trip steps/thresholds/ramps where the change in level is less than 300mm. These are assessed under falls on the level.

Health effects

Falls on stairs account for around 25 per cent of all home falls (fatal and non-fatal).

- Physical injury, e.g. *bruising/fractures/head/brain/spinal injuries/possible death.*

Nature of injury is dependent upon fall distance/age and fragility of the person/nature of surface struck. Ultimate/long-range consequences can be *cardio-respiratory/heart attack/stroke/pneumonia.*

Measures that will lessen the likelihood of hazardous occurrence and reduce harm outcomes

- Tread dimensions to be between 280mm and 360mm;
- Rise dimensions to be between 100mm – 180mm;
- Pitch (angle of stairs) to be less than 42˚;
- Stairs should be checked for above average steepness or shallowness;
- Consistency/uniformity in dimensions of rise and going within a flight (except for obvious change in direction of stair e.g. use of winders);
- Nosing should not project more than 18mm beyond any riser;
- Treads and nosings should provide appropriate friction (carpet etc., if possible);
- Provision of carpet/rug etc., at foot of stairs to help cushion possible impact;
- Openings in stairs or banisters should be less than 100mm;
- Avoidance of alternating treads, particularly those not conforming to current Building Regulations;
- Handrails/banisters must be provided either side of the staircase;
- Handrails to be sited between 900mm and 1000mm measured from the top of the handrail to the pitch line or floor/easy to grasp/extend the full length of the flight;
- Should be designed to prevent climbing;
- Stair width should be a minimum of 900mm-1000mm;

- Provision of adequate landing/floor space leading to the stairs (top and bottom) so user can check start/dimensions of stairs and steps;
- Adequate natural lighting to the top and foot of the flight;
- Adequate artificial light to the top and foot of the flight;
- Adequate and convenient means of controlling the artificial lighting;
- No glare from natural/artificial lighting;
- Avoid doors which open directly onto stairs or the head of the stairs causing obstruction or increasing the likelihood of a fall;
- Avoidance of projections and sharp edges on stairs and glass or radiators at the foot of the stairs;
- All elements of stairs should be kept in good repair; and
- Dwelling should be adequately heated and insulated to avoid impairment of movement and sensation.

Hazard assessment

All:

- Internal/external stairs;
- Stairs for the exclusive use of the dwelling occupants;
- Common stairs/external steps/fire escape stairs/ramps; and
- Where there are several flights of stairs or steps, overall risk of a fall on all the stairs and steps is to be considered taking into account fall risks on each of the different flights.

22 FALLING BETWEEN LEVELS

Includes falls between two levels within and outside a dwelling or building where the change in level is more than 300mm. Includes *falls from/out of* dwellings, e.g. windows/balconies/accessible roofs/over landing balustrades.

Also includes falls from any other change in level not served by stairs/steps (e.g. over the guard rails to galleried rooms/basement wells or to garden retaining walls).

Does *NOT* include falls from stairs/steps/ramps/chairs/tables/ladders.

Health effects

Physical injuries include: *bruising/puncture injuries/fractures; head/brain/spinal injuries.* Extent of injury depends partly on distance fallen and nature of the surface fallen upon.

Electric shocks, fires, burns and scalds

23 ELECTRICAL HAZARDS

Include hazards from shock and burns resulting from exposure to electricity but *not* risks associated with fire caused by deficiencies to the electrical installations, e.g. ignition caused by a short circuit.

Health effects

Shock effects range from *mild tingling sensations* to *disruption of normal heartbeat/respiratory muscles, causing death*. Can also cause *burns*.

Measures to lessen the likelihood of occurrence and reduce harm outcomes

- Electrical wiring installation meets the latest requirements of Institution of Electrical Engineers/British Standard (BS 7671) (Often available in local reference libraries);
- Adequate number of appropriately sited electrical socket outlets;
- Appropriately sited fuses and meters;
- Adequately earthed electrical system;
- Installation, i.e. supply/meters/fuses/wiring/sockets/light fittings/switches to be maintained in good repair;
- Electrical installations to avoid close proximity to water including areas of damp; and
- Lightning Protection System to be kept in good repair.

Hazard assessment

- A visual inspection of the electrical system and fixed appliances to identify obvious hazards;
- Where there appear to be deficiencies that increase risk above average, then a full inspection and test report by a qualified electrician/electrical engineer may be necessary – in any event this may be desirable anyway at least every couple of years; and
- The condition of associated leads and plugs of portable appliances should also be taken into account in the assessment if they are provided as part of a rented dwelling.

