

The new Red Firework Guide
(replaces HSG 124)

GIVING YOUR OWN FIREWORK DISPLAY

How to run and fire it safely

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**EXPLOSIVES
INDUSTRY
GROUP**



Giving your own firework display

A guide to safety for firework display organisers and operators

This book replaces the Health and Safety Executive guide HSG 124 and incorporates new features that have been introduced since the last revision of that guide.

The Explosives Industry Group of the CBI (EIG) has agreed to publish this guide and update it periodically. The assistance of HSE is acknowledged.

This guide is for displays where the fireworks are to be fired by people without specialist knowledge or training – a separate guide “Working together on Firework Displays”¹ has been prepared by EIG for those users with specialist knowledge.

This new edition has been updated to include the significant changes in the law relating to the supply, possession, transport, keeping and use of fireworks which may have an effect on the way you organise your display.

¹ Working Together on Firework Displays – see <http://www.eig2.org.uk/new-guides-for-firework-displays/>

Acknowledgements

EIG gratefully acknowledge the assistance of the following organisations, companies and individuals in preparing and revising this guide

- The British Pyrotechnists Association (BPA)
- The British Fireworks Association (BFA)
- HSE Explosives Inspectorate (HSE/XI)
- Business, Energy and Industrial Strategy department (BEIS)

This Guide describes accepted practice within the explosives industry. Following it is not compulsory and persons are free to take other action in order to achieve equivalent levels of safety. By following the guidance, persons would normally be compliant with their legal duties.

Nothing in this Guide should be read as setting a higher standard than that required by legislation. Those persons involved in the explosives industry are responsible for taking their own legal and other advice as they see fit. Readers are strongly advised to check for any changes in legislation since the publication of this Guide.

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It is not the intention of this Guide to be used as a technical manual by those inexperienced in the design and execution of firework displays. Those not experienced in the field should seek expert assistance.

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Foreword to this edition

Since the publication of *Giving your own firework display* in 1995 and its 2nd edition published in 2005 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 Explosives Regulations 2014 (as amended)*²

These wide-sweeping regulations replace the Manufacture and Storage of Explosives Regulations 2005. 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 a number of guidance documents covering safety and security, both generally and sector specific.

*The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009*³

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 Pyrotechnic Articles (Safety) Regulations 2015*⁴

These replace the Pyrotechnic Articles (Safety) Regulations 2010, and The Firework (Safety) Regulations 1997 and amend a number of other firework related regulations

These regulations cover the supply of all pyrotechnic articles including 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 F4 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 F2 and F3 fireworks that can be supplied to the general public;
- a requirement that fireworks of category F1, F2 and F3 conform with an essential safety requirement listed in the

² <http://www.legislation.gov.uk/uksi/2014/1638/contents/made>

³ <http://www.legislation.gov.uk/uksi/2009/1348/contents/made>

⁴ <https://www.legislation.gov.uk/uksi/2015/1553/contents/made>

Regulations, that this conformity is verified by an EU notified body and are subsequently CE marked before placing on the market

- a limit on the age of purchase to 18.

The Firework Regulations 2004 (as amended⁵)

These regulations include provisions relating to:

- the prohibition of the possession of Category F2 and F3 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.

⁵ <http://www.legislation.gov.uk/uksi/2004/1836/contents/made>

Introduction

Who is this publication for?

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.

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*, available on the EIG website.

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

Definitely not! The recognised standard for consumer fireworks in the United Kingdom is BSEN15947 Parts 1 to 5, which places fireworks for sale to the general public into three categories: F1, F2 and F3. There is also a Category F4 which are fireworks not intended for sale to the general public.

Any firework falling into one of these categories will be CE marked and will also be marked with among other information:

- the Category,
 - Category F1- fireworks of low hazard including those suitable for indoor use
 - Category F2- fireworks of low hazard suitable for outdoor use in confined areas
 - Category F3- fireworks of medium hazard for use in large open areas
- the type of firework
- a registration number
- a minimum age limit,
- the net explosive content
- Safety information
- Manufacturer/importers name and address.

Note: The Pyrotechnic Article (Safety) Regulations 2015 further limit the types and sizes of fireworks that can be supplied to the public.

