

**ADVISORY COMMITTEE FOR  
ROOFSAFETY  
GOOD PRACTICE GUIDE**

ACR [CP] 007:2015 Rev 2  
Recommended practice for use  
of  
horizontal safety systems in roofwork

## FOREWORD

One of the main causes of deaths and injuries at work each year is falling from height, particularly through or from roofs. To ensure safety during roofwork requires the commitment of all those involved in the procurement process.

Where collective protection is not possible personal protection equipment must be used. Many of these rely on horizontal flexible lines, rigid rails, single point anchors and radial points fixed to the top roof sheeting rather than through them to the roof support structure. This has raised concerns about:

- The horizontal safety line and anchor reliability;
- The frequency of inspection;
- The adequacy of testing; and
- Their overall performance
- Misuse of systems

This Good Practice Guide addresses these issues and gives practical advice on what the ACR considers is ‘current good practice’ for the design, installation; commissioning, operation, use and maintenance of flexible horizontal safety lines, rigid rail and single point anchors fixed or supported by ‘top fix’ brackets. It concentrates on profiled metal roofs. Those engaged in designing and installing safety systems on other roof deck types (E.g. concrete, timber or metal) similar activities would benefit from the advice given as many of the principles do apply and offer good practice.

The delivery of improvements in the prevention of falls from height will only be achieved with the full involvement of all those with a role to play, i.e. clients, employers, workers, self-employed, trades unions, trade associations, manufacturers, training providers and others.

I thank those involved for their valued input and the often lively and wide-ranging debate, in producing this guide.

Graham Willmott - Chairman of the ACR

## CONTENTS

FOREWORD .....	1
CONTENTS .....	1
INTRODUCTION .....	2
SCOPE .....	3
TERMINOLOGY .....	3
Anchor line .....	3
Horizontal safety line .....	3
Top-fix .....	3
RESPONSIBILITIES .....	3
Client .....	3
Principal Designer .....	3
Architects and Designers .....	3
Structural Engineer .....	4
Principal Contractor .....	4
Roofing manufacturer .....	4
Roofing contractor .....	4
Anchor device manufacturer / supplier .....	4
Anchor device installer .....	5
Building owner, occupier or agent .....	5
Anchor device inspection and maintenance service provider .....	5
End users .....	5
TYPICAL ROOFING TYPES .....	6
Single ply membrane .....	6
Standing seam .....	6
Twin-skin / built-up .....	6
Composite .....	6
LEGISLATION AND STANDARDS .....	6
Legislation and standards .....	6
General principles for selection of work equipment for work at height .....	7

Fragile surfaces.....	7
Competence (Skill, knowledge, experience and training ("SKET")) .....	7
Manufacturers and suppliers.....	7
Installer.....	8
Inspection and maintenance.....	8
CONCEPTS .....	8
General.....	8
General Notes on all systems.....	9
Work Restraint.....	10
Fall Arrest.....	11
TYPICAL ANCHOR DEVICES AND COMPONENTS.....	11
Description and Characteristics .....	11
SINGLE POINT ANCHOR (SEE FIG 3).....	12
CABLE HORIZONTAL SAFETY LINE SYSTEM (SEE FIG 4).....	12
Cable Horizontal safety line System .....	13
RIGID RAIL SYSTEM (SEE FIG 5).....	13
RADIAL POINT (SEE FIG 6).....	15
GENERAL INFORMATION ABOUT COMMON FIXING METHODS.....	15
DESIGN CRITERIA .....	15
Requirements for Horizontal safety Lines on roofs.....	15
Requirements for Anchor Device Components .....	16
INSTALLATION .....	16
Preparation .....	16
Actual Installation.....	17
Installation Handover Inspection .....	18
INSTALLATION DOCUMENTATION.....	19
Pre-Use Checks.....	19
Interim Inspections.....	21
MAINTENANCE AND REPAIR.....	21
REFERENCES.....	21
BS 8454:2006 DELIVERY OF TRAINING FOR WORK AT HEIGHT AND RESCUE.....	22
APPENDIX 1 – TASK GROUP AND REVISIONS.....	23
CONSTITUTION OF THE TASK GROUPS.....	23
REVISIONS.....	23
APPENDIX 2 – SUMMARY OF RESPONSIBILITIES UNDER CDM 2015 .....	25

**Note: Any references to an ACR publication in this document means the current version of that document**

## INTRODUCTION

The Advisory Committee for Roofsafety (ACR) was set up in 1998, at the instigation of the Health and Safety Executive (HSE), to consider the safety implications of fragile roof assemblies. It is made up of nominees from trade associations and organizations involved in roofwork that, together with HM Specialist Inspectors, produce documents that provide advice based on sound technical knowledge and many years' collective experience of roof work.

Concerns have been expressed to the ACR about the reliability, adequacy of testing and overall performance of horizontal safety lines (particularly those using 'top fix' anchors) being installed on different roof types.

In response, the ACR convened a Working Group which included representatives of:

- The ACR (including the HSE);
- Safety equipment manufacturers;
- Safety equipment installers; and
- UK representatives on British and European standards committees dealing with relevant product standards and codes of practice

to review and recommend good practice involved in the design, manufacture, installation and use of horizontal safety lines on roofs.

## SCOPE

1. This book details what the ACR considers is 'current good practice' for the design, installation; commissioning, operation, use and maintenance of horizontal flexible lines, rigid rails, single point anchors and radial points fixed or supported by 'top fix' brackets. (i.e. that are attached to the roof surface but not fixed directly to the structure underlying the roof cladding.) Referred to as horizontal safety system throughout this document.

## TERMINOLOGY

2. For the purpose of this Good Practice Guide the following definitions apply:

### **Anchor line**

A flexible or rigid line connected at least at one end to a reliable anchor to provide, as part of a personal fall protection system, a means of fall protection or support.

### **Horizontal safety line**

A line that does not deviate more than 15° from the horizontal plane and forms part of a personal fall protection system.

### **Top-fix**

A mechanism by which anchors or anchor system components may be securely attached directly to the surface of a roof and only indirectly to the underlying substructure of the roof

NOTE: Access to the underside of the roof is not required.

## RESPONSIBILITIES

NOTE: Where a party fulfils more than one role they assume the responsibility for each. See also Appendix 2, which contains a summary of the responsibilities under CDM 2015.

3. The responsibilities of the key parties are as follows:

### **Client**

4. Responsible for:

- The adequacy of resources; including:-
  - suitable arrangements are in place for managing a project and sufficient time resource is allocated to ensure Principal Designer and Principal Contractor are appointed.
  - Pre-construction information is provided to designers and contractors.
- Ultimately responsible for approving the decision and justification to select the anchor line installed.
- Ensuring safe access and egress to roof.
- Formal appointment of the Principal Designer and Principal Contractor where more than one contractor is working.

