



*Working for a
safer Scotland*

A Policy Document recommending improvements sought by RoSPA **to be incorporated** at the **design and specification of both new** and refurbished homes in **Scotland.**



Can the Home Ever be Safe?

The need to **improve safety** in the built environment of **homes and gardens**

Prepared by RoSPA's Home Safety Department in Scotland

In association with Home Safety Scotland and the Electrical Safety Council

RoSPA
*The Royal Society for the
Prevention of Accidents*

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Introduction

In 1999 RoSPA developed a proposal, detailed in the Policy Document 'Can the Home Ever be Safe?', advocating improvements to home safety standards beyond compliance.

This document has subsequently been revised in 2002, 2005 and again for **Scotland** in 2008. It includes current injury and mortality statistics and reflects the changes that have occurred since the original publication.

The original Policy Document, supported by several seminars, conferences and correspondence between key stakeholders linked to home safety, has brought home safety further up the housing agenda.

Furthermore, there is now a greater acceptance that getting 'upstream' of accidental injury by creating a physically safer home environment can help reduce the number of home accidents and is a cost-effective route to health improvement. In Scotland, the number of people aged 75 and over is set to rise by over 81% to 692,000 by 2031, ⁽¹⁾ and proportionally, the home accident rate will also increase.

Up until now homes have not been built to accommodate all lifetime changes and needs. As a society that is ageing, housing needs to change to be more flexible and inclusive by building in or future-proofing the homes that are built. In England, the 2008 government document "Lifetime Homes, Lifetime Neighbourhoods – A National Strategy for Housing in an Ageing Society" ensures that "all public sector funded housing is built to Lifetime Homes Standard by 2011". The document continues by stating that Lifetimes Homes Standards will be made a mandatory part of the Code for Sustainable Homes to encourage a progressive uptake in new-build projects. "Our aspiration is that by 2013 all new homes will be built to Lifetime Home Standards." ⁽²⁾

In Scotland, Building Regulations were revised in May 2007 to ensure new homes are more accessible and simpler to adapt to suit a person's changing needs, following many of the principles identified in the Lifetime Homes Standards.

Advice given out by health advisers and social workers to young families and older people has improved. This is because the recommendations in the original document have been more widely circulated, understood, and have increasingly been adopted by developers and housing providers alike.

Whilst the implementation of RoSPA recommended measures remains discretionary, rather than mandatory and driven by the statutory requirements such as Building Regulations, the rate of adoption and the resultant impact on home injuries and fatalities will be slow.

RoSPA will continue to raise awareness through the dissemination of this Policy Document and will provide information, advice and encourage the use of best practice, whilst lobbying influencers, opinion formers and legislators for changes in the way we equip our homes.

The need to improve safety in the built Environment of homes and gardens

Since the publication of the Policy Document in 2005, numerous improvements to safety in the home have been achieved in Scotland.

Improvements achieved:

In May 2006, it became mandatory in Scotland for thermostatic mixing valves (TMVs) or equivalent. Thus complying with BS EN 1111:1999 or BS EN 1287:1999, fitted as close to the point of delivery as practicable to be installed in the bath in all new build housing and in renovations where the position of the bath is moved. Some authorities have fitted TMVs to their social housing homes retrospectively, but this is not yet mandatory. The fitting of a TMV is a simple way of eliminating scalds to the most vulnerable people in society.

In 2006, there were 207 accidental deaths in the home in Scotland

Context

This document is intended to target simple, low cost design improvements to increase safety within the home, which RoSPA considers essential to reduce injuries and fatalities.

The fact that Building Regulations address many issues in areas such as fire safety, safety of glazing, scalding and accessibility and that guidance is periodically reviewed and improved, can only assist in reducing accidental injuries. However, additional improvements remain essential.

The statement is made in the light of the continuing number of injuries and fatalities in and around the home, as the following statistics highlight:

In Scotland, there were 16,282 admissions to hospital after an accident in the home in 2007. There were 6,533 admissions for people aged 75+ and 2,351 admissions were children under the age of 5. The total number of home accident admissions to hospital, outnumbered hospital admissions due to road traffic accidents by 11,809. ⁽³⁾

The total A&E attendances for injuries sustained in a home accident was much higher and estimated to be twenty times more than admissions.

RoSPA's mission is to save lives and reduce injuries



Height of stair risers in houses to be reduced

In Scotland in 2006/7 almost 6000 people aged over 75 had been admitted to hospital after a fall in the home, the most serious of which occurred on the stairs.