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

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 F1, F2 and F3, ie not in category F4. 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 fireworks, as this will include an instruction leaflet.

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

Further safety advice on the purchase of fireworks or selection of a display operator may be obtained from the organisations listed in Appendix 1.

Organisation

Useful guidance on the organising of a display can be obtained from *The Purple Guide: A guide to health, safety and welfare at music and similar events*.⁶

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

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

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;

⁶ <https://www.thepurpleguide.co.uk/>

- 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

Figures 1 and 2 show how these areas should be located in relation to each other and to the prevailing wind direction.

Size of layout

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 fallout area is required);
- the expected number of spectators.

Figures 1 and 2 summarise the minimum dimensions recommended for display sites. The distances given for safety areas assume that the fireworks are set up properly in accordance with their instructions and with the advice in this publication. Other things to consider:

Proximity of major roads which may be affected by smoke from the fireworks or bonfire

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

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.

Bonfire area

Locate this anywhere, provided it is:

- 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 1 - Site layout for displays including aerial fireworks (eg rockets, mines or Roman candles showing MINIMUM distances)

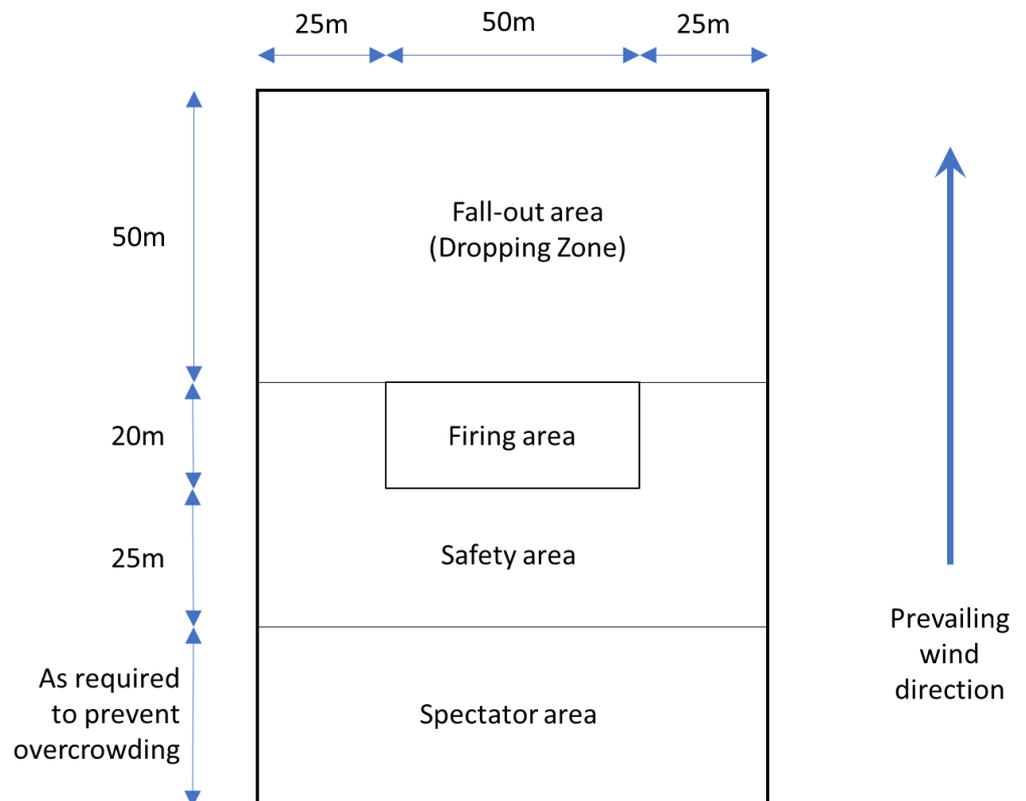
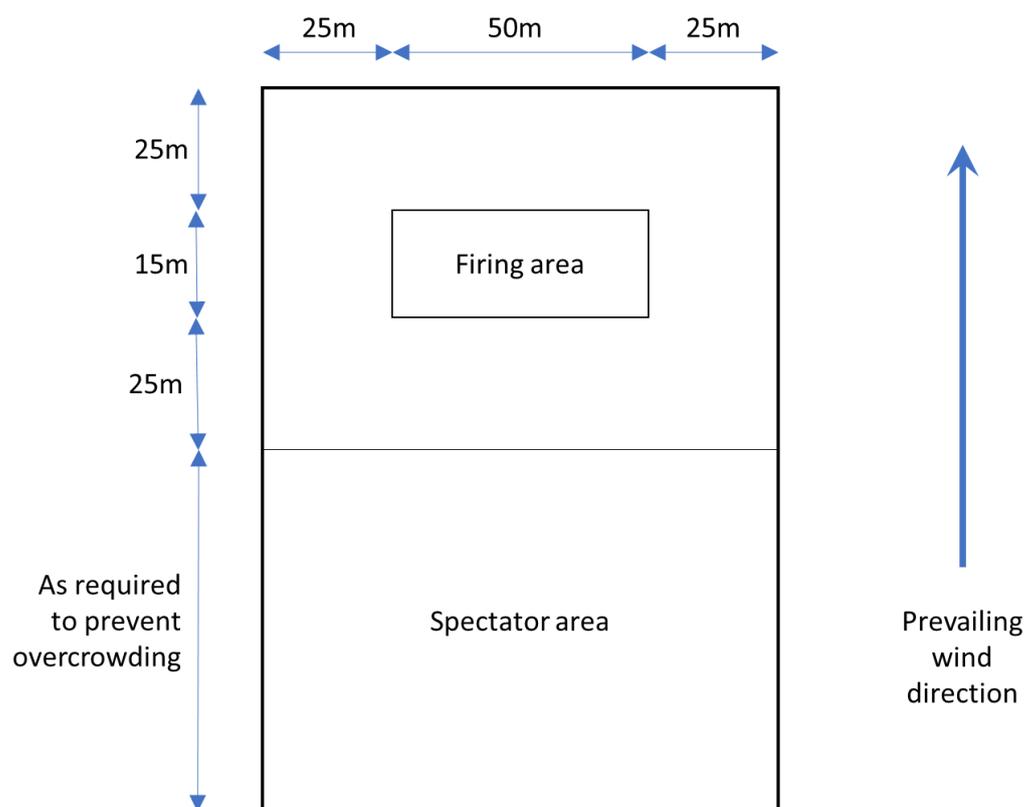


