Risk Assessment & Method Statement

PRODUCTION PARK
WHERE LIVE INDUSTRY LIVES

Take That Tour 2019
Touring Equipment RAMS

tess
THE EVENT SAFETY SHOP

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1. Introduction

Brilliant Stages are providing the Tour with the stage set elements for the TT19 UK tour and will also be providing an automation operative to travel with the tour.

This document has been produced on behalf of Brilliant Stages for the scenic, stage and automation elements for the TT19 UK tour. It aims to give the method statements of installation and to assess the risks and layout the mitigations transportation, installation and rehearsal operation of the Brilliant Stages constructed set for the TT19 tour. It should be read in conjunction with all the technical information provided and as part of the wider TT19 information pack.

The machinery supplied by Brilliant all has operators' manuals along with full machinery risk assessements produced by Blumano and structural calculations provided by Mott Mcdonald, this document is in support of these.

Brilliant Stages are not responsible for the ongoing operation and inspection of the stage equipment during the tour, this duty lies with the Tour, Brilliant recommends that checklists are compiled by the production to ensure that the installation instructions included by Blumano have been carried out correctly.

Brilliant Stages will retain responsibility for maintenance and inspection of the automation and machinery elements that are hired to the tour.

The TT19 stage set consists of several elements:

- The Main Stage
- The sphere
- 2x piano risers
- 3 Rising travellators
- Tech Cave

Automation axes are considered as follows:

Axis List.			
1	68129-04	Piano lift	electric scissors type A
2	68129-05	SL travellator	modular treadmill
3	68129-05	CTR travellator	modular treadmill
4	68129-05	SR travellator	modular treadmill
5	68129-05	DS travellator lift	custom electric scissors
6	68129-05	US travellator lift	custom electric scissors
7	68129-06	Sphere rotate	custom ring gear and pinion
8		spare drive	
9	68129-10	Upper D SL pivot	custom pushchain
10	68129-10	Upper D SR pivot	custom pushchain
11	68129-11	Lower D DS lift/pivot	custom pushchain
12	68129-11	Lower D US lift	custom two post lift

Definitions

Throughout this document, the following meanings shall be adopted:

Brilliant Stages refers to the legal entity of the Brilliant Stages Ltd or to crew members travelling with the tour.

Tour/Production refers to the legal entity of the touring company or to permanent members of the touring team.

Venue refers to arena or stadium, its staff and management team.

RAMS refers to Risk Assessment and Method Statement

2. Overview

The production consists of the Main Stage in an oval shape which is a traditional touring rolling stage and a choir riser around the edge.

Contained within the main stage are 4 scissor lifts. Two of these lifts are linked and have 3 travellators on them located in the centre stage. The other two lifts are standard Brilliant Stages electric scissor lifts which are the piano lifts located SL and SR.

Behind the Mainstage is a halfmoon stage which contains the tech caves below band risers.

The centre piece of the set is a 7m tall revolving steel frame sphere which is covered in LED screens. The Sphere sits on a base structure and rotates. Brilliant Stages have built the sphere and automation elements but have not provided the video screens. The Sphere is floor standing although requires rigging elements to install.

The Production retains the responsibility to ensure that the venues have been surveyed and capable of taking the loads required by the structure.

The Production also retains responsibility to ensure all rigging and crane operations are correctly planned and delivered. Brilliant Stages provides as part of the package the specialised lifting gear required for the construction, certificates for these items can be found in the safety file.

Brilliant Stages are not providing the LED screens or the power supply to their systems. They are ensuring that there is suitable auxiliary power to critical systems in the event of main supply failure.

Hand rails have been supplied by Brilliant for the safe installation of the staging and stairs, in their risk assessment Brilliant have stated that in order to reduce risk these hand rails should be instated. Should the production wish to remove these from the set up then responsibility lies with them to implement alternative safe measures.

2.1. Safety File

TESS have brought together the completed safety file for all the information supplied by Brilliant Stages. This can be accessed upon request to Brilliant Stages.

The following documentation is provided:

01 Method Statement and Risk Assessment

02 Drawings

03 Calculations

04 Fire Certifications

05 COSHH information

06 LOLER Certificates

07 Product data sheets

08 Machinery Risk Assessments

09 Machinery Manuals

10 Insurance

11 Other Certs

3. Adverse Weather

3.1. Wind Management Strategy

The structural engineers have determined the following wind management strategy, wind speeds should be constantly monitored during installation and operation.

Wind Speed [m/sec]	Sphere	Upper D	Lower D	Tech Bunker	Mainstage	Lifting structures
0-5	No action required	No action required	No action required	No action required	No action required	No action required
5-10	Movement shall be monitored	Movement shall be monitored	Movement shall be monitored	Movement shall be monitored	Movement shall be monitored	Movement shall be monitored
10-15	Should be installed with caution. Structure to be secured/ braced during installation. Movement shall be monitored	Should be installed with caution. Structure to be temporarily braced during installation. Movement shall be monitored	Should be installed with caution. Structure to be temporarily braced during installation. Movement shall be monitored	Should be installed with caution.	Should be installed with caution.	Should be installed with caution. Structure to be temporarily braced during installation. Movement shall be monitored
>15	Should not be installed. If installed movement shall be monitored and access should be forbidden.	Should not be installed. If installed movement shall be monitored and access should be forbidden.	Should not be installed. If installed movement shall be monitored and access should be forbidden.	Should not be installed.	Should not be installed.	Should not be installed.

3.2. Lightning

The sphere is a steel structure and if it used in an outdoor scenario constitutes as significant risk to those working in and around it during a thunder storm. It is recommended by the manufacturer that the tour include grounding the sphere and similar structures.

Continuous monitoring of the weather is also recommended and that evacuation of the sphere takes place when a thunderstorm is likely to pass overhead.

4. Safety briefing for operators

Brilliant Stages will provide a trained operative for the automation elements of the show this operator will:

- Always ensure there is a good communication between the installers and operators or riggers.
- Always check that the scheduled lifting and motion operations are in line with the manufacturer's intended use.
- Always check if there are any safety-related reasons why the scheduled lifting and motion operations should not be performed.
- Before initiating any machinery movement, request a move with the spotters and do not operate the unit until a clear OK GO return signal has been received.
- In case of performer motion, always check there is a rescue plan in place and that it has been tested.
- During machinery commissioning make sure that the hazard zone is free from any unauthorised persons.
- During motion operations, keep the hazard zone free from any obstacles and/or equipment

5. Safety briefing for crew

Brilliant Stages have trained the touring crew during the erection of the sphere and stage equipment. There will be local crew working on each leg of the tour they will need to have the following safety briefing.

- No-one is to enter the sphere construction area without permission to do so.
- Construction of the sphere is a high risk activity with extremely heavy elements involved. Avoid getting under the suspended or raised loads and position yourself with good means of escape when working around moving loads.
- Hard hats and safety footwear must be worn during the installation of the Sphere.
- During operation the number of people in the sphere must be kept to an absolute minimum due to the size restricted emergency exit route. The maximum capacity of the sphere will be determined during the rehearsal.
- When entering the sphere for the first time people must be chaperoned by someone who is aware of the existing hazards so they can be informed as to where they are.
- There are a number of trip hazards and low hanging hazards, please take care when walking around in the sphere.
- Do not access the safety area near the rotating doors unless actively part of the performance.
- Do not open the rotating doors unless clipped on.
- A number of the safety systems for the automated movement of the sphere are commissioned during assembly and may not be in place. Therefore extreme caution and good communication is essential when sphere if rotation or other automation movement is going to take place. Pay attention to anyone giving instructions.
- All testing of other axes, travellator lift, travellator motion and D movements will be performed "dead slow" and with considerable care until safety features are fully commissioned and verified, however be aware of your surrounding.
- The scissor lifts present a high risk of crushing or entrapment, during installation it is possible that movement can occur without warning, do not enter the understage areas without alerting others of your intention to do so.
- Do not remove any guards or barriers.
- Identify the locations of the E-stops.

