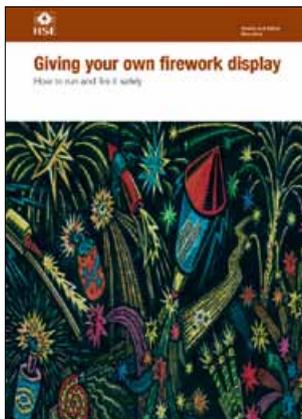


Giving your own firework display

How to run and fire it safely



This is a free-to-download, web-friendly version of HSG124 (Second edition, published 2005). This version has been adapted for online use from HSE's current printed version.

You can buy the book at www.hsebooks.co.uk and most good bookshops.

ISBN 978 07176 616 26

Price £7.95

This book is for people running firework displays that set off the fireworks themselves but have no specialist knowledge. It includes the main points to consider, such as:

- selecting a site;
- provision of site facilities;
- storing fireworks safely;
- crowd control;
- bonfire safety;
- firing the display; and
- clearing up after the display

This new edition takes account of the significant changes in the law over the past ten years. These relate to the supply, possession, transport, keeping and use of fireworks which may have an effect on the way you organise and fire your display. These include: The Manufacture and Storage of explosives Regulations 2005; The Carriage of Dangerous Goods and Use of transportable Pressure Equipment Regulations 2004; The firework Regulations 2004 and The Firework (Safety)(Amendment) Regulations 2004.

© *Crown copyright 1995*

First published 1995
Second edition 2005

ISBN 978 07176 616 26

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means (electronic, mechanical, photocopying, recording or otherwise) without the prior written permission of the copyright owner.

Applications for reproduction should be made in writing to:
The Office of Public Sector Information, Information Policy Team,
Kew, Richmond, Surrey TW9 4DU or e-mail: licensing@opsi.gov.uk

This guidance is issued by the Health and Safety Executive. Following the guidance is not compulsory and you are free to take other action. But if you do follow the guidance you will normally be doing enough to comply with the law. Health and safety inspectors seek to secure compliance with the law and may refer to this guidance as illustrating good practice.

Contents

Introduction	6
Organisation	7
Defining the main features of the display	7
Selecting a site for the display	7
Who to contact	10
Provision of site facilities	12
Looking after the fireworks before the display	13
Crowd safety	13
What will you do if something goes wrong?	14
Bonfires	15
Setting up the fireworks	16
Firing the display	19
Clearing up after the display	20
Legal requirements	21
Appendix 1: Examples of some of the more common types of display fireworks and ways of lighting them	23
Appendix 2: Sources of information on firework manufacturers, suppliers and display operators	25
Appendix 3: Other legislation which may apply to firework displays	26
Acknowledgements	28
References	29
Further reading	30
Further information	31

Foreword to Second edition

Since the publication of *Giving your own firework display* in 1995 there have been significant changes in the statutory controls relating to the supply, possession, transport, keeping and use of fireworks which may have an effect on the way you organise and fire your display.

The Manufacture and Storage of Explosives Regulations 2005¹

These wide-sweeping regulations replace a significant portion of the Explosives Act 1875 as well as revoking and amending a range of regulations. They impose duties on the manufacture and storage of explosives, including fireworks, as well as placing requirements for the prevention of fire and explosion. They are supported by guidance and an approved code of practice.²

The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2004³

These regulations replace a large number of statutory instruments relating to different transport modes. They implement the European agreements relating to road and rail transport (ADR and RID) providing a single, consolidated, set of regulatory measures.

The Firework (Safety) Regulations 1997⁴

The Firework (Safety)(Amendment) Regulations 2004⁵

These regulations primarily address the supply of fireworks and include provisions relating to:

- the prohibition of the sale to the general public of a variety of types of fireworks* such as:
 - category 4 fireworks;
 - aerial shells and maroons;
 - shells-in-mortar and maroons-in-mortar;
 - bangers, including batteries containing bangers and Chinese crackers;
 - fireworks with erratic flight;
 - mini-rockets;
 - air bombs;
- limits on the sizes of certain category 2 and 3 fireworks that can be supplied to the general public;
- a requirement that fireworks of category 1, 2 and 3 conform with British Standard BS7114: 1988;⁶
- an increase in the limit on the age of purchase to 18.

* Some of these fireworks may still be supplied to certain people such as those in business as 'professional' firework display organisers and operators.

The Firework Regulations 2004⁷

These regulations include provisions relating to:

- the prohibition of the possession of fireworks in public places by those under 18;
- limitations on the times in the year during which fireworks may be supplied by unlicensed suppliers;

- the control of the supply of certain types of excessively loud fireworks;
- limitation on the use of fireworks during night hours.

You can get more information on these regulations on the Department of Trade and Industry website: **www.dti.gov.uk/fireworks**

You can download copies of the regulations from Her Majesty's Stationary Office website: **<http://www.legislation.hmso.gov.uk/stat.htm>**

Introduction

Who is this publication for?

1 Firework displays, whether private or public, should be enjoyable occasions. If organisers take the necessary precautions, they should also be safe occasions. This publication gives advice on how to run an outdoor firework display safely. Examples of the type of display covered are those put on by organisations like sports clubs and school parent/teacher associations, by parish councils, and by public houses for their customers, which typically attract about 100 spectators upwards. If you intend only to have a firework party for your family, friends or neighbours, all you will generally need to do is follow the instructions supplied with the fireworks. However, you may still find the advice which follows useful, particularly if your party is outside the 5 November firework season, as out-of-season displays may cause more disturbance to the public.

2 The advice in this publication covers only those firework displays where the organisers set off the fireworks themselves and have no specialist knowledge. It is possible to contract a specialist display operator, usually from a firework company, to set off your fireworks. Advice on those displays is given in *Working together on firework displays: A guide to safety for firework display organisers and operators*.⁸

Are all fireworks suitable for use by people without specialist knowledge?