24 FIRE

Includes threats from *accidental* (as opposed to arson) uncontrolled fire/associated smoke.

Health effects

More than 400 people die each year as a result of accidental fires and more than 11,000 are injured. As well as *burns, deaths* can be caused by gas, smoke or possible carbon monoxide poisoning.

Causes

Occupiers' reactions on discovering fire can possibly influence escape from fire, but factors in the cause of fire can include:

- Sources of ignition (cooking appliances/space heaters/electrical equipment);
- Solid fuel as main fuel leads to a higher likelihood of fire though with a lower fatality rate than from gas/electric space heaters;
- Electrical distribution equipment in poor condition; and
- Nature of harm influenced by presence/absence of automatic fire detection/alarm systems.

Preventive measures that could have an affect on **likelihood and harm outcomes**:

- Safe siting for cookers, away from flammable materials;
- Properly designed/installed/serviced/maintained space heating;
- Sufficient/appropriately sited electric socket outlets;
- Properly installed/maintained/regularly checked and tested distribution board and wiring;
- Residual Current Devices;
- Fire and smoke permeable resistant materials in design of the building where possible;
- Fire stops to cavities including ventilation and heating systems;
- Design and construction of the building to limit the spread of fire/smoke;
- Properly constructed/fitted internal doors with self closers where appropriate;

- Furniture to comply with current regulations (currently the Furniture and Furnishings (Fire) (Safety) Regulations 1988 as amended) in furnished accommodation;
- Detectors/smoke alarms properly designed/sited/maintained/regularly tested;
- Appropriately sited extinguishers and fire blankets (especially kitchen); and
- Means of escape from all parts of dwelling/building, e.g. openable door window/protected staircase etc./depending on height of building.

What about HMOs?

- More fires occur in flats than houses;
- Dwellings constructed after 1980 have a lower likelihood of fire;
- Dwellings constructed before 1920 have greatest likelihood of death/injury from fire;
- Risk increases with height/number of stores so:
- Adequate means of escape needed between each dwelling;
- Need for suitable interconnected fire detection/alarm system/emergency; and
- Emergency lighting and sprinkler systems etc.

Hazard assessment – considers

- Likelihood of a fire starting;
- The chances of its detection and its speed of spreading; and
- Ease and means of escape.

For HMOs – assessment takes account of

- Type/size of the building;
- Number of different dwellings;
- Each individual unit;
- Degree of fire separation between each dwelling; and
- Effectiveness/presence of detection/alarm systems/primary fire fighting equipment such as sprinkler systems.

25 FLAMES, HOT SURFACES ETC

This is concerned with injuries from:

i) *Burns* which are caused by contact with a hot flame or fire or hot objects or hot non-water based liquids;

ii) *Scalds* which are caused by contact with water-based liquids and vapours.

It also includes *burns* and *scalds* from spills during cooking or preparing hot drinks. It does **not** include burns from an **uncontrolled** fire at the dwelling.

HEALTH EFFECTS

Over 200 people a year die from burn and scald injuries. About half burn and scald injuries to young children happen in kitchens.

Causes

- Bare hot surfaces of 70˚C or more;
- Unguarded open flames – space or water heaters;
- Tap water too hot – above 60˚C;
- No heat control taps or heat controlled mixer taps and anti-scald fixtures wrongly set;
- Poor layout of kitchen space, especially where the cooker is in the wrong place; and
- Cooking area/kitchen not far enough from living or sleeping area.

Preventive measures that can affect likelihood of an occurrence

- Design and layout of the kitchen, including location of the cooker, the design and controls of heating appliances;
- Fires and heaters – there should be protection from any open flame to prevent clothing catching alight;
- Surfaces should be covered if the temperature is more than 70˚C;
- Ideally, hot water should be no more than 60˚C in kitchens, 41˚C for hand basins and 46˚C for baths.

What about flats and other multi-occupied buildings?

Risk can be increased where the kitchen is shared and people are using it at the same time. If possible, there should be separate worktop space and separate cooking facilities for each dwelling.

Where cooking is done in a bedroom or living room there needs to be enough distance between the kitchen area and the sleeping or living area.

There should also be an adequate number of electric sockets in the kitchen area to cut down the risks of scalds.

Conditions that can affect the **severity of outcomes**:

- The temperature of the hot liquid or surface;
- The length of time the incident takes; and
- The length of time before first-aid is applied.

