**CONSTRUCTION RISK ASSESSMENT FORM**

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| **Guidance** |
| Construction Managers have a duty to apply the general principles of prevention to the build and breakdown of a structure/set. The risks should be controlled by hierarchy of controls:* Elimination
* Reduction
* Control to an acceptable level
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| **Completing the Form** |
| Identify the Hazard(s):Using the list of hazards supplied tick all those that apply to your construction activities; remember to include any potential risks to construction workers, setting crews, production staff, performers, audiences or members of the general public. |
| Assess and Control the Risk:Complete the full risk assessment by adding in the control methods needed for each hazard identified. If you have additional hazards which are not identified in the list of hazards supplied, add these together with the control measures needed onto the last page of this document |
| Production Company |   |
| Programme Title |   |
| Studio Date(s) |   | Location Date (s) |   |
| Scenery Manufacturer |   |
| Location Address and Contact |   |
| Construction Manager: |   | Signature |   | Contact No: |   |
| **Description of the work being carried out:** |

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| Hazard Checklist |
| **Area of Hazard** |  | **Control Methods**  |
| **Working at Height** | **Y ☐ N ☐****Y ☐ N ☐****Y ☐ N ☐****Y ☐ N ☐****Y ☐ N ☐****Y ☐ N ☐****Y ☐ N ☐****Y ☐ N ☐****Y ☐ N ☐**  | * Need to work at height will be eliminated where possible.
* Where working at height cannot be avoided, MEWP’s – scissor lifts and boom lifts will be used wherever possible
* All employees operating such equipment will be competent in their use i.e. qualified to IPAF Class 3a and 3b
* The safe working load must not be exceeded.
* All MEWPs and harnesses will be regularly inspected and maintained in accordance with the Lifting Equipment and Lifting Operations Regulations (LOLER) 1998
* Operators will carry out daily pre-use inspection of MEWP’s
* MEWP will be fitted with appropriate guard rails and toe boards to prevent objects falling from height. Tools will be tethered by lanyard wherever possible
* Harnesses will be used correctly at all times and operators will always clip on before elevating
* Exclusion zones will be established and adhered to around and underneath all working at height operations
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| * **Use of Ladders**
 | **Y ☐ N ☐****Y ☐ N ☐****Y ☐ N ☐****Y ☐ N ☐****Y ☐ N ☐****Y ☐ N ☐****Y ☐ N ☐**  | * Ladders must only be used for a short duration or where other means of access is not practicable.
* Alternative fixed platforms or scaffolds should be used where possible and for longer jobs.
* The ladder must be suitable for the job, and have a sufficient safe working load.
* The ladder should either be correctly footed or securely tied off and the user must maintain 3 points of contact with the ladder at all times.
* Do not use the top three rungs and ensure it is positioned on firm, level ground.
* Access ladders should extend well above the alight position.
* Ladders should be well maintained and regularly inspected.
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| * **Working at height on the structure**
 | **Y ☐ N ☐****Y ☐ N ☐****Y ☐ N ☐****Y ☐ N ☐****Y ☐ N ☐** | * Where there are exposed edges on the build these will be temporarily railed during the construction phase and taken off only for filming purposes.
* Suitable footwear with a good grip will be worn at all times throughout the construction phase.
* Harnesses will be worn when there is a suitable anchor to attach to
* All tools will be attached to the worker when working t height.
* A no go exclusion zone will be communicated to all persons working below any works at height.
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| **Area of Hazard** |  | **Control Methods**  |
| **Suspended Scenery** | **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐**  | * Suitable hanging points will be provided which are clearly identified.
* Hanging irons and suspension points for timber structures will be bolted through and for metal structures be either bolted or welded.
* Where scenery is to be suspended/flown it will be constructed using the lightest material practically possible (i.e. low density or hollow sections). The weight of the scenery pieces will be clearly marked, where this exceeds the safe working load (SWL) of a single hoist and is required to be hoisted/flown by several hoists, the weight will be evenly distributed between the hoists, thus reducing the risk of any individual hoist being overloaded. The following principles will be applied:
	+ Where possible build the suspended scenery piece in sections (each to be within the SWL of a single hoist) as this will allow the weight to be spread evenly between the hoists.
	+ If this is not possible employ a spreader bar(s). Scaffold tubes can be used but must never exceed 2.5 metres in length.