3 **Definitely not!** The recognised standard for fireworks in the United Kingdom is British Standard BS 7114: 1988, which classifies fireworks for sale to the general public into three categories: 1, 2 and 3. Any firework falling into one of these categories will be marked as complying with the Standard, and will also be marked as follows:

- 'Indoor Firework' (for category 1, eg party poppers); or
- 'Garden Firework' (for category 2, eg many of the fireworks which make up the small selection boxes on sale before 5 November); or
- 'Display Firework' (for category 3, the largest fireworks on retail sale). Some of the more common types of display fireworks are shown in Appendix 1.

Note: The Firework (Safety) Regulations 1997 have limited the types of fireworks that can be supplied to the public.

4 There is also a category 4 of BS 7114: 1988. This classifies fireworks which are incomplete and/or which are not intended for sale to the general public. BS 7114 recommends that category 4 fireworks are marked with the warning 'This device must not be sold to, or used by, a member of the general public'. It also recommends that a reference to any part of BS 7114 should not be marked on, or made in relation to, a category 4 firework. **This booklet does not cover displays using category 4 fireworks.**

Shall we set off the fireworks ourselves or get a display operator to do it?

5 Consider this question at an early stage. There is no reason why you should not light a display yourselves provided it only contains fireworks in categories 1, 2 and 3, ie not in category 4. It is advisable to obtain the fireworks from a reputable supplier. Unless you have considerable experience and expertise in setting off display fireworks, it is recommended that you purchase a complete display kit rather than single firework, as this will include an instruction leaflet.

6 You are strongly advised to use a display operator if in any doubt about setting up and firing the display safely yourselves.

7 Further safety advice on the purchase of fireworks or selection of a display operator may be obtained from the organisations listed in Appendix 2.

Organisation

8 Useful guidance on organising of a display can be obtained from *The event safety guide: A guide to health, safety and welfare at music and similar events*.⁹

9 Start organising your firework display as early as possible. One person needs to be in overall control and have final responsibility for health and safety, but it will often be easiest if a committee (no matter how informal) is formed to share the work. For example, one person could be responsible for ordering, storing and setting off the fireworks, and liaising with the local authority, fire brigade etc; another person for site facilities and crowd safety; and so on.

Defining the main features of the display

10 First of all, you need to decide on a few basic details, for example:

- What is the expected size of the audience?
- Is there to be a bonfire?

(It is preferable not to light the bonfire before setting off the fireworks, as stray sparks may accidentally set them off.)

Selecting a site for the display

Definitions used in the text and Figures 1a and 1b

11 The **display site** is the whole site used for the display, and is made up of:

- **the spectator area** - from which the spectators watch the display;
- **the safety area** - a clear area between the spectators and the firing area to ensure that spectators are at a safe distance from the fireworks during the display;
- **the firing area** - from which the fireworks are set off;
- **the fall-out area** (or dropping zone) - an area kept clear of people, where the debris from spent aerial fireworks lands; and
- **the bonfire area** - the area provided for the bonfire (if there is to be one).

Site layout

12 Figures 1a and 1b show how these areas should be located in relation to each other and to the prevailing wind direction.

Size of layout

13 Make your display site as large as possible, ensuring that all the above areas are large enough for:

- **the types of fireworks to be used** (this will determine whether or not a fall-out area is required);
- **the expected number of spectators.**

14 The tables in Figures 1a and 1b summarise the minimum dimensions recommended for display sites. The distances given for 'B', 'D' and 'H' assume that the fireworks are set up properly in accordance with their instructions and with the advice in paragraphs 57-72 of this publication.

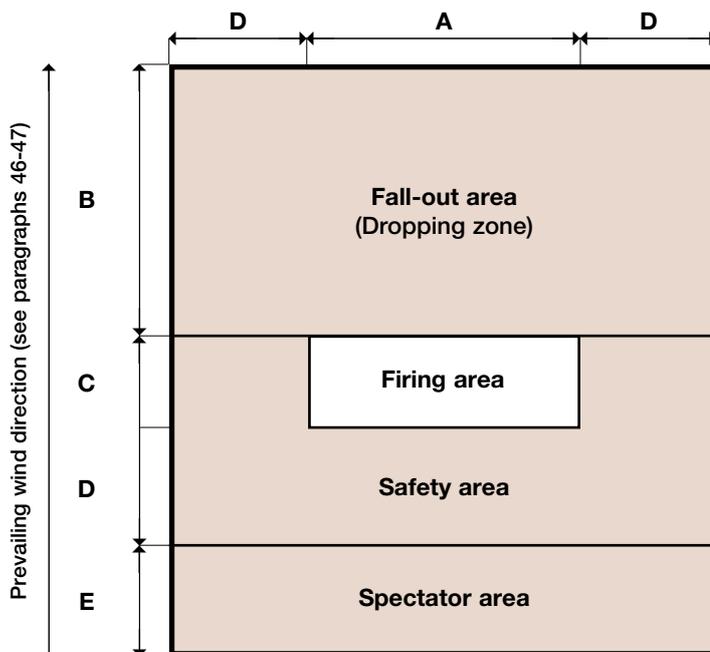
Other things to consider

15 Ensure that the site is free of dry, cut grass and other easily combustible materials.

16 It is important that you inspect the site in daylight to check for obstructions, for example trees, adjoining buildings, and overhead electric power lines. Apart from obstructing the flight of aerial fireworks, overhead power lines pose other potential dangers. For example:

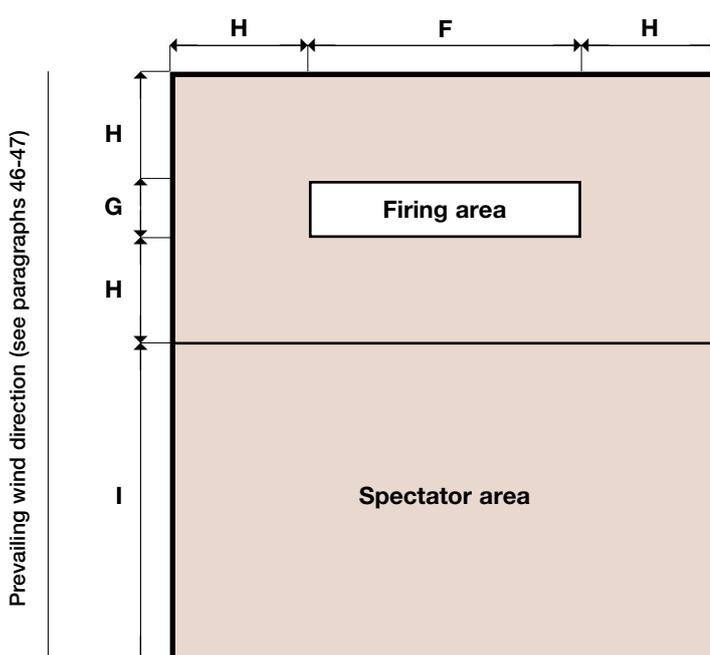
- scaffolding poles, metal ladders and similar items used in the construction of temporary staging, or long wires such as those sometimes used in firing circuits for electrically fired fireworks, can cause a dangerous discharge of electricity from overhead electric power lines, if they touch, or even come near to them. This is known as a 'flashover';
- smoke or debris coming from fireworks or a bonfire burning under or near overhead electric power lines could also cause a flashover;
- overhead electric power lines near to firing wires attached to electrically fired fireworks can induce an electric current in wires, causing the premature firing of the fireworks.

If you are in any doubt about overhead electric power lines, contact the local regional electricity company for advice. If it is impossible to arrange the site so that the firing and bonfire areas are well away from obstructions, you may need to look for another site.



	A	B	C	D	E
Minimum distance (metres)	50	50	20	25	As required, to prevent overcrowding
Bonfire area					
Locate this anywhere, provided it is:					
<ul style="list-style-type: none"> ■ at least 15 m from other areas, buildings, roads, railways and public rights of way ■ a safe distance from flammable or otherwise dangerous materials (eg petrol, fuel oil, liquefied petroleum gas) and overhead electric power lines, and ■ downwind of spectators 					

Figure 1a Site layout for displays including aerial fireworks (ie including rockets, mines or Roman candles)



	F	G	H	I
Minimum distance (metres)	50	15	25	As required, to prevent overcrowding
Bonfire area				
Locate this anywhere, provided it is:				
<ul style="list-style-type: none"> ■ at least 15 m from other areas, buildings, roads, railways and public rights of way ■ a safe distance from flammable or otherwise dangerous materials (eg petrol, fuel oil, liquefied petroleum gas) and overhead electric power lines, and ■ downwind of spectators 				

Figure 1b Site layout for displays without aerial fireworks (ie without rockets, mines or Roman candles)

Who to contact

17 It is advisable to contact the following people well before the display and keep in touch with them, if necessary, as your plans proceed (see Figure 2).

Police

18 Contact the police as soon as possible, informing them of the location of the site and its layout, including all entrances and exits.

19 The police's main interests are crowd control, public order, emergency access, and local traffic management and parking. It is advisable to act on any recommendations they may make.

Fire service

20 Contact the fire service at least 28 days before the event. They will mainly be interested in:

- how the emergency services will be called;
- access for emergency vehicles;
- marshalling crowds and traffic in emergency conditions;
- arrangement of spectators' enclosures;
- local fire-fighting arrangements; and
- buildings and other features nearby which could be affected by a fire.

Local authority

21 You may need to contact your local authority under entertainments legislation (see Appendix 3). In any case think about contacting:

- local authority enforcement officers, for advice on complying with health and safety legislation and other matters such as minimising noise nuisance, avoiding any problems that may have occurred in the past, complying with local by-laws;
- the trading standards department, or in some areas the fire service, if you are in any doubt about arrangements for storing fireworks before the display. The place of keeping may need to be licenced or registered under *The Manufacture and Storage of Explosives Regulations 2005*.

Neighbouring landowners or users

22 Advance warning to neighbouring landowners or users will enable them to move livestock (cattle, horses etc) where necessary.

Local institutions

23 It is wise, in the interests of good public relations, to inform any local hospitals, old people's homes etc of the event.

Coastguard

24 If the display is to be held near the sea it is important to inform the local coastguard in advance. Aerial fireworks could be mistaken for distress signals.

Aerodromes

25 If the display is to be held near an aerodrome, inform the airport authority at least seven days in advance. Alternatively, contact the Civil Aviation Authority (CAA), Safety Regulation Group, Aviation House, Gatwick Airport South, West Sussex RH6 0YR Tel: 01293 567171, particularly if you are unsure whether there are aerodromes near the display site. Adhere to height restrictions for aerial fireworks stipulated by the airport authority or CAA. The Civil Aviation Authority has issued detailed guidance on the operation of lasers, searchlight and fireworks in UK Airspace20 (CAP 736). This document can be downloaded from the CAA web site (www.caa.co.uk) or requested from the address given in the references.

