

Firework Display on School Grounds

School Advice Note

1. This advice note has been developed in conjunction with information from the Health and Safety Executive and covers those displays where the organisers themselves have no specialist knowledge.
2. When organising a display, schools need to consider whether to employ a 'competent' display operator or to fire the display themselves. As long as firework categories 1-3 only are used and organisers follow these guidelines there is no reason to employ a display operator. If firing the display yourself, it is recommended that a complete kit is purchased rather than single fireworks which should always include an instruction leaflet.
3. It is recommended that no displays take place after 2300 hours.

School Management Action

4. To set up a committee with one person holding overall control;
5. To ensure that a comprehensive, written risk assessment is completed prior to the event;
6. Ensure that all relevant organisations are contacted as soon as possible e.g. Local authority, Police, Fire Brigade, etc;
7. Ensure that staff/volunteers involved in the display read and understand the attached guidance.

Useful Contacts

8. Corporate Health and Safety – 023 8083 4271
9. Risk & Insurance Team – 023 8083 2835.

Firework Displays

Introduction

10. This advice note has been developed in conjunction with information from the Health and Safety Executive and covers those displays where the organisers themselves have no specialist knowledge.

Definitions

11. 'Aerial fireworks' includes rockets, mines, shells or roman candles.
12. Site – total area of ground where the display will take place.

Background

13. Firework displays, whether private or public, should be enjoyable occasions. If organisers take appropriate precautions they should also be safe occasions.
14. There are four categories of fireworks. All four categories comply with British Standard BS7114/BS EN 14035-36.
15. The categories are as follows:
 - 15.1. **Category 1:** indoor firework e.g. party poppers;
 - 15.2. **Category 2:** garden firework e.g. many of the fireworks which make up the small selection boxes on sale before the 5 November;
 - 15.3. **Category 3:** display firework – the largest fireworks on retail sale;
 - 15.4. **Category 4:** these fireworks are incomplete and/or are not intended for sale to the general public;

Insurance

16. Liability arising out of the use of fireworks is not excluded from the City Council's General Liability Insurance Policy. It is, however, very important that Schools read and understand the following guidance as failure to adhere to these procedures could prejudice their rights of recovery under the policy in the event of a claim.
17. Separate public liability cover can be obtained for Parent and Teachers Associations and Friends of the School Associations as detailed in the Finance Handbook, Buildings cover includes the perils of fire and explosion.

Organisation

18. When organising a display, schools need to consider whether to employ a 'competent' display operator or to fire the display themselves. As long as firework

categories 1-3 only are used and organisers follow these guidelines there is no reason to employ a display operator. If firing the display yourself, it is recommended that a complete kit is purchased rather than single fireworks which should always include an instruction leaflet.

19. Schools need to start organising a display as early as possible. It is recommended that a committee is set up with one person in overall control.
20. Responsibilities can then be delegated to the members of the committee before moving on to the actual organising of the display decisions will need to be taken on the following:
 - 20.1. Budget for overall event;
 - 20.2. Is there going to be a bonfire;
 - 20.3. Will a display operator be employed;
 - 20.4. What is the expected size of the audience;
 - 20.5. Possible suitable sites that can be used;
 - 20.6. First aid cover; e.g. St John's Ambulance, Red Cross;
 - 20.7. Liaison with the Police and the Fire Brigade will be necessary throughout the organisation;
21. Once all the above has been agreed a suitable site will need to be selected. The diagrams in Appendix A and B will help you to decide the size and layout of your site.

Risk Assessment

22. A comprehensive, written risk assessment must be completed prior to the event detailing the control measures implemented by the school to minimise the level of risk. See SCC Template School Firework Event risk assessment.
23. Where a competent display operator has been employed, it will be the responsibility of the operator to complete a risk assessment and this must be shared with the school prior to the event.

Display Site

24. The display site must comprise of the following:
 - 24.1. **Spectators Area** – area from which the display is watched;
 - 24.2. **Safety Area** – clear area separating the firing area from the spectator area;
 - 24.3. **Firing Area** – area from which the fireworks are set off;
 - 24.4. **Fall Out Area** – area from which debris from fireworks fall;
25. The display site should be as large as possible. The spectator area should be large enough to prevent overcrowding. The site should be free of dry, cut grass and other combustible material. The site must be inspected for trees, buildings, power lines or any overhead obstructions following the measurements in Appendix A or B.