### **Principal Designer**

5. Responsible for:

- Planning, managing and monitoring the pre-construction phase and coordinating design work to ensure the safe access, egress to the roof and over the roof is addressed.
- The creation of a Health and Safety File; and
- Including within it an Operations and Maintenance Manual related to the installed anchor system.

### **Architects and Designers**

6. Responsible for:

- Identifying foreseeable hazards in the building's design and, as far as reasonably practicable, eliminating foreseeable risks.;
- Provision of access and means to allow maintenance of the building/structure.
- Making, and justifying, the decision that a horizontal safety system provides appropriate fall protection and was the right choice for the roof type.:-
- Provision of a safe means of access to the horizontal safety system.

- Providing the Specification(s) that dictate the nature and quality of the roof and horizontal safety system.

### **Structural Engineer**

7. Responsible for:

- Designing the main structure;
- Identifying foreseeable hazards in the structural design and, as far as reasonably practicable, eliminating foreseeable risks and
- Confirming that the roofing assembly is suitable for the horizontal safety system selected.

### **Principal Contractor**

8. Responsible for:

- Planning, managing and monitoring the construction phase and co-ordinating matters relating to health and safety during construction.
- Organising co-operation between contractors.
- Ensuring the quality of installation; and
- Compliance with current standards and industry good practice to install/use the horizontal safety system.

### **Roofing manufacturer**

9. Responsible for:

- Providing a roofing assembly that creates an efficient and effective cover for a structure, which is sufficiently durable to withstand foreseeable weather conditions over its anticipated lifespan; and
- Providing authoritative information and advice to architects and designers on the suitability and reliability of 'top fix' fall protection systems when used on their product(s).
- Identifying and eliminating, as far as reasonably practicable, foreseeable risks arising from the design of their roofing assembly.

### **Roofing contractor**

10. Responsible for:

- Installing the roofing product in accordance with the roof manufacturer's instructions and guidance.
- Plan, manage, and monitor work under the contractor's control.

### **Anchor device manufacturer / supplier**

11. Responsible for:

- Designing and manufacturing fall protection system(s);
- The preparation and issue of all necessary user instructions;
- Ensuring that product(s) meet relevant standards and 'industry good practice'
- The anchor device (e.g. horizontal safety line or single point anchor) has proved satisfactory when tested in accordance with ACR Publication "Testing of Roof anchors on Roof Systems" and upon each roofing type to which it is intended it will be installed;
- (It is recommended) That the horizontal safety system has been independently verified.
- Selecting, and training, any authorized installers; and for supplying them with products for installation in accordance with its written instructions and guidelines (and, if appropriate, design software);
- CE Marking

Note: The European Commission contend that EN795 : 1997 Class A (single anchors), Class C flexible (flexible horizontal anchor line) and Class D (rigid horizontal anchor line) do not come under the scope of the Personal Protective Equipment Directive 89/686/EC and cannot be CE marked.

Note: BS EN 795 : 2012 classifies the anchors as Types e.g. Type A, and is only for anchors suitable for single-user anchor devices. At present there is an Objection to the status of anchor Types A,C & D resulting in EN 795 : 2012 not being harmonised and not published in the Official Journal). CEN Technical Specification CEN/TC 16415 : 2013 is for Type A to E anchor devices intended for use by more than one user simultaneously.

12. Ultimately, responsible for:

- Ensuring the quality of their products; that they will remain ‘fit for purpose’; and that the calibre of approved installers will ensure that the integrity of systems remains unimpaired;
- Ensuring that a specified fall protection system is suitable for the roof type and purpose for which it is recommended; and that it is sufficiently durable to withstand the rigours of service throughout its foreseeable lifespan;
- Providing recommendations on maintenance requirements; as well as inspection methodology; and
- Providing authoritative information and advice for architects and designers and on the suitability and reliability of their fall protection systems for particular locations and circumstances.
- Identifying and eliminating, as far as reasonably practicable, foreseeable risks arising from the design of their fall protection system.

#### **Anchor device installer**

13. Responsible for:

- Designing fall protection system(s) to meet Clients requirements and installing them on a roofing assembly in accordance with device manufacturer’s instructions and guidance; and
- Ensuring the quality of installation, as well as compliance with current standards and ‘industry good practice’; and that the specified fall protection system is suitable for the roofing type and purpose for which it is installed.
- Ensuring the complete fall protection system including all PPE is compatible and provides a system of work.
- Identify and eliminate foreseeable risks, as far as reasonably practicable, relating to the design and installation of their fall protection system.

Note: The device Installer certifies the system and the roof installer certifies the roof.

#### **Building owner, occupier or agent**

*(i.e. person in control of access to a roof and any fall protection system installed on premises)*

14. Responsible for:

- Devising and implementing a safe system of work that protects effectively all personnel gaining access to and over a roof.
- Providing all available pre-installation information to designers and contractors.
- Controlling roof access and verifying that personnel allowed access to the roof are fully trained and familiar with all safety precautions, equipment and necessary safeguards including rescue procedures.
- Establishing a programme of routine inspection and maintenance based on the recommendations of the manufacturer.

#### **Anchor device inspection and maintenance service provider**

15. Responsible for:

- Verifying the installed system has not changed in relation to occupier/owner held records. (e.g. alterations to building may reduce required fall clearances).
- Inspecting and maintaining fall protection systems according to the manufacturer’s instructions;
- Ensuring that all maintenance personnel are suitable trained, equipped and competent for the tasks they may be expected to perform;
- Adequately supervising the conduct of all work undertaken; and
- Keeping the person in control of the fall protection system properly informed about its condition.
- Review rescue plan.

#### **End users**

16. Responsible for:

- Making full and proper use of all safety equipment provided;

- Responsible for complying with any 'site rules' or procedures (including pre-use checks, method statement(s), manufacturers' instructions and emergency and rescue procedures) imposed by the building owner, occupier or agent in respect of roof access and roofwork; and
- Personally, legally responsible for reporting any unsafe roof work activities and obvious defects, flaws and / or anomalies that may emerge during the course of roof access and roofwork.

## TYPICAL ROOFING TYPES

17. For the purpose of this Good Practice Guide the following descriptions apply:

### Single ply membrane

External roof finish mechanically fixed through insulation layer to sub-structure (concrete, metal or timber deck), typically designed with a nominal fall to shed rainwater

NOTE: The roof pitch is usually less than 4 degrees

### Standing seam

Traditionally, flat with upstands ('standing seam') to suit width of sheets, in single length external weather sheets (no end laps) allowing for thermal expansion and contraction via halter or clip systems secured to site assembled spacer systems to suit the depth of insulation over a metal liner panel system.

The external weather skin can be supplied in various metallic types, with aluminium and coated steel being the most widely used. Standing seam roofs generally incorporate barrel vault rooflights

NOTE: Standing seam construction is usually specified on roofs less than 4° pitch and curved roofs.

