



# EUROPEAN ARENAS ASSOCIATION

## GUIDANCE FOR RIGGING IN EUROPEAN ARENAS

Version 6.1

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### FOREWORD

This document has been produced with the input of many individuals within the venue operation and rigging industries. Contributors have included house riggers, rigging contractors, health and safety managers and operations managers with responsibility for rigging in their venues. Some of the content is taken or adapted from existing venue rigging codes / rules.

During the many meetings that have taken place, there have been a number of subjects that have created lengthy discussion; however, the one subject that invariably raises emotion in everyone is the need for timely and appropriate information. This is mentioned in Section 11 of the guidance but is also mentioned here because lack of good quality information submitted within a reasonable period before an event is the one complaint that consistently arises from venues. It is the key to forward planning and an efficient and safe operation on site. There are many events for which accurate rigging plots, detailed method statements and risk assessments are forwarded to venues well in advance of an event, however there are also many where inadequate or inaccurate information is produced and is not made available until very close to the event and sometimes on the day of the event. It cannot be over-stressed that accurate, timely information is a major factor in improving safety and reducing conflict on site.

### **INTRODUCTION**

This rigging guidance has been produced by members of the European Arenas Association (EAA) for use in EAA venues.

Its purpose is to provide:

- Guidance to venue operators on a wide range of safety matters relating to rigging, in order to ensure the health, safety and welfare of anyone working in or visiting EAA venues.
- Advice to riggers and rigging companies on general venue requirements relating to rigging and associated activities.
- Advice and guidance on the use of personal protective equipment (PPE) and commonly used rigging equipment.

This document is NOT intended to be a technical manual for riggers; however it should be regarded as setting minimum operational standards expected of riggers.

The guidance is structured such that it can be applied in any venue and it is therefore general in nature. It should be used in conjunction with any venue specific and national rules and regulations.

### **DEFINITIONS**

#### **Rigging**

For the purpose of this guidance, 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. Theatrical counterbalance flying systems are not included.

#### **Lifting Equipment**

Any item used to raise, lower or suspend a load.

#### **Employer**

A person or entity which hires the services of another.

#### **Safe Working Load (SWL)**

The maximum load that equipment may safely lift.

Note: The Machinery Directive 98/37/EC refers to Maximum Working Load. In some cases, the term Working Load Limit (WLL) is used.

<b>CONTENTS</b>	<b>PAGE NO.</b>
Foreword	2
Introduction	3
Definitions	3
Contents	4-5
<b>1. Legislation</b>	<b>6</b>
<b>2. Responsibilities</b>	<b>6</b>
2.1 Employers Responsibilities	6-7
2.2 Employees / Self-employed Responsibilities	7
2.3 Reporting of Accidents	7
<b>3. Competency</b>	<b>7-8</b>
<b>4. General Safety Precautions</b>	<b>8</b>
4.1 Working Underneath Rigging Operations	8
4.2 Working at Height	9
4.3 Hours of Work	10
<b>5. Personal Protective Equipment</b>	<b>10</b>
5.1 General	10
5.2 Rescue	10
<b>6. Lifting Equipment</b>	<b>11</b>
6.1 Legislation	11
6.2 General	11
<b>7. Examination and Inspection of Equipment</b>	<b>11</b>
7.1 The Nature, Type and Frequency of Examinations	11
<b>8. Working Practices</b>	<b>12</b>
8.1 General Conditions	12
8.2 Suspension Points & Method of Attachment	12
8.3 Bridles	12
8.4 Load Spreader Beams	12
8.5 Truss Systems	12
8.6 Slinging	13
8.7 Work Areas	13
8.8 Suspended Signs	13
8.9 Catenaries	13
8.10 The Installation of Secondary Suspensions	14

<b>9.</b>	<b>Insurance &amp; Public Liability</b>	14
<b>10.</b>	<b>Access Equipment</b>	14
	10.1 Flexible Ladders	14
	10.2 Mobile Elevated Work Platforms	14-15
<b>11.</b>	<b>Planning and Provision of Information</b>	15
	11.1 Lifting Equipment Documentation	15
	11.2 Risk Assessment	15

