

## Safe System of Work

<b>Activity:</b>	Using Pyrotechnics
<b>Hazards:</b>	Accidental Misfiring Fire
<b>People At Risk:</b>	Performers, Backstage Crew, Employees, Members of the public
<b>Possible Outcome:</b>	Serious Injury or Death.

### Assessment

012 – Pyrotechnics Risk Assessment

### Equipment

- A lockable metal box - stored in the theatre's lighting box and this should be locked and not left unattended at any time.
- The key to the metal box must be kept with a second designated person and not the designated person responsible for the storage of the pyrotechnics to avoid miss use.

### Prior to Start

- A Full Risk Assessment must be carried out by the designated person responsible for the storage and another designated person for the handling of the Pyrotechnics and given to the theatre for review 30 Days BEFORE the event.
- A list of the Pyrotechnics being used, amount and when they are to be used including the Product Safety Sheet for each must be provided to the theatre 30 Days BEFORE the event.

### Method

- Can only store less than 5kg NEQ (Net explosive quantities) of 1.4S or 1.4G at any time.
  - No pyrotechnics may be bought into the building that has a HT (Hazard type) rating of more than HT4.
  - All pyrotechnics must have a maximum height of 3.6m or 12' and not exceed this. Anything over this must not be used.
  - Any pyrotechnics used must only have a firing angle of vertical.
  - All pyrotechnics used in the theatre may only be used on the stage in the auditorium.
  - All explosives must be kept in the transport packaging they are supplied in.
  - Must be stored in a locked and secure metal box.
  - All firing systems must always be of a recognised design and manufacture, incorporating both electrical and mechanical fail-safes (i.e. key switch and panel switch enable systems).
  - Pyrotechnics must be checked and cleaned before every performance.
  - No naked flames or sparking equipment must be near the equipment at any time.
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- No person under 18 years of age may handle the Pyrotechnics.
  - The designated person should carry the ignition key at all times and should only insert the key immediately prior to ignition.
  - At no time should the key be left in the firing device.
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- Any spillage must be cleared by the designated handler only.
  - Must wear PPE and sweep any loose powder and submerge in a large bucket of water outside in

a secure location for a minimum of 48 hours.

- Cables running to the pods on stage must be taped down and made secure.
  - All performers and crew must be made aware of where these are to prevent accidents.
  - Pyrotechnics must be clearly marked on the stage and have a “Zone” to prevent accident or danger.
  - Pyrotechnics must be placed at least 2.5 meters from the audience, side of stage, any set and Tabs, referred to as the “Zone”.
- The loading of the Pyrotechnics **MUST** only be done by the designated person handling the Pyrotechnics.
  - Once the pods have been loaded the operator **MUST** stay within the vicinity to ensure the safety of everyone is maintained.
  - No person under 18 years of age may load the Pyrotechnics.
  - When loading the pyrotechnic devices it is important that the operator has isolated the control cable from the firing box.
  - Always use the manufacturer’s holders.
  - Ensure that all electrical circuits are isolated before connecting pyrotechnic devices to the firing system.
- The firing of the pyrotechnics must be observed at all times by the designated handler from a safe distance and have a clear and uninterrupted view of the position in which the device is located.
  - If any member of the cast, crew or any person is within the “Zone” at the time of fire, under **NO CIRCUMSTANCE** must the pyro be set off.
  - Scenic materials must be kept clear at the time of firing.
  - If **ANY** set, prop or cloth/curtain is within “Zone” at the time of firing the pyro must **NOT** be set off.
  - The designated person should carry the ignition key at all times and should only insert the key immediately prior to ignition.
  - At no time should the key be left in the firing device.
  - Inhalation of smoke produced from the effect should be avoided. Any person found suffering from smoke inhalation must be removed to fresh air and medical assistance sought.
- Pyrotechnics that fail to fire should immediately be isolated from their firing mechanism and returned to its original packaging to await disposal.
  - Later made safe by soaking in water. The wet powders can then be disposed of by flushing down a toilet.
- After the Pyro has been used it must be observed to make sure that it is safe and not creating a danger.

### End of Shift

- After the auditorium has been cleared all pyro's must be cleared and dealt with in a safe manner.
- All devices must be disposed off away from the premises and not onsite.

### Control Measures

**People**

Theatre Technician

**Environment**

Diagram of Safety Zones

**Equipment**

Appropriate Fire Extinguisher

### Responsible Persons

Theatre Technician – Trained in the use of Pyrotechnics  
Designated Person – supplied by Hirer

### Review

November 2017

### References

**Ref No:**

**Date:**

16/11/16

**Author:**

**Sally Heath**

**Position:**

Theatre Manager

### How can I get help?

Contact your Ellis Whittam Consultant, or our helpline on 0845 2268393. A qualified practitioner is available to advise 24/7.