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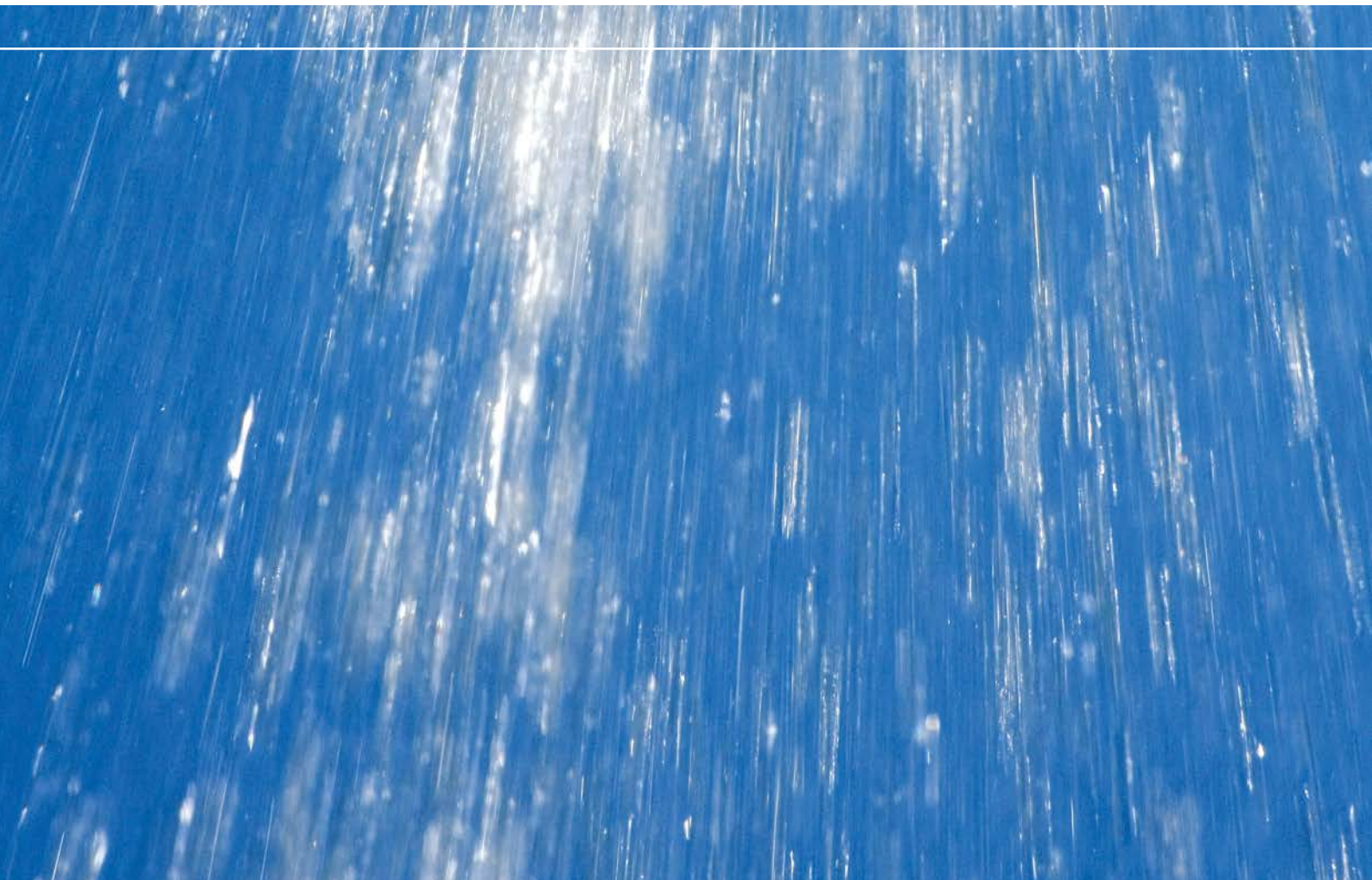
Householders Guide to
Fire Sprinklers



Contents

House builders and fire sprinkler installers are advised to provide sufficient information to householders to enable them understand and maintain their fire sprinkler system. The Welsh Government has prepared this guide to provide householders with relevant information on fire sprinkler systems.