### 1. LEGISLATION

1.1 European Health & Safety legislation, Approved Codes of Practice, guidance and general “good practice” apply to rigging operations as they do to all work activities. The overall aim is to secure the health, safety and welfare at work of employees, the self-employed and all other persons who may be affected by work activities (e.g. audiences). Each country has its own laws and regulations, many of which originate from EU Council Directives for example:

- Directive Number 89/654/EEC Health and Safety at Work
- Directive Number 98/37/EC Machinery
- Directive Number 89/655/EEC Use of Work Equipment

Anyone who is involved in or has responsibility for rigging operations should ensure that he / she is familiar with the Regulations that apply in the country in which he / she is working.

1.2 Please refer to the European Arenas Association website for information on regulations, codes, guidance and standards applicable in individual member countries.

1.3 Venues should reserve the right to inspect all rigging, working methods and equipment to ensure compliance with relevant legislation, codes of practice etc, and to refuse to permit the use of non-compliant equipment and working methods.

### 2. RESPONSIBILITIES

In order to ensure compliance with legislation, everyone involved in or controlling rigging operations have responsibilities to themselves and to others. There is a general hierarchy to the process but it is important to note that persons in overall control always retain some degree of liability for activities carried out under that control, even when specialist contractors are hired in to do the work.

#### 2.1 Employer Responsibilities

Venues generally may be considered as shared workplaces where employers responsibilities fall upon the venue and its hirer's and agents which may include venue management companies, promoters, organising companies, production companies and rigging contractors.

Effective communication between all employers is paramount. Particular attention should be paid to communication when different nationalities and therefore different languages are involved. It is easy for misunderstandings to arise when people are using a language that is not their first language.

Under Health & Safety Legislation an employer has a duty to ensure, so far as is reasonably practicable, the health, safety and welfare of his employees and that the activities being undertaken do not affect the safety of others, including members of the public.

This duty covers the following areas:

- Provision and maintenance of plant and systems of work so that they are safe and without risk to health.
- Ensuring reasonable arrangements are in place for the safe use, handling, storage and transportation of articles and substances.
- Provision of information, instruction and training to his employees.
- Ensuring the workplace is safe, including safe access and egress, and is without risk to health.
- Provision of adequate facilities to look after the welfare of employees whilst at work.

This duty extends to those who may be contracted to undertake work on behalf of the employer who will, in this case, be acting as a Client. The Client cannot absolve himself of the principle duties outlined above by contractually deferring them to his contractor or sub-contractors. Even though the Client may be contractually two or three times removed from an individual working on a project, he still carries responsibility for that individual's conduct. This duty also applies to the self-employed. Wherever possible, documentation should be put in place and signed by relevant individuals.

Should an accident occur to a contractor or sub-contractor, the Client will be expected to demonstrate to an enforcement agency that he undertook the appropriate measures to ensure that his contractors were competent and possessed the appropriate skills and resources to safely undertake the project involved.

## **2.2 Employees / Self-Employed Responsibilities**

Under Health and Safety Legislation, employees and the self-employed have a duty of care to look after their own health and safety and that of others they may affect by their acts or omissions.

These individuals carry a responsibility for ensuring that all equipment being used has been properly maintained and inspected; whether this equipment is owned by the individual or by a third party.

Individuals also carry responsibility for ensuring that they are fit and able to carry out particular tasks, this includes control of working hours and ensuring that appropriate rest periods are taken. (Working Time Directive No 93/104/EC and Amendment Directive 2000/34/EC).

## **2.3 Reporting of Accidents**

Any accidents involving rigging operations shall be reported to venue management immediately in addition to any other statutory reporting requirements that may be applicable.

# **3. COMPETENCY**

- 3.1 Rigging operations shall be undertaken and supervised by competent persons who are qualified by training and experience. A competent person is someone who has sufficient training and experience or knowledge to carry out rigging operations safely.