Provision of a second handrail to staircases

In 2006/7 in Scotland, there were almost 12,000 admissions to hospital due to a fall at home. Almost 6000 of these were people aged 75 and over – the most serious occurring on the stairs. (3)

Provision of a second handrail is a common adaptation in the home for older people and for people who are considered to be ambulant disabled.

Building Regulations for common access steps, communal access stairs and steps within the entrance area of the dwelling require a handrail on both sides of the steps, but this is currently not a requirement for staircases within the home.

Whilst recommended by Building Standards, the fitting of a second hand rail is not necessary to comply with Building Regulations. However, where two hand rails are **not** fitted, provision of a sub structure that enables fixing of a second hand rail at a later date is sought.

In Scotland, the width of private stairs in dwellings has increased to 900mm, which would allow for the fitting of a second handrail or accommodate a stair lift and still maintain a clear stair width of 800mm.

RoSPA commends the Building Standards recommendation that provision be made in the wall sub structure to allow for a second set of handrails on the staircase for when/if they are required

Building Regulations control the steepness of staircases, in that the height of stair treads within a house is:

1. The height of any rise should not be any more than 220mm.
2. The going of any step should not be less than 225mm.
3. The pitch/incline should not be more than 42 degrees.

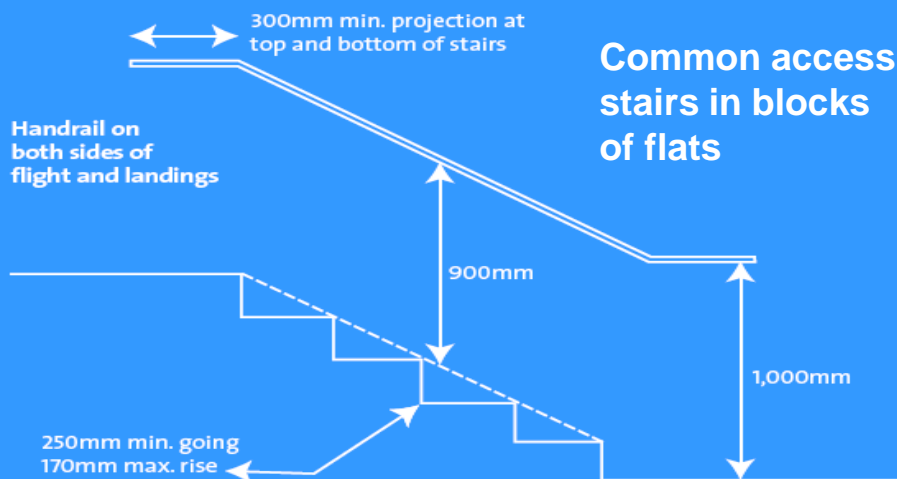
It should also be noted that the maximum rise and the minimum going on a private stair should not be used together as it will result in an incline higher than the recommended maximum.

In a small house, it is common to have a floor-to-floor height of 2,550mm with a 13-riser staircase (196mm rise) and 2,700mm length (225mm going).

In comparison the common access stairs requirement for accessibility is that the height of any riser of steps, for **common access** to flats but not **within** a dwelling should be:

1. The height of any rise should not be any more than 170mm.
2. The going of any step should not be less than 250mm.
3. The pitch/incline should not be more than 34 degrees.

In Scotland since May 2007, exception is made where there is not basic accommodation for a dwelling (apartment, kitchen and accessible sanitary accommodation) on the entry level, as in an upper villa flat, so the common access rules come into play.



RoSPA believes that the common access standard should also apply **within** all new build houses. A straight staircase would increase in length as in the example above to a 15-riser staircase (170mm rise) and 3,500mm length.

In practice, this would probably mean the greater use of a “dogleg” staircase within house design, which RoSPA would favour as it would reduce the falling distance of an individual tripping on the stairs, and make the first floor more accessible to people who are considered to be ambulant disabled.

It is understood that there is ongoing research into staircase design being undertaken at the Building Research Establishment.



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RoSPA would like to see the inclusion of all of the following in all new - build and refurbished homes

Provision of secure cupboards

In Scotland in 2007, 379 children under five were admitted to hospital ⁽³⁾ and a further 7580 were thought to have attended A&E due to accidental poisoning in the home.

The provision of secure cupboards, which cannot be accessed by children, for storing chemicals and/or medicines within the home has historically been a matter for the owner or tenant to provide.

The idea that a secure cupboard should be provided as part of the 'as built' provision in a new home is recent. Ideally, the cupboard should be located at a height and in a location that young children cannot reach from the floor or climb up to.

