Rigging Method Statement

Rigging

For the purpose of this method statement, rigging is defined as "*The temporary suspension or attachment of materials and equipment to a building or structure (including temporary structures built specifically for the purpose) by means of wires, cords, slings, chains or lifting appliances and related equipment*."

Ground riggers should have a level of knowledge to enable them to undertake the inspection of chains and other equipment to prepare them for lifting and, whilst not necessarily having the experience for working at heights, have the same knowledge as that of a climbing rigger.
It is recommended that training for all riggers should include the following:
• Rope access techniques in line with current standards
• Emergency First Aid
• Manual Handling Techniques
• Mobile Elevated Work Platforms and other similar equipment
In assessing experience, account should be taken of the fact that, in many cases, riggers gain their experience within the industry and that historically there has been a lack of formal training leading to nationally recognised qualifications. However, it is recommended that where possible, riggers should undertake training in relevant areas.

GENERAL SAFETY PRECAUTIONS

Working underneath rigging operations

Where possible, all personnel should be excluded from beneath areas where overhead rigging or lifting operations are taking place.
The exclusion zone should be clearly identified and appropriate signs should be in place. When this is not possible, the area shall be designated a "Hard-Hat" area.
When designating a hard-hat area, this is more easily managed if an entire space, hall or room is designated as such, rather than specific areas within the space. Clear and unambiguous signage must be put in place.
The person or persons responsible for designating exclusion zones, hard-hat areas and for issuing hard-hats must be defined. This person must also determine when the area ceases to be an exclusion zone or hard-hat area.
In practice a space may be designated as a hard-hat area only during specific operations. This requires that clear instructions are given to all personnel likely to be working in the area each and every time that the area is designated a hard- hat area.

Working at Height

The Work at Height Regulations 2005 set out a simple hierarchy for managing and selecting equipment for work at height.
• Avoid work at height where possible
• Use work equipment or other measures to prevent falls where they cannot avoid working at height
• Where they cannot eliminate the risk of a fall, use work equipment or other to minimise the distance and consequences of a fall should one occur.
Work at height must be properly planned, including written method statements and risk assessments, appropriately supervised and undertaken by competent individuals.
Working at height should not be undertaken by individuals who are suffering from nausea, light-headiness, ear infections or other conditions that are likely to cause balance problems. Other conditions that may result in difficulties when working at height include severe head or chest colds, bronchitis and influenza etc and even just feeling off colour. All such conditions must be reported to the Rigging Manager/Supervisor prior to work commencing. In addition, stress and depression can lead to lack of concentration resulting in increased risk of accidents.
Under no circumstances shall rigging personnel be under the influence of alcohol and/or illegal drugs while carrying out rigging operations.

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Any prescribed drugs or other medication being taken by a rigger, must be advised to the Rigging Manager/Supervisor prior to commencing work. Riggers should obtain confirmation from their GP that any prescribed medication will not affect their ability to perform their duties. Any such confirmation must be reported to the Rigging Manager/Supervisor prior to work commencing.
When working at height, riggers will inevitably be working in the vicinity of building services including electrical equipment, cables, gas and water pipes, sprinkler system etc. No load, no matter how small, shall be suspended from any of these services or containment systems carrying such services. Care should be exercised when working or rigging near light fittings or other heat generating equipment. Before carrying out work on, or adjacent to, any electrical equipment, ensure that the necessary electrical isolation has been carried out.
Tools and loose equipment must be secured when working at height.
The Working Load Limit (WLL) or Safe Working Load (SWL) of any item of access or rigging equipment shall not be exceeded.
Walkways must be kept clear of loose rigging equipment at all times. All equipment taken to high level and not used must be removed after work is completed. Tools and equipment should be hoisted to high level by means of rope or similar system rather than being carried by individuals.
Communication devices (e.g. hand portable radios) shall be attached by lanyard to the harness, holster belt or similar.

Hours of Work

It is recognised that long hours of work are often associated with rigging operations particularly in the touring concert business. Riggers have a duty to ensure that their competency is not affected by tiredness. Employers, Promoters, Production Managers and Venue Managers have a duty to ensure that Riggers and Rigging Supervisors get adequate rest periods.