26. It is recommended that the following organisations are contacted as soon as possible after the date for the display has been set:
- 26.1. **Police** - inform the Hampshire Control Room, Police Headquarters, telephone main switchboard of date, time and venue for their information and also call on day of firework event to confirm event will be taking place;
 - 26.2. **Fire Brigade** - must be contacted at the planning stage. Contact your local fire safety office;
 - 26.3. **Local Authority** - contact Corporate Health and Safety Services at planning stage;
 - 26.4. **Neighbours** - advance warning of display;
 - 26.5. **Local Institutions** - good practice to inform local care homes, hospitals etc;
 - 26.6. **Coastguard** - If the firework display is planned to take place near the coast, the organisers should pass all the relevant details to HM Coastguard;
 - 26.7. **Southampton Airport** - if display is within 10 miles radius of an active aerodrome or within an Aerodrome Traffic Zone (ATZ) 1 may require notification and coordination action and must be notified by the event supervisor to the CAA for consideration notification needs to be given at least 28 days in advance. See Appendix E Notification Zones for Firework Displays diagram;

Site Facilities

27. There must be a suitable barrier between the different areas preventing unauthorised access by spectators.
28. Fire fighting equipment must be adequate. Advice can be obtained from the Fire Brigade. The following is advised as a minimum:
- 28.1. Equipment for putting out small fires e.g. fire extinguishers, buckets of water and fire blankets.
 - 28.2. Stewards that have been instructed/trained in the use of the above equipment.
29. Stewards must not attempt to fight major fires.
30. The above provisions must be available throughout the display site.
31. There must be at least two spectator exits from the site. It may be necessary to organise more exits depending on the number of spectators and ensure:
- 31.1. All exits must be well lit;
 - 31.2. Clearly signposted;
 - 31.3. Spaced well apart;
 - 31.4. Free from obstruction;
32. The site should have a suitable entrance for emergency vehicles and emergency vehicles attending the site should be met by the person in charge of safety or a senior steward.

33. A small public address system or loudspeaker is recommended so that all instructions can be clearly heard by all spectators at a larger display. For smaller displays a megaphone will be sufficient.
34. A suitable, equipped first aid point must be provided. It must be clearly marked and easily accessible by ambulance. It is recommended to contact St John's Ambulance, Red Cross for first aid cover.
35. Litter receptacles are provided.
36. Car parking is away from display site and upwind of bonfire/firing area.

Storage of Fireworks

37. Fireworks should be purchased within 14 days of the display.
38. Fireworks should be kept in the packaging in which they were bought in a secure, dry place away from naked flame, sources of ignition or highly flammable substances. If you un-wrap the fireworks to check them before the display, ensure that you replace them correctly.
39. Fireworks should only be taken to the display site on the day of the display.
40. There should be a safe place to store the fireworks at the site in a close, lockable metal cabinet in an area away from members of the public.
41. The fireworks should be transported to the site in their original packaging. Do not smoke near the fireworks. The fireworks can be transported in a private car or goods vehicle but do not transport with highly flammable liquids other than the fuel in the tank of the vehicle.

Crowd Safety

42. There should be an adequate number of stewards depending on the expected number of spectators. Stewards should be over 18 years of age. The stewards should be easily identified. Their duties are to:
 - 42.1. Be on constant watch for emergencies;
 - 42.2. Keep spectators out of safety, firing and fall-out areas;
 - 42.3. Control entry to spectator areas to prevent overcrowding;
43. The number of stewards required will relate to the duties that will need to be carried out. A commonly used ratio is that for audiences mainly under 16 years of age, two stewards are required for every 100 members of the audience.
44. A high level of parental supervision can be expected to be exercised over young children.
45. Spectators should not be authorised to bring or use their own fireworks. A notice should be published and posted at all entrances to the site.

46. It is recommended that the display starts on time. Spectators may be restless if there is a delay. If there is an unavoidable delay, spectators should be informed.