### Twin-skin / built-up

Traditionally, trapezoidal ('corrugated') profiled coated steel external weather sheet externally secured to site assembled spacer systems to suit the depth of insulation over a metal liner panel system. Rooflights are normally in plane with this type of roof construction.

NOTE: Twin-skin / built-up construction is usually specified on roof slopes greater than 4°, but can also be curved in certain applications

### Composite

Foam or fibre insulated panels, fully bonded to external weather skin and liner panel. Panels are through fixed to the sub-structure. Composite panels can be supplied either with trapezoidal profile or standing seam.

Rooflights can either be in plane or barrel vault dependent upon external profile and roof pitch.

NOTE: Composite construction is usually specified on roof slopes greater than 4°, dependant upon specification/panel design can also be installed on roof pitches as low as 1.5° and shallow curved roofs in certain applications

## LEGISLATION AND STANDARDS

### Legislation and standards

18. The principal legislation affecting the installation, use, inspection and maintenance of horizontal safety lines.

- Health and Safety at Work etc. Act 1974 (HSWA);
- Management of Health and Safety at Work Regulations 1999 (MHSW);
- Personal Protective Equipment at Work Regulations 1992 (as amended) (PPE);
- BS EN 365 : Personal protective equipment against falls from a height. General requirements for instructions for use, maintenance, periodic examination, repair, marking and packaging
- Work at Height Regulations 2005 (WAHR) (as amended);
- BS 7883 - Code of practice for the design, selection, installation, use and maintenance of anchor devices conforming to BS EN 795; and
- Construction (Design and Management) Regulations 2015 (CDM).
- EN 795 Personal fall protection equipment - Anchor devices
- PD CEN/TS 16415 : 2013 – Personal fall protection equipment – Anchor devices – Recommendations for anchor devices for use by more than one person simultaneously.

- BS 8437 Code of practice for selection, use and maintenance of personal fall protection systems and equipment for use in the workplace

Note: - Good practice - relate to current version of standards

19. In addition to the guidance provided in this section, additional advice can be found in the references listed at the end of this document

### **General principles for selection of work equipment for work at height**

20. Guidance on the general principles for the selection of work equipment for work at height can be found in Appendix 1 of the ACR 'Green Book'.

21. A horizontal safety line may be used for either 'work restraint' (i.e. preventing a fall; a personal measure) or 'fall arrest' (i.e. minimising the height and consequences of a fall; a personal measure). See paragraphs 49 and 58

### **Fragile surfaces**

22. Guidance on fragile surfaces can be found in the ACR 'Red Book' and 'Orange Book'.

### **Competence (Skill, knowledge, experience and training ("SKET"))**

23. Advice on selecting a competent roofing contractor is given in **ACR Information Sheet No. 1**

24. A **competent person** is defined as:

A person who can demonstrate that they have sufficient skill, knowledge, experience, training (SKET) and authority to enable them to:

- Carry out their assigned duties at the level of responsibility allocated to them;
- Understand any potential hazards related to the work (or equipment) under consideration; and
- Detect any technical defects or omissions in that work (or equipment), recognise any implications for health and safety caused by those defects or omissions, and be able to specify a remedial action to mitigate those implications.

Note. "authority" here means delegated authority to the individual by his employer to carry out a certain function or duty

25. The ACR 'Black Book', (Guidance note for competence and general fitness requirements to work on roofs covering inspection, new build, maintenance, repair and refurbishment work) describes the various attributes implied by this definition that enable it to be used to assess those involved in:

- Commissioning roofwork;
- The organisation and planning of roofwork;
- The management of roofwork;
- The supervision of roofwork;
- Working at height;
- Assessing the non fragility of roofs; and
- The inspection of roofs and roofwork.

26. This document now extends the ACR 'Black Book' attributes by giving further implied attributes that, for the following additional parties, determine competence:

### **Manufacturers and suppliers**

27. The manufacturer / supplier of a horizontal safety line or anchor system should be able to demonstrate that they:

- Have an understanding of the principles of fall protection;
- Can explain to a lay person where and how their products fit within the WAHR fall protection hierarchy;
- Can work to a quality management system;
- Can manufacture and test a product to a relevant appropriate Standard(s);
- Can predict, and explain to a lay person, the performance of their product(s) in different configurations;
- Can explain to a lay person their product information, e.g. advantages and limitations, cost-benefits;
- Can prepare site-specific installation specification(s) and drawing(s), including connection details, sealant details, etc.

- Can train, or will have arrangements to provide training to, their recommended installers in all aspects of their products; and
- Can explain in detail to a ‘lay person’ details of, and reasons for, the inspection and maintenance requirements for their products.

28. In addition, they should:

- i. Be able to interpret and explain the meaning of their product test data; and

Have arrangements for issuing a certificate of installation and instructions to the building owner/occupier for using, inspecting and maintaining the installed horizontal safety system and any associated single point anchors.

#### **Installer**

29. The installer of a horizontal safety line or anchor system should be able to demonstrate that they:

- Are competent to work at height on a roof (see ‘Black Book’ - Paragraph 3);
- Have an understanding of the principles of fall protection;
- Have product knowledge and can state any restrictions and limitations relating to the systems that they are installing;
- Have experience and understanding of horizontal safety line or anchor system design; and
- Have undergone, and attained, a suitable level of manufacturer training in installation of the selected system.

#### **Inspection and maintenance**

30. Those undertaking the inspection and maintenance of horizontal safety lines or anchor systems should be able to demonstrate that they:

- a) Are competent to work at height on a roof (see ‘Black Book’ Current Version - Paragraph 3);
- b) Have an understanding of the principles of fall protection;
- c) Have product knowledge and can state any restrictions and limitations of the system they are inspecting or maintaining;
- d) Have experience and understanding of horizontal safety line or anchor system design;
- e) Can identify, assess and explain the significance of defects, and be able to state the appropriate corrective action to be taken;
- f) Have the authority to initiate any corrective action, as well as the necessary skills and resources to do so;
- g) Have received product updates on the system they are inspecting or maintaining;
- h) Have undergone, and attained, a suitable level of training for inspection and maintenance on the system they are dealing with; and
- i) Can produce acceptable inspection and maintenance records.

### **CONCEPTS**

#### **General**

31. A roof creates a high risk “working environment”.

32. Many problems can be resolved at the design stage as opposed to the ‘retro-fitting’ of ad-hoc solutions later when the realities of building maintenance have become apparent.

33. It is implicit that a compatible structure, roof system and necessary safeguard(s) are essential features of a roof designed to be safe, e.g. perimeter parapets of adequate height to provide fall prevention, low maintenance, non-fragile roofing assemblies which have lengthy guarantee periods.

34. Such features should always be chosen over the provision of personal protection, such as horizontal safety lines as they create an “existing place of work” – the highest level in the WAHR hierarchy of fall protection (apart from avoiding work at height altogether).

