

**In conjunction with:**

## **The European Ropes Course Association**

### **The UK Ropes Course Guide Third Edition – March 2011**

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**Appendix A**, 16<sup>th</sup> February 2010

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## **Note:**

This guidance is intended to assist all those involved with ropes courses to comply with EN15567:2007 which sets out the standards to be met for the installation of new ropes courses and the operation of both new and existing courses.

This guidance will be updated annually. Comments on the content are welcome. The procedure for submitting comments can be found at the end of this document.

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*Compliance with this guidance does NOT infer approval, endorsement or similar compliance with any of the named contributors to this guidance and does not entitle any organisation to use their logos or similar identification.*

## 1. Foreword

Following the inception of the new European Ropes Course Standard (EN15567:2007) in March 2008 and Working at Height Regulations, the Adventure Activities Industry Advisory Committee AAIAC requested the European Ropes Course Association (represented by Nick Moriarty), to coordinate the production of a single document for operators, trainers, builders, inspectors and constructors of ropes courses.

A European Standard is rarely reviewed within 5 years of its inception. However, in March 2010 a decision was taken by CEN to carry out an immediate review of EN15567:2007. This decision is a reflection of the rapidly developing ropes course industry. Completion of this revision is likely to coincide with the fourth revision of this UK Guidance (i.e. 2012) and therefore it is likely that the 2012 edition will contain some significant changes.

Although the first ropes courses were established in the UK sixty years ago, the industry has only flourished in the last twenty years. Unlike most adventure activities, ropes courses did not evolve as a sport or a pastime; instead they were developed as a tool for personal and team development. In this respect they remain one of the most powerful tools for outdoor experiential learning and are used to this end the world over. The use of ropes courses as a recreational activity is a more recent development in the UK and whilst this is a rapidly emerging industry their use as a developmental tool still prevails.

Initially the fastest development in the ropes course industry occurred in the United States; however, since 1995 the greatest advancements have occurred in Europe. In 2003 the European Ropes Course Association (ERCA) was formed and its membership has increased rapidly. The forerunner to ERCA was the German Ropes Course Association.

In the UK the Advisory Association for Ropes Courses and Initiatives (AARCI) was inaugurated in 1995; however, after producing the first set of useful UK guidelines it had served its purpose and fizzled out of existence a few years later.

The Association for Challenge Course Technology (ACCT) was formed in the United States in the early 1990's. ERCA and ACCT cooperate in sharing information in the interests of the wider ropes course community.

Despite the high potential for risk, the ropes course industry remains largely unregulated; however, through the European Standard a successful attempt was made to collate good working practice from across the European Union. ERCA too has been instrumental in collating good ropes course practice and actively collates accident data and remains at the forefront of industry developments.<sup>1</sup>

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<sup>1</sup> Other ropes course associations include the Professional Ropes Course Association (PRCA) in the USA and the International Adventure Parks Association based (IAPA) in Germany

## 2 Abbreviations:

Solely for the ease of reading the document the following abbreviations have been adopted.

Full Name	Abbreviation
Adventure Activities Industry Advisory Committee	AAIAC
Adventure Activities Licensing Regulations 2004	AALR
Adventure Activities Licensing Service	AALS
European Ropes Course Association	ERCA
European Ropes Course Standard EN15567:2007 (generally)	EN
European Ropes Course Standard EN15567:2007 Part 1 Construction and Safety Requirements (specifically)	EN 1
European Ropes Course Standard EN15567:2007 Part 2 Operation Requirements (specifically)	EN 2
European Ropes Course Standard EN15567:2007 Part 1 and Part 2	EN 1 & 2
Health and Safety	H&S
Health and Safety Executive	HSE
Health and Safety at Work	HSW
Lifting Operations and Lifting Equipment Regulations	LOLER
Personal Protective Equipment	PPE
United Kingdom	UK
Work At Height Regulations 2005 (as amended)	WAHR

### 3. Introduction:

It is intended that those applying this document do so in conjunction with reference to:

- European Ropes Course Association (ERCA) Standards (revised addition due Spring 2009)
- EN15567:2007 parts 1 & 2 (EN)
- Health and Safety at Work Act 1974 (HSW)
- Work at Height Regulations 2005 (as amended) (WAHR)

The document seeks to summarise key information for:

- **Construction**
- **Inspections & Maintenance**
- **Operation**

#### Explanatory Note: EN General

The EN was initiated by the French and Germans in an attempt to formalise the standards of the ropes course industry. UK representation, on the committee of experts, was poor initially but by the end of the process UK interests were representative of our industry.

When the process of drafting the EN commenced (2005) the ropes course industry, across Europe, was very well established. Significantly the evolution of recreational ropes courses in France resulted in very different methods of operation to those typically found on traditional ropes courses. Furthermore the inevitable conflict between the commercialisation of ropes courses and traditional approaches to operation was frequently an issue. It is fair to say therefore that the resulting EN consists of some very significant compromises. The revision to the EN that is currently underway (referred to in the introduction) will attempt to make the document more intelligible, detailed and workable.