6. Method Statement

The Sphere, travellators and scissor lifts have installation manuals provided by Blumano and can be found in Appendix 09 of this document or by following these links

TT19 Machinery Manual - Part 1

TT19 Machinery Manual - Part 2

6.1. The Sphere, Travellator and Scissor Lifts

6.1.1. Overview

The manuals explain the correct method of transportation, installation and operation of the Sphere.

The Sphere is made up of a number of bespoke steel framed elements. On the exterior of these elements are LED screens that completely cover the surface of the sphere. The sphere also opens up using automated elements known as the Upper and Lower D. These elements are built together

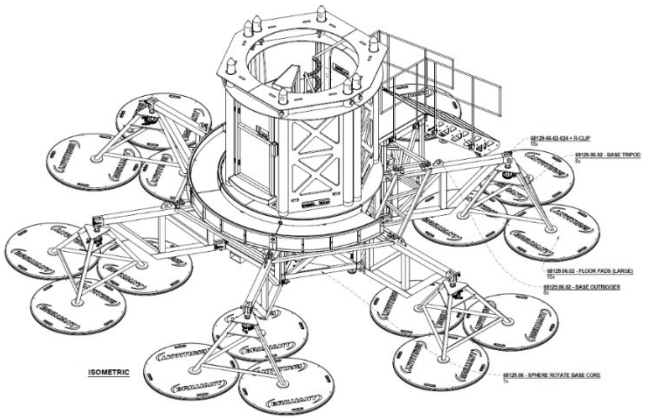


Figure ii: Sphere base and rotating part

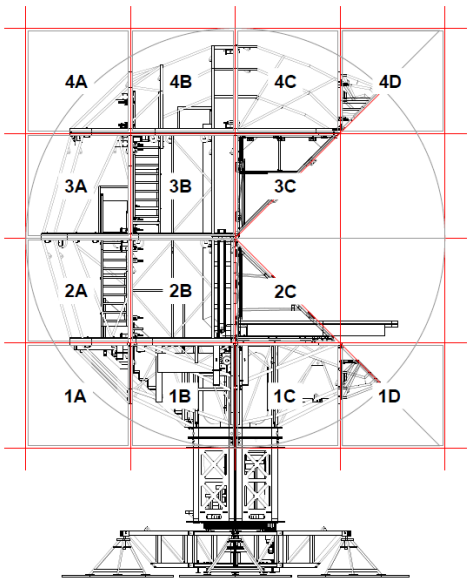


Figure i: Sphere parts

using a modulift lifting system flown above the rig.

The sphere sits on a base and then is broken down into parts as below.

6.1.2. Transportation

The larger Sphere elements are all broken down into parts with detachable wheel systems that can be lifted using a large capacity forklift. These load onto curtain sided trucks directly. Caution must be taken when loading and unloading these elements due to their size and shape all round visibility is not achievable. A lift co-ordinator must be appointed by the Tour to oversee these operations.

Caution must be taken when removing the chocks from the wheels on the trucks and when removing the wheels from their locating sockets. The crew must be trained to avoid getting under the suspended loads and position their bodies with good means of escape

The smaller elements of the sphere are contained on custom built dollies, again care must be taken when unloading and the operations must be overseen by a person appointed by the production.

6.1.3. Installation

The spheres installation is the responsibility of the Tours appointed person.

Build Sequence		
Step	Description	Section Required
001	Install Rigging Truss	
002	Locate base on Stage	BASE
003	Attach Rotating Core	CORE
004	Attach 1B	1B
005	Attach 1A	1A
006	Attach 1C	1C
007	Attach 2B	2B
008	Attach 2A	2A
009	Attach 2C	2C
010	Attach 3B & 3C	3B & 3C
011	Attach 3A	3A
012	Attach 4B	4B
013	Attach 4A	4A
014	Attach 4C	4C
015	Attach 4D	4D

Figure iii: The sphere build sequence (Source: Brilliant)

The build sequence for the sphere is as follows:

Full detailed drawings of the installation sequence can be found in the drawing pack, Appendix 02, in the folder SHOW GA_BUILD drawing *61829_00_05_Take_That - BUILD SEQUENCE (UPDATED 6_03_2019)*

The rigging of the Rigging Truss is dealt with by the Tour, the loads to be considered are in the following table. Depending on the venue this may be in the form of a system in a mother grid or by use of a crane and suspended load. The Tour retains responsibility for ensuring these lifts have been appropriately designed and co-ordinated. The Modulift system is provided by Brilliant Stages.

The lifting and placing of the steel elements of the sphere must be considered a complex lifting operation during the rehearsal due to the inexperience of the crew involved.

As such the following measures will be in place:

- Essential crew in and around the operation only.
- All crew working at height given appropriate PPE Brilliant have supplied safe clipping on points.
- All movement to be co-ordinated by an appointed lift supervisor.

- The lift supervisor will communicate all planned movements with the team before commencing work.
- A safety exclusion zone will be implemented around the lifting operation.

Component	Self-weight [kg]	LED weight
Base	2220	N/A
Neck	4835	N/A
1A	404	786
1B	4279	1477
1C	3459	1614
1D	67	350
2A	415	1650
2B	2023	918
2C	128	649
3A	382	1653
3B	1776	966
3C	148	650
4A	166	834
4B	599	1489
4C	220	1580
4D	43	347
Upper D	2550	N/A
Lower D	1100	N/A

Figure iv: Loads of the various sphere parts (Source: Mott Mcdonald)

The following key aspects of the sphere installation are also noted:

- The base and core must be perfectly levelled before the rest of the installation is carried out.
- The base tripods must be adjusted and each tripod must be load bearing

6.1.4. Daily inspections

The manual instructs that the following inspections are carried out on a daily basis by the tour:

- Load bearing elements for damage
- Signs of condensation
- Visual inspection of connectors and cables
- Visual inspection of all electrical equipment,

6.1.5. Operation

Sphere rotation and D movement

Any automation movement must be fully spotted and carried out with extreme caution. The manual shows the intended use of the machine and where performers are to be during the various phases.

The tour retains the responsibility to ensure all performers and technical staff have sufficiently rehearsed the movements and are aware of the hazards present.

Revolving Doors

The revolving doors must be locked at all times when not actively part of the performance or rehearsal is taking place.

During the performance a light in the sphere indicates when it is safe to use the revolving doors. It is essential that there

Access to the doors is protected by a gated hand rail. No one should be permitted access to the area near the doors without a harness.

6.1.6. Sphere Evacuation Plan

Due to the constrained nature of the access to the sphere, it is critical that the number of people in the sphere is kept to a minimum at all times.

The following is the **emergency** evacuation procedure in the event of fire. This is NOT any non emergency evacuation.