	+ Use a wire rope attached to two hanging points/irons through a hoist to help ensure each hoist takes an even load. This method allows any uneven distribution to be noticed more easily. Be aware that the angle between the wires must never exceed 90º and ideally must be less than 45°.
	+ All suspended scenery must have dead bonds attached and tied-off in the grid to "mars bars" or "cleats beam" with an adequate SWL. The dead bond must be a hemp rope with a SWL of 1000 kg. Adequate provision must be made by the Designer for the suitable attachment of dead bonds, i.e. ring bolts which must be capable of supporting the full weight of the item in the event of failure of the primary support.
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| **Use of Scaffolding**  | **Y ☐ N ☐**  **Y ☐ N ☐****Y ☐ N ☐**  **Y ☐ N ☐****Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐****Y ☐ N ☐**  **Y ☐ N ☐****Y ☐ N ☐** **Y ☐ N ☐**  | * Are scaffolds erected, altered and dismantled only by competent persons?
* Is there safe access to the scaffold platform?
* Are all uprights provided with base plates (and where necessary timber sole plates) or prevented in some other way from slipping or sinking?
* Are all the uprights, ledgers, braces and struts in position?
* Is the scaffold adequately tied into the structure to prevent collapse?
* Are there adequate guard rails and toe boards at every edge from where a person could fall 2 metres or more?

i) Are the toe boards at least 150 millimetres in height?ii) Is the upper guard rail at least 950 millimetres above the working platform?iii) Are intermediate guard rails or brick guards provided to ensure that there is no unprotected gap of more than 470 millimetres?* Are the working platforms fully boarded and are the boards arranged to avoid tipping or tripping?
* Are there effective barriers or warning notices to stop people using an incomplete scaffold?
* Has the scaffold been designed and constructed to cope with the materials stored on it and are these evenly distributed?
* Was a handover certificate obtained from the contractor who erected the scaffold?
* Is the scaffold inspected at least once a week by a competent person and are records kept of all inspections?
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| **Hoisting and Other Lifting Operations** * Overhead obstacles/obstructions
* Soft/unstable ground conditions
* Hazardous/chemical materials
* Confined working area
* Restricted access (width, height)
* Other vehicles
* Load hazards
 | **Y ☐ N ☐****Y ☐ N ☐****Y ☐ N ☐**  | * Lifting operations should be properly planned and carried out in a safe manner in accordance with the Lifting Operations and Lifting Equipment Regulations 1998 (LOLER).
* If the lift deviates from the plan, make safe and stop the job.
* The lift plan should consider:
	+ Implications of environmental
	+ Use of lifting equipment in restricted locations (headroom, access, egress and stabilizing arrangements);
	+ Visibility and communications during lifting operations;
	+ Prevention of load striking any person or object;
	+ Pre-checking of lifting equipment and identification of faults and defects;
	+ Attaching, securing and detaching loads;
	+ Overloading and de-rating of lifting equipment;
	+ Overturning, tilting, slipping and dragging loads;
	+ Not working under suspended loads;
	+ Not leaving loads suspended;
	+ Lifting of persons;

Continuing integrity of lifting equipment and accessories.  |

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| **Area of Hazard** |  | **Control Methods**  |
| **Plant & Machinery** | **Y ☐ N ☐****Y ☐ N ☐****Y ☐ N ☐****Y ☐ N ☐** | * Are all dangerous parts e.g. exposed gears, chain drives, etc. guarded?
* Are guards secure and in good condition?
* Is the machinery maintained in good repair and are all safety devices operating correctly?
* Are operators trained and competent?
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| **Manual Handling Risks associated with handling scenery/set pieces:**Heavy (Weight of each scenery piece to be marked)Large (length and height)Bulky/unwieldyDifficult to graspUnstable/unpredictableCentre of gravity far from geometric centreSharp and Rough Edges | **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐**  | * Use of lighter materials in construction; Fitting of Wheels; Smaller Sections. Heavy parts to be marked, e.g. Ends, Sides, Top.
* Break down into smaller sections. Take account of Transport & Access Routes.
* Use a Flat Bed Transportation. Use of mechanical aids, Fork truck ,Hoists etc.