There was broad agreement amongst experts in the compilation of Part 1 of the EN (relating to construction and safety requirements). Part 2, relating to the operation of ropes courses, was a great deal more contentious. Interestingly it was the first time that any European Standard had sought to “define” how something should be used. As a general rule European Standards define how products are built and tested. These tend to be very measurable processes and consequently are well suited to standardisation. How a ropes course should be used is more subjective and this continues to create the greatest area of debate amongst EN experts.

Issues relating to construction and inspection standards were often more advanced elsewhere in Europe than in the UK. This can probably be attributed

to the fact there has been more “formal” intervention in these processes. Independent inaugural inspections, for example, have been the norm in France and Germany for a long time; whereas, in the UK constructors have historically “passed” their own work.

## 4. General:

Constructors and operators have duties under general health and safety legislation. This guidance document does not deal with these general duties and competent advice should be sought regarding these and other general legal obligations.

Compliance with the EN is not a legal requirement. However, it may be referred to by the health and safety enforcing authorities when considering how a constructor or operator has discharged their health and safety duties. Therefore it is important that operators are familiar with the standard.

### Ropes Course Definition

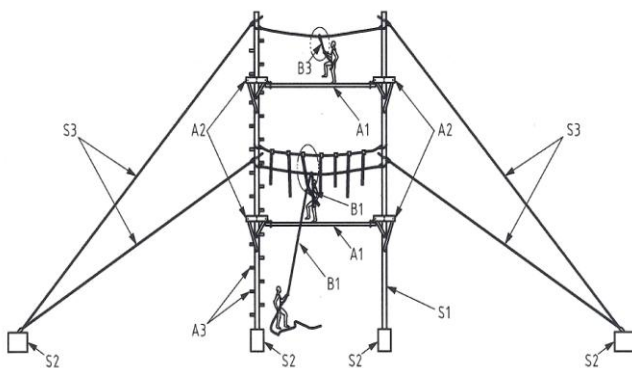
The EN defines a ropes course as a “constructed facility consisting of one or more activity systems<sup>1</sup>, support systems<sup>2</sup> and, if needed, belay and/or safety systems<sup>3</sup>. A ropes course is distinct from playground equipment in that it has restricted access and requires supervision” (see below for notes <sup>1-3</sup>).

EN does not seek to differentiate between high and low courses. As a general rule a high ropes course will rely on some form of belay system (see key and diagrams below). A low ropes course is considered the generic term for elements close to the ground (rarely more than 2 metres). Therefore the term low ropes course may also include an assault/obstacle course and initiative exercises. An assault/obstacle course is a series of free standing or linked elements where the emphasis is normally placed on it being a physical challenge (team or individual). Initiative exercises are generally single challenges that require team participation and, as the name implies, the emphasis placed on participants using their initiative.

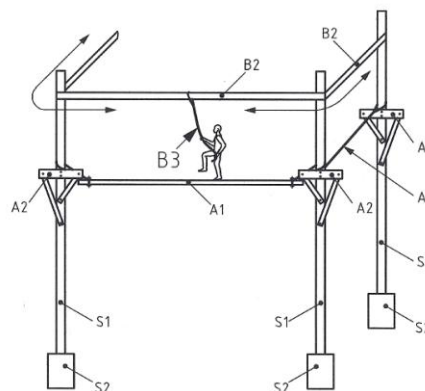
### Key to diagrams below (overleaf):

- <sup>1</sup> Activity Systems Include:
  - A1 Elements
  - A2 Platforms
  - A3 Access
- <sup>2</sup> Support Systems include:
  - S1 Poles, trees, buildings, rock or other supporting structures
  - S2 Foundations, anchors
  - S3 Guy Lines
- <sup>3</sup> Belaying Systems include:
  - B1 Assisted belaying System

- B2 Continuous belaying system
- B3 Self Belaying System



Example of an Assisted and Self Belay Ropes Course



Example of a Continuous Belay Ropes Course

### Key Terms Identified in EN15567:2007 Part 1 (Construction)

**Self-Belaying System** (formerly a cow's tail course) - Belaying system that is operated by the participant him / herself;

**Assisted Belaying System** (formerly a top rope / bottom rope system) - Belaying system where the participant is secured by at least one person;

**Continuous Belaying System** (may utilise rails or cable) - Belaying system that enables participants to progress from one activity system to the next and that does not require participants to undo or change the connection to the belaying system.



**Assisted Belay Ropes Course**



**Continuous Belay (rail system)**



**Continuous Belay (in trees)**



### **Recreational Self Belay Ropes Course**

Note: There now exist “mechanical” self belay systems on the market that have endeavoured to reduce or eliminate the risks of a complete detachment from the safety system associated with the use of “traditional” self belay systems.



### **Low Ropes (spotting)**

#### **Key Terms Identified in EN15567:2007 (Part 2 Operation)**

**Instructor** - Person who has been trained to undertake the following duties:

- provide the information required to ensure that the equipment and elements are used correctly;
- check that participants use the right equipment;
- assess a participant's ability (e.g. on a self belay course by means of an induction course);
- ensure that the safety instructions are complied with;
- alert a rescuer if required;
- provide assistance to participants.

**Operator** - Individual or organisation responsible for the operation of the ropes course.

**Rescuer** - Instructor with the additional task of providing assistance and/or bringing participants back to the ground.