If Something Goes Wrong

47. A plan should be agreed in advanced in the case of the following occurring:
- 47.1. **Bad weather** - the display site layout will have been based on the prevailing wind. A decision to alter the layout of the site, eliminate the aerial fireworks, finish the display early or cancel the display will need to be taken.
 - 47.2. **Accident to someone from a firework** - procedure for a first aider to have access to the injured person needs to be agreed. If it is a serious injury, an ambulance must be called and the display suspended.
 - 47.3. **Bonfire out of control or fire started by firework debris** - if the fire cannot be dealt with straight away, call the Fire Brigade and suspend the firing of the display until the fire is extinguished. Ensure that emergency access is free from obstruction at all times.
 - 47.4. **Disorderly behaviour from spectators** - if trouble begins to develop, call the police.
 - 47.5. **Spectators in unauthorised areas** - if spectators break through the barriers into the safety/firing or fall out areas, the firers must be informed as soon as possible to suspend the firing of the display.
 - 47.6. **Announcements to spectators** - prepare announcements in advance to be given to spectators in the event of an emergency.
 - 47.7. **Communication** - it is advisable to have a two way radio between the firers and key people for emergency action.

Bonfires

48. The bonfire should be kept to a manageable size and the maximum height should not normally exceed 6 metres. It should also be evenly built so that it collapses inwards as it burns.
49. Build the bonfire at least 15 metres away from any building and well clear of trees and overhead electricity or telephone cables. Clear away undergrowth and long grass from the vicinity. Make sure that no combustible fencing or similar material is within 6 metres.
50. It is recommended that one person is responsible for the bonfire and allow only that person and designated helpers into the bonfire area. The bonfire should not be lit by children or left unattended.
51. Do not use paraffin or petrol to light the bonfire. It is recommended that paper and solid fire lighters in a few areas are used.
52. The following items should not be placed on the bonfire:
- 52.1. foam filled furniture;
 - 52.2. rubber;

- 52.3. aerosols;
 - 52.4. tins of paint;
 - 52.5. pressurised gas cylinders;
 - 52.6. tyres;
 - 52.7. bottles;
53. Materials that produce a light ash that may be blown about should not be burnt, e.g. corrugated cardboard.
54. Before lighting the bonfire, check that it is stable and that there are not any children or animals inside.
55. Those people looking after the bonfire need to wear a substantial outer garment of wool or other material of low flammability, strong boots or shoes. They should also be instructed on what to do if a person catches fire or has a burn injury. A fire blanket should be kept in the bonfire area.
56. A person whose clothing catches fire must be immediately wrapped in the blanket and rolled on the ground to extinguish the flames. Burn injuries need immediate treatment, and medical aid must be sought at once. Call an ambulance or take the casualty to hospital immediately
57. Have a water hose reel or at least two buckets of water available for emergency use. A first aid kit should be on hand for dealing with minor injuries.
58. If the bonfire gets out of control, call the Fire Brigade (999) immediately.
59. At the end of the evening, the responsible adult should make sure that the bonfire is safe by raking over the embers and damping them down.

Day of Display

Setting up the Fireworks

60. There should be detailed instruction with the fireworks. This could be a leaflet or the label. It is recommended the firers read the instructions and examine the fireworks a few days before the display. If any information appears to be incomplete, missing or further advice is needed, contact the supplier. If appointing more than one firer, there should be clear instructions on who is doing what.
61. Some materials may not be supplied with the fireworks and will need to be obtained in advance; e.g. timber.
62. The fireworks should only be set up in the firing area. Recommendations on how to locate the various fireworks is contained in Appendix C and D. The following basic safety points must be adhered to when setting up the fireworks:
- 62.1. Do not smoke while handling the firework;
 - 62.2. Do not smoke in the firing area once the fireworks are set up;

- 62.3. Set up the fireworks in the daylight;
- 62.4. Do not leave the firing area unattended once the fireworks have been set up;
- 62.5. The fireworks should not be modified or tampered with;
- 62.6. If the firework is not ready assembled, follow the manufacturers instructions carefully;
- 62.7. Fix roman candles securely in an upright position or bury them in the ground as directed in the manufacturers instructions;
- 62.8. Place all aerial fireworks towards the back of the firing area, so that any debris will land in the fall out area. Pay particular attention to avoiding injury to spectators from rocket debris;
- 62.9. Never use bottles as launch tubes for any fireworks;
- 62.10. Protect the firework from damp prior to firing;

Firing the Display

- 63. Only allow firers into the firing area. Most displays have two firers but this number must be as low as possible. It is recommended to have either a two-way radio or a messenger to link the firers and the person in overall charge of the display. Firers are recommended to wear the following clothing/equipment:
 - 63.1. Strong/stout footwear;
 - 63.2. Outer clothing of wool or other fire resistant material;
 - 63.3. Personal protective equipment; e.g. Gloves, goggles, hat;
 - 63.4. Tuck sleeves under gloves to protect wrists;
 - 63.5. Hearing protection;
 - 63.6. Electric torch;
 - 63.7. Whistle - to attract attention in the event of difficulty;
- 64. It is recommended that at least one firer is experienced in lighting large fireworks.
- 65. It is advisable that all firers are familiar with basic safety principles. A training video, 'Celebrate Safely', is available from British Pyrotechnics Association. The address is included in Appendix F. A list of useful publications is also contained in Appendix F.