Detailed information on your fire sprinkler system will be provided by your house builder or fire sprinkler installer.

This guidance in this document is advisory and has no statutory status.

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Introduction

1. In October 2013, the National Assembly for Wales passed new Building Regulations that require an automatic fire suppression system (commonly referred to as a fire sprinkler system) to be installed in new and converted homes in Wales.
2. This guide gives you information about fire sprinklers and answers some common question and myths about sprinklers. It will tell you:
   - how fire sprinklers work and what will happen if a sprinkler is activated (goes off);
   - what you can do to maintain your fire sprinkler system; and
   - what you need to do if you make alterations to your home (such as making internal structural alterations, or adding an extension) in the future.
3. Your fire sprinkler system is designed to save lives and prevent injuries, to householders and fire fighters. Fire sprinklers will also prevent extensive damage to your home in the event of a fire.
4. Fire sprinklers operate by releasing a spray of water droplets to supress or extinguish a fire as soon as the heat from the fire heats the air to a certain temperature. This will be within a short time of the fire starting. Fire sprinklers therefore prevent the fire from taking hold and spreading within the room, and spreading to other areas of the home.
5. Fire sprinklers are a tried and tested technology that have saved countless lives and prevented many injuries in different types of building including houses and flats around the world. Fire sprinklers are an important addition to the fire safety features in your home, such as smoke detectors.

Your fire sprinkler system

6. **Your fire sprinkler system consists of:**
   - Water to supply the sprinkler system – this is either from a water tank, or from the mains supply (this may also include a pump system). A tank will be located either inside (for example, in the loft) or outside your home, and will have a pump to push the water through the system. If you do not have a tank, the water will be supplied from the mains water supply (if you have a pump on the mains water this may be within an enclosed casing in either the utility room or kitchen, your builder or fire sprinkler installer will provide you with the exact details)
   - A sprinkler water stop valve which needs to be kept open[1] (if shut, it will prevent water from being supplied to the sprinkler)
   - Hidden pipework to feed the water to the sprinklers, in the same way that hidden pipework takes water to your taps and appliances

- A series of sprinkler heads in most rooms of the home. For aesthetics reasons, the sprinklers will most likely be a concealed sprinkler head (i.e. hidden beneath small circulate flat plates, set flush against the ceiling)
- An alarm, activated independently[2] of your smoke alarm

7. **The main areas in a home where fire sprinklers will be fitted are:**
   - Living rooms, dining rooms, and lounge
   - Home offices
   - Bedrooms
   - Kitchens
   - Utility rooms
   - Larger bathrooms[3]
   - Larger cupboards and pantries[4]
   - Halls, stairs and landings (though not necessarily communal halls and stairs in blocks of flats)

8. In the event of a fire, a fire sprinkler head will operate only when the air temperature reaches between 57 and 68 degrees centigrade. This is referred to as the "operation temperature"[5]. Fire sprinklers are not activated by smoke, the heat from cooking or by burning toast, or by steam from a bathroom or a shower. The risk of a fire sprinkler setting off accidentally is very low.

Sprinkler myths explained

Fire sprinklers will not operate accidentally. They will not go off in response to the heat from cooking, to steam from a bathroom or a shower, and they will not go off if you burn the toast!

9. When there is a fire, the nearest circular plate(s), set flush against the ceiling, will detach and the sprinkler head will drop down from within the fitting and when the required temperature is reached the fire sprinkler will activate. It will intensively spray droplets of water onto the areas below in the vicinity of the sprinkler. This continuous spray of water will be enough to contain or extinguish the fire.

10. In the event of a fire, the only sprinkler heads that will operate will be those that have reached the "operation temperature" in the immediate vicinity of the fire.