26 **If you are unsure whether to get in touch with anyone, do so.**



Local authority Landowners Coastguard Police
Fire service Local institutions Aerodromes

Figure 2 It is advisable to contact these people

Provision of site facilities

- 27 Prevent access of spectators to the safety, fall-out, bonfire and firing areas by some suitable form of physical barrier.
- 28 Check that the fire-fighting facilities at the site are adequate and consider asking the fire service or a fire-fighting specialist for advice. The following provisions are advised as a minimum:
- equipment for putting out small fires (eg fire extinguishers, buckets of water, fire blankets) available throughout the display site; and
 - an adequate number of stewards instructed in how to use this equipment. Tell the stewards not to attempt to fight major fires.
- 29 Provide at least two spectator exits from the site which are large enough, spaced well apart, clearly marked, kept free from obstructions and well lit.
- 30 Keep the agreed emergency service routes into the site clear of obstruction and readily accessible at all times.
- 31 A small public address system or loudspeaker will ensure that announcements and instructions can be clearly heard by all spectators at larger displays.
- 32 Provide at least one suitably equipped first-aid point, manned by a qualified first-aider. Signpost it clearly and make it easily accessible to an ambulance.
- 33 Provide suitable litter receptacles throughout the spectator area.
- 34 Any car-parking area ought preferably to be well away from the display site and upwind of it (ie with the wind blowing from the car park towards the site). Do not allow parking anywhere else. The parking area needs to be clearly signposted, with vehicle and pedestrian access routes to and from the parking area totally segregated from each other. Where appropriate, supervise parking to prevent obstruction of emergency access routes.
- 35 Locate any bar selling alcohol well away from the display site and do not allow drink to be taken away from the bar. No one involved in running the display should be under the influence of intoxicating substances.

Looking after the fireworks before the display

36 Keep the fireworks in the packaging in which they were bought, in a secure, cool, dry place where there are no naked flames or other sources of ignition and no highly flammable substances. Always replace the fireworks correctly in the packaging after inspecting them.

37 It is strongly advised that the fireworks are only taken to the display site on the day of the display. Provide a safe place at the display site to store them before use, for example in a building or a closed metal or wooden container located in an area of the site not accessible to the public.

38 The fireworks may be transported in a private car or goods vehicle. Transport them in their original packaging. Do not transport highly flammable liquids, except fuel in the tank of the vehicle, with the fireworks. Do not smoke in or near the vehicle while it is loaded with fireworks.

Crowd safety



Figure 3 Steward wearing a fluorescent jacket

39 Provide an adequate number of stewards responsible solely for crowd safety. Make them easily identifiable, for example they could all wear fluorescent jackets (Figure 3). Instruct them to be on constant watch for emergencies.

40 Pay particular attention to keeping spectators out of the safety, firing and fall-out areas. Control entry to the spectator area to avoid overcrowding.

41 Do not admit spectators to the display with their own fireworks. Publish proper notice of this in advance and post notices at all the entrances. No fireworks should be on sale at the site.

42 Make every effort to start the display on time, as crowd control becomes more difficult, the longer people are kept waiting. If a delay is unavoidable tell the spectators and ask for their co-operation at an early stage.

43 Some important points on crowd safety will be found in *Managing crowds safely: A guide for organisers at events and venues*.¹⁰

What will you do if something goes wrong?

Plan in advance!

44 Well before the day of the display, you will need to consider what could go wrong on the day. Draw up a plan to deal with each emergency or contingency, answering the questions 'What action will be taken?' and 'Who will take that action?'

45 Paragraphs 46-53 highlight some of the problems which could arise, and actions which could be taken. The list is not exhaustive, but should help you plan ahead for emergencies.

Stopping the display early or cancelling it due to adverse wind conditions

46 You will have based the layout of the display site on the prevailing wind direction (see Figures 1a and 1b). If the wind direction is different on the day of the display, consider altering the site layout if necessary, to ensure safety. If this is impossible or inadvisable for other reasons, for example because this would interfere with exits, consider the actions described for high winds in paragraph 47.

47 In high winds it may be necessary to modify the display (for example eliminate aerial fireworks) or, in extreme conditions, cancel it or finish it early. Those people setting off the fireworks (the firers) should be involved in these decisions and, if they wish to stop or cancel the display, should not be overruled by the other organisers.

Accident to someone from a firework

48 Have a procedure to ensure that first-aiders have clear access to an injured person as soon as possible. In the case of serious injury, have an ambulance called immediately by a designated organiser and suspend firing of the display.

Bonfire out of control or fire started by firework debris

49 If you cannot deal with the fire immediately, using first-aid fire-fighting equipment, call the fire service without delay. Suspend firing of the display until the fire is extinguished or until the fire service advises you that it is under control. If fire threatens fireworks move them only if it is safe to do so. You may need to move spectators to a safe place away from the site of the fire, but ensure that unimpeded access for the fire appliance is maintained at all times.

Disorderly behaviour by spectators

50 If trouble seems to be developing think about calling the police before attempting to deal with the matter yourselves.

Spectators in the safety, firing or fall-out areas

51 If spectators break through the barrier into the safety, firing or fall-out areas, inform the firers straightaway and ensure that firing of fireworks stops as soon as is practicable.

Announcements to spectators

52 Prepare announcements in advance which can be made to the spectators in the event of an emergency, telling them what has happened and what they are required to do.

Communications

53 It is advisable to have a two-way radio link between the firers and other people with key responsibilities for emergency action.

Bonfires

54 Make one person responsible for the bonfire, and allow only that person and designated helpers into the bonfire area. **Do not use petrol or paraffin to light the fire.** A safer way to light it is to use paper and solid firelighters in two or three places to ensure an even burn. Do not burn dangerous rubbish such as foam-filled furniture, rubber, aerosols, tins of paint, pressurised gas cylinders, tyres and bottles. Materials producing light ash which could blow about, such as corrugated cardboard, are unsuitable for burning.

55 Before lighting the fire, check its construction carefully to make sure that it is stable, and that there are no children or animals inside (Figure 4).

56 The people looking after the bonfire are advised not to wear lightweight clothing which could ignite relatively easily. They are recommended to wear a substantial outer garment of wool or other material of low flammability and strong boots or shoes. They need to know what to do in the event of a burn injury or a person's clothing catching fire, and also have a fire blanket ready in the bonfire area.



Figure 4 Checking the bonfire before lighting

Setting up the fireworks

57 Fireworks come with detailed instructions from the manufacturer or supplier on how to set them up. These instructions are supplied on the firework labels, and in instruction leaflets enclosed in firework packs. Sometimes they are supplied separately when customers order their fireworks. It is strongly recommended that firers read the instructions and examine the fireworks in advance, to make sure that they are confident to proceed with the display safely. This is best done in daylight a few days before the display (Figure 5). If any information appears to be incomplete or missing, or you need more advice, get it from the firework supplier before proceeding.