PERSONAL PROTECTIVE EQUIPMENT

General

Personal Protective Equipment (PPE) for working at height must be provided by employers and the self-employed in compliance with the Personal Protective Equipment Regulations 1992. PPE for rigging activities must be suitable for both work positioning and fall arrest.
The users of the PPE must be trained in its use and inspection. Each piece of equipment shall be visually inspected prior to use by the operative. In addition equipment should be inspected by an authorised person at least every six months and after any fall or overload. These inspections should be documented.
The inspection regime is dependant on the usage, it is recommended that a detailed inspection is undertaken every 3 months for heavy usage, and an interim inspection used to highlight any potential problems. PPE examination should not normally include proof loading in relation to textile equipment as the load test may adversely affect the integrity of the equipment.

Rescue

In the event of a fall and the successful operation of PPE, a rigger may be left suspended in a precarious position with no immediate means of rescue.

In any rescue plan, some of the areas to consider are:

• Correct P.P.E. i.e. compliant with HSE recommendations
• Avoidance of lone working
• A person falling in a full body harness may very quickly experience circulatory problems and there is a risk of cardiac arrest from the shock.
• A second person that should ideally be a competent climbing rigger will be able to react immediately to a situation.
• Communication
• Location of access equipment
• Location of medical facilities

• Liaison with the Fire & Rescue Emergency Services to ascertain means of access when working at heights.

LIFTING EQUIPMENT

Definition

For the purposes of this guidance, lifting equipment / lifting tackle shall be defined as *'any item used to raise, lower or suspend a load'*. This includes both lifting appliances and lifting accessories.

Legislation

All lifting equipment / lifting tackle used shall comply with all current relevant legislation

General

All lifting equipment shall be of sound material and construction, free from defects and fit for the purpose for which it is to be used.
SWL or WLL shall be clearly marked on all items.
The SWL / WLL of any item of lifting equipment must never be exceeded.
No item of lifting equipment shall be used for any purpose for which it is not intended.
Where reasonably practicable all rigging equipment must be inspected prior to use.
Rigging equipment must not be dropped from height and must be treated with reasonable care.
Each item of rigging equipment is required to carry an individual distinguishing mark, serial number or batch mark and be traceable from its manufacture.
Each item of rigging equipment shall be used in accordance with the manufacturers guidelines.
It is a requirement that current valid records and/or certificates of test/inspection are available for all lifting equipment used.
Rigging equipment should only be used by trained competent individuals, or under the supervision of such individuals.

EXAMINATION AND INSPECTION OF EQUIPMENT

Examination and inspection of lifting equipment is covered under Lifting Operations and Lifting Equipment Regulations 1998 (LOLER) and Provision and Use of Work Equipment Regulations 1998 (PUWER) and is fundamental to safety in rigging operations.

The nature, type and frequency of examinations

All equipment used in rigging should be subject to an examination scheme that is compliant with Regulations 9 and 10 of LOLER. In summary, as an employer or self-employed person "you must ensure that:
• Where appropriate, before lifting equipment (including accessories) is used for the first time, it is **thoroughly examined.**
• Lifting equipment may need to be thoroughly examined in use at periods specified in the Regulations (i.e. at least six-monthly for accessories and equipment used for lifting people and, at a minimum, annually for all other equipment), or
• At intervals laid down in an examination scheme drawn up by a competent person.
• All examination work should be performed by a competent person and following a thorough examination or inspection of any lifting equipment a report is submitted by the competent person to the employer to take the appropriate action." (Reproduced from the HSE Simple Guide to LOLER 1998 – INDG 290)
An examination scheme should also consider manufacturer's recommendations.
If any equipment suffers damage **it should be withdrawn immediately until it is re-examined, re-tested and documented**. If found to be beyond repair, it should be marked as unusable and destroyed.
Electrical portable appliance testing records should be available and the equipment suitably marked and documented.

Rigging Method Statement

WORKING PRACTICES

General Conditions

A competent rigger shall undertake all rigging work in a responsible manner and consideration shall be given to the safety of all persons who may be affected by such works. A Rigging Supervisor is nominated for all rigging operations.

Suspension Points

All venues have venue specific requirements / regulations regarding suspension points and the loading capacity of different elements of the building structure. Riggers must ensure that they comply with these requirements and if there is any doubt, there must be consultation with the venue management.

When the suspension point has been installed and the operative responsible for the installation is completely satisfied it is safe, secure and capable of supporting the load to be applied and within the SWL of all components used, the hook will be attached to the master link or shackle.