Pre show / rehearsal checks

- No technician will be working in the sphere on their own with the Sphere operational without permission of Ross / Tom and a minimum of two other technicians outside of the sphere – one being the Automation operator,
- No technician will work in a powered up sphere without suitable fire fighting equipment in place.
- The evacuation equipment will be in place inside of the sphere.
- All technicians in the sphere will have access to an evacuation harness. The Head of Rigging (or nominated person) will always be in harness and on standby during show and at all times when there are performers in the sphere
- There will be a minimum of 2 controlled rate decent devises (1 during rehearsal) in the sphere.
- There will be pre-rigged points in the top of the sphere which can be deployed for the rigging of the control rate decent devises
- There will be 2 x scramble nets (Wire ladder in rehearsal) inside the sphere for deployment down a tilted lower D.

Fire / Smoke

- Go to Emergency Rescue.
- Led by Show Caller / Automation Operator / Head Rigger (Inside Sphere)

Emergency Rescue

- Emergency situation will be called by Sphere Technician's or Automation Operator.
- If automation is still live **Automation Operator** (Ross) will **move Sphere** to optimum evac position
  - Downstage position, Lower D in horizontal position, scissor lift raised.
- **Show Caller will call fire officers** to stage in the case of a fire
- **Show caller will call CLEAR LIFT** – if lift still live and able it will be raised for evacuation.
- **Show caller** will also call;
  - Silence on all emergency show channels
  - Working lights, cut sound
  - Evac crew and medics to stage
  - Evac ladder to stage

- All persons in sphere will move to Lower D, if in horizontal position, and clear of inside of sphere.
- Sphere technicians will deploy evac devices
- On stage technicians will deploy zargies / treads if required.

Different rescue scenarios.

If Lower D is in a horizontal position:

- All persons to move out onto the lower D as far away from the center of the sphere as is safe.
- All non rescue operatives to sit down as instructed.
- Rescue operatives led by Head Rigger to co-ordinate evacuation.
- Ground crew to deploy static ladders to edge of Lower D and foot ladders.
- Rescue operatives to secure top of ladder via strops pre-rigged on the top of the ladder.
- Performers to descend first
- Crew to accompany performers if nervous by traveling down the ladder below them
- Where the ladder doesn't protrude high above the Lower D. Performer to be assisted onto the ladder by the Rescue Operatives.

If Lower D is in a tilted position, Upper D in Vertical Position:

- All persons to move to middle level.
- All non rescue operatives to line up as instructed.
- Rescue operatives led by Head Rigger to co-ordinate evacuation.
- Head Rigger to deploy scramble nets / wire ladder.
- Ground crew to deploy static ladders to bottom of doors (which ones to be instructed, but center and one other depending on wind direction) and foot ladders.
- Rescue operatives to secure top of ladder via strops pre-rigged on the top of the ladder.
- Rescue operatives to deploy rescue ropes from bags rigged over doors.
- Performers to descend first
- Rescue operative to fit abseil harness and aid performer out onto top of ladder. Performers climb down backwards. Crew to accompany performers if nervous by traveling down the ladder below them. (Gary)
- Once the performer is on the deck they remove the harness and the next performer (on the other side of the device) descends.

If Lower D is in a tilted position, Upper D in Tilted Position:

- All persons to move to middle level.
- All non rescue operatives to line up as instructed.
- Rescue operatives led by Head Rigger to co-ordinate evacuation.
- Ground crew to deploy static ladders to edge of Lower D and foot ladders.
- Rescue operatives to secure top of ladder via strops pre-rigged on the top of the ladder.
- Rescue operatives to deploy rescue ropes from bags rigger either side of Upper D.
- Performers to descend first
- Rescue operative to fit abseil harness and aid performer out onto the lower D lip Crew to accompany performers if nervous by traveling down the ladder below them
- Where the ladder doesn't protrude high above the Lower D. Performer to be assisted onto the ladder by the Rescue Operatives.
- Once the performer is on the deck they remove the harness and the next performer (on the other side of the device) descends.

6.2. Main Stage and Tech Cave

6.2.1. Overview

The Main Stage is made up of a number of elements. The Rolling Stage, this is constructed of Litestructures LiteDeck on a custom Brilliant Stages wheeled frame and a custom built choir riser running the front edge. The stage has been designed and specified specially for this production and the usage and loads imposed.

6.2.2. Transportation

The stage is transported in custom dollies. These will be trucked to the venue and loaded onto the arena floor. Care will be taken at all times to lift and manoeuvre the dollies as instructed and marked. All the dollies have multi directional wheels and are clearly marked as to safe pushing and lifting points.

6.2.3. Installation

It is the responsibility of the Touring Stage Manager to build the stage. He and his touring crew will utilise local crew at each venue. It is the responsibility of production to ensure that there is adequate man power and plant available to build the structure safely.

The dollies will be unloaded under the supervision of the Stage Manager. Touring crew will check prior to unloading that all the dollies are on a flat and stable surface and there is no visible signs of damage or collapse in any of the dollies. The Rolling stage will be built first in clear space away from the production end of the arena so to allow for the rigging installation to commence. The stage will be built in a specific order.

Step 1

The castor height will be set on two end frames and them held vertical. The bracing bars will then be fitted to create the first frame. The first deck will then be lifted and lowered into place on location nipples. 3 x brace bars will be fitted into the framework. 1 diagonal each side, these should be installed opposite each other to form a cross. The last brace runs horizontally across the bottom.

Step 2

Complete step one again and then add a bridging deck between the 2 framed decks to join the assemble together.

Step 3

Repeat, following the drawings, until the complete stage has been constructed.

Step 4

Handrails should be added as the stage is constructed. When access to the stage deck is required stage stairs should be installed rather than crew ‘free climbing’ the frames. These will then removed when the stage is moved. Care should be taken when accessing the stage deck level prior to all the handrails being in place. Crew should briefed about the dangers of unprotected edges. Where handrails may need to be absent for the loading on of equipment, these should be initially installed and then only removed when required.

Step 5

Once required stage size has been built roll into position and apply the brakes on ALL wheels. Check all levels. Additional wood packing boards are supplied to aid in levelling.

Step 6

Install all the access stairs and secure, these should be backed up with ratchet straps as required. Check all treads are level. Additional wood packing boards are supplied to aid in levelling. Hazard warning tape should be used on any trip hazards at the bottom of stair runs.

Step 7

Prior to access by others the Stage Manager should complete a further inspection of the stage. Regular checks should be made throughout the get in to ensure that the structure is not compromised. I.e. that bracing or handrail has not been removed and not reinstated.

Step 8

Prior to rehearsal a full sweep of the stage should occur and all hazard warning markings and floor surfaces should be checked.

7. Risk Assessments

7.1. Introduction

The following Risk Assessments have been drawn together to identify and assess the principal hazards arising whilst transporting, erecting, operating and dismantling the TT19 set. These documents also describe how these identified risks will be effectively controlled. Blumano have produced detailed machinery risk assessments which accompany these more general risks.

These documents are an accompaniment to risk management plans provided by the operators of the Tour (User).

These assessments are produced by The Event Safety Shop (TESS) on behalf of Brilliant Stages to cover the products supplied to the show.

Detailed drawings and calculations for the products can be found in the technical documentation which accompanies these risk assessments.

An operator manual is provided as part of the document package, this highlights risks that cannot be designed out and as such must be passed on to the end user. These risks are identified in the accompanying method statement. It should be noted that all risks which involve human interaction must be part of a continual monitoring process.