**35. However, where the use of horizontal safety lines on roofs cannot be avoided the ACR recommends that the following guidelines should be adopted:**

## General Notes on all systems

36. Customers / clients should be encouraged to understand that, according to standard risk assessment criteria, if personal fall protection systems have to be used then a work restraint system must be the preferred option (see paragraph 49) where this is not the case, use of a fall arrest system should be clearly justifiable; and this may only be considered as a last resort (see paragraph 58).
37. No one should work at any time on the roof unless they have been suitably trained and instructed in use of their personal fall protection equipment in conjunction with the system or anchor point; understand the necessary precautions to be taken and any limitations that apply; and are fully familiar with the nature and extent of the work to be done. This is a requirement of competence detailed in the **ACR Black Book**
38. Once commissioned, the operation and use of an anchor system must be properly supervised and sensible control measures applied. The unauthorised use, operation, maintenance or repair of any anchor system should be strictly prohibited.
39. A permit-to-work system (in addition to any other control measures) supported by appropriate house rules should be applied for personnel access, anchor line operation and work activity on roofs.
40. There should be clear method statements specific to the foreseeable work to be undertaken on the particular roof whilst using the system. Any new work or irregularity should be subject to risk assessment and additional control measures implemented when necessary
41. No matter which of the following systems is chosen, there are some common themes that should be present in these types of safety products.
- a) They should have been tested to appropriate type of anchor as outlined in BS EN 795 (for single person use) and Technical Specification PD CEN/TS 16415 (for use by more than one person simultaneously).
  - b) CE Marking

Note: The European Commission contend that EN795 : 1997 Class A (single anchors), Class C flexible (flexible horizontal anchor line) and Class D (rigid horizontal anchor line) do not come under the scope of the Personal Protective Equipment Directive 89/686/EC and cannot be CE marked.

Note: BS EN 795 : 2012 classifies the anchors as Types e.g. Type A, and is only for anchors suitable for single-user anchor devices. At present there is an Objection to the status of anchor Types A,C & D resulting in EN 795 : 2012 not being harmonised and not published in the Official Journal). CEN Technical Specification CEN/TC 16415 : 2013 is for Type A to E anchor devices intended for use by more than one user simultaneously.

42. They should be made of such suitable materials as to resist corrosion and the environment in which they are installed.
43. They should not have been tampered with or have had their form altered in any way.
44. Where cable systems are used a performance simulation should be provided to ensure loads in the system are controlled to within tolerable levels for the roof structure and workers and that in the event of a fall there is sufficient ground clearance to arrest the worker or workers safely.
45. Where cable systems are used they should terminate on an independent anchor.
46. Systems and all anchors should have a label or tag indicating that it is within its test period and stipulating its limitations of use, and markings indicating conformance with EN795, manufacturer's details, batch or serial number and the CE mark (see Note on CE marking above paragraph 41 above).
47. A scheme plan of the horizontal safety system, single anchors and radial points should be attached to the building at roof access points.
48. Where there is more than one system on a roof, it is necessary to use a twin legged fall arrest energy absorbing lanyard to detach and attach in safety to transfer between them, so that the user is always connected to an anchor.

NOTE: Systems that are installed too far apart to permit safe access in this way have not been properly designed with user safety in mind.

NOTE: The system manufacturer's instructions for use and the operating instructions should always cover safe methods of transition between anchor devices and should always be consulted.

**Work Restraint:**



**Fig1 – A work restraint system**

49. A work restraint system (as shown in Figure1 above) is intended to prevent access, egress and work, to those areas that present a risk of falling from height.

50. A work restraint system should be considered as the preferred option for a roof installation where personal protection measures are being provided.

Note: This is consistent with the spirit of The Work at Height Regulations 2005; and the principle of ‘risk avoidance’.

51. There should be designated safe means of access and egress for every access point to / from the anchor system. Defined routes, arrangements and restrictions on movement should be formally recommended upon installation of the system; updated and amended as necessary over time; supported by house rules; and strictly controlled (by lock and key, or equivalent measure).

52. The maximum number of users that the system is designed to accommodate should be manifestly clear to everyone concerned with work on the roof; and a working party that exceeds that number should be prohibited.

53. A work restraint system **MUST** be installed so that the position of the anchor when combined with the user’s connector, lanyard and safety harness prevents the user from gaining access to the fall hazard. It is recommended that a work restraint system should be installed at least 2 m from any roof edge, surface opening, fragile roof light or surface, or similar hazard.

54. It is recommended that operatives required to access the roof and make use of the anchor system should be suitably equipped with a full body harness and energy absorbing lanyard recommended (or approved) by the anchor system manufacturer; together with an anchor line mobile anchor point e.g. traveller/shuttle.

55. Operatives should be trained and instructed to undertake access, egress and work activity on the in-board side of the horizontal safety line (i.e. away from and perceivable hazard) whenever possible.

56. If operatives are in an area recognised as a safe zone, i.e. with no risk of fall at all, then they are not required to remain clipped on.

57. It is only when a fall risk is evident and requires a protective measure that work restraint or fall arrest is required and therefore the only time they are required to be attached, but it is good practice to remain clipped on to avoid confusion.

## Fall Arrest:

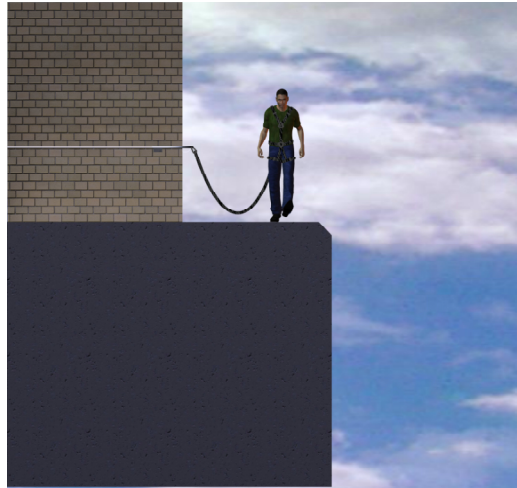


Fig 2 – A fall arrest system

58. A fall arrest system (as shown in Figure2) is intended to allow access, egress and work, to those areas that present a risk of falling from height.

59. With the exception of the 2 m limit for edges such as fragile surfaces, open spaces, roof lights, roof edges, fall hazards and access ladders, all of the above recommendations for work restraint systems should be applied to fall arrest systems.

60. The selection, design and installation of a fall arrest system should be clearly justifiable; and the reasoning behind it should be recorded via a formal risk assessment process.

61. Access routes defined by the horizontal safety line should be designed to minimize exposure to risk(s) as should house rules for the workplace and method statements for work.

62. The fall envelope(s) associated with a fall arrest system in high risk areas of exposure should be carefully assessed and untenable risks addressed by appropriate control measures e.g. anchor line positioning, use of bespoke lanyards or other practical means.

63. It is essential that adequate free space is always available within every fall envelope to enable a fall to be arrested before the user hits the ground or other obstacle that could cause injury.