- 3.2 A rigging company should have an authorised person to advise on rigging matters. The authorised person should have the practical experience and theoretical knowledge of the use of any equipment to be used to enable faults and weaknesses to be assessed and to determine whether such equipment is able to perform within its design limits.

The authorised person should carry out periodic examinations in line with relevant European Legislation and the approved company examination regime, or at more regular frequencies.

The authorised person should have the appropriate authority to reject defective equipment as unsuitable for the purpose intended without concern for company economics or for continuance of employment.

- 3.3 Ground riggers should have a level of knowledge to enable them to undertake the inspection of lifting equipment and accessories to prepare them for lifting and, whilst not necessarily having the experience for working at height, have the same knowledge as that of a climbing rigger.

- 3.4 Depending on local circumstances training for riggers may include the following:

- Rope access techniques in accordance with current legislation and guidance
- Emergency First Aid
- Manual Handling Techniques
- Mobile Elevated Work Platforms and other similar equipment
- Rescue Techniques

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 and a record of this training kept in the company files.

## 4. GENERAL SAFETY PRECAUTIONS

### 4.1. 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 to close off the area entirely. When this is not possible, the area shall be designated a “Hard-Hat” area and a designated individual e.g. a ground rigger shall prevent others from entering the exclusion zone.

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.

**4.2. Working at Height**

Duty Holders must:

- 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 measures to minimise the distance and consequences of a fall should one occur.

Work at height must be properly planned, appropriately supervised and undertaken by competent individuals.

Rigging Work at height should not be undertaken by an individual without a second person on hand to react to any accidents or safety related situations that may arise. Ideally that person should be a competent climbing rigger.

Work at height should not be undertaken by an individual who is feeling unwell or suffering from a condition (physical or mental) that may result in difficulties when working at height. Any such condition must be reported to the Rigging Manager / Supervisor prior to work commencing.

Under no circumstances shall rigging personnel be under the influence of alcohol and / or drugs while carrying out rigging operations.

Riggers should obtain confirmation from their Doctor / Physician 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 Safe Working Load (SWL) of any item of access or rigging equipment shall not be exceeded.

High-level walkways and work areas must be kept clear of loose equipment at all times. An inspection of the work area should be undertaken before work commences and upon completion of work. 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.

#### 4.3. Hours of Work

Employers should refer to the relevant national regulations or the EU Working Time Directive (93/104/EC) and Amendment Directive (2000/34/EC). 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.

### 5. PERSONAL PROTECTIVE EQUIPMENT

#### 5.1 General

Personal Protective Equipment (PPE) for working at height must be provided by employers and the self-employed. Typically, PPE will consist of a full body harness, hard hat, energy absorber with two connectors attached to the harness by the shortest possible lanyard and sometimes also a work positioning lanyard.

The users of the PPE must be trained in its use and inspection. Inspections should be documented. Equipment should be renewed in accordance with any manufacturers' recommendations.

Guidance on the use of commonly used items of PPE is contained in relevant European Norms.

#### 5.2 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. Venues and riggers must have in place a rescue plan and the appropriate equipment and training for a rescue operation.

Within the venue, safe systems will be available such as horizontal lifeline systems, catch net systems, fall arrest systems or some combination of these. Ideally consideration will be given to self-rescue methods during the design and installation phases of such systems.

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

- Correct PPE i.e. compliant with the recommendations in Section 5 of this guidance.
- The risks of lone working. A second person that should ideally be a competent climbing rigger will be able to react immediately to a situation.
- 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.
- 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.

- Availability of telephone numbers and contact details for relevant individuals and agencies.

## **6. LIFTING EQUIPMENT**

### **6.1 Legislation**

All lifting equipment used shall comply with all current relevant legislation (See 1.1 of this Guidance.)

### **6.2 General**

All lifting equipment and accessories designed in accordance with the Machinery Directive shall:

- Have the SWL/WLL clearly marked
- Carry the CE mark
- Carry an individual distinguishing mark
- Be used in accordance with the manufacturers instructions / guidelines
- Be of sound material, construction and free from defects
- Be tested, inspected and maintained in accordance with manufacturer's recommendations and relevant legislation.