7.2. Risk Rating

Each assessment identifies two Risk Ratings.

The initial risk which assesses the hazard in its raw state i.e. with no engineering, administrative, PPE or training controls in place.

The residual rating gives an indication of the resulting level of danger once all the control mechanisms identified have been implemented.

The Effectiveness of Controls is a scale from 1 to 5; showing how likely the stated control measures are to mitigate risk.

Controls which rely on information or behavioral change are likely to have a low score, whilst those which enact engineering controls or other collective measure will score more highly.

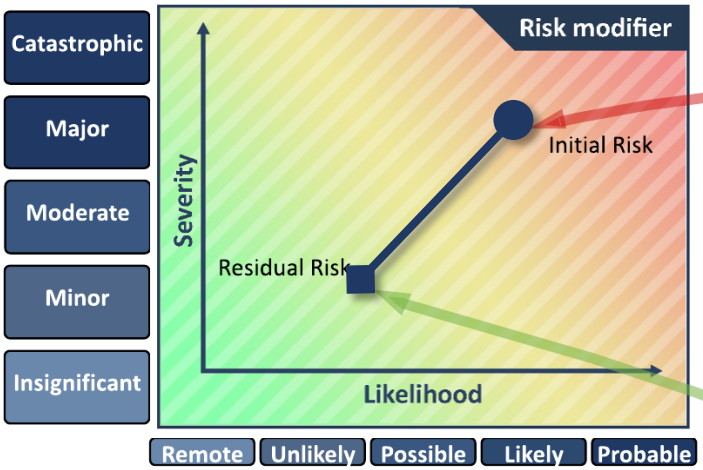
Incident outcomes are defined by the following table, which considers potential loss or damage aside from personal injury. This is considered the severity of risk.

	Insignificant	Minor	Moderate	Major	Catastrophic
Health & Safety	No treatment required	Minimal medical attention	Injury requiring three or more days off work	Serious injury, hospitalization or fatality	Multiple fatality or life-changing injury
Social, cultural, reputation or media	Minor social impacts or local complaints	Media attention or medium term social impacts	Local media attention with potential impact on venue	National media attention. Future events affected	Sustained international media outcry. Cancellation of event(s)
Legal	Minor or technical non-compliance	Breach of regulation leading to potential enforcement action	Litigation or prosecution leading to fine. Enforcement affects show	Serious breach of regulation or major litigation. Enforcement affects multiple shows	Significant prosecution, Class Action litigation. Severe impact on future events
Environmental	Negligible adverse effects on biological or physical environment	Moderate short-term effects, not impacting ecosystem functions	Medium-term environmental effects and effects on eco-systems	Serious medium-to- long term environmental effects	Very serious long-term and irreversible environmental impairment

Assess the likelihood

Remote	Unlikely	Possible	Likely	Probable
Technically feasible, but no known instance or expectation of occurrence	Incident not previously recorded but is conceivable	Incident has been recorded before and could happen again	Incident has occurred more than once before and is liable to occur again	Incident has happened repeatedly before and is expected again

Combine likelihood and severity to achieve initial risk rating



Risk management can either be achieved by mitigating the severity of the incident outcome or by reducing the risk of the incident occuring in the first place. The graph demonstrates how the identified control measures will affect these two criteria

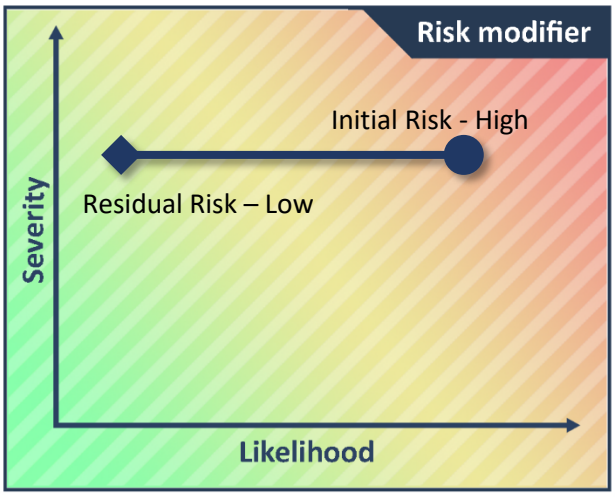
Actions resulting from risk rating

Negligible	Low	Medium	High
No further action required	Control of hazards is acceptable and will require monitoring	Control of risks is tolerable but further action necessary	Hazards must be controlled immediately to avoid death or major loss

Job or operation

1. Forklift truck and other vehicles in the work area

Risk modifier



Hazard

Crushing or collision from person vehicle interaction

People at risk

Tour crew / local crew / venue staff

Control measures

- Vehicle movement will not be allowed within the workplace unless absolutely necessary.
- Only competent workers who have undergone the appropriate training shall use company vehicles (forklift, vans etc.) within the workplace.
- Vehicles and pedestrians shall be segregated throughout the workplace so far as is reasonably practicable.
- Reversing vehicles shall be assisted by a banksman.
- A designated area for deliveries shall be decided upon which is as far away from pedestrians as possible.
- All vehicles will be required to keep within a designated speed limit whilst within the work premises.
- Adequate artificial lighting shall be provided for outside areas and delivery drop off points to maintain visibility in times of low light.
- All loads that are to be transported throughout the workplace must be secured before movement.

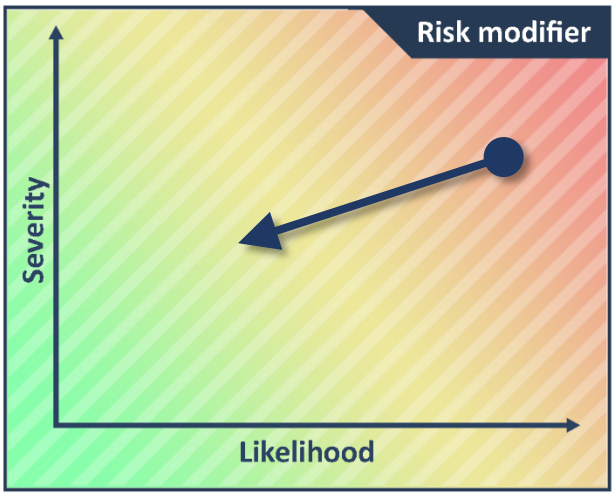
Further action required

Brilliant Stages

- Only workers who have been trained to use the company's vehicles are allowed to do so.
- Provide training on safe movement of vehicles within the workplace including on the appropriate methods for acting as a banksman.
- Set aside an area for deliveries that does not interfere with pedestrian routes.

Job or operation

2. Loading In/Out of Touring Equipment



Hazard Falls from vehicles/ Loading platforms, -

Manual handling injuries, people and traffic conflicts

People at risk

Tour crew / local crew / venue staff

Control measures

- All transport arrangements communicated in a timely manner to Tour Production Management.
- Brilliant Stagess transport logistics will form part of the overall Tour transport arrangements. This will be advanced to the venues by the Tour Production Manager.
- Professional driving and trucking service being used for the tour, therefore drivers are competent and have experience in the working conditions presented by the industry.
- Prior to arrival dedicated loading areas will have been identified and a truck delivery plan developed by the Tour Production Manager.
- Venues to ensure that loading bay areas are well lit, have pedestrian barriers in place and that any walkways are clearly demarcated.
- Brilliant Stages Staff experienced and competent in Load in / out environment.
- Brilliant Stages Crew Chief to ensure proper supervision of vehicle unloading / loading.
- Banksman wearing Hi Viz jackets / vests employed to supervise vehicle movement into and out of loading areas.
- Banksman shall ensure that they are not placed in danger by becoming trapped in confined loading bays / spaces. If necessary Crew Chief to deploy spotters act as another pair of eyes.
- Hi Viz jackets should be worn by all staff when working within the loading area.
- Vehicles turned off, stationary and keys removed before any loading / un-loading work commences.
- Use will be made of forklift trucks or similar handling aids to eliminate the need for manual handling heavy equipment.