Figure 2 - Site layout for displays without aerial fireworks showing MINIMUM distances



Who to contact

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

Police

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

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

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

You may need to contact your local authority under entertainments legislation (see Appendix 2). 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 byelaws;
- 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. In certain circumstances the place of keeping may need to be licenced under The Explosives Regulations 2014.

Neighbouring landowners or users

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

Local institutions

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

Coastguard

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

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), The Civil Aviation Authority has issued detailed guidance on the operation of lasers, searchlight and fireworks in UK Airspace (CAP 736). This document can be downloaded from the CAA web site.

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

Other issues

Drones

The use of drones to film displays from a high level position is increasing – but there are important safety considerations that need to be considered:-

- Is the drone being operated by a professional company, or by an enthusiastic amateur?
- Where will the drone be launched and controlled from?
- Is there adequate communication between the display company and the drone operator in case of issues during the display?

- Is the drone to be flown in amongst the fireworks and risk being damaged or disrupted?
- If control is lost where will the drone fall?

Flying a drone at night without clear visual contact and adequate control may contravene legislation and careful consideration must be given to their use by event organisers.

Amateur users who fly drones independently may also contravene regulations.

Further information is available from the CAA⁷.

Terrorist threats

In times of heightened awareness of terrorist threats and the potential for members of the public to assume that any loud bang as indicative of a “bomb” it is vital that relevant authorities are notified of the display in advance and their assistance sought in planning the event.