58 Where there are two or more firers, they should have a clear idea of what each will do during the display. The best way to approach this is to prepare a firing plan.

59 Some materials for setting up the fireworks, eg timber, may not be supplied with them and will have to be obtained in advance.

60 Only set up fireworks in the firing area. It is recommended that the various types of fireworks are located within the firing area as shown in Figures 6a and 6b.

61 The rest of this section deals with some basic safety points for setting up fireworks. These points are not to be taken as a substitute for the detailed instructions supplied with any specific firework.

62 Do not smoke while handling fireworks, or in the firing area, once fireworks are present.

63 Try to set up the fireworks in daylight, allowing plenty of time so that this can be done carefully, without rushing. Once they are set up, do not leave the firing area unattended.

64 No firework should be tampered with or modified in any way. This will never be necessary for the fireworks covered by this booklet, ie of categories 1, 2 and 3.

65 If not ready-assembled, fireworks on frames need to be carefully assembled and securely mounted as directed in their instructions. Adhere strictly to the separation distances between these items specified in the instructions. Handle fireworks on frames delicately to avoid loosening or damaging their fusing.

66 Fix Roman candles securely in an upright position or bury them as specified in the instructions, otherwise they may fall over and shoot burning solid material at people.

They should never be secured to trees. Place supporting stakes on the spectators' side of the firework.

The use of support tubes

67 The use of support tubes is not a preferred method of support and in any case may only be suitable for static fireworks such as roman candles, fountains, mines and shot tubes.

68 Where the fireworks concerned are in category 2 or 3 always follow the firing instructions provided. Tubes should not be used to support these categories of fireworks – unless they have been supplied for specific use with the firework, for example rocket launch tubes.

69 If support tubes must be used, please take the following simple precautions:

- a) Do not use metal tubes. Consider using only plastic tubes which, should the firework explode unexpectedly, will not burst, shedding high-energy fragments. Choose tubing which is made of non-brittle plastics and designed to withstand internal pressure, for example pipe made for water or gas supplies from high-density polyethylene (HDPE);



Figure 5 Reading the instructions and examining the fireworks a few days before the display

- b) Do use a tube with a diameter which will provide the required support to the firework without holding it too snugly. A snug tube may damage the firework when it is inserted and also increase the severity of a misfire;
- c) Where any support tube is attached to a stake or frame, attach it on the side away from the spectators. In this way, should an explosion occur, the effects will tend to be projected away from the spectators;
- d) Always remember to position fireworks as far as possible from spectators and at least the manufacturer's recommended minimum distance. Where specific safety distances are not provided, you should refer to information on the minimum recommended safety distances in Figures 6a and 6b.

70 Place all aerial fireworks towards the back of the firing area in a location free from overhead obstructions so that any debris will land in the fall-out area. Pay particular attention to avoiding injury to spectators from rocket debris.

71 Never use bottles as launch tubes for any firework.

72 Protect fireworks from damp prior to firing them.

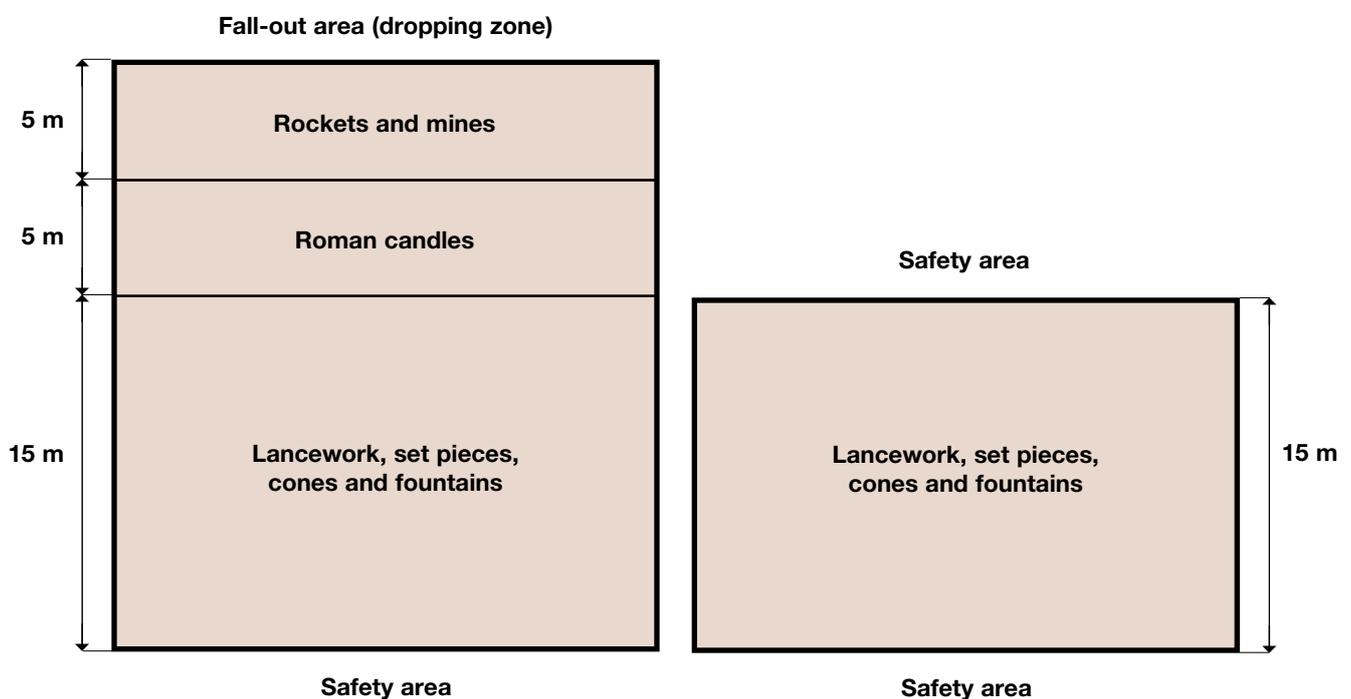


Figure 6a Firing area layout for displays including aerial fireworks

Figure 6b Firing area layout for displays without aerial fireworks

Firing the display

Firers

73 Only allow **firers** in the firing area and restrict their number to the minimum necessary to ensure the continuity of the display. For most displays two will be sufficient. If there is no radio link, appoint one person to relay messages between the firers and the person in overall charge of the display.