NOTE: End users/clients are reminded that when using a fall arrest system a 'rescue plan' **MUST** be in place which details procedures which will ensure that any fallen person can be rescued within a short period of time.(e.g. approximately 10 mins).

NOTE: Reliance should not be placed on the Emergency Services to perform such rescues.

## TYPICAL ANCHOR DEVICES AND COMPONENTS

64. The following is a list of 'top fix' anchorages that are available for use on a roof for the attachment of PPE designed to provide protection whilst working at height:

### Description and Characteristics

65. The following sections describe each type of anchor device and their limitations for use:-

66. There should be a designated safe means of access to and egress from each system /anchor.

67. Defined routes, arrangements and restrictions on movement should be formally recommended upon installation of the device; updated and amended as necessary over time; supported by house rules; and strictly controlled (by lock and key, or equivalent measure). These should be included in the Health and Safety File, or if there is no such file, a management/maintenance file for the building

### SINGLE POINT ANCHOR (SEE FIG 3)

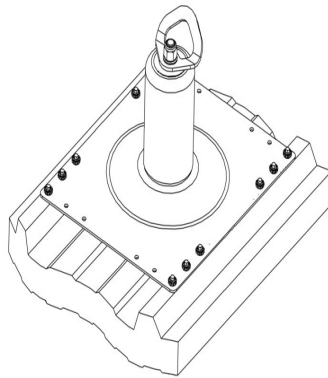


Fig 3- detail of a single point anchor

68. A top fix single point anchor bracket installed on a roof should have the capacity to arrest a fall.

69. A single point anchor allows the attachment of **one** user, unless specifically stated on the product that it is suitable for the attachment of more than one person. The user should only attach to the anchor point with a suitable connector that meets the requirements of EN362, but should firstly satisfy themselves that no-restrictions on the type of connector have been stipulated by the manufacturer in the user instruction manual.

70. The work restraint or fall arrest device connecting the user to a single point anchor should be of an appropriate length, determined by the amount of access required and the work to be carried out, to restrict the movement of the user to a zone where the risk of a fall is removed completely, or the fall distance is minimised where it cannot be removed.

Note: Ideally, the anchor should only be used with a short lanyard for work restraint purposes and access to a localised area.

71. If the anchor is not approved as a 'fall arrest anchor' and only suitable for work restraint purposes, the system of work should not allow the user to be exposed to a risk of falling. It is imperative that a robust system of management and work is in place to ensure that the user knows this, and is provided with the correct equipment for the circumstances, and trained in the use of that equipment. Refer to the user instruction manual and building maintenance file to establish any limitations for use, such as the type of fall arrester that can be used with the anchor.

72. If a user were to fall, the anchor should arrest the fall and the users personal protective equipment will restrict the force on the user and the anchor to a maximum of 6kN.

### CABLE HORIZONTAL SAFETY LINE SYSTEM (SEE FIG 4)

73. Horizontal safety lines provide more comprehensive protection for personnel working at height, covering larger areas and providing continuous protection. the user is generally connected to the system via an energy absorbing lanyard and mobile anchor point e.g. traveller/shuttle. The user is able to carry out their work with both hands free.

74. Systems are supported at intervals determined by the manufacturer by using intermediate supports, allowing a system to cover 100s of metres. They can also make changes in direction using corner anchors, which in many systems can accommodate a range of angles and changes in the contour of the building to which they are attached.

75. In-line energy absorbers may often be installed at the end anchors of the horizontal safety line, or at intermediate line supports. This is to ensure that under all foreseeable circumstances, for example a fall by multiple users, the loads on the anchor system will remain within design limits.

76. Generally, cables should not exit components of the system at angles exceeding 15 degrees.

77. As well as being used as a fall arrest system, working to decelerate a worker or workers if they fall, horizontal safety lines can also be used as work restraint systems, preventing workers from entering an area of greater risk. They are not intended for use as work-positioning systems on steeply pitched roofs or as a system for performing tasks requiring suspension

78. Users should attach to the system using the recommended mobile anchor point e.g. mobile anchor point e.g. traveller/shuttle/shuttle prescribed by the manufacturer. Where systems use intermediate anchors e.g. brackets, which is extremely common, the mobile attachment point will enable the worker to pass the brackets with relative ease and more importantly, without the need to detach themselves from the horizontal safety line.

79. Some systems are intended to be used with a EN362 connector as the mobile anchor point . If using an EN 362 connector users must remain connected to the horizontal safety system at all times.
80. Some systems are combined with single point anchors to create “radial points” (see figure 6 below on page 15 ) giving controlled access to specific areas which would otherwise be difficult to reach.
81. The horizontal line should be clearly marked with the number of users.