Setting off the Fireworks

- 66. The manufactures instructions must be followed when lighting the fireworks.
- 67. This is usually done by:
 - 67.1. Lighting a slow burning wick or for larger fireworks a slow burning lighter known as a portfire;
 - 67.2. Do not use matches except to light the wick or portfire;
 - 67.3. Always hold the wick or portfire at arms length to light;
 - 67.4. Never lean over a firework;
 - 67.5. It is recommended that fireworks that are fired electrically should be set off by a competent display operator;

- 67.6. Do not attempt to convert/alter a firework designed for flame ignition to an electric ignition or vice-versa;
- 67.7. Ensure that any protective sleeves or coverings are removed from shell fuses and the fuse is straight;

Fireworks that Misfire

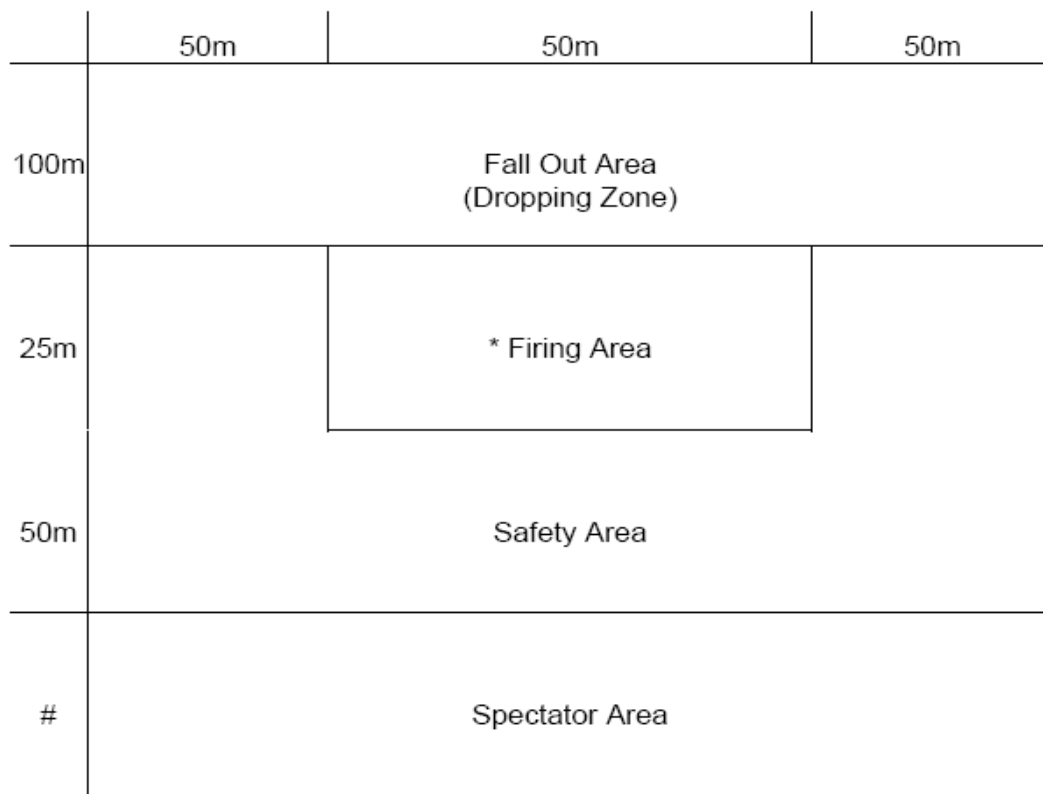
- 68. Any firework that is partly spent or a misfired should be left for at least 30 minutes. After that time, place in a bucket of water.
- 69. Never look down a mortar tube. After 30 minutes loosen earth around the tube so it can easily be tipped over. Do not put any part of your body over the mouth of a mortar tube at any stage. Tip the shell out into a bucket of water. The mortar tube should be tipped away from the body. Do not pull shell out by its fuse.