**Accident** - Event that results in an injury or was caused by a failure of a critical application.

**Level 1 supervision** - *Situation whereby an instructor can physically intervene.* This level of supervision will normally be reserved for those on an assisted belay course. On an assisted belay course there should be a minimum ratio of one instructor to every four participants at height. The only practical way to implement level 1 supervision on a self belay course is to ensure an instructor is on the changeover platforms to supervise directly clipping and unclipping.

**Level 2 supervision** - *Situation whereby an instructor can clearly see the participant and intervene verbally.* This type of supervision will normally be reserved for those on some parts of a self belay or low ropes course. It may conceivably be extended to those that have been taught how to belay and have practiced and perfected the relevant techniques over a number of hours.

**Level 3 supervision** - Situation whereby an instructor is in a position to communicate verbally with and to provide adequate assistance to participants. This level of supervision will normally be reserved for those on a recreational self belay course who have satisfied an instructor (whilst under level 2 supervision) that they are able to operate their equipment in the correct manner. It may conceivably be extended to those that have been taught how to belay and have practiced and perfected the relevant techniques over a number of days. It will generally be the level of supervision applied to participants on a continuous belay course. Level 3 supervision provides assistance to a participant when sought but may not provide pre-emptive assistance.

#### Explanatory Note: EN: Levels of Supervision

For the most part, the three levels of supervision that have been identified seek to differentiate between the various types of belay systems typically found on a ropes course.

Inevitably there is some cross-over between the three levels but as a general rule those on an assisted belay ropes course will be under level 1 supervision. Similarly participants on a self belay ropes course will normally commence with level 2 supervision and may then progress to level 3 supervision. Those on a continuous belay ropes course will normally be under level 3 supervision from the start.

There may therefore be cross-over between the various levels of supervision. For example an assisted belay ropes course may form part of a school's

curriculum. As a result students may participate on the ropes course every week for an entire school year. Initially they may be taught how to belay under very close supervision (level 1) but as their experience and competence grows so the requirement for high levels of supervision may diminish and level 2 or 3 supervision may be perfectly adequate. Similarly, those who have used a self belay course regularly may not, under certain circumstances, be required to commence with level 2 supervision. Conversely, for example, a risk assessment for people with special needs on a self belay ropes course may well identify increased supervision levels as being required.

The experts on the EN tried at every opportunity to avoid stipulating ratios. Indeed, variations in the experience of instructors, participants, weather conditions aims of the session and the demands of particular courses produce far more variation than can be adequately managed by a simple ratio. The only ratio within the EN relates to those on an assisted belay ropes course where there is a requirement that an instructor should not be responsible for more than 4 people at height at any time. In essence what this means is that an instructor cannot supervise more than four belayers simultaneously. Operators may consider this level to be high but it should be emphasised that it is a minimum ratio and that for inexperienced participants a more conservative ratio should be adopted. Alternatively the methods of supervision and the equipment used may mean that a high ratio, even with novice belayers, is acceptable.

Recommendations on supervision, made by the Adventure Activity Licensing Service (AALS) that relate to the use of ropes courses by Licensed Establishments, can be found in the Appendix to this guide.

## **Hazards and Risks**

There are some inherent risks associated with all ropes course activities. Operators should make participants aware that these risks exist but that through careful management they are tolerable.

Many recreational course operators ensure participants complete an “acknowledgement of risk” form and for certain operations this may be prudent. The appropriateness of this will depend on the relationship between the participants and the operators. The identification of risks should be clear and allow realistic and uninhibited options to any participants, who, as a result, may wish to decline the activity.

There are a variety of hazards that may be found on a ropes course. It must be appreciated that no two facilities will have exactly the same hazards and furthermore the hazards may vary with the participants. Some common hazards found on a high ropes course may include:

- Falling from an activity system to the ground;
- Falling, sliding or swinging into something solid (also common hazards on a low ropes course);

- Falling from an activity system onto another element, or another part of the same element;
- Something being dropped from a height;
- Rope burn - which may in turn lead to a more serious incident such as letting go of a belay rope;
- Entanglement in a rope or net – higher likelihood when helmets are worn;
- Hair, finger or clothing entrapment in belay devices and zip wires.

## **5. Construction:**

Traditionally ropes courses were constructed by enthusiastic outdoor instructors and the early Outward Bound™ courses were good examples of this. Typically builders were climbers and often had some complementary skills such as a familiarity with sailing and associated hardware (e.g. rigging materials like shackles and cable). Courses were erected in trees and the builder was invariably responsible for operating the course, so they naturally understood how it was best managed safely.

As the value of ropes courses became widely recognised so construction techniques became more sophisticated and considered. Full time ropes course builders invested in specialised tools and vehicles and since the mid 1980s an entire industry has developed. The majority of UK courses are now built on poles but they can be found in shopping centres, sports halls and are even attached to rock faces.

### **New Ropes Courses**

The construction of any new ropes course should be fully in accordance with the EN.