Method of Attachment

Venues will have venue specific policies on methods of attachment but general care should be taken to protect building steelwork from steel to steel contact that can cause wear and damage. This can be achieved by the use of soft webbing or round slings or steel wraps covered by a PVC sleeve or by the steel work being protected by softenings.

Whenever possible the practice of 'choke hitch' wrapping of slings is to be avoided. Where this is not possible the SWL of such slings shall be reduced to 75% of the WLL.

Bridles

When bridles are installed to provide suspension points, particular attention will be paid to the included angle created between the individual legs of bridles.

This angle will at all times be the minimum possible to keep the horizontal load to each leg as low as possible.

As a general rule, no bridle with an included angle of more than 90-degrees shall be permitted. If it is necessary to exceed the 90-degree angle, then suitable calculations should be carried out to ensure that the installation is safe in respect of both the equipment being used and the building structure.

Only riggers trained in the proper use of such equipment shall carry out the assembly of bridles. All equipment used shall have its WLL clearly marked and shall be suitable for the load to be applied.

Particular attention should be paid to ensuring the correct seating of shackles and other link items.

The master link or ring forming the suspension for the load shall have a WLL equal to the suspended load weight multiplied by the number of legs used for the construction of the bridle. For example, to suspend a 2 tonne load on a three-legged bridle the SWL on the master link ring would need to be 6 tonnes. This allows for angles up to 120-degrees to be used. Angles of less than this allow lower capacity master links to be used.

Before undertaking any rigging operation, all point loads, distributed loads and bridle angles should be assessed in relation to the venue attachment points to ensure that all loads can be safely applied. Applied loads should take account of the safe weight of the rigging and hoisting equipment.

Where more than one bridle leg terminates at the single attachment point, the resultant effects of all loads should be considered.

When bridling, great care shall be taken where attachments are to beams or trusses in the same plane as the bridle, to ensure that they are fixed by positive means to stop the natural tendency to slip together. In general it is preferable that bridles are attached to beams at 90-degrees to the plane of the bridle.

Rigging Method Statement

Load Spreader Beams

In situations where bridling is unsuitable, e.g. if the attachment points are unsuitable for application of a horizontal load then the use of spreader beams should be considered.
Where standard truss systems are employed for this purpose, they shall be subject to a structural report, certified by a competent independent structural engineer.
Where specifically designed or manufactured beams are employed, a certificate of independent test and examination will be available for inspection and the WLL clearly marked.

Truss Systems

All suspended truss systems should have independent structural certification and should only be used with certificated design parameters.
Particular attention shall be paid to the assembly of truss sections to ensure that braces are aligned correctly as per manufacturers' recommendations and that all connectors are correctly fitted, tightened and complete with any locking pins in place.
Generally all truss-mounted equipment shall be fitted with a back up safety chain or safety steel having an appropriate WLL.

Slinging

The slinging of suspended equipment shall be undertaken to manufacturers' recommendations and in accordance with the Code of Practice for the Safe Use of Lifting Equipment issued by the Lifting Equipment Engineers Association.
Prior to final lifting, a check will be made at ground level and any necessary adjustments made.

Work Areas

Main areas for rigging operations are to be clearly defined and access to such areas shall be restricted to competent personnel directly involved in the operation.
Clear and adequate communication between persons working at high level and ground crew is to be maintained with other operations suspended if necessary until such time as deemed safe to continue.
Ground crew personnel working within such areas are required to ensure that unauthorised personnel remain clear of the works area until operations are complete.
Other personnel working close to or in areas where rigging operations are taking place must be aware of these operations.
This is particularly important when the actions of other personnel could endanger the safety of rigging personnel e.g. sound and lighting crews.
When at the site of rigging operations, an area shall be designated for the temporary storage and assembly of rigging equipment. This area is to be kept clean and tidy at all times with excess equipment collected as soon as operations are complete.

Suspended Signs

Any signs supplied for rigging shall be checked to ensure they are fit for suspension.
The suppliers of such signs shall be responsible for the integrity of the sign and its suspension fittings.
Signs of timber or metal framed construction may only be rigged if fitted with fully closed eye lifting rings, bolted preferably through the full depth of the sign, the capacity of which must be sufficient to completely support the load on any individual fitting.
Screw-in eyes are not acceptable for this purpose and the rigger will reserve the right to refuse to allow the suspension of any signs where the suspension fitting supplied is inadequate.
Due to the flimsy nature of materials used, paper signs may only be suspended if constructed from 'Tyvec' or a similar approved material.
Drop weighting to the bottom of banners may only take place when the weighting is completely sealed within the banner by positive means, such as stitching or vinyl welding. The provision of bottom drop weight pockets by gluing is not acceptable.