Clearing Up After the Display

- 70. The following points should be included in the clearing up procedure:
 - 70.1. Keep Firing, Safety and Fall Out Areas clear of spectators;
 - 70.2. Extinguish the bonfire properly and allow it to cool down before leaving the site;
 - 70.3. Return to the site at first light to make sure that it is clear of partly spent fireworks and hazardous remains;
 - 70.4. Never put fireworks on the bonfire or dispose of them by burying them.
- 71. Listed below is the recommended procedure for disposing of fireworks:
 - 71.1. Put fully spent fireworks in refuse receptacles;
 - 71.2. Soak misfired or partly spent fireworks in a container of water in an area where they cannot be tampered with and contact the supplier/manufacturer for advice on disposal.
 - 71.3. If you are unsure if the firework is fully spent, follow the disposal procedure for misfired or partly spent fireworks.

Appendix A

Site Layout for Displays Including Aerial Fireworks



As required to prevent overcrowding

The above figures are recommended minimum distances in metres.

Bonfire Area

This can be located anywhere, provided it is:

- At least 15m from other areas, buildings, roads, railways and public rights of way;
- A safe distance from flammable or other dangerous materials (e.g.; petrol, fuel oil, liquefied petroleum gas) and overhead electric power lines;
- Downwind of spectators.

** Firing area layout – see Appendix C*

Appendix B

Site Layout for Displays Without Aerial Fireworks

	50m	50m	50m
100m			
25m		* Firing Area	
50m			
#	Spectator Area		

As required to prevent overcrowding

The above figures are recommended minimum distances in metres

Bonfire Area

This can be located anywhere, provided it is:

- At least 15m from other areas, buildings, roads, railways and public rights of way;
- A safe distance from flammable or other dangerous materials (e.g. Petrol, fuel oil, liquefied petroleum gas) and overhead electric power lines;
- Downward of spectators.