It has previously been recommended that household chemicals and medicines should be stored in a secure cupboard in the kitchen (the busiest room) at least 1.5m above floor level. **However**, this would reduce accessibility for general use and habitual usage of under the sink for storage of cleaning products.

RoSPA recommends that a child-resistant cupboard, should be provided in the specification for all new and refurbished homes and where improvements are made to kitchens in existing homes both under the sink for cleaning products **and** at a height of 1.5m above floor level for medicines.

An additional secure cupboard could also be incorporated in a garage to store garden or automotive chemicals.

The fitting of child resistant locks would cost considerably less, at the at the planning stage.

RoSPA recommends that lockable cupboards, should be provided in the specification for all new and refurbished homes both under the sink and at a height of 1.5m above floor level.

Staircase with provision for Fixing for a European Standard BS EN1930: 2000 safety gate

Every year in Scotland, there are around 600 children under the age of two who are admitted to hospital following a fall at home ⁽³⁾. It is estimated that almost 12,000 children under 2 attended A&E departments after a fall, with the most serious accidents occurring on the stairs.

Safety gates have been marketed for more than 30 years as a safety feature to restrict children from climbing the stairs unattended by an adult. The fixing of the gate entails a permanent fixture to the wall, or the gate is secured using adjustable pressure knobs seated in plastic cups which are screw fixed and brace the gate between the walls or the wall and the staircase newel post.

The advantage of the 'braced' type of gate is that it can be relocated either at the top or bottom of the stairs, as required so only one gate is needed. However, a child can easily push them out of place, if they are not securely fixed.

Gates are now required to comply with European Standard BSEN1930: 2000, and are only tested in the closed position. They are only designed to provide protection for children of 24 months and under – opposed to for use by children aged two, where potentially the child could be 35 months old and still aged two, but almost three (4).

In the absence of a standardised component for fixing safety gates to walls and the limitations of fixing gates to plasterboard stud partitioning, RoSPA recommends that suitable reinforcement is built into the walls where safety gates may be fixed. This should consist of a plywood infill between timber dwangs to enable a firm screw fix to be obtained at both top and bottom of the staircase.



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Fireplace with adequate provision for fixing of British Standard fireguard BS8423: 2002

The provision of fixed “eyes” either side of the fireplace is no longer a requirement of the Buildings Regulations.

However, compliance with the current British Standard requires that screw-in eyes be supplied with the fireguard for fixing by the purchaser.

Most existing and new homes have central heating, but a focal point fire is still often installed. Where gas is not available, an electric or solid fuel fire may be fitted.

RoSPA considers that the ability to fix fireguards is an important safety feature in the prevention of fires in the home. A fireguard helps to prevent clothes igniting when standing too close to a fire, objects falling into the fire and catching light and people tripping and falling onto the fire or fireplace.

RoSPA recommends that the fireplace be built in order that the fireguard can be accommodated.

It is important that the screw-in eyes can be located firmly and securely to the fire surround or adjacent wall structure. This will ensure that when in situ, the BS8423 fireguard operates effectively as an injury prevention and fire prevention measure.

RoSPA recommends the ability to fix a European Standard fire guard to the fire surround should be included in the specification of all new and refurbished homes.

Provision of wall substructure for grab rails in all bathrooms

Every year in Scotland almost 6000 over 75-year olds attend Accident and Emergency Departments following a fall (3), many of which are after a fall in the toilet or bathroom. Many more find using their facilities difficult.

For dwellings, which contain more than one storey, Scottish Building Regulations require that sanitary accommodation should be provided on the level also containing the kitchen and at least one apartment. Normally this is the entrance level.

Since May 2007 in Scotland, building standards now seek robust wall construction to accommodate the secure fitting of grab rails or other aids.

Currently this applies only to accessible sanitary accommodation, the main bathroom in a flat, or to the ground floor toilet or shower room in a typical house.

Since grab rails are a common adaptation, RoSPA recommends that provision be made in the building sub-structure to accommodate the easy and inexpensive fitting of grab rails in all bathrooms should they be required.

Additionally, the installation of slip-resistant flooring to wet areas also represents a worthwhile accident prevention measure.

RoSPA recommends that provision be made for wall sub-structures to accommodate easy and low-cost installation of grab rails in all bathrooms, toilets and shower areas.



