



MAGIC & MIRACLE FIREWORKS

Method Statement – Professional Displays

Magic & Miracle Fireworks takes all reasonable steps in complying with the Health & Safety at Work Act 1974 and all other relevant legislation under the Act to ensure the health, safety and welfare of its employees, spectators, property and the general public.

Magic & Miracle Fireworks has set procedures that are followed when planning, setting up and firing displays, which ensures that the risk of injury and damage is kept at a minimum. The procedure is as follows:

Display Site

Prior to the event, a member of the display team will visit the proposed site and complete a full risk assessment and site survey. The risk assessment is designed to cover the following:

- To ensure the site is suitable for firing Category 4 fireworks
- To ensure the site is suitable for the size and type of display
- To ensure that a safe distance between the “firing area” and the spectator area can be maintained.
 - *The minimum distance required for Ariel fireworks and outdoor pyrotechnic devices is thirty metres. Indoor and Stage pyrotechnics may be used in close proximity to the spectators, providing the minimum distance as specified by the manufacturer is multiplied by a factor of 1.5 to comply with Magic & Miracle Fireworks safety rules.*
- To ensure a ‘drop zone’ can be established to the back and sides of the firing site, this zone must be free from vehicles, buildings and the general public.
- To ensure that the ‘firing site’ is clear of overhead obstructions e.g. power cables, trees etc., as well as for other potential hazards such as fuel storage tanks.
- To ascertain the proximity of hospitals or nursing homes.
- To ascertain the proximity of neighbouring buildings (residential and/or commercial)
- To ascertain the proximity of airfields
- To ascertain the proximity of the coastal areas
- To ascertain the proximity of main roads
- To ascertain the proximity of any livestock
- To ensure the adequate provision of fire fighting equipment.
- To lease and arrange with the Client/Organiser with regard to the provision of crowd barriers and stewarding for the display.
- To ensure there is adequate communication to the Emergency Services, ie. Nearest communication point.

Transport

All goods will be transported to site by road vehicle. In the majority of cases the fireworks and set up equipment will be carried on the same vehicle. All vehicles will carry the relevant transport emergency markings, Emergency Instructions in Writing, suitable fire fighting equipment and first aid kits. Only ADR trained drivers will be permitted to carry any fireworks on behalf of Magic & Miracle Fireworks where the load is in excess of 50kg NEQ. All drivers will adhere to ADR and UK legislation for the transportation of explosives by road. No smoking is permitted during the transportation of any quantity of fireworks.





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Packaging

The fireworks will be packed in suitable fully sealed containers of either cardboard, timber, plastic or metal construction.

The contents will not exceed the recommended NEQ for the relevant container.

Site Set Up

No work will be carried out until an exclusion zone has been established around the set up and safety area. In the case of small single operator shows at least one steward will be in attendance throughout the display set up.

A Wind Rocket or Flare may be fired to assess the wind speed and its direction. All racks will be angled to compensate for this. The show leader holds the overall responsibility of judging the safety of the display and if necessary, cancelling due to inclement weather.

Shells and Mines will be fired from either cardboard or fiberglass mortar tubes. The tubes will be secured in timber/metal racks that are staked to the ground and secured with high tension loading straps and/or sandbags. Any shells with a diameter in excess of 150mm will be secured separately with a single pin (located on the far side of the mortar tube) and sandbags.

Rockets will be fired from either metal or polyethylene tubes or from timber racks with eyelets.

Roman Candles will be fired from either cardboard or polyethylene tubes. These will be secured in position by either pin or tape or fired from a timber rack using the same securing method as for shell racks Roman Candle Barrages (Cakes) will be placed on the ground and, if necessary, will be re-inforced with cloth tape; secured with a metal pin or timber post.

Fountains and Gerbes will either be secured to a timber or metal post with tape or wire, or fired from a purpose built gerb holder. Large fountains will be buried to two thirds depth or sandbagged to the same depth.

Set Pieces and Wheels will be affixed to either a timber post or scaffold structure by the fixing supplied with the firework or by other recommended means.