#### Explanatory Note: Low Ropes Courses

EN does not differentiate between high and low ropes courses. It is fair to say however that the body of experts involved in compiling the EN had high ropes courses in mind when compiling the requirements (see ropes course definitions to distinguish between the two). Appropriate care should be taken in ensuring that a low ropes course is structurally sound and operationally fit for purpose. It would of course be wholly inappropriate to expect a constructor of a “spider’s web” to provide engineering design calculations; however, it would be very important for the operator of a “spider’s web” to be in possession of instructions on how the activity should be used. In terms of an inaugural inspection, as defined by the EN, this should not be considered mandatory for low ropes courses.

## **Existing ropes courses**

European Standards do not apply retrospectively so existing courses need not conform to EN. They must however be safe and in the event of an accident the onus will be on the operator to prove it was safe.

If operators with existing courses decide to make new additions to their facility then these additions should conform to the EN standard. Minor works do not require an inaugural inspection (e.g. the replacement of belay cables or ropes or the replacement of a rotten platform); however, major works involving a substantial structural change (e.g. the replacement of a tree with a pole) do necessitate an inaugural inspection.

## **Obligations on the Constructor**

The constructor of a ropes course **must** provide:

- Instructions for maintenance and inspections (including frequency) ;
- Drawings and design calculations (EN 1 clause 8.1 4a). Design calculations should be carried out for all critical applications. A critical application is defined as an: “application where the consequences of a failure are likely to lead to an accident.”
- A user manual (further details are given under operation below);
- Detailed marking of the course and elements (see EN 1 Clause 6).

## 6. Inspections & Maintenance:

A comprehensive inspection process is an essential part of ensuring that any ropes course is initially fit for purpose and that the deterioration of materials and equipment on a used facility is detected before failure occurs. With some early ropes courses now reaching the end of their serviceable life, and many new courses receiving vast numbers of recreational users, there is an ever increasing requirement for a professional approach to inspection processes.

The constructor of a ropes course must provide instructions for maintenance and inspections (including frequency) as well as a comprehensive set of drawings and design calculations.

### Inaugural Inspections

The EN requires that when a new ropes course is built, but before it is used, an inaugural inspection must take place. This may only be done by a completely independent professional inspector – classified as a Type A inspector (as defined by EN ISO/IET 17020).<sup>2</sup> By definition, such an inspector will have no commercial interest in the construction or maintenance of ropes courses nor any fiduciary interest in the facility to be inspected. They must also have their own public liability insurance for such work.<sup>3</sup>

The inaugural inspection involves a:

- Visual Inspection;
- Functional Test (this therefore means the Type A inspector must have a comprehensive knowledge of courses and how they are used);
- Design validation/structural analysis;
- Tree assessment (the inspector will check that if the course is in trees then a valid tree assessment has been carried out. It is unlikely that the Type A inspector will also be an arboriculturist so the services of competent arboriculturist are likely to be required.

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<sup>2</sup> ERCA operates an accreditation scheme recognising the suitability of experienced inspectors to inspect courses.

<sup>3</sup> See explanatory note in section 5 relating to new low ropes course – inaugural inspection not mandatory

## **Routine Visual Check**

This should be carried out before opening of the ropes course each day. This involves a visual check of critical components, an assessment of the general appearance of the course and surrounding environment. This will normally be done by an appropriately trained instructor.

## **Operational Inspection**

This will be carried by the operator every 1-3 months or as directed by the constructor.

Examples of visual and operational inspection are cleanliness, condition of ground surface, sharp edges, missing components, excessive wear (of moving parts) and the structural integrity of the safety system (e.g. condition of cables).

## **Periodical Inspections**

This must be carried out by a Type C inspector (as defined by EN ISO/IEC 17020) at least once a year.<sup>4</sup> They may also have a maintenance and construction capability but this must be a separate part to their business and not interfere, or have influence on, their role as an inspector.

The following shall be carried out as part of this process:

- Visual inspection;
- Functional inspection;
- Determine the replacement schedule for worn components;
- Examination of the manufacturer's instructions for maintenance.

A comprehensive report must be provided as part of this inspection; this will include:

- Date and place of the inspection;
- Results of the inspection indicating any defects observed;
- Assessment, whether or not there are any misgivings about further use of the facility;
- Information on necessary re-inspection;
- Name, address and signature of the examiner.

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<sup>4</sup> ERCA operates an accreditation scheme recognising the suitability of experienced inspectors to inspect in accordance with the requirements of EN:15567 and the UK Ropes Course Guidance

## Tree Inspections

If a ropes course is built in trees then the trees should be inspected prior to the inaugural ropes course inspection. Thereafter the trees should be inspected at least annually. The frequency of inspections, and the experience of the inspector, will relate to the species, health, location and age of the trees.

Trees may also need to be inspected after a severe storm.

Whilst consideration should be given to the application, arboriculturists are not expected to be experts on ropes courses.

## **Maintenance**

Inspections and maintenance are intrinsically linked. Minor maintenance is often best carried out by the operator during the routine visual and operational inspection. This may include replacement of maillon-rapides, shackles and small ropes. More significant maintenance, for example the replacement of cables, poles and platforms will usually be carried out by a professional course construction company.