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RoSPA recommends adequate provision of electrical sockets in the home

Installation of window restrictors on windows above ground level

In Scotland in 2006/7, almost 1800 children under the age of 15 were admitted to hospital following a fall in the home .(3)

Whilst Building Regulations do not require the fitting of restrictor devices above ground level, they do not prevent the fitting of safety devices.

There remains a conflict between security, unlawful entry and means of escape from fire, cleaning windows, ventilation and the prevention from falling from a window located at first floor level or above.

Protection from the danger of falling from a window by the limiting of an opening can be achieved in several ways:

- Provision of a chain between the casement and the frame.
- Restrictor fitted to the scissor hinges.
- Provision of a lockable window stay.
- Provision of a hinged bar between the window and the frame.
- Provision of a window lock.
- Provision of hinges with built-in restrictors.

It is recommended that a child resistant safety catch that limits the opening to less than 100mm should be fitted to all windows of first floor level and above. Any restrictor fitted should be capable of being opened in case of a fire via the child resistant catch. Key operated catches should therefore be avoided.

Adequate provision of electrical sockets

With the use of home electrical goods on the increase, it is more important than ever to provide adequate provision of electrical sockets to prevent overuse or unsafe use of extension cables and adapters which may lead to electrocution or increased risk of fire.

Children's bedrooms for example no longer simply require an outlet for a lamp, a heater and a hair dryer, as increasingly electrical goods envelop our lives. Where teenagers use their bedrooms as entertainment areas for their friends, additional electrical outlets are now required to accommodate mobile phone chargers, computers, printers, games consoles, televisions, DVD players, alarm clocks and music players. (5)

Since 1st July 2008, all new and rewired electrical installations now need to comply with the 17th Edition of the Wiring Regulations, and these require that virtually all circuits in homes are RCD protected.

Although building standards recognise the demand for electrical installations has risen due to the increase in the use of electrical appliances, it still only asks for 4 sockets for an apartment and 6 sockets for a kitchen with an additional 4 sockets anywhere throughout the house.



Photograph courtesy of Legrand Electric Ltd

RoSPA recommends that there should be the means of limiting the opening of any window where the sill level is more than three metres above external ground level.

RoSPA recommends fitting adequate provision of electrical sockets in bedrooms over and above building standard recommendations.

RoSPA recommends the fitting of hardwired carbon monoxide detectors to be fitted as a second line of defence

Although RoSPA recommends fitting hard wired carbon monoxide detectors, this is intended to be an addition rather than an alternative to the recommended yearly boiler/appliance tests carried out by qualified engineers.

Carbon monoxide is absorbed by the blood 240 times more easily than oxygen ⁽⁶⁾

The body is starved of oxygen as carbon monoxide is inhaled. Haemoglobin in our blood that absorbs oxygen actually absorbs carbon monoxide 240 times more easily than oxygen and the body does not receive the oxygen it requires. This then result in **headaches, nausea, dizziness, unconsciousness and ultimately death.**

Long term exposure to **lower concentrations** of carbon monoxide can lead to **symptoms that are flu-like or similar to food poisoning.**

Surviving victims of carbon monoxide poisoning can also be left with **permanent neurological damage.**

Because of their small size **children are at even greater risk** as their bodies can be overcome by the effects of carbon monoxide much more rapidly.

Stop the silent killer

Carbon monoxide is the result of the incomplete combustion of gas, coal, oil or wood, which is burned without sufficient air supply.

If appliances such as gas stoves, fires and boilers, paraffin heaters, gas-powered water heaters, stoves powered by solid fuel, room heaters and boilers are not properly installed and maintained, then there is a risk of carbon monoxide poisoning. Causes of incomplete combustion include faults, poor or irregular servicing, incorrect installation or lack of ventilation.

The Health and Safety Executive (HSE) announced CAPITA will provide a new gas installer registration scheme in Great Britain. This scheme will replace the one currently operated by CORGI.

The new scheme, which will start in April 2009, is set to bring improved domestic gas safety and benefits to both consumers and gas installers.

BESCA (solid fuel and oil) 0800 652 5533

NAPIT (solid fuel and oil) 0870 444 1392

OFTEC (oil) 0845 658 5080

NICEIC (solid fuel) 0870 013 0382

(7)

“You can’t see it, hear it, taste it or even smell carbon monoxide (CO) yet every year it kills around 20 people in the UK” ⁽⁸⁾

(Health and Safety Executive 11/10/07)

Every year people die needlessly or become seriously ill due to carbon monoxide poisoning. Despite the body being starved of oxygen, the skin turns rosy and not blue as might be expected.