Rigging Method Statement

Catenaries

Due to the potential structural damage that can be caused by catenary wire installation, and also the potentially hazardous nature of the installation and removal process, the rules for installation of catenary wires should always be checked with the venue management. Catenaries should never be installed when public are in the halls.

The Installation of Safeties

Secondary or "Safety" suspensions may be required in certain locations. The requirements for these may vary between venues.
When required, the secondary or safeties will be installed to bypass the mechanical lifting unit, as a minimum, in case of mechanical failure.
Additional mechanical lifting units can be installed as an alternative to safeties, thereby providing redundant capacity equal to 100% of the load.
Alternatively, hoists fitted with a double brake and limits do not require independent safeties.

ACCESS EQUIPMENT

All access equipment shall be used in accordance with manufacturers' instructions and recommendations, including the use of safety harnesses and suitable head protection.
The SWL of access equipment shall be permanently displayed on the equipment. It is the responsibility of the operator of the equipment to ensure that the carried weight does not exceed the SWL.
Special attention should be paid to the correct assembly and stability of ladders and other static forms of access equipment, including the use of outriggers where fitted.
Persons trained in the correct use of such equipment should only carry out assembly of static access equipment. Operators of Mobile Elevated Work Platforms (MEWPS) for use in rigging related operations, are required to be in possession of a current valid certificate of Training Achievement and Competency of Operations, certified by a recognised independent training authority conforming to CITB standards or equivalent.
It is a requirement that such certification is available for inspection at the venue.
The responsibility of carrying out the manufacturers' recommended daily checks, including fuel, will be that of the operator. If different operators use the equipment during the course of the day then all operators should carry out a pre-use check.
Standing directly on forks, attachments or pallets, not intended for such applications, is strictly forbidden. Any accidents involving access equipment used for rigging purposes shall be reported to venue management immediately in addition to any other statutory reporting requirements that may be applicable.

Truss Ladders

Truss ladders used to access flown truss structures shall only be used in conjunction with inertia type fall arrestors. Fall arrestors should be rigged independently of the truss structure and positioned above the ladder in such a way as to prevent over-reaching by personnel at height.

Aerial Platforms

If it is necessary for an operative to leave a MEWP at high level, he / she must identify a secure point of anchorage for the safety harness lanyard. The lanyard shall be secured before leaving the platform.
When returning to the platform, the operative must ensure the lanyard remains in position until the transfer to the carriage has been completed. **At no time should the operative be connected to both the MEWP and the structure.**

Rigging Method Statement

Use of rigging equipment

Slinging or Shortening Chains

Only chains designed and approved for load carrying purposes shall be used in rigging operations. All chains should be short link and be side welded Grade 80 steel and conform to BS EN 1677
The lengthening/shortening of chain is only permitted using a certified load bearing link assembly, specifically intended for that function, i.e. no chain will be lengthened / shortened by means of nuts and bolts, steel wire rope lashing or wire rope grips.
Chains must never be knotted, twisted or pass over sharp edges.
The chain must be free from gouges, nicks, corrosion, and worn links; its links must never be twisted or bent. If any of these defects are present the chain should be discarded.

Electric Chain Hoists

All hoisting equipment shall be marked with SWL or WLL.
Only hoisting equipment covered by a current valid test certificate shall be used.
The suspension point or structure that the chain hoist is attached to must be capable of supporting the SWL or WLL of the hoist plus the induced Dynamic Snatch Magnification Factor (DSMF) of the motor.
All electric chain hoists must be equipped with some form of overload device, which prevents the hoist lifting more than its SWL. This device must be correctly adjusted.
All electric chain hoists must be equipped with an “end of travel” or “limit switch” to prevent damage to the structure or chain hoist.
Chain hoists shall be used in accordance with manufacturer's instruction and guidelines.
Particular attention shall be paid to the following points when using chain hoists:
* All electrical connections shall be checked for soundness and all electrical cables to be routed to provide suitable relief from strain and abrasion.
* Cooling fan covers when fitted shall be checked to ensure they are securely fitted.
* Safety chain stops shall be inspected and secured where necessary.
* Hooks and their linkage systems shall be inspected prior to each usage to ensure they are properly secured. The load supports for the hook will be from a single source; master link or shackle (not two legs of a bridle). This applies to both top and bottom attachments.
* Chain bags shall be secured and located in a manner to minimise risk of chain spillage.
* No item shall be positioned so as to impair the free running of the chain through the hoist either in or out.
* The chain must be lubricated, free from twists, damaged or deformed links. The chain must be attached using a sling or truss connector, it must never be “back hooked”.
* Particular care shall be taken when running slack chain through hoisting equipment to ensure that no twists or knots are present in the chain and to ensure that all operation of hoists is smooth and unhindered.
* The visibility of a chain should be improved by hanging a hazard sign from the hook when the hoist is not in use.