### Cable Horizontal safety line System

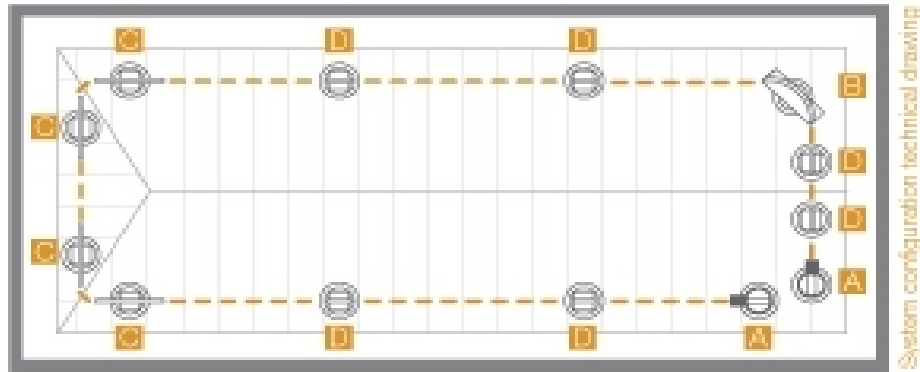


Fig 4-plan view of cable horizontal safety line system

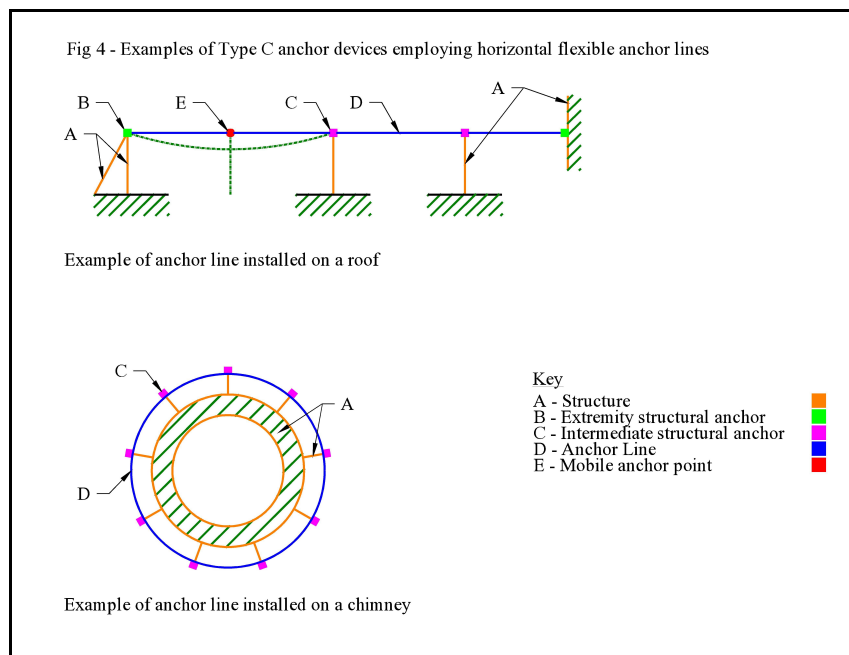
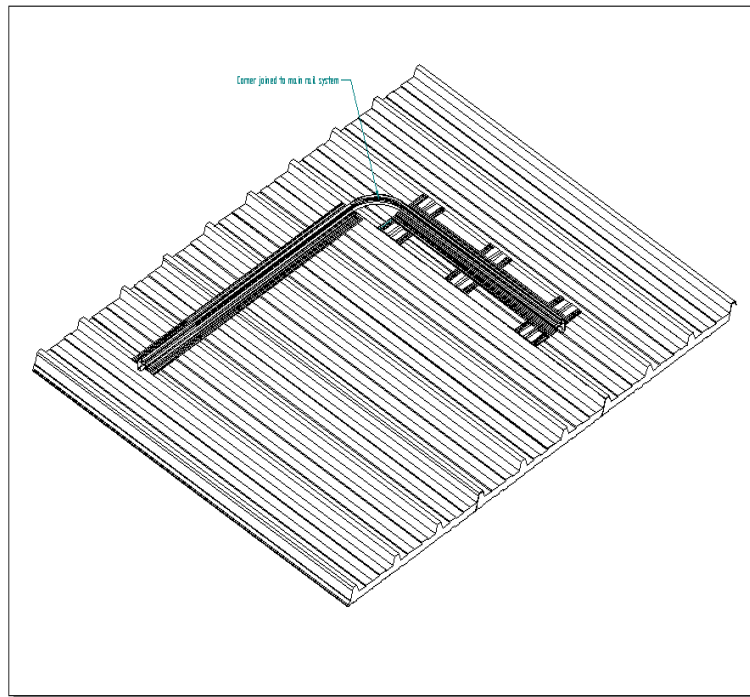


Fig 4a see BS EN 7883

### RIGID RAIL SYSTEM (SEE FIG 5)



**Fig 5 detail of a rigid rail system**

82. Rail systems provide a similar level of comprehensive protection for personnel working at height, as that provided by horizontal safety line systems, but with increased levels of user safety in certain circumstances.
83. Users are able to remain attached at all times and conduct work with both hands free, but unlike a cable based fall protection system, the rail systems do not deflect under dynamic load and so less ground clearance is required to arrest a fall and the load transferred to the structure is also significantly less.
84. The mobile anchor point e.g. travell/shuttle has a means of connecting other personal fall protection equipment, for example an energy absorbing lanyard that can be attached to the user's harness.
85. On roofs, rail systems need to be supported more frequently and generally take the form of a continuous base plate with an integral profiled rail that an attachment carriage can move freely along. Some roof mounted rail systems can also navigate changes in direction and the contours of the roof structure.
86. Unlike a cable safety system, a rail system can be used as a work-positioning system on a steeply pitched roof and some are also rated for suspension access work, this will be entirely dependent on the specific rail system. Some will not be approved for suspension work therefore it is recommended that the user always checks with the manufacturer for guidance and instruction.
87. Rail systems are typically fixed to the roof structure using a series of rivets, screws or clamps.
88. The horizontal rail should be clearly marked with the number of users.

## RADIAL POINT (SEE FIG 6)

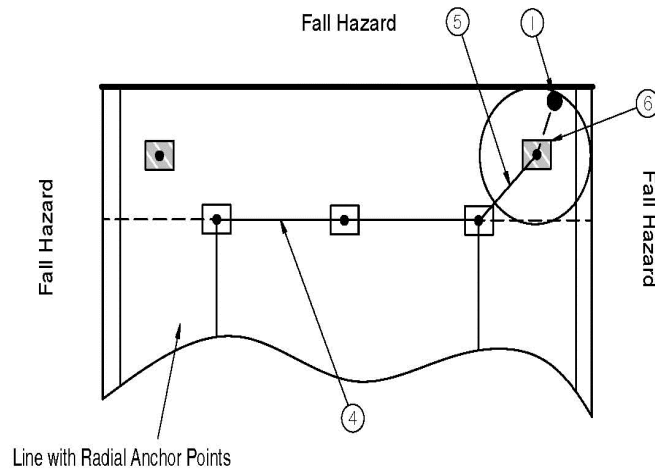


Fig 6 – plan view of radial point operation

NOTE: Sometimes referred to as ‘anti-pendulum posts’.

89. Radial points and anti-pendulum posts are generally used to increase access to the corners of a roof or to reduce the risk of a pendulum fall from the corner/gable of a roof edge.
90. They can be used either with a fixed length lanyard or with a longer rope and work-positioning device such as a rope grab. In the latter case, the rope should be clipped in to a karabiner, which should ideally be made captive on the anchor. All users should receive specialised training where this is the work method employed.
91. Where anti-pendulum anchors are used with longer ropes, it is the intention that forces generated in a fall are transferred to the main anchor.
92. There is currently no standard in place for testing anti-pendulum anchor posts, so when one is encountered on a roof, it is likely there will be no CE markings on the anchor.

## GENERAL INFORMATION ABOUT COMMON FIXING METHODS.

93. There are generally four different methods currently employed for top fixing anchorages to roofing structures. These are:

- **Rivets / Screws** – used commonly on roof structures such as composite panels and built up roof systems utilising metal profiled outer sheets
- **Clamps** – used commonly on standing seam and some clip fix roof systems
- **Toggle Clamps** – used commonly on flat roofing systems of a built up style where the substrate is a profiled metal deck or plywood
- **Chemical Anchors** – used commonly on flat roofing systems of a built up style where the substrate is concrete

## DESIGN CRITERIA

### Requirements for Horizontal safety Lines on roofs

94. A horizontal safety line system installed on a roof should provide secure means of permanent attachment for a minimum of two individuals, each wearing a full body harness and interconnecting shock absorbing lanyard and / or attachment device, when access is necessary or work is to be undertaken. Even when intended for work restraint purposes a horizontal safety line installed on a roof should normally have the capacity to arrest falls.
95. The minimum capacity of the horizontal safety line system may need to be increased (to more than 2 individuals) if use of the system is integral to any proposed rescue plan(s).
96. In exceptional circumstances, a ‘work restraint’ horizontal safety line or single point anchor without the capacity to arrest a fall may be installed, where
- The risk of a fall occurring is inconceivable due to the design of the "Work restraint system" not permitting access to the "fall zone"; and

- The justification is supported by a formal risk assessment recorded in the site's health and safety file; and
- Control measures are in place which preclude the risk of any person using the system who is not fully aware of the nature of the system and its limitations; and,
- The risk of misuse or abuse of the system is considered negligible.