## **WAHR and Inspections**

During routine visual checks, instructors / inspectors *may* use the same equipment as participants (would normally use) *provided* they are going around or over the facility in the same way that participants would normally use the course and that a suitable and sufficient risk assessment has been carried out and any necessary control measures have been put in place.

During all other forms of inspections, maintenance and construction then practices consistent with "general industry", in terms of the Working at Height Regulations, are required. This may include the use of industrial harnesses and other industrial PPE and may involve the use of dual rope techniques. It is beyond the scope of this manual to provide the details of WAHR and maintenance techniques but inspectors should be conversant with these regulations before carrying out their work.

Vertical access in particular may require careful consideration. Attachment (with cow's tails) to climbing staples, for the purpose of fall arrest, is inappropriate because they are untested, unapproved and unquantifiable in terms of their security and dependability as anchors. Generally therefore an industrial device designed for use on vertical cables or rope would be required. Alternatively inspectors can be belayed, using a single rope by an assistant whilst climbing.



**Instructor accessing using industrial PPE to carry out periodic inspection**

## 7. Operation:

Statistical evidence indicates that instructor error is by far the greatest cause of accidents. It is important that training gives adequate consideration to equipment and procedures which minimise the likelihood of a human error failure.

Any qualification system for ropes courses should address the following aspects of training:

- Those overseeing training are competent to do so;<sup>5</sup>
- Full records are kept of training courses, including the syllabus followed;
- Full records are kept of instructor's experience;
- There is a detailed assessment of training practices and instructor's competence.

### **EN15567:2007 Part 2 Operation (EN 2)**

**Level of Operation** - EN 2 covers the operation of ropes courses.

**New and Existing Courses** - All operations on both new and existing ropes courses should conform to the requirements of EN taking into consideration the recommendations contained in this Guidance.

**User Manual** - EN15567:2007 requires that constructors provide the operator with a comprehensive user manual. This should detail how the course and each element is best used as well as identify potential risks and how they are best managed. The following should be included:

- Use of elements;
- Meteorological restrictions;
- Number of people allowed on elements and course;
- Morphology of participants (min/max size etc);
- Access restrictions;
- Clothing;
- Description of PPE required for the safe operation of the course
- Security and emergency plan.

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<sup>5</sup> ERCA has a comprehensive set of guidelines for operators of courses and will shortly launch an accreditation scheme for those that train others to use ropes courses.

## Documentation

The following documentation is required by the standard:

### Administrative documentation:

- Name and address of the owner and operator;
- Any relevant permit and registration;
- Document recording the annual inspections carried out by an inspection body;
- List of the site personnel and their job titles;
- Evidence of public and other liability insurance.

### Operational documentation;

- Logbook containing the daily operation sheets (including the faults observed during inspections, relevant events concerning safety - see the sample sheet in informative Annex A of the standard). The daily sheets should be kept for three years;
- Accident report sheets;
- PPE inspection register and operation log;
- Risk assessment and management plan shall be drawn up by the operator. In case of deviations from the general requirements for supervision, a risk assessment and management document is required;
- Instructor and rescue training records;
- Manufacturer's product manual;
- Rescue and emergency plan;
- Current tree assessment report;
- Current inspection report.

## Good Practice

**Drugs and alcohol** - No person should partake in any ropes course activity whilst under the influence of alcohol or drugs. The term drugs refers to non-prescription drugs but it may be that certain prescription drugs also inhibit safe participation in a ropes course activity.

**An identification of associated risks** - An assessment of the hazards and risks, specific to each element. This may be no more than an identification of the crux areas, potentially serious sections, or known accident black spot. Additionally operators should investigate accidents and near misses.

**An identification of appropriate instructor competence** - This is likely to be the biggest single factor influencing the safety of these activities. There must be

a system of identifying and verifying the required competence of instructors and their assistants.

**Normal Operating Procedures** - Many operators will use the findings above to compile their standard procedures. A synopsis of issues addressed above could usefully form part of the risk assessment and be used to guide the instructor training recommendations below. The standard procedures should clarify the protection systems to be used e.g. nets, ropes, spotting etc.

**Instructor Induction** - An induction process is likely to be required. This would need to address, amongst other things, control measures for the hazards and risks identified above. It must be clear who is to conduct this induction, what it covers, what form it takes, etc. Details of the induction should be retained on file. Detailed knowledge of each element is likely to be one of the major safety factors in the delivery of these activities.

**Instructor Training** - This may be in addition to Instructor Induction. Operators should ensure that instructors are equipped with the skills necessary to deal with any reasonably foreseeable and relevant occurrences on each element used. This will often require training on the elements themselves and ideally should include at least some practical incident and accident scenarios and responses. Details of the training should be retained on file. The standard emphasises that it is important the same equipment is worn by instructors and participants during training and demonstrations. Rescue techniques should be practised regularly to ensure familiarity.

**Identification of group competence** - Increasingly ropes course activities are being offered as 'one-off' activities to a wide range of groups, from primary schools to corporate groups or members of the public - frequently in a recreational capacity. A policy of identifying the competence, experience, special needs and physical and medical condition of the participants is advised. As a result it would be equally acceptable to either:

- Select the elements on the basis of the client group; or
- Select the client group on the basis of the elements available.