When a display is fired by low voltage electric fuse wires, all cables will be carefully positioned to minimize trip hazard. The only alteration made to fireworks will be in the form of fusing alterations for timing purposes or for the insertion of an electric fuse wire.

During the ignition of a display, a pyro technician will be on the firing site to observe the display for safety reasons and will be in direct communication with the person who is detonating the display.

Once the display is set up it will never be left unattended.

Smoking in the 'firing area' is strictly prohibited.

Only authorised personnel will be allowed access to the 'firing area'.

Firing

The display will only be fired when:

- The second Event Day risk assessment has been carried out.
- The site is free from members of the public
- The agreed numbers of stewards are in the required positions.

The display will be set-up and fired to ensure that debris falls into the designated fall out zone. Only authorised and trained pyro technicians will fire the display, by using portfires and/or electric fuses.





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Safety

Safety is the main priority in all circumstances.

The show leader on site will at all times be responsible for the safety of the firing team and any authorised persons on the site. If there is, at any point, a dangerous incident the show leader will take action to restore a safe situation. In the event that the show leader is incapacitated the employee appointed second in command will take the responsibilities of the team leader. Crowd spillage into any designated safety area during the display will result in the display being stopped.

All pyro technicians will wear flame retardant clothing, ear protection and impact resistant headgear. Respirators are available if required.

If the pyro technicians in charge of the display are not completely satisfied with any safety issue in respect of the event e.g. crowd control, safety zones or inclement weather conditions, he or she has the complete backing of the company to take the following actions:

- Withhold any fireworks, which due to the safety concerns may put persons or property at risk.
- Stop, or refuse to fire the display, until such time as the safety issues have been resolved. In the event that a safety issue cannot be reasonably resolved to the senior pyro technician satisfaction, the display will be cancelled and cleared away.

The crowd should be adequately controlled at an event. This is entirely the responsibility of the client/organiser. We recommend that the crowd line, stipulated by Magic & Miracle Fireworks, should be cordoned off by use of tape or some form of barrier.

The Client/Organiser is required to advise the following organisations of the display:

- The local Fire Brigade
- The local Police
- Coast Guard (where the display is visible to shipping)
- Local aerodromes (where the site is within 3 miles)
- Air Traffic Control (if the site is within 7 miles of an Airport)
- Local Harbour Authority (if applicable)
- The local Council
- Neighbouring landowners, especially livestock owners.
- Nearby Hospitals, Nursing homes etc (if noise may cause concern)

Training

All staff are trained in the responsibilities, safety, set up, firing and emergency procedures involved in the safe completion of a firework display in house (For items of a specialist nature, and where statutory obliged, external training is provided.)

All ADR, fire fighting and emergency aid is provided by approved external trainers.

Pollution

Noise pollution is also caused by fireworks, this can be reduced by non-inclusion of certain products from the display i.e. maroons, salutes and air bombs. Care should be taken in situations where there is livestock in the vicinity i.e. cattle stampeding. Where practicable, attempts will be made to have the livestock moved to a different area.





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Site Clearance

Once the display is over, the safety barriers and stewards must remain in place until the team leader gives the all clear.

Checks are made for any unfired or live material, and they will be disposed of in accordance with the manufacturer's guidelines. It should be noted that much of the material waste is biodegradable; however reasonable clearance of debris caused by the firing of the display will be disposed of where feasible.

Risk Assessment

The following items are possible risks to the public and pyrotechnics from the firing of a firework display:

- Loss of life Due to poor manufacturing
- Lung damage From smoke inhalation
- Skin Damage By fire, heat and/or explosion
- Hearing Damage By sound
- Sight Damage By flash or sparks

These risks are minimised due to the high level of training and expertise of our company and operators.

Additional risks to crew on site include other vehicles, on site scaffolding injuries, tripping, falling etc. As each site has its own aspect and potential risks, these will be outlined in the individual risk assessment for that site.

A further risk assessment will be carried out on arrival at any site on the event day and again 30 minutes prior to firing the display. It is the responsibility of the show leader to make any assessments deemed necessary and make any decisions and actions following that assessment with regard to changes or weather to commence with the event.