97. Every horizontal safety line system should be designed, in principle, to avoid the risk of a fall occurring (by controlling routes for access and egress); prevent the risk of a fall (by restricting access to safe areas); have the capacity to arrest a fall should it occur (by providing a secure anchorage); and limit the risk of injury (by ensuring adequate clearances and careful assessment of the fall envelope).

98. The horizontal safety line system should be engineered to ensure that the force experienced by the victim(s) of a fall does not exceed 6kN; and the resultant energy of the fall (or falls) is distributed in such a way that the forces endured by the top fix anchor roof fixings will not prove critical to either to the anchor, the anchor fixings, the surface of the roof, or the sub-structure of the roof.

99. A safety factor of at least 2 should be adopted for all roof horizontal safety line systems and should be based on the maximum design force / strength limit of the roof cladding and supporting structure.

100. Horizontal safety lines should meet the Type C requirements of BS EN 795 : 2012 for single users, and CEN/TS 16415 : 2013 for more than one user simultaneously and Type D for rail systems taking into account other published guidelines such as BS 7883:2005 and BS 8437:2005 + A1 : 2012.

Note; BS EN 795 : 1997 refers to the form of anchors as a Class e.g. Class A anchor device, in BS EN 795 : 2012 and CEN Technical Specification CEN/TS 16415 : 2013 Class was changed to Type e.g. Type A.

101. In addition, the ACR considers that sample anchor devices to be installed on metal deck roof and supported by top-fix brackets should be tested in accordance with the recommendations of ACR Publication Magenta Book Part 2 (Current version) "Testing of Roof Anchors on Roof Systems", to ensure that in the foreseeable circumstances of a fall, the fixings of the anchorage system, the roof surface and the roof's support structure remain secure and intact; and that the overall performance of the safety system is adequate as the current design and testing codes do not address this aspect.

102. A horizontal safety line or single anchor point meeting the above design criteria that has been tested and proved to operate successfully with a particular roof type may be designed using a computer software package based on the key parameters established for, or derived from testing of that horizontal safety line and roof type combination. However the design of a horizontal safety line system by use of theoretical calculations alone (i.e. without validation of the results by testing) is **NOT** recommended.

### **Requirements for Anchor Device Components**

103. Every single point anchor and radial anchor for a single user should meet the requirements for a Type A anchor specified in EN795: 2012 ; and in addition have a static strength of at least 12kN (providing a safety factor of 2). Where more than one person will use them simultaneously they should meet the requirements of PD CEN/TC 16415 : 2013.

104. Top fix end anchors, corner and intermediate anchors should meet the requirements of EN 795:2012 (single user) or PD CEN/TS 16415 : 2013 (simultaneous multi-user applications) for Type C & D systems and in addition be tested according to the test methods recommended in ACR[M]002:2014 PART 2 – TESTING OF ROOF ANCHORS ON ROOF SYSTEMS.

105. As there is currently no standard in place for testing radial / anti-pendulum posts, in order to ensure that the anchor is fit for purpose, it is recommended that this type of anchor when installed is, as a minimum, marked for its intended purpose of use. Ideally it should be a single point anchor tested to EN795 Type A anchorage devices and is therefore capable of arresting a user's fall

## **INSTALLATION**

### **Preparation**

106. The installation of every fall protection anchor, or anchor system, should be undertaken with a clear understanding that it:

- Will involve work at a critically hazardous location at height;
- Will constitute 'construction work' as defined within CDM & WAHR regulations; and
- Should be expected to provide adequate safeguard for the life of the building or structure to which it is attached, subject to a properly designed regular maintenance programme.

107. Preparations for the installation of a system should normally include:

- A pre-site survey by the installer;
- A check by the system installer with the system manufacturer in conjunction with the roofing installer to ensure the components of the fall protection system and materials of the roof structure are compatible, the above checks should also be discussed with the specifier / designer;
- Agreement with the client / designer, horizontal safety line manufacturer and installer of the proposed layout for the fall protection system that ensures safe access to the entry/exit points;
- A clear mutual understanding about the nature and extent of the work to be undertaken between / designer, horizontal safety line manufacturer and installer;
- Agreement over safe routes for access / egress on the worksite, and to / from the roof between / designer, horizontal safety line manufacturer and installer;
- Arrangements with main contractor and installer whereby materials can be raised to the roof mechanically; and,
- Advance provision for the storage of materials, components and equipment on site that is formally agreed between main contractor and installer.

### Actual Installation

108. The installation of a fall protection system should always:

- Be pre-planned, properly risk assessed, subject to formal method statements and have provision made for rescue;
- Involve only trained and competent operatives and be subject to a strict level of discipline and supervision;
- Use a permit-to-work system; and, arrival and departure to / from the site should be subject to a formal logging protocol agreed with the site manager; and
- Ensures that every anchor point, or anchor line system is installed in accordance with the manufacturers instructions.

109. **Installation of fall protection systems on roofs MUST NOT involve:**

- The application of fixings at foot level along an open edge, which could result with an individual impacting the ground or equipment fixed to the façade due to deflection in a cable and poor selection of PPE. An example of this would be perimeter systems that allow the user to come into a fall risk. Work restraint systems set further back with correct PPE should be used;
- The mixing of components from different manufactures in one system means that a completely new system has been created, which has therefore not been subjected to EN795 or PD CEN/TS16415 tests and has no certification, since compatibility of components and performance of the systems cannot be proved.
- Employment of untrained operatives – except when under training and subject to strict supervision.

## INSPECTION

### General

110. Regulation 12 of the Work at Height Regulations 2005 requires that work equipment such as single point anchors, and horizontal safety lines are inspected in place after installation and before they are used for the first time. Thereafter they should be inspected at suitable regular intervals.

111. No specific interval of inspection is given for anchor systems in these Regulations.

112. They should also be inspected after events liable to jeopardise their integrity and hence the safety of the user.

*Note: BS EN 365: 2004 states ‘that manufacturer’s instructions should recommend a frequency of periodic examinations that take into account such factors as legislation, equipment type, frequency of use and environmental conditions. The periodic examination frequency shall be at least every 12 months.’*

*Note: BS8437 and BS7883 provide similar recommendations.*

113. The environment in which single point anchors or horizontal safety line systems are installed should be assessed upon installation of the equipment and recorded for use to determine the frequency of inspection.