**Acknowledgement of risk** - A policy of informing the participants of the nature and extent of risks and what to expect from the activity is encouraged. This is particularly important where the participants may have no concept or prior knowledge of this type of activity.

It is unreasonable to expect a ropes course operator to detail the hazards in their primary advertising. However, it may be reasonable, for example, to leave this information until the point of booking or even (in some cases) until arrival. The identification of risks should be clear, and allow realistic and uninhibited options to any participants who, as a result, wish to decline the activity.

**Identification of element options** - It may be beneficial to have alternative elements or alternative start or finish points. In some cases the degree of difficulty or the duration of the exercise or both can be determined by varying these. On the day the most appropriate elements should be used depending on factors such as the weather conditions, nature, experience and expectations of the group, the number and experience of staff available, etc.

**Equipment** - This includes both personal and group equipment. This will depend on the nature of the elements, the abilities of the group, the weather and other factors. However, certain aspects may become company policy. For example whether to use sit harnesses, full body harnesses or helmets.

For example:

- There may be an unacceptably high risk of head injury, which could be adequately reduced by wearing a helmet. Alternatively, the risk of head injury may be low and out-weighed by the need for clear communications, visual recognition of participants, etc. and so helmets may not be appropriate. In either event, the operating procedures should make it clear if there is an inflexible policy. Similar decisions will be necessary about the need for climbing harnesses, footwear, outer clothing, etc.;
- Other pieces of clothing or equipment such as gloves may be considered useful but not essential;
- Group equipment may also be affected by the venue's proximity to other resources such as centre buildings, first aid room, etc.;
- It may be appropriate to list both group and personal equipment under headings such as 'must have' and 'may have';
- Because equipment requirements may vary from day to day and group to group it will need to be clear who decides what is necessary for a particular session or a particular day. It will also need to be clear who checks this, when and where they do it, and what they need to do if it is not correct or acceptable;
- PPE should be checked from time to time and a record of this should be kept;
- Consideration should be given to dealing with participant's personal clothing. A list of what to wear will be helpful. There should be a plan (or supply of spare clothing/overalls, etc) to accommodate participants who arrive improperly dressed for the activity.

**Weather forecast** - A policy for obtaining and interpreting weather forecasts may be needed. It must be clear who is to do this, when it is to be done, and what action they will take for a range of possible forecasts. These could include, but may not be limited to, modification or selection of the elements; modification of clothing, footwear or equipment; change of venue, cancellation and / or return of

payment. If the addition of another instructor is the response then there must be a system whereby suitable persons can be deployed in the given time span, etc.

**Ratios** - It will generally be appropriate to have a policy on ratios, maximum group size, use of assistants, etc. This should take account of group management difficulties on particular elements, or with particular client groups. Similarly some providers find it useful to have two separate groups operating at the same venue and available to give mutual support if required. EN stipulates that with assisted belaying instructors must not be responsible for more than 4 people at height or rather must not supervise more than four belayers simultaneously.

**Numbers of participants per element** - It may be acceptable to specify this generally (i.e. for the whole course) or specifically (for each particular item). An indication of whether this can be varied, and if so, by whom, would be helpful. Constructors have an obligation to provide this information under the requirements of the EN.

**Briefings** - There will generally need to be a policy on the existence, content and presentation of a safety briefing, this may be part of a generic safety briefing (at an outdoor centre for example). Participants should be advised on what they can do to help ensure their own safety. It may not be appropriate for instructors to deliver all relevant instructions in one briefing.

On low or other isolated elements the chosen method of protection may be 'spotting'. This will generally need to be explained to participants in some detail, and may need to be practised. Similarly the safe use of cow's tails or belay systems will need to be explained and may need to be practised.

**Technical Advice** - If the activity falls beyond the experience of management it would be advisable to get advice from one or more appropriately experienced and qualified person or persons. It may be necessary to determine 'appropriate' from first principles by considering the requirements of a particular element or venue. An ERCA accredited trainer may have the requisite skills for this purpose. A currently active Mountaineering Instructor Award holder, or a Caving Instructor Certificate holder can may have the skills to train and assess at least belaying skills.

Low ropes instructor courses are run by ERCA accredited trainers. Common sense (and related expertise) should be applied when deciding whether professional expertise such as an arboriculturist or engineer is needed.

**Medical conditions and/or disabilities** - There will generally be a need for checking any conditions which may require a participant to receive special attention, or who may need to be excluded from the activity. If this will call for additional personnel there will need to be an appropriate system for making them available.

**Manual handling** - Participants should be briefed about manual handling problems. The extent of this will be influenced by the age, fitness and prior experience of participants individually and collectively.

**First Aid** - In addition to normal first aid facilities it may be appropriate to include scenario-based training, using actual elements, so instructors and operators can identify the problems as well as the solutions particular elements may present.

**Emergency action plan** - This could be integrated with the scenario-based training mentioned in First Aid above. It would be normal to include this as part of an induction procedure. Consideration should be given to the safety of all participants, not just those injured or immediately affected. The standard also requires consideration be given to the evacuation of all personnel from the site (spectators etc) and this could run to many hundreds.