Continued on next page…

Further action required

Brilliant Stages Ltd

- Ensure the effective communication of all load in / load out times with relevant staff.
- Wherever practicable plan for the use of mechanical handling rather than relying on manual work.
- Ensure cases/dollies etc. are properly marked, maintained and packed.
- Ensure equipment on dollies is secured effectively and where possible a centre of gravity identified.
- Plan pack of trucks to minimise handling requirement and to avoid heavy overhead lifts.
- To fully brief local crew on safe working practices to be adopted.
- Ensure that all staff have correct and suitable PPE.
- To monitor and review as necessary.

Continued on next page…

Continuation

Control Measure Continued…

- Equipment will be transported in flight-cases or custom made dollies to facilitate easy manoeuvring. Dollies requiring use of FLT's will have, where possible, fork lugs fitted to them to ensure load is secure.
- Loose items on dollies to be identified by weight and crew chiefs to identify specific handling method and manage local crew as necessary. Loose items will be secured during transit using ratchet straps, load bars or similar restraints.
- All staff are experienced in handling their own respective equipment.
- The requirement for competent local crew members has been assessed and communicated to the Tour Production Manager.
- Professional crewing services will be provided by the local promoter at the venue.
- Requirement for local crew to be physically capable of manual handling operations.
- Tour truck drivers will be available while loading or unloading to identify any difficult or particularly difficult handling tasks.
- Loading ramps will be confirmed as secure and monitored for movement that may lead to one end becoming dislodged.
- If unloading / loading from the public highway, signage and or barriers shall be used to delineate a safe working area.
- Crew Chief alongside Tour / Venue will ensure that only essential personnel have access to the loading and unloading areas; this will be monitored.
- Control of any tail lifts designated to competent operator.
- Visual checks and inspection of all tailgate lifting equipment and ramps carried out prior to use.
- Verbal all clear to be given upon lowering any tail lift.
- Crew Chief to establish and communicate Access and egress routes within the venue.
- Crew Chief to ensure that access and egress routes are kept clear of equipment and cases so far as is reasonably practicable.
- Emergency access routes and doors to be kept clear at all times.

Further Action Required continued…

Tour / Venue

- Ensure the loading area and all access routes are well lit and maintained in a safe condition.
- Where possible ensure separate pedestrian access routes using barrier or similar demarcation.
- Provide suitable and effective security personnel to manage vehicle access and prevent unauthorised public access.
- To manage movement of venue staff or other venue deliveries such that they do not introduce additional hazards to personnel working for the production.
- Provision of professional local crew in adequate numbers, who are competent in dynamic lifting/ handling techniques.
- Ensure the presence of English speaking crew chiefs to pass on specific instruction regarding safe handling of tour equipment.
- Ensure H&S information forwarded to crew companies prior to arrival at venue, including requirements for PPE, adequate footwear and so on.

Job or operation

3. Sphere installation

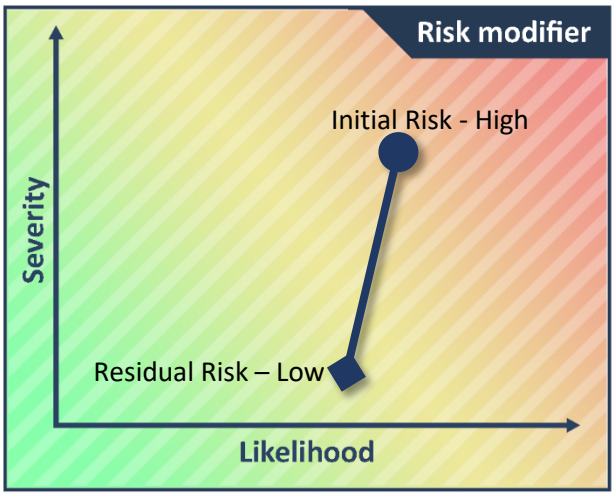
Hazard

Working at Height -fall from height, equipment fall from height

People at risk

Tour crew / local crew / venue staff

Risk modifier



Control measures

The sphere is considered a working at height environment, during the construction of the sphere, at various stages there is a requirement for working at height on either a leading edge or on ladders. Due to the changeable nature of this evironment there is a significant risk of falls. The following measures are in place to reduce the risk:

- Brilliant stages have designed into the structure various harness clipping on points.
- All crew working on the sphere will be required to wear a harness and clip on to the various harness points
- All crew using tools on the sphere will use tool lanyards.
- A safe working area will be established below the work area
- Only crew essential to the construction operation will be in the vicinity of the build.
- Hard hats will be worn by crew working in the vicinity of the works.
- Brilliant will carry out tool box talks and inform the crew of the risks

Further action required

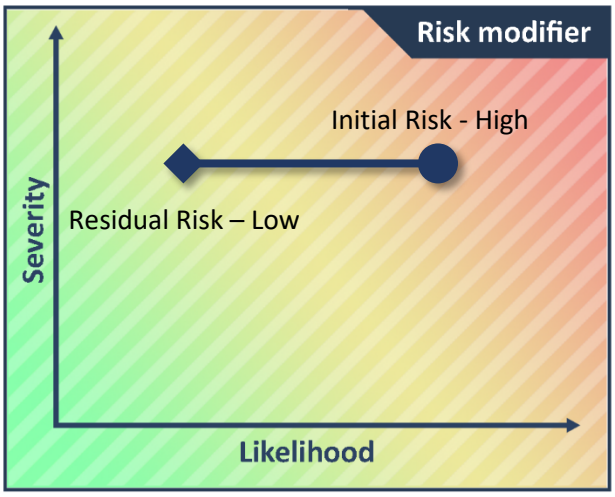
Brilliant Stages

- Ensure crew are briefed of safety risks
- Ensure all crew are in correct PPE
- Establish safe working area.

Job or operation

4. General equipment handling

Risk modifier



Hazard

Manual Handling Injury

People at risk

Tour crew / local crew

Control measures

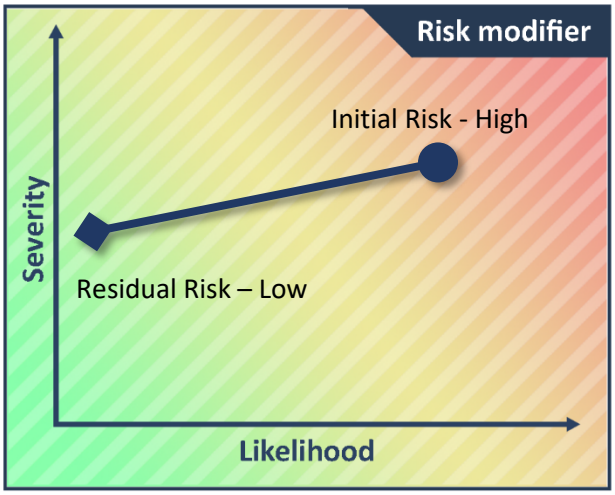
- Stage system has been designed and manufactured to eliminate so far as is practicable the need for heavy manual handling.
- Equipment to be transferred from vehicles using truck ramps between truck and ground or stage/loading dock. Loading ramps will be confirmed as secure and monitored for movement that may lead to one end becoming dislodged.
- Loose set items on dollies to be identified (by weight where possible) and Brilliant Stages crew chief to identify specific handling method and manage local crew as necessary. Loose items will be secured during transit using ratchet straps, load bars or similar restraints.
- All Brilliant Stages staff are experienced in handling their own respective equipment and aware of any specific difficulties
- Professional crewing services will be provided by the venue. Requirement for local crew to be physically capable of manual handling operations
- Truck drivers will be available while loading or unloading to identify where loads may have shifted in transit or any particularly difficult handling tasks.