Smoke issues

Following an incident in thick fog on the M5 motorway in the UK where several people were killed and there was a suspicion that a local firework display could have contributed, the Coroner made the following judgements and observations:-

- Smoke from the display was not found to be the cause of the incident “but the Coroner could not rule out it contributed”
- At the time there was no data on interaction of pyrotechnic smoke and fog
- There was no previous experience through Europe of situations where smoke from a display has caused an increase in fog density or had contributed to an accident

The investigations of the incident concluded that there was potential for firework smoke to cause a problem in particular:-

- When there were damp still nights
- Particularly in valleys and near rivers
- Where there was a temperature inversion (ie cold damp air with warmer humid air above it)

Of course, different fireworks produce different amounts of smoke at different levels in the sky and as a result it is important to consider the following when planning a display that may affect a local road:-

- The venue – is it prone to fog?

⁷ <http://www.caa.co.uk/Consumers/Unmanned-aircraft-and-drones/>

- Local knowledge of the likely wind conditions and likelihood of fog
- The time of year – the issue really only arises in Autumn and Winter

It is important, therefore that there should have sensible curtailment or cancellation criteria BEFORE THE SHOW (and in agreement with the event organisers) and means of communication between “spotters” and the firework team to curtail or stop the display if smoke is observed drifting towards a local road which is not able to be controlled and traffic stopped (eg a motorway).

Provision of site facilities

Prevent access of spectators to the safety, fall-out, bonfire and firing areas by some suitable form of physical barrier.

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.

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.

Keep the agreed emergency service routes into the site clear of obstruction and readily accessible at all times.

A small public address system or loudspeaker will ensure that announcements and instructions can be clearly heard by all spectators at larger displays.

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.

Provide suitable litter receptacles throughout the spectator area.

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.

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

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.

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.

50Kg of 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

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

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

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.

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.

Some important points on crowd safety will be found in Managing crowds safely: A guide for organisers at events and venues.⁸

⁸ <http://www.hse.gov.uk/pubns/priced/hsg154.pdf>

What will you do if something goes wrong?

Plan in advance!

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?'

The following paragraphs 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

You will have based the layout of the display site on the prevailing wind direction (see Figures 1 and 2). 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 the following paragraph.

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

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

If you cannot deal with the fire immediately, using first response 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

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

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

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

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

Bonfires

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.

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

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.

Setting up the fireworks

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. If any information appears to be incomplete or missing, or you need more advice, get it from the firework supplier before proceeding.

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.

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

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 3 and 4.

Figure 3 - Firing area layout for displays including aerial fireworks showing MINIMUM distances