Hazard assessment

Consider

- Space and water heating arrangements at the dwelling;
- The temperature of the tap water; and
- Kitchen design and layout.

In a multi-occupied building where the kitchen is some distance from the dwelling there may be risks involved in carrying hot drinks and food between places.

Collisions, cuts and strains

26 COLLISION AND ENTRAPMENT

Includes threats of *trapping body parts* (e.g. fingers/limbs) in architectural features (e.g. doors/windows).

Also includes *striking* (colliding with) features such as glazing/windows/doors/low ceilings/walls.

Health effects

Statistics show a high number of such incidents as collisions and entrapments but window injuries tend to be worse, particularly when accidents result from cutting or piercing by glass.

27 EXPLOSIONS

Includes threats from debris created by the blast/partial or total collapse of the building as a result of the explosion.

Health effects

Incidence figures are low but, of course, explosions can result in extreme harm. Typical injuries include *crushing/bruising/puncture injuries/fractures; and head/brain/spinal injuries. Possible scalding* if a hot water appliance is involved.

28 POSITION AND OPERABILITY OF AMENITIES ETC

Includes threats of *physical strain* associated with functional space and other features at the dwelling.

It also includes *physical strain* which may result from avoidance of other hazards (see *Collision and Entrapment* and *Falls* hazards).

Health effects

Inappropriate positioning of amenities/fittings/equipment and the layout of dwellings can have a significant effect causing *strain/sprain fall injuries.*

29 STRUCTURAL COLLAPSE AND FALLING ELEMENTS

Includes threats of *whole dwelling collapse* and/or an element or a part of the fabric being displaced or failing because of inadequate fixing/disrepair or adverse weather conditions.

Structural failure can be internal, threatening the occupants or within the immediate external area putting members of the public at risk.

Health effects

Injuries caused by objects falling from the fabric of a building are extremely rare. Potential injuries range from *minor bruising to death*.

APPENDIX IV

Examples of how to assess hazards

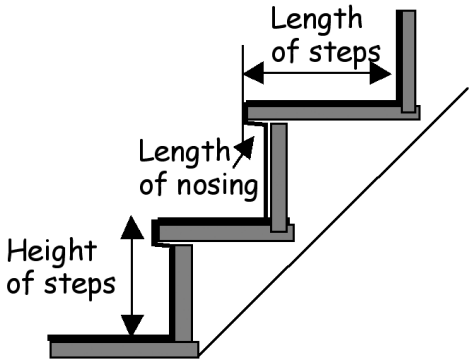
The following pages give four examples of situations where hazards can be assessed. These are falling on stairs, fire, electrical hazards and hot surfaces. When you look at these, you should assume that if something about the dwelling is not mentioned then it has been considered to be satisfactory. You may wish to treat these examples as exercises to help you get into the idea of assessing hazards in dwellings that you let.

Falling on stairs

Vulnerable group Persons aged 60 years or over

Related hazards None

Stairs showing broken step



Section through lowest straight steps

View of stairs from landing

Narrow frontage house
Dwelling: pre-1920 mid-terraced

DESCRIPTION OF HAZARDS

Main stairs: The stairs are located between the front and rear rooms in this poorly-heated, narrow-fronted, end-terraced house. The stairs are very steep and consist of four angled steps or winders at the bottom and then a straight flight of seven steps. On the straight flight, both the height of the steps and their length, front to back, vary, particularly on the lower steps in this section. The overhang or nosing on the third step from the top has broken off. There are also no handrails to either side of the stairs. There is no natural light to the stairwell, and the pendant lamp fitting on the landing is broken.

LIST OF MATTERS WHICH MAY AFFECT THE:
Likelihood of a fall

Q.1 Which apply and which increase the risk?

a)	Length of the steps	**Y**	**N**
b)	Height of the steps	**Y**	**N**
c)	Variation in length/height	**Y**	**N**
d)	Length of overlap/nosing	**Y**	**N**
e)	Poor grip on stairs	**Y**	**N**
f)	Gaps in stairs	**Y**	**N**
g)	Number or poor handrails	**Y**	**N**
h)	Number or poor banisters	**Y**	**N**
i)	Too narrow/wide stairs	**Y**	**N**
j)	Staircase too long	**Y**	**N**
k)	Poor lighting - natural and/or artificial	**Y**	**N**
l)	Glare from lighting	**Y**	**N**
m)	Doors opening directly on to stairs	**Y**	**N**
n)	Inadequate landing	**Y**	**N**
o)	Poorly built or broken stairs	**Y**	**N**
p)	Dwelling poorly heated	**Y**	**N**