**Off-elements supervision** - Participants not involved in an element may be harmed in a variety of ways. For example, participants 'waiting their turn' can wander off or try other elements. Some elements (particularly of an initiative exercise nature) may require the involvement of a group of people in close proximity.

EN requires courses to be adequately marked for spectators and participants. This may also include methods of easily identifying instructors (e.g. by wearing distinctive uniforms)

**Fire Risk** - Due to the flammable nature of many sites, special consideration may need to be given to a non-smoking policy.

### **Self-Belaying (cow's tails) and the 'double unclipping' problem**

No single measure seems to have totally prevented incidents of participants completely unclipping both cow's tails from the safety system whilst traversing sections of a self belay ropes course. A number of measures may however, be effective in minimising the risk of injury as a result of a "double unclip". (In this context a total unclip is considered to be a near miss but is not a dangerous occurrence as defined by HSE).

In recent years there has been an increase in the use of self belay for recreational purposes and with this has been a reduction in the level of supervision traditionally found. On many recreational courses after participants have successfully completed the first 5 elements of the training course the level of supervision then reduces to level 3. Operators should be aware that if this is

how they intend to operate their course then there are additional requirements under the standard in terms of the marking of elements, special safety instructions etc.

The following points should be considered:

- There is likely to be benefit in ensuring that participants are introduced to the problem and associated procedures initially in a safe setting (such as on the ground). This could be under Level 1 supervision;
- There is clear benefit from then progressing to some form of 'practice' course where the risk of injury (even in the event of a fall) is low. A 'low clip' course which simulates some of the elements of the 'high clip' course, but only some 2-3 metres off the ground is likely to be beneficial. Students can demonstrate their competence to handle the clipping and unclipping in comparative safety. This must be under level 2 supervision (or level 1 if appropriate but this would entail an instructor on each platform). The standard requires that there are a minimum of 5 elements in this section;
- There ought to be considerable benefit in using a buddy system with some form of "clip!" - "check!" system, where by the buddy on the ground confirms the 'clip' before the buddy on the element moves on. In practice there is observable difficulty in keeping the concentration of the ground buddy sufficiently active for this system to retain its usefulness as an effective preventative measure. Careful tutoring and monitoring by instructors can help, as can personalised initiatives which focus on keeping this important communication effective;
- There may be observable distractions for the ground buddy. It would be desirable to arrange the course so that there were, for example, no low-level elements to 'play' on instead of concentrating on their buddy's 'clips';
- There may be advantages to having instructors 'aloft' with the group;
- There are obvious advantages to ensuring that a participant is otherwise secure (in balance, feet secure and both hands free) at the point of 'clipping' out from one element and into another. This approach of "safe zones" does not prevent total unclipping; it merely reduces the risk of the person also falling.
- Participants understandably become confused and stressed on a high course. A general principle of keeping these two emotional states separate seems sensible so that the more stressed a participant is the more clear it should be as to what they need to do. There follows some examples below of how this could be achieved. An essential mechanism for addressing this is to be able to see the course through the eyes of the participant;

- Inevitably there will be many cables, staples, brackets etc, only some of which need concern the student. It should be made obvious what the user is going to clip to before they unclip. This is an essential requirement of the standard. Safety cables should be rigged to avoid, for example, clipping off a low unclip followed by standing up to clip on to a high clip, or 'clipping off' whilst out of sight from what they need to 'clip on' to, or having to stretch (or climb) in order to reach the clip;

As indicated above there is a very clear requirement in the standard for the safety line on each element to be clearly marked. If the level of supervision is reduced from level 2 to level 3 then additional safety notices and marking will be required.

There may be benefit in colour coding other parts of the course. For example yellow is what you clip to, red can be used for hands and feet, whilst black is part of the structure and need not concern the participant.

- Choosing the right karabiner is important. It must have a minimum of a double action capability (captive eye karabiners are generally well suited);
- Vertical ascent provides a quite different safeguarding problem to traversing elements. It may be confusing to users to cope with changing back and forwards between systems. It is likely to be equally confusing if there are intermediate belay points between cables. Vertical sections present a much greater hazard as the risk of a high fall factor is often present.
- It seems sensible to restrict the activity (or selected elements) to those users who have been judged to have the mental and physical capacity to safely be involved and who are likely to benefit from the exercise. It should be noted that the EN permits children of any age to use self belay however those under 6 must be under Level 1 supervision throughout. The EN requires all those aged between 6 and 8 years to be under level 2 supervision; however, this guidance strongly recommends all those between 6 and 9 (i.e. under 10). years to be under level 2 supervision. The only practical way to implement level 1 supervision on a self belay course is to ensure an instructor is on the changeover platforms to supervise directly clipping and unclipping.
- This guidance strongly recommends that children under 16, participating on a self belay ropes course, whilst under level 3 supervision, are also accompanied by a parent or legal guardian or by an adult that has the consent of the parent or legal guardian. It is normal practice for accompanying adults to assume responsibility for themselves and for children in their care

## **WAH Regulations and Operation of Ropes Courses**

Under the amended WAHR instructors working on a ropes course may use safety practices and equipment similar to those used by participants. However, where their activities require access that is inconsistent with normal use of the course then the full requirements of WAH should be followed.