Recognise warning signs with your gas appliance

- A healthy flame should be crisp, vibrant and blue, whereas a yellow/orange flame is evidence of incomplete combustion and the possibility of carbon monoxide being present.
- Other indications to look out for are soot deposits or staining around the appliance, condensation in the room where the appliance is installed and if the pilot light goes out frequently.
- Make sure your chimney is clear of leaves/nesting birds.
- Check there is sufficient ventilation and that airbricks are not blocked.

Although RoSPA recommends fitting hard wired carbon monoxide detectors, this is intended to be an **addition** rather than an **alternative** to the recommended **yearly boiler/appliance tests** carried out by qualified engineers

Automatic Water Suppression Systems



Automatic Water Suppression Systems (AWSS)

Every year in Scotland, there are 7000 reported dwelling fires with around 1700 non-fatal fire casualties and 60 deaths ⁽⁹⁾

In 2006 however, there were 45 fatalities and 1419 non-fatal injuries due to house fires in Scotland - a slight reduction in previous years. ⁽¹⁰⁾

The fatality rate of fires in the UK in 2006 was 8.1 per million population (pmp). In Scotland there is a consistently higher fatality rate over the years compared to the UK average - currently at 10.2 pmp. Scotland also has the highest rate of non-fatal casualties at 320 pmp in 2006 compared with England's 218 pmp. ⁽¹¹⁾

Up until recently the installation of AWSS has been prohibited by cost. However now with new building materials and production methods and the relaxation of traditional methods of providing a fire safety regime the cost of installing AWSS can be reduced to as little as 1% of the building cost.

Another considerable benefit to installing an AWSS is that it allows fewer restrictions to builders and designers to meet building regulation requirements.

Fire prevention will not only save lives, but will protect property and reduce environmental pollution.

BS 9251:2005

Sprinkler systems for residential and domestic occupancies Code of Practice

This Code of Practice, published in February 2005, makes recommendations for the design, installation, commissioning and maintenance of fire sprinkler systems for use specifically in residential and domestic occupancies. It is not intended that sprinkler systems will supersede smoke and/or fire detector systems and the code presumes that the sprinkler protection will form part of an integrated fire safety system as part of the building design.

Facts about AWSS

- A sprinkler head uses **one tenth** of the water of that is used in a Fire Service operation.
- Each sprinkler head operates **individually**, activated by heat from a fire. They **DO NOT ALL GO OFF AT ONCE** as commonly perceived.
- The chance of accidental activation due to faulty apparatus is 16 million to 1.
- Typical sprinklers operate after room temperatures reach 68 degrees Celsius – that's 30 degrees Celsius higher than room temperature.
- AWSS is activated by heat not smoke, so they will **not activate** if you burn the toast.
- There is a **90% reduction in fire damage** compared to a property without AWSS.
- The conditions found within the sprinkler systems are not thought to support the growth of Legionella.
- Modern AWSS have a proven track record of saving lives should a fire occur, especially in the home. Fire can be controlled and heat and toxic output reduced.
- Having AWSS installed could lower household and building insurance.
- Sprinkler heads are inconspicuous. ⁽¹²⁾

RoSPA recommends fitting automatic water suppression systems to new build homes at the design stage

97% of house fire fatalities could have been saved ⁽¹³⁾

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Provision of safety advice for the home and garden

The provision of advice for the homeowner and tenant has been a hit and miss affair. Leaflets are sometimes available at libraries, doctor's surgeries, housing offices, welfare centres, and DIY shops.

The National House-Building Council provide some safety information to new homeowners whilst social housing providers may include advice to tenants at handover of properties or when there is a change of tenancy. It is now mandatory under health and safety legislation that in places of **work** certain safety information is posted on walls and that workers undertaking risky operations are trained and provided with safety equipment and safety information – so why not in the home?

From 1st December 2008, Scotland will be introducing a mandatory home information pack (HIP) for property sales but the details will vary significantly from the England and Wales version and will be known as *The Home Report*. RoSPA consider that this could also be the vehicle for providing home safety information.

RoSPA wishes that a comprehensive safety checklist is provided to all new tenants and homeowners in The Home Report.

RoSPA's suggested safety checklists

Home

Avoid trips, slips and falls by ensuring halls and stairways are always well lit and free from clutter.

Reduce trips, slips and falls by cleaning up spills quickly.

To minimise the risk of falls from windows, install and use restrictor catches on all upstairs windows and place furniture away from windows.

Change light bulbs safely, without the **risk of falling** by using a stable step-stool. Avoid using old chairs to climb on.