Current valid records and / or certificates of test / inspection must be available for all lifting equipment.

Lifting equipment should only be used by competent persons.

## **7. EXAMINATION AND INSPECTION OF EQUIPMENT**

Examination and inspection of lifting equipment is fundamental to safety in rigging operations.

### **7.1 The nature, type and frequency of examinations**

All equipment used in rigging shall be subject to an examination and inspection scheme that is compliant with relevant national legislation and manufacturers recommendations.

In general, the examination and inspection scheme should specify the nature of the examinations and inspections to be undertaken and the intervals between them and should ensure that all examinations and inspections are documented.

If any equipment becomes damaged **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.

Electrically operated equipment should be subject to an appropriate testing scheme. Records should be available and the equipment suitably marked and documented.

**8. WORKING PRACTICES**

**8.1 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 (Head Rigger) should be nominated for all rigging operations.

**8.2 Suspension Points and Method of Attachment**

Arenas will have venue specific requirements / regulations regarding suspension points, method of attachment 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.

**8.3 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 time be the minimum possible to keep the forces 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 SWL/WLL clearly marked and shall be suitable for the load to be applied.

**8.4 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 specifically designed or manufactured beams are employed, a certificate of independent test and examination will be available for inspection and the SWL/WLL clearly marked.

**8.5 Truss Systems**

All truss systems should be used in accordance with manufacturers' instructions / guidelines.

Consideration should be given to the need for truss-mounted equipment to be fitted with a back up safety chain or safety steel having an appropriate SWL/WLL.

**8.6 Slinging**

Slinging of equipment and loads shall be undertaken to manufacturers' instructions / guidelines.

Prior to final lifting, a check will be made at ground level and any necessary adjustments made.

### **8.7 Work Areas**

Every arena will have its own specific rules and guidelines for rigging operations work areas. Some points for consideration are:

- Areas for rigging operations to be clearly defined and access to such areas restricted to competent personnel.
- Communication between persons working at high level and ground crew.
- Notification of rigging operations to other personnel working in or near areas where rigging is taking place.
- Designation of temporary storage and assembly area for rigging equipment.
- Provision of Safety signs.

### **8.8 Suspended Signs**

Any signs supplied for rigging shall be checked to ensure they are fit for suspension.

An assessment should be made by a competent person of the requirements for the safe rigging of every sign.

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 venue will reserve the right to refuse to allow the suspension of any signs where the suspension fitting supplied is inadequate.

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.

### **8.9 Catenaries**

The installation of catenary wires is a high-risk activity. The rules for installation of catenary wires should always be checked with the arena management. Installation of catenaries should never take place when members of the public are present.

### **8.10 The Installation of Secondary Suspensions**

Where appropriate, the installation of Secondary or "Safety" suspensions for suspended loads should be considered. The requirement for this varies between countries and arenas. In some countries there may be a mandatory requirement for secondary suspensions in some circumstances.

When required, the secondary suspension 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 secondary suspensions, thereby providing redundant capacity equal to 100% of the load.

## **9. INSURANCE AND PUBLIC LIABILITY**

The minimum level of liability cover required by rigging companies working within venues will be set by the venue's insurers and may be increased depending on the nature of the services to be supplied.

## **10. ACCESS EQUIPMENT**

All access equipment shall be used in accordance with manufacturers' instructions / guidelines, including the use of harnesses and suitable head protection.

The Safe Working Load 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 Safe Working Load.

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 for use in rigging related operations must ensure that they comply with venue competency requirements.

### **10.1 Flexible Ladders**

Flexible 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 flown structure and positioned directly above the user. In cases where it is intended to attach fall arrestors to ground supported systems, the manufacturer of the support structure must be consulted.

### **10.2 Mobile Elevated Work Platforms**

If it is necessary for an operative to leave a mobile elevated work platform while positioned at high level, he / she must have appropriate PPE and identify a secure point of anchorage for the 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 platform and the structure.**

### 11. PLANNING AND PROVISION OF INFORMATION

As with most activities, the key to safe and successful rigging lies in effective forward planning and exchange of information.