Further action required

Job or operation

5. Use of stage automation - General

Risk modifier



Hazard

Accidental or misuse of machinery causes accident

People at risk

Tour crew / local crew / venue staff

Control measures

- The Brilliant Stages Ltd operator is trained and experienced in the use of the Raynok Motion Control System being used.
- Detailed designs and method statements are provided in Brilliant Stages Safety File.
- All automated elements have been thoroughly tested to include operation of hard and soft limits and e stop function
- Performers have had extensive experience of the stage environment and the effects in use
- All automated elements are under the direct visual control of the operator and will not be triggered unless conditions are exactly as rehearsed.
- The Automation operator is in constant communication with Stage Management via headset + radio throughout the show.
- E-stops are located to enable operators to halt cues in case of performer, or other, error
- All aspects of the Automation system fail to a safe condition i.e. under any fault condition the system prevents movement, including descent under gravity

Further action required

Brilliant Stages Crews

- HoD to carry out double-checks of installation and operation
- Periodic inspection of cable condition and verification of limit switches/drum counters etc. to verify system set to correct parameters
- Undertake daily rehearsals to confirm all movements are as per rehearsed cues
- Confirm all E-stops and safety features functioning correctly

Tour/Venue

- Ensure that all crew are briefed as to the usage and danger zones associated with the machinery.

Job or operation

6. Use of automation before all safety features are commissioned

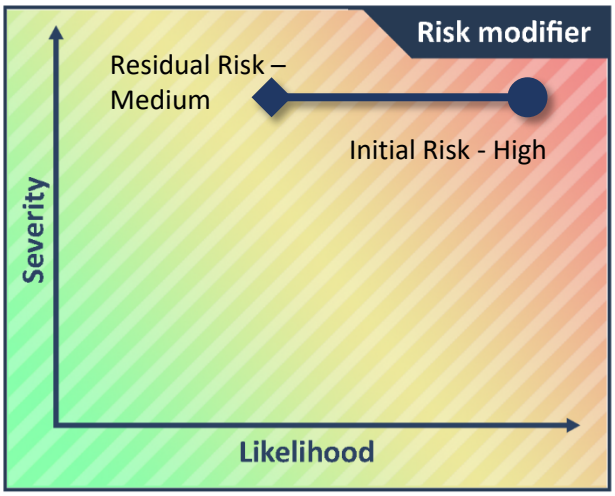
Hazard

Crushing, shearing from mechanical elements

People at risk

Tour crew / local crew / venue staff

Risk modifier



Control measures

- Essential crew only will be allowed in/on or in the vicinity of the sphere during rotation.
- All movements involving the D and travellator will be performed at a dead slow speed until safety features are commissioned.
- All movements will be demonstrated to crew and visitors at a distance before access to the D or Travellator.
- The travellator will never be using lateral movement when the lift is raised.
- Spotters will be use to ensure area is clear.
- Movements will be kept to a minimum and purely as a demonstration.
- A verbal communication procedure will be established between console operator and floor manager, all visitors will be made aware of it.
- The Brilliant Stages Ltd operator is trained and experienced in the use of the Raynok Motion Control System being used.
- E-stops are located to enable operators to halt cues in case of performer, or other, error
- All aspects of the Automation system fail to a safe condition i.e. under any fault condition the system prevents movement, including descent under gravity

Further action required

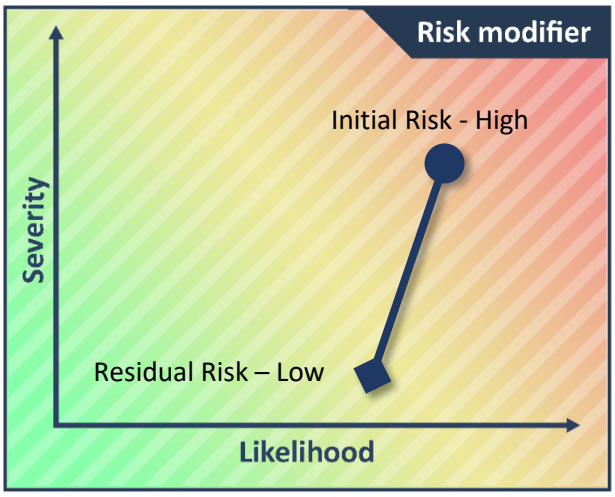
Brilliant Stages

Ensure that the safe working method has been instructed to the Tour

Job or operation

7. Sphere Revolving doors

Risk modifier



Hazard

Fall from height

People at risk

Tour crew / local crew / venue staff/ artist

Control measures

There are 3 revolving doors at height which can open to clear space. In certain situations, during the build and when the sphere is in certain orientations this can be considered a serious risk.

- Revolving doors are fitted with locks that will be locked under normal conditions and only opened during the show element.
- An additional safety railing inside the sphere prevents unauthorised or unintended access to the doors when not under show conditions.
- All crew who pass the safety railings will be harnessed and immediately clip on to the dedicated points.
- Door locks wll be checked before the performers are given access.
- The performers are in a belt harness which attatches to the doors.
- A green light comes on when the lower D is in a safe position, at this point operators will unlock and spin the doors.

Further action required

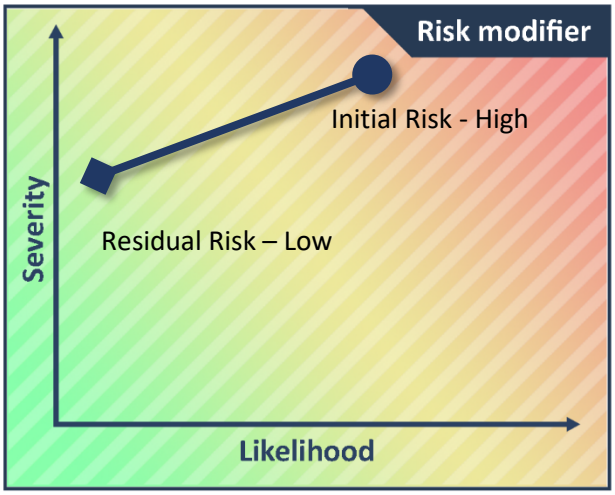
Brilliant Stages

- Ensure that the safe working method has been instructed to the Tour

Job or operation

8. Sphere Operation

Risk modifier



Hazard

Failure to ensure emergency access/evacuation results in injury

People at risk

Tour crew / local crew / venue staff

Control measures

The sphere has only a single point of access via a spiral staircase, the door can be in a number of different orientations which make access more difficult. The following measures have been implemented to enable better access in an emergency situation

- Interior of the sphere is lit via the backup power systems that will remain in operation in the event of power failure.
- The emergency route has been clearly marked in a yellow stripe on the floor.
- All low doorways and other obstructions have been clearly marked with hi visibility markings and have been padded to reduce impact injury.
- A detailed rescue/evacuation plan has been drawn up in conjunction with the production team.