Avoid the risk of fire by never using a bulb with a higher wattage than allowed by the light fitting.

Stay safe from fire by testing smoke alarms weekly and be sure all the family know how to escape in the event of a fire.

Avoid fire risks by using guards with all fires and heaters and keep clothing, furniture and curtains away from all heat sources, including candles and never dry clothes over the electric fire or fireguard.

Reduce the likelihood of **household fires** and **carbon monoxide poisoning** from **faulty flues or equipment** by having gas, oil or solid fuel heating appliances professionally serviced once a year.

Avoid burns and scalds by always using the back rings on a cooker or hotplate first, and position pan handles so that they can't be pulled over. Keep hot drinks out of reach of children.

Avoid bath time scalds (especially to children) by running the cold water first and carefully testing the water temperature with your elbow. Children should never be left unattended.

Prevent poisoning or chemical burns by storing medicines and household chemicals out of sight and out of reach of children, preferably in a secure, high-level kitchen cupboard.

Avoid strangulation from blind cords by cutting the cord, by keeping the cords well out of reach and tied up, or by buying blinds without loops.

Reduce the risk of electrical fires and electrocution by never using appliances with cracked plugs or worn cables.

Avoid overloading electrical sockets with too many appliances and use a power strip adaptor rather than a cube adaptor.

Don't risk electrocution by taking electrical appliances into the bathroom. Water is a good conductor of electricity so you should never touch electrical appliances with wet hands.

Avoid passing **electrical cables** under rugs or carpets as they can become worn.

Never attempt to get toast out of a toaster while it's **plugged in**, especially not with a metal knife.

Garden

Avoid accidents and injury when doing DIY tasks by operating within the range of your skills, ability and experience. Always use personal protective equipment including gloves, goggles, helmet, face mask and safety shoes as appropriate and follow manufacturers' instructions and recommendations for the task.

Avoid injury from sharp garden tools to users or children by keeping them in good repair and safely tidied away after use.

Avoid injuries to children by keeping children safely away whenever using lawnmowers, doing DIY projects or household repairs.

Prevent accidental poisoning or injuries by carefully following manufacturers' instructions when using weed killers, adhesives and solvents. Never transfer to alternative containers (especially food containers or jars) that could confuse and lead to poisonings.

Avoid poisoning and chemical burns by storing chemicals for use in a garage or garden safely out of sight and out of reach of children, preferably in a secure cabinet.

Reduce the risk of small children **drowning** by fencing off or filling in garden ponds or water features and always supervising children near water.

Prevent injury from trips, slips and falls by providing safety rails and barriers to changes in garden levels and ensure all paths and steps are level, stable and free from moss.

Avoid injury from falls by always checking the condition of the ladder before use and using it at a safe angle - (1 in 4).

Avoid uncontrollable fires by always positioning bonfires and barbecues **well away** from fences, sheds and trees. Avoid proximity to gas cylinders and oil storage tanks. Supervise children at all times.

Avoid cable reels melting and causing a **fire risk** by completely uncoiling them before use.

Protect yourself from **electrocution** by always using a Residual Current Device (RCD) when operating electrically powered garden tools and mowers.

Avoid electrocution by never cleaning, adjusting or checking equipment while it is still connected to a power supply.

For more detailed electrical safety guidance visit
<http://www.esc.org.uk/safety-in-thehome/>

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Conclusion

RoSPA would like to see all these recommendations instigated as soon as possible, but realises that it will require the full support of regulatory organisations, developers and housing providers, health promotion specialists, plus the many professional and trade associations that support the housing sector.

The number of people being admitted to hospital resulting from accidents in the home must be reduced.

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Appendix

Suggested website addresses for further information

Royal Society for the Prevention of Accidents (RoSPA)	www.rospa.com
Home Safety Scotland	www.homesafetyscotland.org.uk
The Scottish Government	www.scotland.gov.uk
Information Services Division (ISD) Scotland	www.isdscotland.org
Institute of Home Safety	www.instituteofhomesafety.co.uk
General Register Office Scotland	www.gro-scotland.gov.uk
Electrical Safety Council	www.esc.org.uk/
Health and Safety Executive	www.hse.gov.uk/gas/domestic/safetyreview.htm
Building Standards	www.sbsa.gov.uk/cont.htm
Don't give fire a home	www.dontgivefireahome.com/

In memory of Theo

RoSPA welcomes feedback and any comments you would like to make on the recommendations included in this document.

Please contact: Nikkie Butters **Tel:** 0131 449 9379 **E-mail** nbutters@rospa.com



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