The Client or the Client's representative in the form of Designer, Contractor, and Production Manager Etc. should ensure that accurate information regarding the loads to be rigged is provided to the arena as soon as possible. This is irrespective of whether the rigging will be carried out by venue riggers, touring riggers or outside contractors. Information should also be provided on any moving loads, loads involving people or anything else out of the ordinary. In turn, the venue should highlight any problems, restrictions, regulations and other requirements. Where appropriate, method statements and risk assessments should also be provided.

#### 11.1 Lifting Equipment Documentation

Lifting equipment and accessories are covered under EU Council Directive 98/37/EC Machinery and ensuing national regulations.

Venue owned lifting equipment must have appropriate documentation confirming that it has been inspected / examined in accordance with legislation and manufacturers recommendations. National or Local Authority enforcing departments may require to see documentation at "reasonable notice".

Lifting equipment brought into a venue by others e.g. a touring production, must have accompanying documentation confirming that it has been inspected / examined in accordance with legislation and manufacturers recommendations. This documentation shall be made available to the venue management if requested.

#### 11.2 Risk Assessment

A suitable and sufficient Risk Assessment must be carried out for all rigging and lifting operations.

Those individuals and / or organisations that are responsible for the rigging and lifting operations must carry out the Risk Assessment. The Risk Assessment must be documented and available for examination.

## Venue specific instructions at the Stockholm Globe Arenas

Table of content:

1	Definitions
2	General safety
3	Personal Protective Equipment (PPE)
4	Suspension points
5	Lifting equipment
6	Truss systems
7	Rope access
8	Technical level and technical bridge
	Appendix 1 European standardize norms
9	Addresses
10	Signature

### 1 Definitions

- 1.1 A working place is considered as working from height when there is a risk of injury by falling, even at ground level.

Duty holders shall:

- **Avoid working at height**
- **Use workequipment 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 measures to minimise the distance and consequences of a fall should one occur.**

- 1.2 Working alone at height is not permitted.

- 1.3 This Code of Practice shall govern all work at the Stockholm Globe Arenas, SGA.

- Ericsson Globe
- Annexet
- Hovet
- Söderstadion

and also outside on our premises.

- 1.4 The SGA erves the right to inspect all rigging, working methods and/or equipment and to refuse to allow its use if considered to be unsafe, unstable, unfit for use or not complying with this Code of Practice.

- 1.5 A responsible individual, i.e. a headrigger, must supervise all rigging taking place. He/she, must be competent with practical and theoretical knowledge and experience and have the qualities to be capable of predicting potential hazards and have the authority to take action to eliminate such hazards.

### 2 General Safety

- 2.1 There are three different levels of securing the arenas from the risk of crew and others entering a potential danger zone whilst rigging and working at a height. When work at height are in progress a strobe light will be turned on in all enterances. A ground rigger has to be wearing a hardhat and a red hi-viz vest marked "Ground rigger".
- **Close off the entire arena.**
  - **Close off part of the arena.**
  - **One designated crew member at ground level aka. "groundrigger", wearing hardhat and a hi-viz vest, must prevent people from entering a potential danger zone. Even though the arena is closed off entirely a "groundrigger" should supervise.**
- 2.2 When entering the arena while rigging or similar work overhead is in progress the person entering the arena must be aware of the consequences it involves. He/she, must obey and respect the order of management and staff in charge of the production, e.g. the headrigger, groundriggers or the SGA event technician.
- 2.3 Hard hats must be worn at all times when rigging and dismantling or whenever there is a risk of being hit by falling objects. This applies to every person that is situated in the arena. Hard hat must be worn until all rigging is completed and the trusses are on trim height. The hard hat must be CE approved as industrial safety helmet according to norm: EN 397. The SGA event technician determines when rigging/dismantling has started and when it has ended. Signs will be placed at every entrance and stroboscop light will be turned on when hard hat is mandatory.
- 2.4 No person should walk or work under a suspended load whilst it is being installed or is moving up or down.
- 2.5 Tools or equipment shall never be carried aloft by way of vertical access ladders, it should be hoisted up by the means of rope. Particularly care must be taken not to leave any tools or equipment at high levels, especially on trusses being rigged.
- 2.6 When working at height no person must work alone or unsupervised.
- 2.7 It is important that rigging is completed within its designated time frame, in order not to hinder other operations in the arena.
- 2.8 Scaffold work must be planned in order to avoid falling accidents.