Motorised Lifting

During motorised lifting procedures, all cables shall be routed along trussing and secured, in order to provide adequate relief from strain and abrasion.
A nominated competent person shall be responsible for the set up and operation of the motor control system. The motor control position should be such that the operator has a clear view of the entire operation. If this is not possible, other competent persons should be located in such a way that all areas of the operation are visible to at least one of the operatives and all operatives should be in audible contact, via radio if necessary.
A clean defined area should be created around the control position.
In the case of multiple chain hoist lifting operations, electrical control cables shall be clearly numbered/ identified and a temporary record of the identification system kept as required.

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All electrical control equipment for use with hoisting systems shall be fitted with a quick-acting electrical isolation device, capable of being used in an emergency.
Operators will remain in close proximity and have unrestricted access to the electrical emergency cut off facility during all lifting procedures.
Computer controlled 'intelligent' lifting systems will be fitted with a manual override and shutdown facility for use in the case of emergency.
Electrically powered hoists shall be isolated from the power supply once hoisting procedures are completed or during interim periods where other work activities are undertaken.
Motor control distribution systems can be fitted with phase reversal facilities so that all motors run in the same direction. In recognition of this, rigging crews should 'bump' every motor prior to lifting to ensure connection and direction of travel.
All electrical systems shall contain devices for the protection of the final circuits against overload, short-circuit and earth fault.

Steel Wire Rope ("SWR")

SWR is required to be supplied with a certificate of test/examination. This certificate relates specifically to the rope.
Once the rope is modified by additions and/or alterations (e.g. ferrules, thimbles, etc.) which are intended to be permanent and the resulting assembly is capable of (or intended for) load suspension, the assembly shall be deemed to be an item of lifting tackle and as such is required to be proof tested and certified in accordance with the appropriate regulations.
All SWR used for load suspension purposes shall comply with current relevant British and European Standards.
End loop terminations for SWR assemblies, shall only be assembled by means of hydraulic swage press ferrules or wire rope grips:
* Where wire rope grips are used to effect end termination these shall be installed following manufacturer's guidelines and not used on wire ropes above 19mm.
* Quick-Term or Bullet connectors, Gripples and Wedge-Sockets must be used in lifting operations or in conjunction with PPE and must be CE marked to the appropriate standard.
Wire rope grips shall not be used to join lengths of SWR mid-span.
Only persons properly trained in the use of hydraulic swage presses shall be allowed to make up loop termination.
Knotted, kinked or distorted SWR shall not be used.
Any wire rope shall be deemed unserviceable if 5% or more of the total numbers of wires are broken in any length equal to ten-rope diameters.
Splices shall not be used to attach or join any SWR.
It is a requirement that a current valid certificate of test / inspection is available for all SWR used for load suspension.
When removing SWR from reel:
* Rope should be laid out from the reel or coil onto a clean, dry surface in a straight line without slack, to prevent kinks and twisting, which would cause a disturbance of the lay.
* Axle stands or equivalent shall be used on wire rope drums to facilitate unreeling. The cable must never be looped off the drum. This may cause kinks and twists that damage the lay.
* Check wire rope for kinks or damaged strands. Any length found damaged must be destroyed.
Bulldog grips consisting of a saddle and a 'U' bolt should always be used with the "U" on the short or dead end of wire ropes and the saddle on the long or live side. This is because the saddle applies load with less damage to wire rope construction than the 'U' bolts.
The first grip will be placed as close to the thimble as possible and subsequent grips spaced at 6 times the diameter of the rope in use, i.e. for a 6mm-rope the spacing would be 36mm.
Grips should be tightened in accordance with manufacturer's specification and a minimum of three should be used.