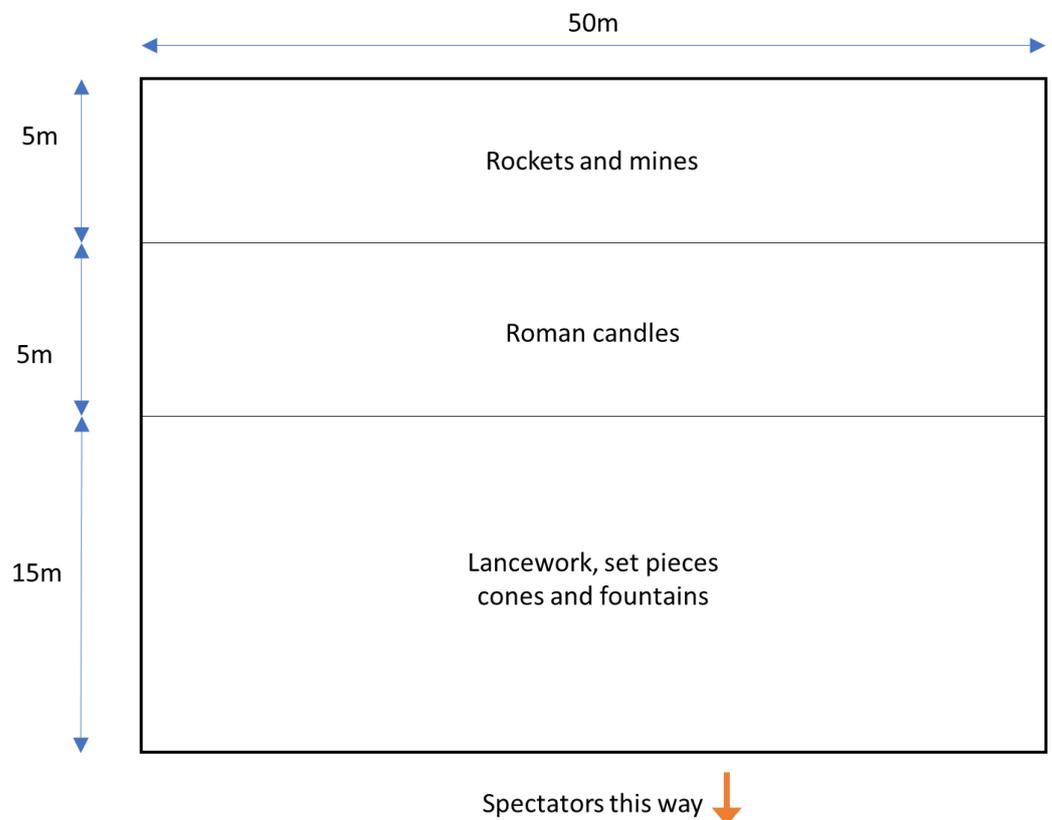
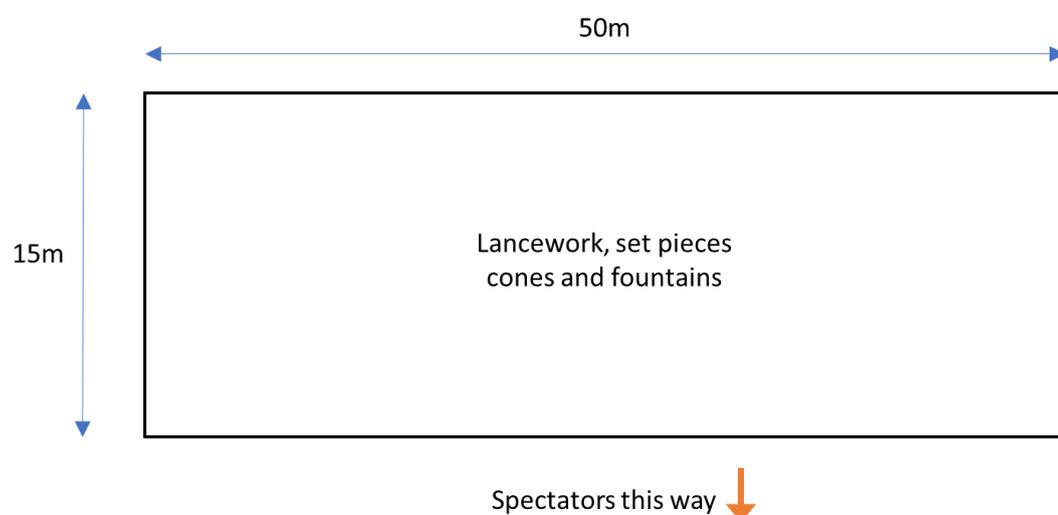


Figure 4 Firing area layout for displays NOT including aerial fireworks showing MINIMUM distances



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.

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

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.

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 F1, F2 and F3.

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.

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

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.

Where the fireworks concerned are in category F2 or F3 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.

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

- 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);
- 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;
- 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;
- 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 2a and 2b.

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.

Never use bottles as launch tubes for any firework.

Protect fireworks from damp prior to firing them.

Firing the display

Firers

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.

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.

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

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.

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)

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

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.

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.

Legal requirements

The Health and Safety at Work etc Act 1974 (HSWA) 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.

Where the HSWA 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 HSWA.

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

The Explosives Regulations 2014 require that the manufacture of fireworks (which includes dismantling them) shall only take place under licence. However, the regulations allow the preparation, assembly, disassembly and fusing of firework displays at the place of intended use without a license. 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 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 licence.

Under the Explosives Regulations 2014 an unlimited quantity of hazard type 3 and 4 fireworks may be kept for up to 24 hours without a licence. Specified amounts may be held for longer periods without a licence as shown in the table 1 below. 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 Explosives Regulations guidance.

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

- The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2011.

Some guidance on the carriage of dangerous goods by road is given in the EIG Industry Guide and Code of Practice

Information on legislation other than the HSWA which may apply to firework displays is given in Appendix 2.