### 3 Personal Protective Equipment (PPE)

- 3.1 PPE must consist of a full body harness, hard hat, energy absorber with two connectors attached to the harness by the shortest possible lanyard.
- 3.2 If there is a risk of falling a complete PPE **must** be worn
- 3.3 A sit harness is **NOT** approved as PPE.
- 3.4 Solely static sling or rope is **NOT** allowed.
- 3.5 All PPE equipment must be CE approved.

#### 4 **Suspension Points and Clearance**

4.1 The suspension points at SGA venues vary depending of the arena.

##### The Ericsson Globe

**Maximum loads are affected by distance from venue center.**

Maximum load on the lower technical bridge is 38.5 ton.

Maximum load on the lower technical bridge with the scoreboard removed is 50 ton.

Out of these approximately 25 ton can hang in the existing Slick SuperBeam truss grid (23.3x19.5m), which is moveable in a northern-southern direction.

Maximum load on the upper technical bridge is 60 ton.

This upper bridge is located in the northern part, ie. the normal stage area, of the arena.

The lower technical bridge has designated nodes for a maximum load of 2.5 ton, at 35m of height, beneath the bridge. The nodes are 2.5m apart.

The upper technical bridge has 90mm tubing, at 39m of height, running in a northern-southern direction. Each section between the support beams has a loading capacity of maximum 2.5 ton. These tubing are located on the outside and 50cm above the technical bridge floor level.

The scoreboard in the center of the venue has a max clearance of 20.5m.

With the truss grid under the scoreboard clearance is 18.5m.

When the scoreboard is removed clearance under venue PA is 25m.

With the truss grid under the PA and the scoreboards removed clearance is 23m.

##### **Annexet**

###### Primary beams upper node

A vertical load or bridle of maximum 2 ton is accepted in every node.

The bridles max angel is 90 degrees.

###### Primary beams lower node

The beams lower can be loaded with maximum 2 ton every other node or 1 ton every node.

Maximum 1 ton is accepted between the nodes every other node if the in-house movable steel rigging point is used.

###### Secondary beams

Theses beams are limited to maximum 1 ton distributed load.

Only vertical loads are allowed.

All beams have a clearance of 10m.

##### **Hovet**

Maximum 7.5 ton spread loads per ceiling steel wire

Maximum load of a deadhang is 1 ton if steel is used.

Maximum load of a deadhang is 2 ton if a 50mm spanset is used.

Clearance to ceiling steel wire is approx. 17m.

Clearance to technical bridge is 15m.  
Clearance to centerhung scoreboard is 10.5m.

### **Söderstadion**

Outdoor arena.

Suspension points to be discussed with the SGA event technician.

- 4.2 We require rigging plots, complete with weight distribution, well in advance of the event. Please send plots as either mail, fax, e-mail, pdf-file or AutoCad 2009 (dwg-file).

## **5 Lifting Equipment**

- 5.1 The SGA reserves the right to inspect all working methods and lifting equipment and to refuse to allow its use if considered to be unsafe, unstable, unfit for use or not complying with this Code of Practice.
- 5.2 No item shall be used for any purpose other than constructed and intended for.
- 5.3 Chains, on motors, are required to be lubricated according to the manufacturer's specification.
- 5.4 Chain bags must be rigged correctly to prevent any risk on chain spillage.