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Shackles

When in use shackles are to be correctly seated so as to ensure that the load is always transferred through the pin.
"D" shackles should only be used when connecting items that are in line, with the load bearing on the crown and the centre of the pin.
A bow shackle must be used if a load is applied at an angle, this must not exceed the manufacturers' guideline (usually 45-degrees from the centre line)
The pre-use check should examine for any visible twists, cracks, bent or badly worn pin, badly working thread or other deformation. If any of these defects are found the shackle should be discarded.

Round Slings

Man-made textile round slings and webbing loop slings are to be inspected prior to each usage. Any slings showing signs of damage must be withdrawn from service immediately.
Only 'soft' slings shall be used to wrap beams or nodes of the building fabric to provide primary suspension points for loads. In all other cases steels with softenings must be used.
Knotted slings shall not be used.

Fibre Rope - Natural and Man-made

All fibre rope used for rigging shall comply with current British Standards / ENs.
All knots, bends, splices, wrinkles, etc. used, are to be correctly made and details are required to be available to demonstrate the adequacy of such systems.

Access Safety Line Systems

Types of Access Systems differ in size, design, purpose and the loads they are capable of safely sustaining. The following guidelines are basic general safety requirements for usage:

Access Safety Line Systems

* All attached PPE (e.g. harnesses, lanyards, energy absorbers, helmets) must comply with current National Standards.
* The system installer must approve all equipment, used in conjunction with an installed access safety line system.
* Prior to commencing work using an access safety line system, a member of the rigging team who has received training in rescue techniques on the system must be present.
* Compliant full body harness must be worn.
* Either compliant energy absorbing lanyards or retractable lanyards approved by the installer / venue Technical department must be used.
* Wires forming part of an access safety line system should not be tugged or loaded unnecessarily. Such action could accelerate wear and possibly deploy the cable shock absorbers.
* Access safety line systems should never be used for lifting equipment.
* Component parts must never be stood on or used as anchorage points to gain access.
* Observe the maximum numbers of operatives allowed to operate on the system at one time.
* Report to the venue Technical department if tugging is required to pull any mobile anchorage points through the cable supports.
* Any defects or damage to a system must be reported to the venue Technical department.
* Any part of a system, which has been subject to a free fall, must immediately be reported to the venue Technical department.
* Each operative using an access safety line system should carry out a visual inspection of the line prior to use. They must ensure that there is no excessive slack in the tension of the system, no undue wear and tear, the warning tags are present and the test date of the system has not been exceeded.
* The operative must never disconnect from a system prior to connecting to another. One safety attachment must be maintained at all times.

Rigging Method Statement

RIGGING PFPS METHOD STATEMENTS - 22/11/2007.

COMPLIANCE AND INTERPRETATION OF WaH Regs 2005.

We undertake to comply with Work at Height Regulations 2005 as far as is practicable in all rigging projects under our control.

The Regulations set out hierarchies and preferences for the safety of all workers at height.

There are instances and circumstances where different sections of the regulations may be seen to be at variance with one another, and it is the purpose of this document to set out our interpretation of best practice in different circumstances.

The National Rigging Advisory Group (nrag), within the Professional Lighting and Sound Association (plasa), have determined that Rope Access as defined and certified by the International Rope Access Trade Association (irata) is not an appropriate component of a rigging qualification.

(This document does not intend to amplify the above decision for reasons of brevity.)

A rigger may well be irata-certified, but most riggers do not spend sufficient hours in rope access work to maintain their irata status.
- This is primarily as a result of improvements to venue conditions, and very much in the spirit of the WaH regs – preferring to avoid WaH risks as a first choice control.

SCENARIO 1.

Nevertheless, there are still occasions when riggers need temporary rope access.

When the act of installing a line for access involves the greatest risk in the planned operation, we are prepared to use (strictly on a temporary basis) a climber's figure-8 descender with a doubled line. This permits removal of the line without having to reach the hazardous position a second time (compliance with WaH regs – section 6 "avoidance"). When this method is chosen, suitable fail-safe precaution should be added; either in the form of a "shunt" device, capable of working the doubled line, or at least a groundsman in attendance who will be capable of locking the lines by tensioning – in case of problems aloft, and of managing a controlled descent in the event of the rigger above losing consciousness or the use of his/her hands.