    Fire sprinklers in other areas of the room, and adjoining rooms where a fire is not present, will not be activated. So scenes in films and television – where a cigarette lighter is held underneath a single fire sprinkler head and all the sprinkler heads in a building are activated – are wrong!

Sprinkler myths explained

If there is a fire, the only sprinklers to go off will be those immediately close to the fire (normally only one sprinkler head). A fire will not set off all the sprinkler heads in a home. What you may have seen in films is wrong!

11. There will be minor damage from the operation of the fire sprinkler. The area in the vicinity of the fire will have been doused with water from the spray. In many cases, the contents of a room (such as furniture and carpets) within the coverage of the sprinkler will need drying out. There is likely to be some damage from fire and smoke, and it is probable that some re-decoration will be required.
12. This needs to be compared with the damage from fire and smoke in the absence of fire sprinklers. The effects of fire damage will be much more extensive as a fire will have burned for longer, more fiercely, and spread throughout more rooms and possibly throughout the entire home. In many cases, the entire contents of the room or rooms will be lost. There will be extensive fire and smoke damage, as well as the loss of many personal possessions.
13. Fire sprinklers reduce the amount of water used to extinguish a fire by upwards of 90%. The volume of water used by the Fire Service would be far greater, and so the damage to your property from this greater volume of water would also be far greater.

Sprinkler myths explained

Water from a sprinkler will only cause minor damage, requiring some furniture and carpets to be dried out, and probably some redecoration of any walls doused in water.

Damage from a fire (in the absence of sprinklers) would be much more extensive and serious, and life-threatening. The Fire Service would use much more water to extinguish a home fire than a sprinkler, and so the water damage from the Fire Service would be much more serious.

The benefits of having a fire sprinkler system

14. **The benefits of having a fire sprinkler system are clear:**

- They prevent a fire from catching hold and spreading throughout the home will significantly reduce the risk of deaths and injury from fire and smoke
- Fire sprinklers will also prevent death and injury to firefighters who will attend a fire
- Fire sprinklers will prevent damage to property

Care and maintenance of your fire sprinkler system

15. To ensure that your fire sprinkler system will operate effectively when it is needed, you must make sure that it is maintained. This is exactly the same as for other appliances in your home, such as a gas boiler. They must be regularly maintained by qualified engineers to ensure their continued safe operation.

16. The stop valve should be secured so it cannot be closed accidentally. You should avoid turning off the sprinkler water stop valve, to ensure the sprinkler will work when it is needed.

17. You should always avoid painting over the circular plates, set against the ceiling, behind which the fire sprinkler heads are hidden.

18. The maintenance of a fire sprinkler system is not onerous or costly. It is recommended that your system undergoes an annual maintenance check by a qualified fire sprinkler installer.

    This annual check-up should cover:

    - Testing the water pump (for systems where water is supplied from a water tank with a pump) to ensure that it will work
    - A visual inspection for leaks
    - Ensuring that the sprinkler system has not been modified, or that the working of the fire sprinkler heads has not been impeded, for example by painting over the circular ceiling plates
    - Ensuring that the fire sprinkler alarm is still effective (in the same way that you ensure that your smoke alarm is always effective)

Fire sprinkler maintenance summary:

- Do not paint over the fire sprinkler plates in the ceiling
- Do not turn off the sprinkler water stop valve
- Make sure that your fire sprinkler system maintained annually

19. You are advised to keep a written record of the maintenance of your fire sprinkler system. The form that is included at the end of this Householder's Guide should help. This will help if you sell your home or need to make an insurance claim.

Making changes to your home

20. You may make changes to your home in the future. For example, by adding a conservatory, building an extension, converting the loft to an extra bedroom or office, or by other internal alterations such as dividing one room into two. **You will have to do this in a way that maintains the same level of fire sprinkler protection in the extension or conversion, as in the rest of the home.**

21. If you are considering making alterations to your home, you should seek professional advice[6]. The work may require various approvals such as Planning or Building Regulation approval. Therefore, it is recommended that you discuss your proposals with your Local Authority's Planning and Building Control Departments for further advice, **before** you start any building work.