Severity of injury

a)	Length of staircase	**Y**	**N**
b)	Fault at bottom or top	**Y**	**N**
c)	Steepness	**Y**	**N**
d)	Sharp edges	**Y**	**N**
e)	Hard surfaces at foot of stairs	**Y**	**N**
f)	Poorly built or broken stairs	**Y**	**N**
g)	Dwelling poorly heated	**Y**	**N**

HEALTH AND SAFETY RATING SYSTEM **PRE-1920 HOUSE**

Likelihood of a fall on the stairs

Q.2 a) Do you think the conditions here make a fall likely?

YES NO

b) Why do you think this?

INJURIES

Q.3 a) If a person aged 60 or over fell on these stairs do you think the injuries could be fatal or severe?

YES NO

b) Why do you think this?

IMPROVEMENT

Q.4 a) Do you think something should be done about these stairs?

YES NO

b) Why do you think this?

Q.5 If Yes at Q4, what do you suggest should be done

Fire (Risk)

Vulnerable group Persons aged 60 years or over

Related hazards None

Front elevation

Front and side elevation

Closer view of main windows

Dwelling: 1938, two-storey detached house

DESCRIPTION OF HAZARDS

Means of escape: During the 1950s, the timber-framed casement windows to all elevations were replaced with aluminum-framed, double-glazed units with fixed lights and small top hung opening casements. The main form of heating is an open coal fire with back boiler serving radiators to the ground floor only; portable electric radiant fires and a flueless gas heater supplement this. There is an electric cooker. There are no smoke/heat detectors or alarms.

LIST OF MATTERS WHICH MAY AFFECT THE:
Likelihood of a fire

Q.1 Which apply and which increase the risk?

a)	Electric socket provision	**Y**	**N**
b)	Defects/disrepair to sockets	**Y**	**N**
c)	Defects/disrepair to switches	**Y**	**N**
d)	Defects to electrical wiring	**Y**	**N**
e)	Space heating - type	**Y**	**N**
f)	Defects to heating/location	**Y**	**N**
g)	Clothes drying facilities	**Y**	**N**
h)	Fire resistant materials	**Y**	**N**
i)	Smoke resistant materials	**Y**	**N**
j)	No fire stops in openings	**Y**	**N**
k)	Disrepair to building	**Y**	**N**
l)	Badly fitting internal doors	**Y**	**N**
m)	Non-fire doors	**Y**	**N**
n)	Door self-closers	**Y**	**N**
o)	Cooker position and location	**Y**	**N**
p)	Lightning protection	**Y**	**N**

Severity of injury

a)	Smoke or heat detectors absent	**Y**	**N**
b)	Detectors non-functioning	**Y**	**N**
c)	Furniture can easily catch fire	**Y**	**N**
d)	Fire - fighting equipment - adequate	**Y**	**N**
e)	Safe and usable means of escape?	**Y**	**N**

HEALTH AND SAFETY RATING SYSTEM **PRE-1920 HOUSE**
Likelihood of a fire

Q.2 a) Do you think the conditions here make a fire more likely?

YES NO

b) Why do you think this?

INJURIES

Q.3 a) If there was a fire do you think a person aged 60 or over would escape easily before being harmed?

YES NO

b) Why do you think this?

IMPROVEMENT

Q.4 a) Do you think something should be done about the fire risk?

YES NO

b) Why do you think this?

Q.5 If Yes at Q4, what do you suggest should be done

Electrical Hazards

Vulnerable group Persons aged under 5 years

Related hazards Damp and mould growth

Airing cupboard with hot water tank above

Detail

Rear elevation

Switch to immersion heater

Dwelling: 1950s three-bedroom semi-detached

DESCRIPTION OF HAZARDS

Hot water system: In winter, hot water is supplied by a gas-fired back boiler, but the early, foam-insulated hot water cylinder also has an electric immersion heater which is used in summer. The seal around the hole where the immersion heater enters the cylinder has perished resulting in a small but continuous leak. Water is not only running down the loose electric lead to the heater, but also onto the timber shelf holding the cylinder and down the side wall of the airing cupboard on which the switch to the immersion heater is located. The plaster skim and plasterboard above and behind the switch box is now thoroughly soaked. The householder has placed a bowl to catch any directly dripping water.