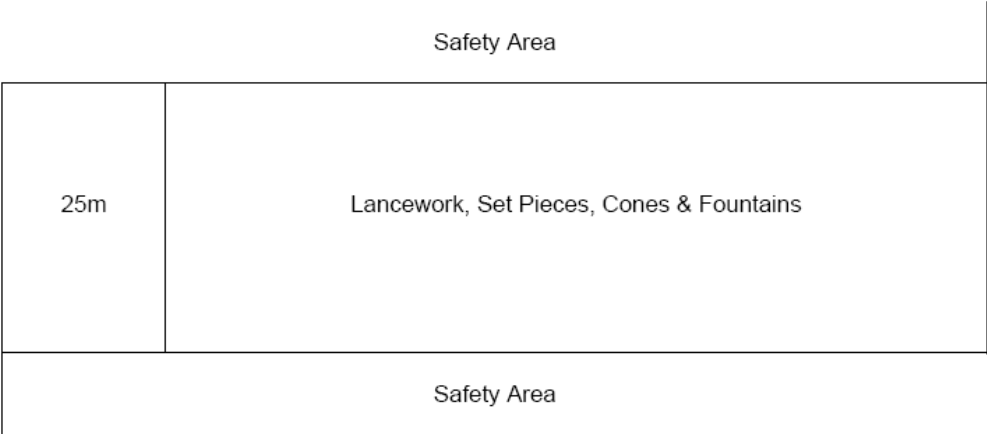
** Firing area layout – see Appendix D*

Firing Area Layout for Displays
Including Aerial Fireworks

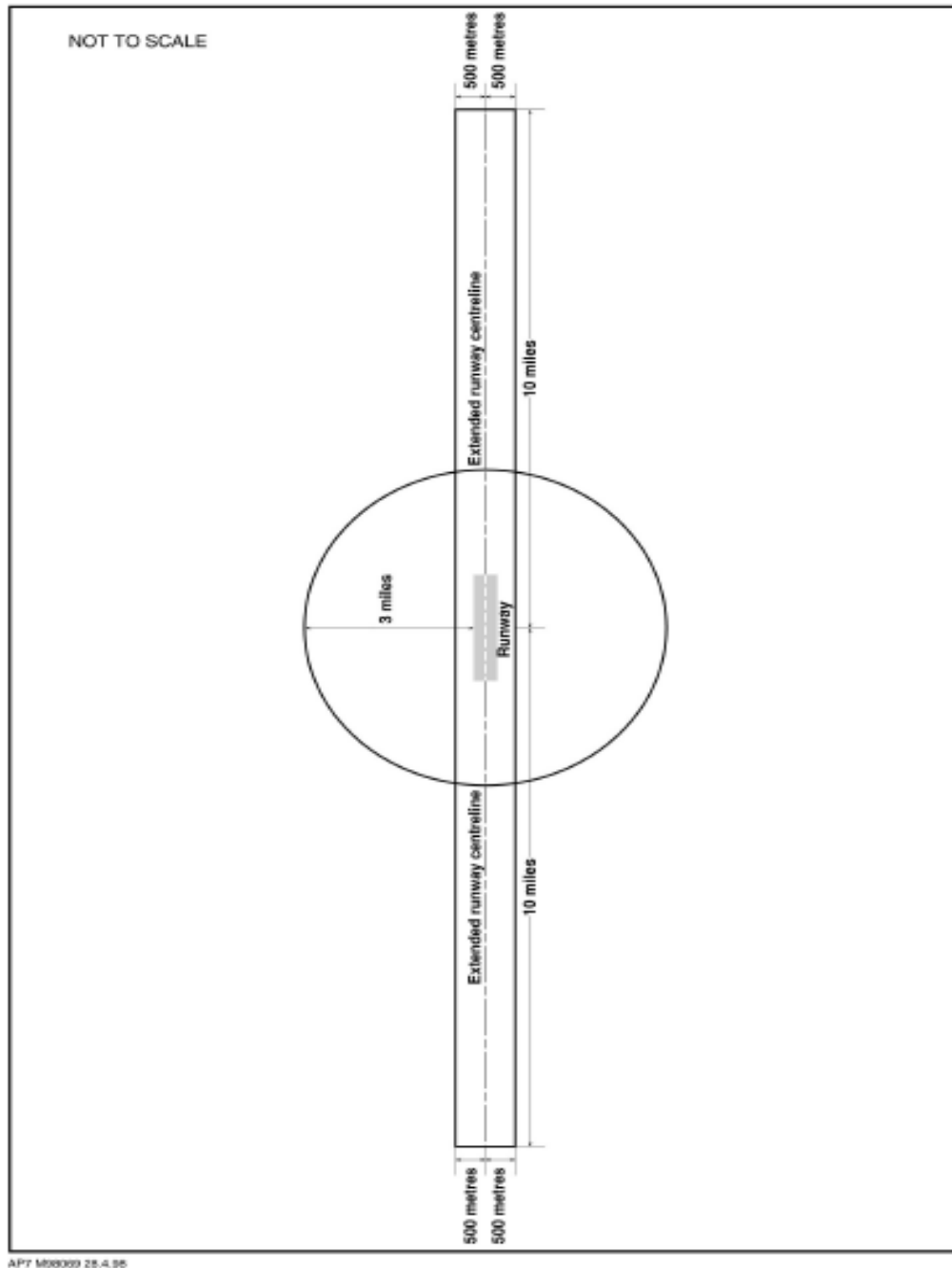
Fall Out Area (Dropping Zone)	
5m	Rockets, Mines & Shells
5m	Roman Candles
15m	Lancework, Set Pieces, Cones & Fountains

Safety Area

Firing Area Layout for Displays
Without Aerial Fireworks



Notification Zones for Light and Firework Displays (Diagram)



Appendix F

Sources of Information On Firework Manufacturers, Suppliers & Display

Operators

- The British Pyrotechnists Association (BPA)
8 Aragon Place
Kimbolton
Huntington
Cambs
PE28 0JD
<http://www.pyro.org.uk/>
- The Confederation of British Industry, Explosives Industry Group (CBI/EIG)
Centre Point
103 New Oxford Street
London
WC1A 1DU
www.eig.org.uk
- Institute of Explosives Engineers
Wellington Hall 289, Cranfield
University
Defence Academy of the UK,
Shrivenham
SWINDON,
Wiltshire
SN6 8LA
<http://www.iexpe.org/>
- The Event Services Associations (TESA)
Association House
18c Moor Street
Chepstow
NP16 5DB
www.tesa.org.uk

Useful Publications

- On fireworks night do things right (guide to organising a public display)
Available from the Department of Trade and Industry website
www.dti.gov.uk/publications
Tel: 0870 1502 500
- Giving your own firework display (how to run and fire it safely)
Available from the Health and Safety Executive
HSE Books Tel: 01787 881165
ISBN: 0-7176-0836-0
- Working together on firework displays (a guide to safety for firework display organisers and operators)
Available from Health and Safety Executive
HSE Books Tel: 01787 881165
ISBN: 0-7176-2478-1