22. **Adding an extension to your home; converting a loft (e.g. to a bedroom or an office); or adding a conservatory[7]:** The fire sprinkler system will need to be extended to include the extension, conversion, or conservatory. This requirement should be included in your instructions to an architect or designer.

23. **Adding a garage that adjoins your home:** The requirement for fire sprinklers applies to the "residential accommodation" (i.e. your living accommodation) only and not to garages. Provided that the required level of fire resistance is maintained between the home and the garage, there is no need to extend the fire sprinkler system to the new garage.

24. **Internal alterations to your home:** When carrying out internal alterations, such as adding walls or revising the internal layout, you will have to do this in a way that maintains the same level of fire sprinkler protection, and does not effect the operation of the sprinkler system. This requirement should be included in your instructions to an architect or designer.

What happens if I sell my home?

25. The sprinkler system may be a positive selling point when you market your property. However, please leave this handbook, or a copy with a record of the maintenance inspections for the new owners.

What are the responsibilities of a tenant in a home with a fire sprinkler system?

26. Tenants are advised to contact their landlords to discuss the maintenance requirements of a fire sprinkler system, and ensure that there is understanding about the responsibilities for this.

What else should I do to reduce the risk of fire?

Six steps to fire safety in the home:

PLAN – plan your easiest escape route

TEST – ensure smoke alarms are tested regularly

CHECK – check all appliances before going to bed or leaving the home

CARE – when cooking, never leave chip pans (or similar appliances) unattended

CLOSE – close all doors, especially at night

CALL – get out and call 999 at the first sign of fire

Further information on fire sprinklers

The British Automatic Fire Sprinkler Association (BAFSA) has information for domestic and non-domestic properties, visit: http://www.bafsa.org.uk/publications/bafsa-information-files.php

How fire sprinklers work

For a detailed explanation, visit:

http://www.derbys-fire.gov.uk/campaigns/think-sprinkler/how-sprinklers-work and;

http://www.firesprinklers.org.uk/

Videos about domestic fire sprinklers

For a demonstration video showing the effects of fire in a living room with no fire sprinklers, compared to a fire in a living room with sprinklers installed, visit:
http://www.mawwfire.gov.uk/English/Safety/At-Home/Pages/Domestic-Sprinklers.aspx

Water company advice on fire sprinklers

For advice on fire sprinklers, including guidance on supplying water for a domestic sprinkler system, visit: https://www.hdcymru.co.uk/content/dam/hdcymru/building-and-developing/documents/HD_Domestic_Fire_Sprinkler%20Systems_Wrexham.pdf

For further information on fire safety in the home from Wales' Fire and Rescue Services, visit:
http://www.nwales-fireservice.org.uk/keeping-you-safe/at-home/at-home.aspx?lang=en

http://www.mawwfire.gov.uk/English/Safety/At-Home/Pages/default.aspx

http://www.southwales-fire.gov.uk/ENGLISH/YOURSAFETY/HOME/Pages/new_home_page.aspx

Footnotes

1 Except in the very unlikely event of a leak

2 Fire Sprinkler alarms can be linked to smoke alarms where required

3 Bathrooms over 5 square metres

4 Cupboards and pantries over 2 square metres

5 The specific operation temperature will be determined by the designer of the fire sprinkler system

6 If your fire sprinkler system is still under warranty, you are advised to consult with the original installing contractor before any changes are made

7 Unless the conservatory is exempt from Building Regulations. If you are uncertain whether a new conservatory might be exempt from Building Regulations, please contact your Local Authority's Building Control department or private Approved Inspector.

Your fire sprinkler system – **maintenance record**

You are advised to keep a written record of the maintenance of your fire sprinkler system. This form will help you record the key issues.

Inspection date	**Details of tests and results**	**Fire sprinkler system:** operating status	**Fire sprinkler alarm:** operating status	**Recommendations**