Many venues have installed fall-arrest anchor lines for traversing rigging beams, in line with improved practices generally; however, there are still instances when riggers must go out on a beam with no overhead anchor points available.

SCENARIO 2.

WaH Regs 2005 would suggest that a sling conforming to EN 795B be slung around the beam, and the rigger should attach a fall-arrest lanyard with energy absorber between this and the sternal or dorsal point of the harness.

We consider that the best fall protection will be provided by use of an adjustable work-positioning lanyard choked around the beam, with minimum slack length to the harness, with the rigger sitting astride the beam.

Here the principal point of contact is the buttocks, with the feet on the lower flange (if available).

If the rigger loses balance for whatever reason, a "capsize" will take place rather than a fall. The rigger will remain close to the beam and in most cases will immediately be able to self-rescue.
Were the rigger to choose the fall-arrest option, he/she would find themselves a long distance below the beam having endured a fall factor of approximately two, and certainly in need of rescue by others.

SCENARIO 3.

PFPS when working with MEWPs.

Recently, plant hirers have been fitting notices to mewps which instruct the user to ***"wear a full-body harness with a short lanyard in all boom-type operations".***

A full-body harness implies a 'fall-arrest' function, yet very few mewps have certified 'fall-arrest anchor points'.
The attachment points which are provided are suitable for 'restraint' purposes, and the primary protection is fall-prevention provided by the handrails of the machine.

We believe that these measures only increase confusion in the matter of fall-protection, and that the best approach is a risk-based one taking account of the wider circumstances.

There are many good reasons for having a fall-arrest harness in a mewp basket, but the function may be different in varying circumstances.

When working on uneven or unstable terrain, the risk of being thrown from the basket would demand that the worker be attached to the structure of the machine – but it is important to stress that the anchor point may well not be sufficient for true fall-arrest.

Most "event rigging" work takes place on good surfaces, so the above demand is much reduced.

In real-world examples, the greatest risks to riggers arise when the mewp basket (or platform) is unable to reach the required structural point – most often due to venue plant and fittings such as air-conditioning ducting etc., obstructing access.
This requires the rigger to contravene basic mewp training which forbids the workers' feet from leaving the basket floor.

At these moments, the rigger should be risk-managing his/her own environment, so the full-body harness should be attached to either the basket anchor point(s) with an adjustable work-positioning lanyard –(always maintaining minimum length), or a twin

lanyard with energy absorber should deploy between basket anchors and suitable nearby structural members, possibly with addition of EN 795B lanyard(s) –(always minimising the time during which the lanyard might connect the mewp to the venue structure to a few seconds only).
A combination of the two lanyard types might also be needed if circumstances require it.

We acknowledge that the above statement encompasses a contravention of basic training; however, the reality is that the use of the mewp reduces risk in general, and the occasional requirement to climb further is better (i.e. lower risk), than having had to free-climb the full distance in the first place, and this approach complies with the general directive of WaH Regs to reduce risks as much as practicably possible.

Rigging Method Statement

PREAMBLE AND METHOD STATEMENT.
The use of Special Theatrical Alloy Chain (STAC).

Preamble:

The Machinery Directive states that chain used for lifting, “as a separate lifting accessory”, shall be only of “short-link” type.

Traditionally, “long-link” chain was made of lower-grade alloy, usually with “scarf-welded” links.

Riggers in the events industry are meeting with situations where the use of STAC has been forbidden. Usually this prohibition has come from Venue insurers.

Given that Columbus-McKinnon have developed a ***specific lifting accessory*** product, ideally suited to our needs, rated with suitable factors of safety; the following Method Statement hopes to take advantage of technological advances which are in conflict with historic legislation.

METHOD STATEMENT,
USE OF SPECIAL THEATRICAL ALLOY CHAINS (STAC):

1. **STAC links will be loaded only intrados to intrados.**

2. **STAC will not be used to create a basket or choke sling.**

3. **When STAC is used as a component of a bridle-leg, unused links will not be trapped by adjacent lifting components; they must always be free to move above or below the ultimate bearing points.**

4. **When STAC is used as a bridle-junction, a single STAC link must never itself become the bridle-root, as this would require two links to share a bearing point of the root-link. A shackle, or shackles, will be fitted so that unused links may be free to move above the links meeting the bridle-root.**

5. **Summary: STAC (or any long-link chain) links will only be loaded axially. No twisting, bending or “link-opening” forces will be applied; only in-line intrados to intrados loading is permitted.**