Further action required

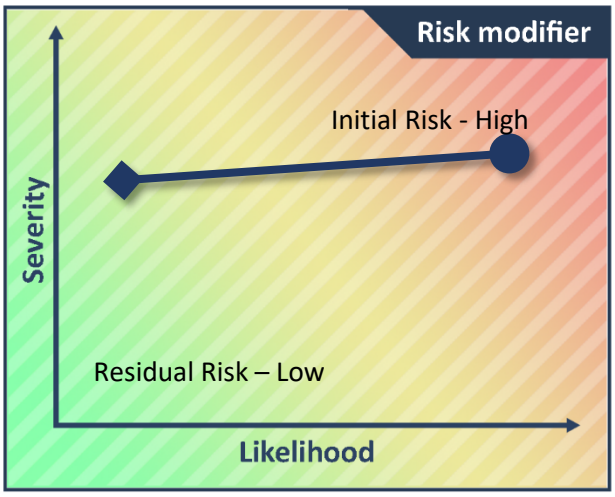
Brilliant Stages

o Ensure that the safe working method has been instructed to the Tour

Job or operation

9. Use of stage lifts and travellator

Risk modifier



Hazard

Fall from height and entrapment injuries

People at risk

Tour crew / local crew / venue staff

Control measures

- The operator must remain in clear sight of the equipment at all time when operating. In addition, there will be other crew acting as spotter.
- All persons accessing the equipment will be fully briefed on their hazards.
- All sequences should be choreographed to ensure the artists are in the most stable location for each move.
- In the event of any person falling on the equipment it will be stopped immediately While unattached to the stage there is no requirement to access the treadmill. Therefore, there should be no work at height by crew.
- The supporting frame has been designed to provide total stability to the scissor and treadmill so there is no risk of movement in the supporting structure, all brakes should be engaged at all times during usage.
- The belt is of a non slip material to aid grip and balance.
- The running speeds of the belt will have been pre-set in rehearsal and the speed will be monitored at all times.
- The operator and additional spotters in the pit? will both monitor the artist at all times and that no foreign objects are thrown onto the treadmill and scissors are belt at any time.
- The treadmill and scissors are controlled by the operator at a console, speeds can be set and there is a dead mans handle.
- In the event of a failure of the control system the treadmill fails to safe i.e. Stop. In addition the desk has an emergency stop, the dead man's switch and the emergency stop.

Further action required

Tour

Ensure all crew are fully briefed on the hazards and protocols around the scissor lift and treadmill.
o Ensure that additional crew such as cameramen and security are briefed, especially those working in the pit.
o To ensure that the operator has a good clear line of sight and clear communication.
o To ensure that there is adequate security provision at all times to prevent damage to the equipment.
o To ensure there is no alteration to either the equipment or the usage of the equipment without prior notification.
o Ensure good housekeeping.

Job or operation

10. General movement around and on stage

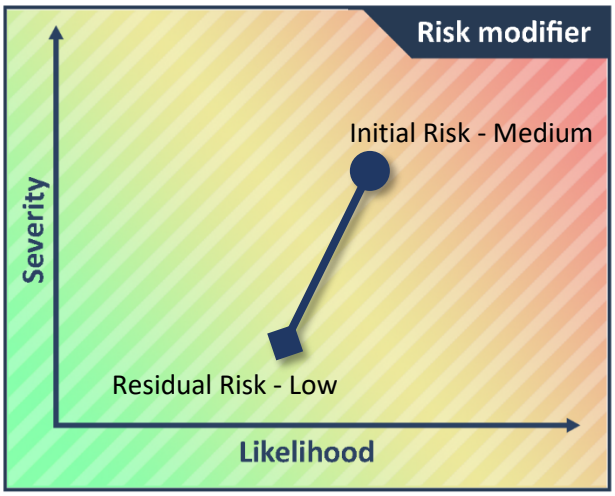
Hazard

Slips, trips and falls

People at risk

Brilliant Stages crew / local crew / venue staff

Risk modifier



Control measures

- All Brilliant crew are professionals who are used to working in stage environment, with the attendant cabling, changes in level and lighting intensity.
- Wherever practicable, the installation of technical elements shall ensure that safe routes are provided for performers and crew to move unhindered and without risk of trip or fall
- Working light provided shall be provided in all under-stage areas
- The performance area itself is clearly delineated by contrasting surface coloration.
- High visibility markings shall be applied to stage deck edges where appropriate
- No member of the public or shall have access to the stage deck during performance.

Further action required

Brilliant Stages Staff

- Crew will familiarise themselves with the stage surface and back stage area during rehearsal process.
- Safe access routes to and from the stage deck to be indicated with high-contrast tape.
- High-contrast edge warning strips to be installed
- Ensure cables are routed away from walking routes or are protected by means of ramps

Promoter/Venue

- Carry out suitable cleaning and ensure materials and personnel are available to clear any spillages etc.
- During load-out and installation, ensure sufficient levels of lighting will be available to clearly identify stage or structure edges

Job or operation

11. Use of electrical equipment

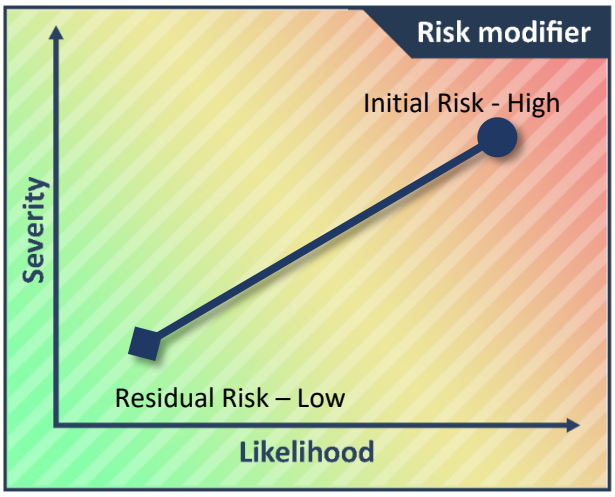
Hazard

Electric Shock / Fire - Possible

People at risk

Tour crew / local crew / venue staff

Risk modifier



Control measures

- All electrical equipment provided by Brilliant Stages is designed for purpose and has been inspected and maintained on a regular basis prior to dispatch on tour.
- No connection shall be made to existing supplies or temporary supplies unless verified as safe and suitable by the Venue's in house electrician(s).
- Connection of Tour equipment to unknown or un-tested supply points shall be avoided.
- Supply and or distribution units to be RCD/ MCB protected as necessary to protect staff and equipment in the event of accident or equipment failure.
- All equipment to be correctly fused.
- Staff will conduct a visual inspection of equipment prior to use at the gig including (but not limited to) checking for loose connections, split or broken insulation and for signs of scorching or arcing.
- Install ramps and/or cable protection to prevent trip hazards and mechanical damage to cables or other electrical systems.
- Procedures for isolating power supply from source in an emergency to be established and briefed to all staff.
- Combustible materials to be removed from the area and relevant FSE requested / discussed with the venue.
- Position electrical cables and systems in secure areas away from public access as far as is reasonably practical.
- Power to be sourced from closest supply so as to limit the length of cable runs.
- Mains cable will be coiled in figure of 8 configuration to avoid overheating and inducted loading.