LIST OF MATTERS WHICH MAY AFFECT THE:
Likelihood and injuries

Q.1 Which apply and which increase the risks?

a)	Fails to meet modern standards	**Y**	**N**
b)	Not enough or poorly sited sockets	**Y**	**N**
c)	Fuses in the wrong place	**Y**	**N**
d)	Meters in the wrong place	**Y**	**N**
e)	Not earthed or badly earthed	**Y**	**N**

HEALTH AND SAFETY RATING SYSTEM **1946-1979 HOUSE**
Likelihood of an electrical accident

Q.2 a) Do you think the conditions here make an accident more likely?

YES NO

b) Why do you think this?

INJURIES

Q.3 a) If a child has an accident in this house as a result of the deficiency shown over page would it be fatal or severe?

YES NO

b) Why do you think this?

IMPROVEMENT

Q.4 a) Do you think something should be done about the deficiency?

YES NO

b) Why do you think this?

Q.5 If Yes at Q4, what do you suggest should be done?

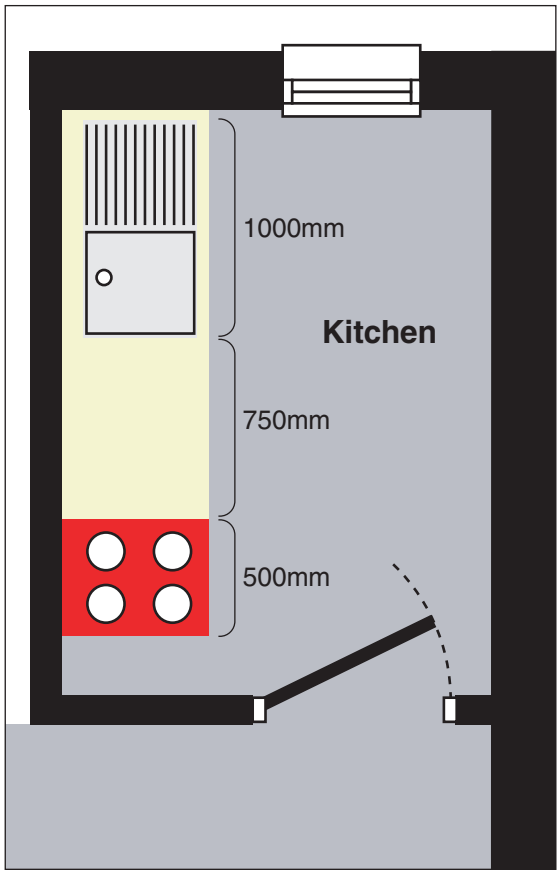
Hot Surfaces

Vulnerable group Persons aged under 5 years

Related hazards Food safety

Cooker behind door

Front elevation



Floor layout

Dwelling: Pre-1920 semi-detached house

DESCRIPTION OF HAZARDS

Narrow kitchen: The small kitchen is 2.5m long by 1.5m wide. Arranged at either end of one of the longer walls is a 1000 x 500mm, single drainer sink above a sink unit, with a drawer and cupboards below, and a 500 x 500mm freestanding gas cooker. A worktop, which is inadequate in terms of its area, construction and cleanability, is provided by a crude 750 x 500mm sheet of chipboard spanning between the sink and cooker. The kitchen door opens directly in front of the cooker. The kitchen has a slippery vinyl floor which is worn in places.

LIST OF MATTERS WHICH MAY AFFECT THE:
Likelihood of scald or burn accident

Q.1 Which apply and which increase the risk?

a)	Unprotected hot surfaces	**Y**	**N**
b)	Unguarded open flames	**Y**	**N**
c)	Hot water temperature	**Y**	**N**
d)	Thermostatic taps	**Y**	**N**
e)	Cooker/worktop adjacent to thoroughfare	**Y**	**N**
f)	Inadequate space	**Y**	**N**

HEALTH AND SAFETY RATING SYSTEM **PRE-1920 HOUSE**
Likelihood of a burn or scald

Q.2 a) Do you think the conditions here make a burn or scald more likely?

YES NO

b) Why do you think this?

INJURIES

Q.3 a) If a child has an accident in this kitchen do you think the injuries could be fatal or severe?

YES NO

b) Why do you think this?

IMPROVEMENT

Q.4 a) Do you think something should be done about the deficiency?

YES NO

b) Why do you think this?

Q.5 If Yes at Q4, what do you suggest should be done?

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