## **6 Truss systems**

- 6.1 All work on a truss where there is a risk of falling full PPE must be worn. Work shall be planned and supervised so assistance can be given at an instant if there is an emergency.
- 6.2 When trusses are connected R-clips must never ever be replaced by PVC tape.
- 6.3 Care must be taken not to leave any tools or equipment on trusses being rigged.
- 6.4 If steel wire ropes are used for rigging points in the SGA existing Slick SuperBeam or Slick MaxiBeam truss grid, it is required to use burlaps or similar to prevent damage to the truss.
- 6.5 If any trusses are to be moving with people on the truss, we require to be informed in advance.
- 6.6 Trusses that are to be moving during the event should be secured with load arrests.
- 6.7 If any trusses are to be moving with people on the truss, we require to be informed in advance.
- 6.8 Electrically powered hoists must be cut off from the power supply once hoisting procedures are completed or when on "trim".
- 6.9 Operators of the hoisting control system are for safety reason required to make sure that unauthorised personnel cannot run the system.
- 6.10 Prior to final hoisting of a truss, a check of the system is to be made at ground level by the headrigger.
- 6.11 Every fixture, or similar, on a truss must be secured by safety wire.
- 6.12 Depending on the rigging situation, rigging points may be required to have a safety installed to bypass the point in case of mechanical failure. This is to be discussed with the SGA event technician on duty.

- 6.13 Access to a truss or similar by means of vertical access ladders or climbing a ground support tower must have a fall arrest system in place, either a fall arrest or a static rope running the complete length of the tower.
- 6.14 All trusses which are to be accessed manually should be fitted with a horizontal lifeline system.

### 7 Rope Access

Statue Book of the Swedish Work Environment Authority AFS 2004:5

The use of working equipment (excerpt)

“5.2 Special rules regarding the use of ropes to reach the working place and performing the work itself (rope access).

When ropes are used to reach the working place, the following directions must be fulfilled.

- 7.1 The rope system must consist of at least two independently anchored ropes, one for descending and/or work positioning, the second as a safety.
- 7.2 The person in question must wear a full body harness and this harness must be attached to the safety rope as well as the work rope.
- 7.3 The person in question must be attached to the work rope with devices for descending as well as ascending the rope, and equipped with a system that automatically locks, if he/she for some reason loses the control of the rope.  
The safety rope shall be equipped with a mobile device that prevents a fall if loss of control occur, and that moves with him/her.
- 7.4 The tools and other equipment to be used by the person in question must be secured to the harness.
- 7.5 The work must be supervised by another qualified person, not working on the rope himself. The work must be planned so that the person on the ropes can be assisted at once, if emergency occurs.
- 7.6 The person in question must have undergone a special education regarding rope access, especially in reference to rescue operation.
- 7.7 The person in question must wear a hard hat. In addition the PPE must be used if needed.”
- 7.8 The Ericsson Arena has one Rescue Kit as well at Hovet. They are located at the technical level.
- 7.9 Rope access is to be done in consultation with the SGA event technician on duty.

### 8 Technical Levels & Technical Bridges

- 8.1 In order to gain access to The Ericsson Globe and Hovet technical levels & technical bridges we require that you read, sign and follow the guidelines in this chapter.
- 8.2 Access to the technical levels and/or technical bridges is only allowed after approval by the SGA technical engineer on duty on every occasion. The door must be kept closed and locked.
- 8.3 It is **NOT** allowed to enter the technical bridge without a ground rigger, wearing a hardhat and hi-viz vest, on groundlevel making people aware of men working overhead.
- 8.4 When working at the technical bridge or elsewhere at height there lays a huge liability on you to guarantee that other people beneath you are not in any risk of danger.