Further action required

Brilliant Stages Ltd

- Discuss any changes or anomalies with designated HoD or representative.
- Crew to carry out basic visual inspection of cables and electrical equipment during installation and prior to use at each venue.
- Staff to ensure the provision, by the tour, of suitable fire extinguishers, namely CO2 and or Powder, at the origin and termination of power sources.
- Keep all working areas free from combustible materials so far as is reasonably practical.
- Ensure facilities exist to exclude members of the public and other unauthorised persons from technical and other areas housing electrical systems including cable ramps, fencing or security staff deployment where appropriate.
- Ensure a safe and stable 'venue' electrical supply is made available to the event according to the specification and locations stipulated by tour.
- Ensure presence of competent electrician to oversee connection to 'local' supplies.
- To provide suitable and sufficient fire safety equipment.
- To keep all areas free from combustible materials.

Job or operation

12. Operating close to PA and Monitor Systems

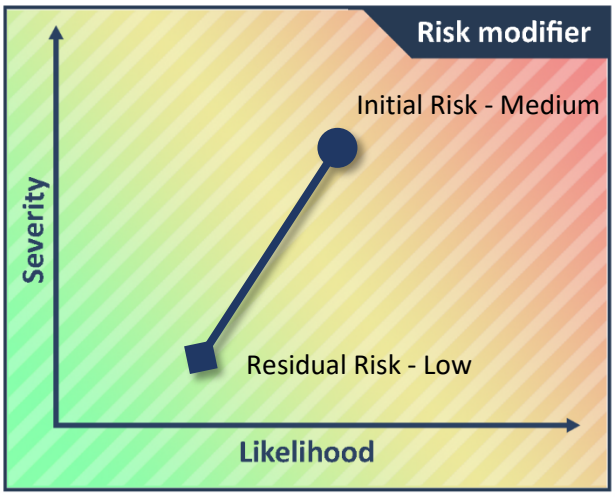
Hazard

Exposure to High Noise Levels

People at risk

Brilliant Stages crew / local crew / venue staff

Risk modifier



Control measures

- The sound system shall be operated by competent professionals who are aware of the dangers excessive loud noise can cause. Management of the system shall be the responsibility of the supplier company in cooperation with the Venue
- All Brilliant Stages crew will be provided with hearing protection and information on the hazards of prolonged exposure to high sound pressure levels.
- The audio system is designed by the venue and promoters to provide full coverage to the public areas of the venue and minimising back-and-off axis radiation.
- Artists use predominately in-ear monitoring systems to keep excessive noise down on the stage area
- The set time is of short duration (approx. 8 mins) which reduces the amount of exposure time to high noise levels by the crew.

Further action required

Brilliant Stages:

- Personal hearing protection to be made available to Brilliant Stages crew

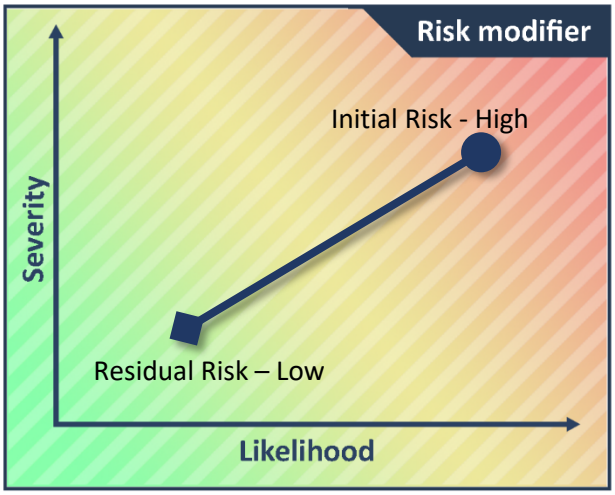
Promoter/Venue

- Identify and sign areas where significant noise hazards will exist
- Ensure local crew, security and venue staff are provided with appropriate hearing protection.
- Conduct PA and Monitor checks, so far as is practicable, to avoid excessive exposure to crew in other department.

Job or operation

13. General use of venue facilities

Risk modifier



Hazard

Evacuation of premises

People at risk

Tour crew / local crew / venue staff

Control measures

- The emergency procedures for each venue must be communicated to the incoming visitors.
- Crew should be briefed if there is any unusual or particular procedure to be adopted that varies from the general plan given here.
- Brilliant Stages Ltd shall ensure that no equipment or flight-cases impede or block any proposed access / egress routes, so far as is reasonably practicable.
- Brilliant Stages Ltd staff shall follow the direction of Tour Management in the case of a show stop and subsequent evacuation of the premises.
- If departure from the venue is required, technical systems should be powered down or left in a safe condition, and all personnel move to a muster point identified by the Venue representative.
- The Venue has a house system for emergency announcements, but the PA system can be used for this purpose if necessary

Further action required

Brilliant Stages Ltd

- Communicate evacuation procedure to visitors
- provide and maintain such alarms and safety systems as are required to detect incidents
- Provide sufficient number of clear exit routes that are free of obstruction to enable performers and personnel to evacuate the venue in safety.

Job or operation

14. Personal Protective Equipment (PPE)

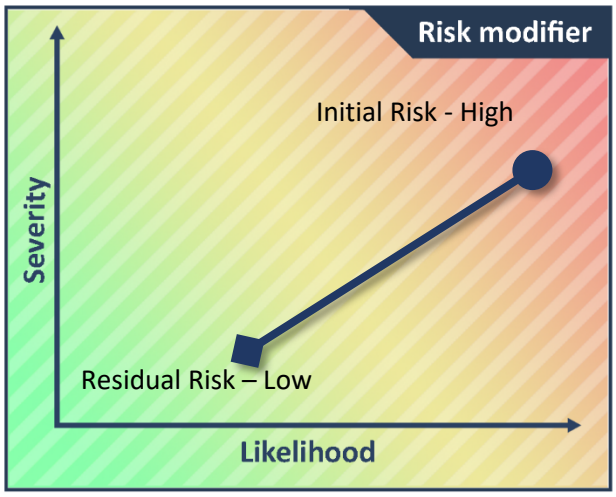
Hazard

Risk of injury

People at risk

Tour crew / local crew / venue staff

Risk modifier



Control measures

- PPE recognised as the last level of control when eliminating risk.
- Suitable personal protective equipment (PPE) issued to staff exposed to specific risks to their health and safety whilst at work and where other precautions are inadequate. E.g. working in areas with a risk from falling objects or high noise areas.
- PPE must control the risks involved without increasing the overall risk.
- Brilliant Stages Ltd shall use hard hats conforming to BS EN 397, Safety Boots conforming to EN 345 and Hi – Viz conforming to EN 471.
- Staff instructed to report and/or change PPE that is past its stated life.
- Appropriate storage used to ensure safe keeping of PPE when not in use.
- Crew chief or supervisor to ensure that any local regulation or requirement for PPE is met by the Brilliant Stages Ltd Crew.

Further action required

Brilliant Stages Ltd

- To monitor the use, requirement and effectiveness of PPE.
- To ensure that the current standards for PPE are adhered to.
- Review as necessary.