74 Firers are advised to wear suitable clothing. This could consist of stout footwear and outer clothing of wool or other fire-resistant material. A protective hat, goggles and gloves are advisable. It is also advisable to tuck sleeves under gloves to protect the wrists. Lightweight, flammable outer clothing is to be avoided. It is strongly recommended that firers wear suitable hearing protection. Each firer ought to have an electric torch and a whistle to attract attention in the event of difficulty.

75 At least one of the firers ought to have some previous experience of firing large fireworks. It is recommended that all firers are familiar with the basic safety principles (some industry organisations and firework companies produce training material).

Setting off the fireworks

76 Always set off fireworks as recommended in the instructions. This will usually be by a slow-burning wick or, for larger fireworks, a slow-burning lighter known as a portfire. Do not use matches except to light the wick or portfire. Always hold the wick or portfire at arm's length to light the firework. Never lean over a firework.

77 Fireworks to be fired electrically will be supplied fitted with electric leads ready for connection to a suitable low-voltage source. Do not attempt to convert a firework designed for flame ignition to electric ignition, or vice-versa.

Fireworks which fail to go off (misfires)

78 Leave a firework which fails to go off for at least 30 minutes before placing it in a bucket of water.

Clearing up after the display

79 The following procedure is recommended for clearing up the site:

- keep the firing, safety and fall-out areas free of spectators until the firers have had time to clear up, and locate and deal with any fireworks that have misfired;
- extinguish the bonfire properly and cool it down before you leave the site, keeping spectators out of the bonfire area until this has been done;
- return to the site at first light to make sure that it is clear of partly spent fireworks and other hazardous remains (Figure 7).

80 Never put fireworks, even those which are fully spent, on the bonfire or dispose of them by burying. Recommended disposal methods are as follows:

- put fully spent fireworks (but **not** misfired or partly spent fireworks) in refuse receptacles;
- soak misfired or partly spent fireworks in a container of water in an area where they cannot be tampered with (preferably away from the display site) and contact the manufacturer or supplier for advice on disposal.

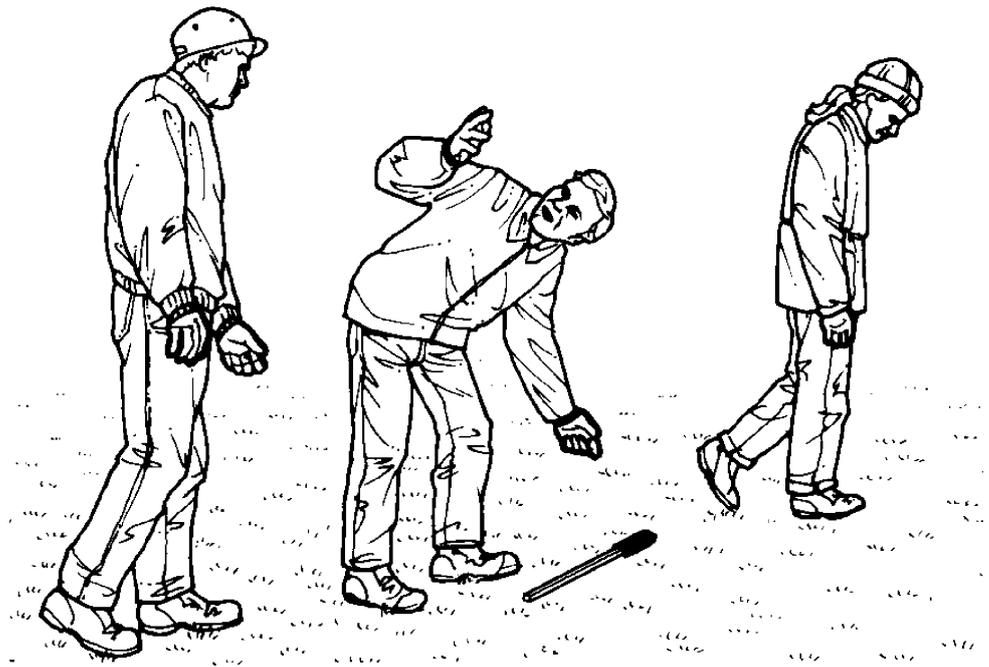


Figure 7 Making sure that the site is clear of partly spent fireworks and other hazardous remains

Legal requirements

81 *The Health and Safety at Work etc Act 1974* (HSW Act)¹¹ and subsidiary legislation may apply to certain displays. In general, this legislation will apply when the display involves a work activity, for example when you are running the display as an employer or as a self-employed person conducting your own business, or holding it on non-domestic premises such as commercial or local authority premises.

82 Where the HSW Act applies, it will impose duties on employers in relation to the health and safety of their employees and the public (spectators and other people at the display site as well as the general public in the vicinity of the site). Self-employed people have the same duties in relation to their own health and safety and that of the public. In addition, the person who is providing the premises for the event may have duties under Section 4 of the HSW Act.

83 The local authority enforcement officer will be able to advise on the application of the HSW Act to the proposed display.