* Use of appropriately placed hand holds or handles (larger holes if gloves are worn)
* Use of Temporary Bracing and Mechanical aids, Give warning of instability
* Mark and indicate the centre of gravity on the scenery pieces
* Good finish - Padding
* Hanging Points to be clearly indicated
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| **Revolves (Moving Parts/Entrapment)** | **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐**  | * Safe Design - Revolves must be designed and manufactured so as to ensure the clearance is smaller than the width of fingers. Thus there is no risk of the hand or fingers entering the gap and becoming trapped. The size of the gaps should be considered if children interact with the revolve
* Skirting - The use of semi flexible materials to cover the clearance between the revolve and the rostra. Thought must be given to the potential trip hazard this may cause if the "skirt" is not very snug to the rostra
* Edge Warning - For lower risk revolves where the action can be rehearsed or choreographed, some form of border to the revolve, clearly indicating its position may help reduce the risks
* Wide Clearance - In some instances wide clearance that is significantly wider than the width of hand or arm will minimise the trapping or entangling risks. However, this may present a tripping hazard that must be considered, as must the risk of a leg entering the gap. You must also ensure that this gap will not expose any part of the body that enters the clearance to any moving parts of the machinery below
* Emergency Stop Controls - Where any residual risk of entrapment exists, emergency stop controls must be fitted and be easily accessible
* Revolve Operator - must be competent and must have clean line of sight to the revolve so that it can be stopped safely in an emergency
* People on revolve must receive a clear briefing from revolve operator on the intended action. A walkthrough rehearsal which points out safe stepping on and off points must be carried out. Suitable clothing and footwear to be worn by those on revolve.
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| **Rostra & Risers** | **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐**  | * Rostra will be designed by competent persons
* Rostra will be constructed by competent persons.
* Rostra must be strong enough to support the intended load
* Avoid unnecessary changes in level on rostra
* Provide colour contrast between rostra and the surrounding floor so that the edges are easily visible
* Provide handrails on steps and rostra edges
* Position equipment, props and set dressing to form edge barriers where possible
* Use white edge tape or hazard tape on steps and rostra edges
* Use battens to stop chairs or other equipment sliding across the edge
* Design the set as much as possible so that the performers do not need to be near the edge
* Ensure stairs are firmly fixed so that they cannot move when in use
* When people are exiting and entering the rostra, suitable lighting will be provided
* Mechanical handling aids to be available to move any heavy rostra
* Availability of sufficient personnel to move rostra
* Designing in suitably positioned lifting and handling points which avoid potential for nips, pinch points, and crushing
* Marking of weights of components and centres of gravity.
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| **Area of Hazard** |  | **Control Methods**  |
| **Non-Standard Audience Capacity or Roster** | **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐**  | * Competent Designers and seating contractors employed – adequate planning time built into schedule to ensure design plans are submitted to local authority for approval (if required)
* Maximum loading of seating rostrum to be precisely calculated. Designer to incorporate into calculations if audience will remain seated or will be asked to move (eg Mexican wave). Maximum weight loadings to be communicated to production and Studio Management.
* Design requirements for audience seating, as set out in BS6399 complied with
* Adequate access/egress routes and exits provided. Seating and gangways arranged to allow free and ready access direct to exits.
* Ease of evacuation – seating secured so it cannot be easily overturned
* Comfort – there must be adequate seating space for each individual including adequate leg room and individual seats or where benches are used 0.4m2 allowed for each person
* Handrails, barriers, steps with edges adequately marked to be installed as necessary
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| **Use of LCD Screens**  | **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐**  | * All display wall components are powered off during assembly.
* Only competent engineers to install electrical equipment
* New electrical systems to be installed to a suitable standard - BS 7909
* Existing installations to be properly maintained
* Electrical equipment to be isolated during wiring work.
* Residual Circuit Devices/Breakers to be used at all times where possible.
* All connectors and connections to comply with the required standards
* Fixed wiring to be assessed before installation to avoid overloading/fire risk.
* Extension leads to have suitable rating, to be fully unwound during use and not to be ‘daisychained’
* The projection systems should be designed to operate with single-phase power systems having a grounded neutral conductor.
* To reduce the risk of electric shock, the projection system must not be plugged into any other type of power system.
* Safety gloves to be worn when installing/handling units to prevent cuts to hands
* Persons working at height will be competent to do so and will have received work at height training.