Table 1 – quantities of fireworks stored that do not require a licence

Type of fireworks	Maximum amount (kg)	Maximum storage period (days)	Condition
Hazard type 3	100	5	In place of intended use
Hazard type 4	250	5	In place of intended use
Hazard type 4	50	21	Not for sale or use at work

Appendix 1: Sources of information on firework manufacturers, suppliers and display operators

The British Pyrotechnists' Association (BPA), <http://www.pyro.org.uk/>

The Confederation of British Industry, Explosives Industry Group (CBI/EIG), www.eig.org.uk

The Event Servicers Association (TESA), <http://new.tesa.org.uk/>

The British Fireworks Association (BFA)
www.britishfireworksassociation.co.uk

Appendix 2: Other legislation which may apply to firework displays

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

The information which follows 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

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

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.

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.

If the local authority has adopted the Private Places of Entertainment (Licensing) Act 1967, 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.

Displays which are not subject to licensing under the above legislation will still be subject to The Control of Noise at Work Regulations 2005 enforced by the environmental health department of the district council or metropolitan council.

Scotland

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

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.

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.

Comments on noise nuisance are as for England and Wales, above.

Firework displays near aerodromes

The Civil Aviation Authority has issued detailed guidance on the operation of lasers, searchlight and fireworks in UK Airspace 18 (CAP 736). This document can be downloaded from the CAA web site (www.caa.co.uk).

Myths

We are aware of the following myths circulating within the event industry, enforcing authorities and display companies, and hope the following will assist readers.

Table 2- Myths

Myth	Comments
A formal qualification is required before a storage licence would be issued by a local authority	There is NO requirement for such a qualification and we do not believe any such qualification exists. The BPA courses specifically address the setting up and firing of firework displays
The level of qualification would be higher for a licence than for a registered premises	See above – there is NO requirement for such a qualification. The BPA currently has two levels of award “Senior Firer” and “Firer” but these relate explicitly to display practices. In addition after 2014 all local authority sites are effectively “licenced” rather than registered – the old “registered premises” (Mode A and B) are no longer relevant
Before issuing a licence Local Authorities check to see that there was adequate insurance and that all risk assessments had been done and that they should be checked on every visit	There is no requirement for insurance to be established before issuing a licence. Of course, general Health and Safety provisions may require formal written Risk Assessments to be carried out but these are not a pre requisite for granting a licence
All display fireworks were Category 4 (the most hazardous) and therefore should be considered as HT1 (the most hazardous)	This fundamentally confuses suitability for supply (Category) with classification for transport (HD) and in storage or manufacture (HT)
That the public are not able to purchase Category 3 fireworks	The public may purchase Category 1, 2 and 3 fireworks without needing to demonstrate their status as a “Person with Specialist Knowledge” – the criterion for supply of Category 4 fireworks
That Category F4 fireworks have no fuses	Category 4 fireworks are intended for “professional” use and may or may not be fitted with fuses depending on their intended use. They may also be modified by display companies prior to transport to site, or on site (eg by combining fuses or fitting an electric igniter)
That the Hazard Type posed by fireworks relates to their suitability for sale to the public and intended use (eg Garden, display or professional)	There is no correlation between suitability for supply and hazard posed in transport (HD) or storage and manufacture (HT)