84 *The Manufacture and Storage of Explosives Regulations 2005* require that the manufacture of fireworks (which includes dismantling them) shall only take place in a licensed factory. The regulations allow the preparation, assembly, disassembly and fusing of firework displays at the place of intended use without a factory licence. The regulations also allow the preparation, assembly and fusing of fireworks, in quantities of no more than 10 kilograms at a time, at a site in relation to which a person holds a licence or registration for the storage of explosives, for the purposes of a firework display to be put on by that person. The destruction of fireworks in a safe manner does not require a factory licence.

85 Under *The Manufacture and Storage of Explosives Regulations 2005* an unlimited quantity of hazard type 3 and 4 fireworks may be kept for up to 24 hours without licensing or registering the place of storage. Specified amounts may be held for longer periods without licensing or registration as shown in the table. Your firework suppliers should be able to provide you with information on the hazard type of your fireworks. You can also obtain information on hazard types from the *Manufacture and storage of explosives* guidance.

86 The transport of fireworks and other explosives by road is subject to the requirements of the:

- *Classification and Labelling of Explosives Regulations 1983*,¹² as amended by *The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2004*;
- *The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2004*.

Some guidance on the carriage of dangerous goods by road is given in *Working with ADR: an introduction to the carriage of dangerous goods by road*.¹³

87 Information on legislation other than the HSW Act which may apply to firework displays is given in Appendix 3.

Type of fireworks	Maximum amount (kg)	Maximum storage period (days)	Condition
Hazard type 3	100	3	In place of intended use
Hazard type 4	250	3	In place of intended use
Hazard type 4	50	21	Not for sale or use at work

Appendix 1: Examples of some of the more common types of display fireworks and ways of lighting them

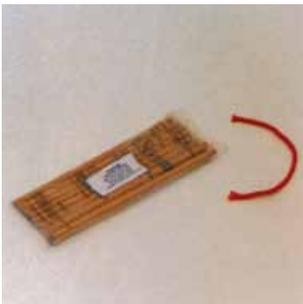


Figure 8
Portfire (left) and slow-burning wick (right), used to light fireworks



Roman candle pots (rear) and Roman candle bouquet (front)



Wheel



Mines



Cones (rear) and fountains (front)



Rockets



Roman candle batteries - often known as Chinese cakes



Figure 9 Lancework

Appendix 2: Sources of information on firework manufacturers, suppliers and display operators

The British Pyrotechnists' Association (BPA),
8 Aragon Place, Kimbolton, Huntingdon,
Cambridgeshire PE28 0JD
Tel: 01480 861975
www.bpa-fmg.org.uk

The Confederation of British Industry,
Explosives Industry Group (CBI/EIG), Centre Point,
103 New Oxford Street, London WC1A 1DU
Tel: 020 7395 8063
www.cbi.org.uk

The Institute of Explosives Engineers (IExpE),
Cranfield University, RMCS Shrivenham,
Swindon, Wiltshire SN6 8LA
Tel: 01793 785322
www.iexpe.org

The Event Servicers Association (TESA), 1 Picton House,
Lower Church Street, Chepstow, Monmouthshire NP16 5XT
Tel: 01291 628103

Local Authorities Coordinators of Regulatory Services
(LACORS), 10 Albert Embankment, London SE1 7SP
Tel: 020 7840 7200
www.lacors.gov.uk

The Chief Fire Officers' Association, 9-11 Pebble Close,
Amington, Tamworth, Staffordshire B77 4RD
Tel: 01827 302300
www-old.cfoa.org.uk

The British Fireworks Association (BFA)
Mr J Woodhead, Cosmic Fireworks Ltd,
Fauld Industrial Estate, Tutbury, Burton on Trent, DE13 9HS
www.b-f-a.org

Appendix 3: Other legislation which may apply to firework displays

(The requirements in this appendix are not requirements under health and safety legislation).

1 The information which follows has been supplied by representatives of organisations responsible for enforcement and is only a brief guide to some of the main provisions, other than health and safety legislation, which firework display organisers will need to consider. The appropriate organisation will be able to advise on how these and other related provisions apply to an individual case.

Entertainments licensing and statutory controls on noise nuisance

England and Wales

2 In England and Wales, the public entertainments provisions of the *Local Government (Miscellaneous Provisions) Act 1982*¹⁴ allow local authorities to control events such as pop festivals and open-air entertainments of which music forms a substantial part.

3 Public entertainment licensing is carried out by the district council or metropolitan council. Enquiries must be made at least 28 days before the event in order to comply with the notification procedures. To allow a public entertainment to be carried out without a licence is an offence which can carry severe penalties.

4 In licensing events, the enforcing authority can impose conditions for securing the safety of performers and anyone else present at the entertainment, and for preventing people in the neighbourhood from being unreasonably disturbed by noise. It will be a condition of the licence that any recommendations made to the enforcing authority by the police and fire brigade are complied with.

5 If the local authority has adopted the *Private Places of Entertainment (Licensing) Act 1967*,¹⁵ similar conditions may be imposed on similar types of entertainment held on private premises, including those in the open air. This is to cover private clubs etc where admission is restricted to members (ie the general public are not admitted). The licensing function is dealt with in exactly the same way as for public entertainment, but extends the controls to private entertainment provided for private gain.

6 Displays which are not subject to licensing under the above legislation will still be subject to the *Noise at Work Regulations 1989*,¹⁶ enforced by the environmental health department of the district council or metropolitan council.

Scotland

7 In Scotland, public entertainments licensing is carried out by the district council or regional council.

8 Where a firework display involves the use of premises as a place of public entertainment, some councils will require application to be made for a Public Entertainment Licence under Section 41 of the *Civic Government (Scotland) Act*

1982¹⁷ and, as a condition of licence, may require the organisers to consult with the local fire authority and the police. In the Act, the term 'place of public entertainment' is defined (subject to certain exclusions) as any place where, on payment of money or goods to the same value, members of the public are admitted or may use any facilities for the purposes of entertainment or recreation.

9 Some councils require charitable organisations which hold public firework displays to seek permission for the display irrespective of whether an entrance fee is to be levied or not.