* A- frame ladders will only be used for short periods of time and the ladder will be used in a trestle format where possible.
* Provision of Podium steps will be used where practicable.
* Work area is kept tidy, no bulky items left lying under packaging materials.
* Design features including adequate counterbalancing are featured as an integral part of the set. The video wall will be securely attached to rostra where possible.
* All screens within a video wall are bonded to each other and to the main structure to ensure stability.
* Manual handling to be avoided where possible and mechanical aids used where necessary.
* Only manageable loads to be carried / lifted.
* Sufficient site operatives available for the planned lifting tasks.
* Wheeled trolleys / sack barrows to be used to transport equipment to work area.
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| **Area of Hazard** |  | **Control Methods**  |
| The Set  |  |  |
| **Electrical Equipment/Fittings** | **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐**  | * Only use a qualified and competent person who is designated as the responsible person for the installation. Any deputies used for the installation must be deemed competent by the responsible person.
* All electrical installations used are installed to a safe standard by a competent person under BS7909 (Code of Practice for temporary electrical systems for entertainment and related purposes and / or BS7671 requirements (requirements for electrical installations (The IEE Wiring regulations 17th Edition).
* Equipment will be selected specifically for its intended purpose, ensuring that there is an adequate maintenance schedule in place; that the equipment has been regularly inspected and tested; and that the equipment is suitable for its operational environment (outdoors / wet weather; confined spaces and explosive atmospheres)
* Provide a reduced voltage system where possible
* Provide adequate earthing and protection at all times of the system– including earth bonding or the use of an isolating transformer
* Sufficient tests and checks are made of the system prior to energizing by the competent person on location
* Use safety devices such as RCD’s
* Carry out preventative maintenance.
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| **Gas (Mains or compressed)** | **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐**  | * Mains gas works must only be carried out by an installer who is on the Gas Safe Register (ie a trained, competent person)
* All forms of hot work or ignition sources must be prohibited when work on gas systems is being carried out (eg no smoking, grinding etc)
* Any new mains gas installations must be provided with a certificate of installation and an operation and maintenance manual
* Compressed gas cylinders/bottles must be stored in secure areas or cages that are ventilated to the open air
* When in use, transit or storage, cylinders and bottles must be placed and secured as to minimise the risk that they might fall – eg placed on even ground, in cages, use of chains etc
* Connections to compressed air, mains gas, or bottled gas, must be made by competent persons.
* Where gas is burned, there must be adequate ventilation
* Portable gas heaters must be properly maintained and there should be a written safe procedure for their use and storage of associated gas bottles.
* Trolleys to be supplied for transport of the gas cylinders/bottles
* Suitable, sturdy, closed-toe shoes, to be worn by those moving and handling the cylinders.
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| **Traffic & Vehicles** | **Y ☐ N ☐****Y ☐ N ☐****Y ☐ N ☐****Y ☐ N ☐****Y ☐ N ☐****Y ☐ N ☐****Y ☐ N ☐** | * Have separate pedestrian and vehicle access points and routes around the site been provided if necessary?
* If not, are vehicles and pedestrians kept separate whenever possible?
* Have one-way systems or turning points been provided to minimise the need for reversing?
* Where vehicles have to reverse, are they controlled by properly trained banksmen?
* Are vehicles maintained; do the steering, handbrake, footbrake, flashing beacons, etc. work properly?
* Have drivers received proper training and authorisation to operate vehicles or plant?
* Are vehicles properly loaded and loads secured?
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| **Excavations** | **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐** **Y ☐ N ☐**  | * Only trained/competent people will be in charge of an excavation and they will brief production crew on controls needed/procedures to follow etc before going on site.
* Sides and ends of excavation supported by battering to safe angle or by being supported by timer, sheeting or proprietary support systems.
* No one allowed to go into unsupported excavations.
* Edges of excavation protected/fenced off to prevent falling objects/people/vehicles into excavation
* Any moving plant should be kept separate from people where possible
* Checks carried out on the structural safety of nearby structures
* Checks carried out to locate any underground cables
* Good ladder access or other safe ways of getting in and out of excavation provided.
* No fumes allowed in or near excavation.
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| **Additional Risk Assessment (if required)** |
| If you have additional hazards to those listed above, then please list them here together with the control measures that will be in place.  |
| Hazardous Activity | People at Risk | Controls |
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