## **References and Further Reading**

For further information about this document or for general ropes course related matters please contact ERCA. [www.erca.co.uk](http://www.erca.co.uk)

There are a variety of sources of information available for operators of ropes courses. In the compilation of this document the following references have been used, this is not an exhaustive list but is the primary reference.

1. EN15567:2007 parts 1 and 2;
2. European Ropes Courses Association: Installation and Operational manuals;
3. Collective Interpretation ref, Adventure Activities Licensing Service, [www.aals.org.uk](http://www.aals.org.uk);
4. Adventure Activities Licensing Regulations 2004;
5. Health and Safety at Work etc. Act 1974;
6. Lifting Operations and Lifting Equipment Regulations 1998;
7. Personal Protective Equipment Regulations 1992;
8. Work at Height Regulations 2005 (as amended).

**Recommendations made by the Adventure Activities Licensing Service (AALS) in relation to Licensed establishments using ropes courses.**

1. Ropes Courses are currently out of scope of the Adventure Activities Licensing Regulations, and so providers of high or low ropes courses do not require a Licence for this activity. However, the Licensing Service also considers the safety management of non-licensable activities, as part of the providers culture of safety overall, in reaching its decision on whether to issue a licence and so offers this guidance to and about licence holders who also offer a high ropes facility.
2. Some client groups and/or licensed providers offering self belay (cow's tails) courses or assisted belay (bottom rope/top rope) courses may decide they have an exceptional case, with an unusually reliable, motivated and manageable group, and that the leader is both competent and prepared to take on the role of instructor. In this case Level 3 supervision provided by the course operator may be appropriate. However, for most cases the Licensing Service recommends that at least Level 2 supervision be provided throughout the experience by an experienced instructor. Groups are generally encouraged to decline anything less. In the case of an "adventure park" operation whilst the course operator may only offer Level 3 supervision, Level 2 supervision could be adequately provided if the accompanying leader has been adequately trained and endorsed.
3. Novices on assisted belay courses (top/bottom roping) will generally need to be under Level 1 supervision. This is a requirement of EN15567:2007 (Part 2) in any case.
4. Employers of leaders who take groups to high ropes courses should be aware that the leaders may be required to sign a Risk Acknowledgement/Disclaimer in which they accept responsibility for ensuring compliance with the course safety system by themselves and by the children in their care. If a leader signs such a document in the course of his/her employment the employer will likely be held to be vicariously liable for any subsequent failure of supervision that causes injury. This is likely to protect the leader from personal exposure to litigation **but transfers that risk to the employer.**
5. As with other adventure activities, employers are likely to be deemed to have fulfilled their duty of care if they train and assess the leader to a good standard, and provided them with the means to manage foreseeable risks.

## 6. Types of supervision.

**6.1 Level 1 supervision** – *“Situation whereby an instructor can physically intervene. This level of supervision will normally be reserved for those on an assisted belay course (i.e. top rope/bottom rope belaying). On an assisted belay course there should be a minimum ratio of one instructor to every four participants at height”.*

This means that each group will be accompanied by an instructor assigned to only that group by the course operator for the duration of their time on the course. This person will be able to intervene physically if they are not satisfied with the safety or behaviour of participants.

**6.2 Level 2 supervision** – *“Situation whereby an instructor can clearly see the participant and intervene verbally. This type of supervision will normally be reserved for those on some parts of a self belay (cow’s tail) course. It may conceivably be extended to those that have been taught how to belay and have practiced and perfected the relevant techniques over a number of hours”.*

Again, this means that each group will be accompanied by an instructor assigned to only that group by the course operator for the duration of their time on the course. Verbal intervention may be targeted at deliberate and dangerous misuse of the course, such as reckless behaviour, or inadvertent misuse such as an accidental unclipping of both cows tails at the same time. This person will also be well positioned, and skilled, to assist those struggling with getting round the course because of nervousness or limited physical ability. They will also be able to assist individuals down from the course should the need arise.

**6.3 Level 3 supervision** – *“Situation whereby an instructor in a position to communicate verbally with and to provide adequate assistance to participants,. This level of supervision will normally be reserved for those on a recreational self belay course (an adventure park) who have satisfied an instructor (whilst under level 2 supervision) that they are able to operate their equipment in the correct manner. It may conceivably be extended to those that have been taught how to belay and have practiced and perfected the relevant techniques over a number of days. It will generally be the level of supervision applied to participants on a continuous belay course. **Level 3 supervision provides assistance to a participant when sought but may not provide pre-emptive assistance.”***

This means that each group will not be accompanied by an instructor assigned to only that group by the course operator for the duration of their time on the course. Instead, after an initial induction, staff will roam around the vicinity of the course and can be summonsed if required. **The immediate safety, security and behaviour of participants under Level 3 supervision is therefore largely the responsibility of the participants and/or their accompanying parents, leaders, teachers, etc.**

**Procedures for submitting comments on this document:**

Comments should be addressed by email or post to:

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Please ensure that comments:

1. Are typed – not hand written
2. Include the name and contact details of the person making the submission.
3. Include the date of submission
4. Are submitted by the 1<sup>st</sup> October for consideration for the next edition