10 Comments on noise nuisance are as for England and Wales in paragraph 6 above.

Firework displays near aerodromes

11 The Civil Aviation Authority has issued detailed guidance on the operation of lasers, searchlight and fireworks in UK Airspace¹⁸ (CAP 736). This document can be downloaded from the CAA web site (**www.caa.co.uk**) or attained using the details given in the references.

Acknowledgements

HSE gratefully acknowledges the participation of the following in the drafting of this booklet:

The British Pyrotechnists' Association

The Confederation of British Industry, Explosives Industry Group

Standard Fireworks Limited

Kimbolton Fireworks Limited

Le Maitre Fireworks Limited

The Consumer Safety Unit of the Department of Trade and Industry

and help given by the following:

Civil Aviation Authority

HM Coastguard

Marine Directorate, Department of Transport

City and District of St Albans District Council

North Yorkshire Fire and Rescue Service

Lothian and Borders Fire Brigade

Solar Pyrotechnics

References

- 1 *Manufacture and Storage of Explosives Regulations 2005* SI 2005/1082
The Stationery Office 2005 ISBN 0 11 072764 9
- 2 *Manufacture and storage of explosives: Manufacture and Storage of Explosives Regulations 2005 L139* HSE Books 2005 ISBN 0 7176 2816 7
- 3 *The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2004* SI 2004/568 The Stationery Office 2004
ISBN 0 11 049063 0
- 4 *Firework (Safety) Regulations 1997* SI 1997/2294 The Stationery Office 1997
ISBN 0 11 064962 1
- 5 *Firework (Safety)(Amendment) Regulations 2004* SI 2004/1372
The Stationery Office 2004 ISBN 0 11 049315 X
- 6 BS 7114: 1988 Fireworks British Standards Institution
Part 1: Classification of fireworks ISBN 0 58 017026 8
Part 2: Specification of fireworks ISBN 0 58 017027 6
Part 3: Methods of test for fireworks ISBN 0 58 017028 4
- 7 *Firework Regulations 2004* SI 2004/1836 The Stationery Office 2004
0 11 049542 X
- 8 *Working together on firework displays: A guide to safety for firework display organisers and operators* HSG123 HSE Books 1999 ISBN 0 7176 2478 1
- 9 *Event safety guide: A guide to health, safety and welfare at music and similar events* HSG195 (Second edition) HSE Books 1999 ISBN 0 7176 2453 6
- 10 *Managing crowds safely: A guide for organisers at events and venues* HSG154 (Second edition) HSE Books 2000 ISBN 0 7176 1834 X
- 11 *Health and Safety at Work etc Act 1974* Ch37 The Stationery Office 1974
ISBN 0 10 543774 3
- 12 *Classification and Labelling of Explosives Regulations 1983* SI 1983/1140
The Stationery Office 1983
- 13 *Working with ADR: an introduction to the carriage of dangerous goods by road 2004* Department for Transport 2004 ISBN 1 904763 47 2
<http://www.hse.gov.uk/pubns/cdg.pdf>
- 14 *Local Government (Miscellaneous Provisions) Act 1982* C10 The Stationery Office 1982
- 15 *Private Places of Entertainment (Licensing) Act 1967* C19 The Stationery Office 1967
- 16 *Noise at Work Regulations 1989* SI 1989/1790 The Stationery Office 1989
ISBN 0 11 097790 4
- 17 *Civic Government (Scotland) Act 1982* C45 The Stationery Office 1982

- 18 *Civil Aviation Authority CAP 736 Guide for the Operation of Lasers, Searchlights and Fireworks in United Kingdom Airspace Version 1*
The Stationery Office 2003 ISBN 0 8603 9956 7

Further reading

Control of Explosives Regulations 1991 SI 1991/1531 The Stationery Office 1991
ISBN 0 11 014531 3

Dangerous Substances in Harbour Areas Regulations 1987 SI 1987/37
The Stationery Office 1987 ISBN 0 11 076037 9

Disposal of explosives waste Chemical Safety Guidance Note CS23 HSE Books
1999 ISBN 0 7176 1624 X

Essentials of health and safety at work HSE Books 1994 ISBN 0 7176 0716 X

Fireworks and the law: A guide to those who manufacture, store, transport or use fireworks 1994, available from CBI Explosives Industry Group, 103 New Oxford Street, London WC1A 1DU. Tel: 020 7395 8063

Five steps to risk assessment Leaflet INDG163(rev1) HSE Books 1998 (single copy free or priced packs of 10 ISBN 0 7176 1565 0)

Management of Health and Safety at Work Regulations 1999 SI 1999/3242
The Stationery Office 1999 ISBN 0 11 085625 2

Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995
SI 1995/3163 The Stationery Office 1995 ISBN 0 11 053751 3

Further information

For information about health and safety ring HSE's Infoline Tel: 0845 345 0055
Fax: 0845 408 9566 Textphone: 0845 408 9577 e-mail: hse.infoline@natbrit.com or
write to HSE Information Services, Caerphilly Business Park, Caerphilly CF83 3GG.

HSE priced and free publications can be viewed online or ordered from
www.hse.gov.uk or contact HSE Books, PO Box 1999, Sudbury, Suffolk
CO10 2WA Tel: 01787 881165 Fax: 01787 313995. HSE priced publications
are also available from bookshops.

British Standards can be obtained in PDF or hard copy formats from the BSI online
shop: www.bsigroup.com/Shop or by contacting BSI Customer Services for hard
copies only Tel: 020 8996 9001 e-mail: cservices@bsigroup.com.

The Stationery Office publications are available from The Stationery Office,
PO Box 29, Norwich NR3 1GN Tel: 0870 600 5522 Fax: 0870 600 5533
e-mail: customer.services@tso.co.uk Website: www.tso.co.uk (They are also
available from bookshops.) Statutory Instruments can be viewed free of charge
at www.opsi.gov.uk.