## GUIDANCE FOR RIGGING IN EUROPEAN ARENAS

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- 8.5 The communication between riggers aloft and ground crew must be secured by radio/walkie talkie. The SGA has some designated units to borrow for this purpose. Mobile cell phone is not allowed.
- 8.6 Access to the technical bridges is generally **NOT** allowed when the public are in attendance.
- 8.7 The technical bridges are to be kept clear of obstructions and equipment at all times. If any equipment is to be brought out on the technical bridges it must be authorized by the SGA event engineer on duty prior to entering the technical bridges.
- 8.8 In the Ericsson Globe, if a gridplate to the rigging point is removed, it must be replaced as soon as possible. If, for any reason the gridplate is left unguarded or must be removed for a longer period of time, it is required to clearly mark this area and hinder passage.
- 8.9 When working on the Ericsson Globe and Hovet technical bridges, tools and/or equipment brought out on the technical bridges must be kept to an absolute minimum. Only items necessary for the work to be carried out shall be brought out. Make sure that pockets are emptied. Tools that are to be brought out must either be attached to the harness or placed in a storage box or similar. We recommend that you use a blanket to protect any tools and/or equipment from falling through the grid at the point of work.
- 8.10 If descending by rope access to the existing Slick SuperBeam truss grid in the Ericsson Globe it is recommended that the permanent anchor points in the lower bridge designated for rope access are used.
- 8.11 If the rigging situation, in our venues, demands climbing down below and under the technical bridge, this work is deemed as rope access and the work must be planned so that the person can be assisted at once, in an emergency situation.
- 8.12 If cables are to be hoisted up and tied off at the technical bridge, this work has to be supervised by a competent rigger. Avoid connectors in mid air.
- 8.13 When rigging on the steel wire ropes at Hovet are carried out by climbing riggers a minimum of one competent person in rescue operations shall be located on site on the technical bridge to be able to aid in case of emergency.
- 8.14 It is strictly prohibited to refocus the armatures on the technical levels and technical bridges. At Hovet the fixtures can be rotated to gain access to the wire in the ceiling. However there might be some restrictions with regards to bridling close to the technical bridge due to fixtures blocking the area. This has to be planned well in advance. It is imperative that the fixtures are returned to its correct position after rigging/dismantling is completed.
- 8.15 In the roof at Hovet approx. 5m outside the dashers there are projectors installed. These are not to be affected by any rigging. The truss system supporting the projectors are not allowed to use for show rigging at this moment.
- 8.16 Other armatures or similar may be allowed to hang on the railings after approval by the SGA event technician on duty.
- 8.17 Working ropes are allowed to be dropped down to ground level, after work is completed, but this has to be supervised by a groundrigger and only dropped straight down. It is not allowed to make the rope start to swing at the lower end.
- 8.18 Smoking is **NOT** allowed in any area on the technical bridges and technical levels.
- 8.19 No beverages are allowed on the technical bridges.
- 8.20 It is **NOT** allowed to put any equipment of any kind in the boxes for our flags.

- 8.21 Any item brought to the technical levels or technical bridges are to be brought back down by the end of the day.
- 8.22 No work is allowed that involves power tools, welding and/or cutting with angle grinders or similar. This kind of work requires special education and approval by the SGA event technician on duty.

### Appendix 1 European standardise norms

#### CEN TC160 Personnel Protective Equipment/Equipment for professional use

- EN 341 Descender devices
- EN 353-1 Guided type fall arrests including a rigid anchor line
- EN 353-2 Guided type fall arrests including a flexible anchor line
- EN 354 Lanyards
- EN 355 Energy absorbers
- EN 358 Work positioning lanyards
- EN 361 Full body harnesses
- EN 362 Connectors
- EN 397 Industrial safety helmets
- EN 795 Anchor devices
- EN 813 Sit harnesses
- EN 1496 Rescue lifting devices
- EN 1498 Rescue loops
- EN 1891 Low stretch kernmantel ropes

## 9 Addresses

Event technician

Stockholm Globe Arenas  
P.O. Box 100 55  
121 27 Stockholm Sweden

Phone: + 46 8 600 9100  
@: [info@globearenas.se](mailto:info@globearenas.se)  
www: [www.globearenas.se](http://www.globearenas.se)

10 **Signature**

I.....have as of this day 2012-.....-.....  
read and understood the "Guidance for Rigging" at the Stockholm Globe Arenas

Name (print) : .....

Birth date: .....

Company: .....

@: .....

Cell phone no: .....

Instructor: .....

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