Myth	Comments
That all display fireworks are classified 1.3G and all consumer fireworks are classified 1.4G	<p>This is again confusing suitability for supply and hazard posed in transport.</p> <p>The classification of display fireworks (like all explosives) is fundamentally related to their packaging "as presented for transport") and may be</p> <p>1.1G – UN 0333 1.2G – UN 0334 1.3G – UN 0335 1.4G – UN 0336 1.4S – UN 0337</p> <p>Depending on the nature of their fireworks and the way they are packed</p>
That professional displays do not use Category 1, 2 or 3 fireworks but only category 4	A display company may use the whole range of fireworks (and other pyrotechnic devices) depending on the event and site. In some cases the fireworks may be modified on site prior to use (by fitting a fuse for example) but this is considered a process "in use"
All professional firework display companies must operate out of premises falling under the "Control of Major Accident Hazard" Regulations (COMAH)	The nature of the legal instruments required for a display company operation is dependent on the scale of the company (ie how much explosives is stored) and they way it operates. There is no specific requirement for all professional display companies to be COMAH sites, or indeed to be licenced by HSE.
All professional display companies will hold a manufacturing licence from HSE	<p>Display companies may operate under Regulation 6(2) of ER2014 (commonly known as the "Firework fusing exemption") which allows limited operations at a local authority licenced site but does not remove the need to all fireworks to be properly classified before transport.</p> <p>In addition it is possible for all rigging and fusing to be done legitimately at the display site without any form of licence as they are at the point of use.</p>
All fireworks must comply with BS 7114	<p>BS 7114 is an obsolete standard and has been replaced by the following European Standards:-</p> <p>Category F1/F2/F3 fireworks – EN 15947 Category 4 fireworks – EN 16261 Theatrical pyrotechnic articles – EN 16256</p>
All fireworks should bear the UK "Kite mark"	There has never been a requirement for UK fireworks to bear a kite mark – indeed placing an erroneous "kite mark" on fireworks would have been illegal

Myth	Comments
Local authority storage licences are only available for fireworks	Local authorities can licence stores for any explosives and it is very important that where other explosives are kept (for instance theatrical items) these are explicitly referenced on the licence, or that the licence refers only to the Hazard Types of explosives to be kept
Local Authorities can only grant licences for stores in the run-up to November 5th	This is not the case – indeed it is a reasonable expectation that an application at any time of the year should be processed promptly and efficiently
Local Authorities are not able to grant any explosive licence – this must be done by HSE	This is incorrect. ER2014 allows (and in fact demands) that Local Authorities is the proper place to apply for licences for appropriate sites within certain “fixed rule” parameters

General Legislation

Table 3- Links to general legislation and guidance

Information	Link
Firework (Safety) Regulations 1997	http://www.legislation.gov.uk/uksi/1997/2294/made
Firework (Safety) (Amendment) Regulations 2004	http://www.legislation.gov.uk/uksi/2004/1372/made
Managing crowds safely: A guide for organisers at events and venues HSG154	http://www.hse.gov.uk/pubns/books/hsg154.htm
Management of Health and Safety at Work Regulations 1999	http://www.legislation.gov.uk/uksi/1999/3242/contents/
Civil Aviation Authority CAP 736	http://publicapps.caa.co.uk/docs/33/CAP736.PDF
Control of Noise at Work Regulations 2005 SI 2005/1643	http://www.legislation.gov.uk/uksi/2005/1643/contents/
Five steps to risk assessment Leaflet INDG163(rev2)	www.hse.gov.uk/pubns/indg163.pdf

Bibliography

Table 4- Bibliography

Information	Summary	Link
Explosive Entertainment: Getting the most from your firework display	Book by Dr Tom Smith for organisers and practitioners of firework displays	http://www.fd-ee.com
The "Purple" Guide	"The Purple Guide has been written by The Events Industry Forum in consultation with the events industry. Its aim is to help those event organisers who are dutyholders to manage health and safety, particularly at large-scale music and similar events. The Health and Safety Executive was consulted in the production of the workplace health and safety parts of this publication.	https://www.thepurpleguide.co.uk/

Contact Information

The following contacts may be useful:-

The Confederation of British Industry, Explosives Industry Group (CBI/EIG)

Cannon Place
78 Cannon Street
London
EC4N 6HN

Tel: 020 7395 8063
www.cbi.org.uk

The British Pyrotechnists Association (BPA)

8 Aragon Place, Kimbolton, Huntingdon, Cambridgeshire PE28 0JD

Tel: 01480 878621
www.pyro.org.uk

The Health & Safety Executive – Explosives Inspectorate

Health and Safety Executive
Redgrave Court
Merton Road
Bootle
Merseyside
L20 7HS

Tel: 020 3028 4025

Email: explosive.enquiries@hse.gov.uk
www.hse.gov.uk

While every effort has been made to ensure the accuracy of the references listed in this publication, their future availability cannot be guaranteed.



EIG also publishes “Working Together on Firework Displays: A guide to planning and safety at firework displays for organisers and professional operators” which is intended for events employing a professional display company.