Rigging Method Statement

British Standard, DIN and ISO Standards

BS 302-1/2 Stranded steel wire ropes
BS 463 Specification for sockets for wire ropes
BS 464 Specification for thimbles for wire ropes
BS 1139 Metal scaffolding
BS 1290 Specification for wire rope slings and sling legs for general lifting purposes
BS 2853 Specification for the design and testing of steel overhead runway beams
BS 3032 Specification for high tensile steel shackles
BS 3243 Specification for hand operated chain blocks
BS 3481 Flat lifting slings - Part 2: Specification for flat woven webbing slings made of man-made fibre for general service
BS 3551 Specification for alloy steel shackles
BS 4278 Specification for eyebolts for lifting purposes
BS 4429 Specification for rigging screws and turnbuckles for general engineering, lifting purposes and pipe hanger applications
BS 4898 Specification for chain lever hoists
BS 4942 Short link chain for lifting purposes
BS 5281 Specification for ferrule-secured eye terminations for wire rope
BS 5950 Structural use of steelwork in building
BS 6166 Lifting slings – Part 3: Guide to the selection and safe use of lifting slings for multi-purposes
BS 6399 Loading for buildings
BS 6570 Code of practice for the selection care and maintenance of steel wire ropes
BS 6668–1/2 Textile lifting slings - Part 1: Specification for lifting slings for general service made from certain natural and man-made fibre ropes. Textile lifting slings - Part 2: Specification for round slings made of man-made fibre for general service.
BS 6994 Specification for steel shackles for lifting and general engineering purposes grade 4 (M).
BS 7035 Code of practice for socketing of stranded steel wire rope
BS 7121–1/2 Code of practice for the Safe Use of Cranes
BS EN 292-2 Safety of Machinery; Basic concepts, general principles for design - Part 2: Technical principles and specifications
BS EN 418 Safety of machinery – Emergency stop equipment, functional aspects. Principles for design.
BS EN 698 Fibre ropes for general service - Manila and sisal
BS EN 701 Fibre ropes for general service - General specification
BS EN 795 Protection against falls from a height, anchor devices, requirements and testing.
BS EN 818-2 Short link chain for lifting purposes – Safety - Part 2: Medium tolerance chain for chain slings - Grade 8.
BS EN 1261 Fibre ropes for general service - Hemp
BS EN 1677-1 Components for slings – Safety – Forged steel components - Grade 8.
BS EN 1677-2 Components for slings – Safety – Forged steel lifting hooks with latch - Grade 8
BS EN 1677-4 Components for slings – Safety – Links - Grade 8
BS EN 12275 Mountaineering equipment – Connectors – safety requirements and tests
BS EN 25817 Arc-welded joints in steel – Guidance on quality levels for imperfections
BS EN 30042 Arc-welded joints in aluminium and its weldable alloys. Guidance on quality levels for imperfections
BS EN 60204 Safety of machinery. Electrical equipment of machines - Part 1: Specification for general requirements
DIN 1142 Wire rope grips for rope terminations to meet safety requirements DIN 15315 Symmetrical wedge sockets for wire ropes
BS 3810 Part 5: Terms used in connection with lifting tackle
BS 3810 Part 6: Terms used in connection with pulley block
BS 5950 Structural use of steel
BS 6399 Loadings on buildings

Rigging Method Statement

BS 8118 Structural use of aluminium
DIN 1142 Wire rope grips
DIN 15315 Wedge socket (Elevator type, for wire rope termination)

Fall Arrest Equipment Standards

EN 361 Harness for fall arrest
EN 355 Energy (shock) absorbers for industrial use
EN 360 Retractable line fall arrestors
EN 362 Connectors (karabiners) for industrial use
EN 354 Lanyards
EN 363 Complete fall arrest systems
EN 353-1 Fall arrestors on a rigid anchorage line/rail
EN 353-2 Fall arrestors on a flexible rigid anchorage line/rope
EN 795 Anchors for fall arrest, Types A,B,C,D

Work Positioning Equipment

EN 358 Sit harnesses
EN 358 Lanyards for work positioning (pole straps, etc)
EN 341 Descenders
EN 567 Rope clamps (ascenders, etc)
EN 12278 Pulleys
EN 1891 Ropes for “industrial” rope access and climbing

Helmets

EN 397 Construction industry safety helmets
EN 12492 Mountaineering helmets