114. A competent person should draw up an inspection regime and carry out the inspections set out in that regime.

115. An inspection regime should include:

- Installation handover inspection

- Pre-use checks.
- Detailed inspections (periodic examination)
- Interim inspections (if required)

116. An individual carrying out an inspection of a single anchor point or horizontal safety line should be thoroughly familiar with the equipment, the type of installation (and its fixings), the manufacturer's guidance and instructions for the equipment installed on the particular form of roof cladding.

Note: it is the responsibility of the employing organisation providing such inspection services to ensure this is the case.

117. Installation handover, interim (where required) and detailed inspections should ensure that fall distances below roof lights or at the perimeter of the roof have not been reduced by alterations to the height of internal or external racking, or (for example) the introduction of new protrusions from the vertical face of the building or structure, additional buildings, plant, storage equipment etc; by the opening of windows; or by vehicular or pedestrian traffic.

118. The written report of a detailed inspection (or interim inspection where required) should include:

- Details of the inspection and any tests carried out and their outcome;
- A list of which anchor devices/systems can remain in service, and which should be removed from service;
- Any remedial work required and any other relevant recommendations.

119. Anchor devices to be withdrawn from service should be tagged stating they are not to be used.

120. Building owners and occupiers should keep the installation and user documents and the handover inspection report. These should be available to those managing roof works, as appropriate to those carrying out roof work, and those carrying out detailed and interim inspections.

121. Building owners and occupiers should keep detailed and interim reports until the next detailed inspection. Keeping previous inspection records to form a history of the anchor systems may identify issues requiring more frequent inspection and attention as the system ages or wears with use.

### **Installation Handover Inspection**

122. A newly installed single point anchor, or horizontal safety line system, must not be used until an inspection has been carried out as part of the handover process to confirm that the installation and condition of the equipment is satisfactory and that it operates correctly.

123. An installation handover inspection by the installer of the horizontal safety line and any associated single point anchors or radial points and the roof, together with the client, should aim to ensure that:

- The specified anchor systems have been installed to the installation drawings;
- The roof surface on which the specified anchor systems have been installed is undamaged and not contaminated by oil, grease or other alien substance;
- Anchors, energy absorbers and tensioning units are intact;
- Swaged terminals at the end of any line do not show signs of slippage (there should be a method to check whether any slippage has occurred since installation);
- Any horizontal safety line and other associated components are undamaged and tensioned according to the manufacturer's instructions.
- Bolts and fixings remain tight and locknuts are secure;
- The attachment device(s) to connect the user to the anchor or anchor line is correct and is free from any defect and/or debris which might interfere with its operation;
- Where appropriate a suitable connector (e.g BS EN 362) secures the lanyard to the attachment device.
- Warning signs are visible at each access point and at the end of the line, and any single point anchor, to indicate that the system is only for the attachment of personal fall protection equipment and stating the maximum number of users permitted to attach to the system at any one time;

- A suitable tag or label is provided on or near the single anchor point or horizontal safety line which clearly shows the date of the next detailed inspection (or interim inspection where appropriate).

124. Where there is doubt about the installation it should not be handed over or accepted for operation. Use of the system should be prohibited until it can be demonstrated that deficiencies have been rectified, it is fit for service and handed over to the client.

## INSTALLATION DOCUMENTATION

125. After an installation handover inspection the installation documentations, user instructions and the inspection handover document should be passed over to the building owner and occupier who should keep a copy in the building for the purpose of subsequent inspections of single point anchors and radial points and horizontal safety lines.

The installation documentation should contain at least the following:

- Address and location of the installation;
- Name and address of the installation company;
- Name of the person in charge of the installation;
- Product identification (manufacturer of the anchor device, type, model/article)
- Fixing details (E.g. manufacturer, components, materials, permissible tensile and transverse forces)
- The deflection of the horizontal safety line in use and in a fall arrest situation.
- A schematic installation plan showing a plan of the roof, location of single anchor points, radial posts and horizontal safety lines, and giving relevant user information.

Note: BS EN 795 : 2012 Annex A Figure A.1 provides an example of a schematic installation plan.

Note: It is recommended that the schematic installation plan should be affixed to the building where it is visible and available for everyone who may require to look at it (e.g at the roof access point).

- A declaration given by the installer in charge signed by them and should contain at least the following information that the anchor device was:
- Installed in accordance with the manufacturer's installation instructions;
- Carried out according to the specific plan for the installation;
- Fixed to the specified substrate;
- Fixed as specified (e.g correct number and type of bolts, correct components, correct position/location)
- Commissioned in accordance with the manufacturer's requirements.

Note: It is recommended that where more than one anchor point is to be photographed, the anchor devices are marked with numbers, and that numbering is incorporated into the anchor device inspection records and schematic installation plan for future reference.

## Pre-Use Checks

126. On every occasion of use, horizontal flexible lines, rigid rails, single point anchors and radial points should be subject to pre-use checks in accordance with manufacturer's instructions, to visually confirm that the condition of the equipment is satisfactory and that it operates correctly.

127. Use of any anchor, or anchor system, should be prohibited unless pre-use checks have been carried out according to the guidance provided by the manufacturer and shown to be satisfactory in respect of at least the following essential items:

- There is clear indication that the anchor or anchor system has been subject to an earlier detailed inspection and is currently within the period specified before the next interim or detailed inspection
- Operatives in the working party are all equipped with personal protective equipment that is compatible with the anchor, or anchor system;
- The number in the working party does not exceed the capacity of the anchor, or anchor system;
- The structure to which the anchor or anchor system is fixed is in sound condition;
- The anchor, or anchor system, is in good repair securely fixed to the structure and the anchor line is properly tensioned;

- Every connector and / or attachment device to attach the user to the anchor or anchor system is suitable for the anchor or anchor system concerned and operates satisfactorily;
- The system does not show signs of having arrested a fall.

128. Equipment must prove satisfactory in respect of each item above before it is considered satisfactory for use. If the system shows signs of a fall, the system should be taken out of service and suitably tagged. The building owner/manager/occupier/manufacture should be informed detailed Inspections

129. Detailed inspections (also referred to as periodic examinations) are a formal, in depth inspection that should be carried out at intervals determined by a combination of manufacturer's recommendations for the type of anchor device, a consideration of frequency of use and environmental conditions.

Note: BS EN 795 : 2012 Annex A, Figure A.2 provides an outline for the detailed inspection of anchor systems.

130. In order to comply with the requirements of BS EN 365 :2004 and obtain a certificate of conformity/test certificate (Supported with a Technical File) manufacturers recommend a periodic examination of:

- Where any single point anchor or horizontal safety line system is used at least once every year or more frequently the ACR agrees that a detailed inspection period of at least every 12 months.
- Where the horizontal safety system is used very infrequently (i.e. less than once every year), the ACR suggests that there is no need for a 12 monthly detailed inspection but that a single anchor point or horizontal safety line must have a detailed inspection prior to use, unless this has been done within the last twelve months, **subject to the following overriding proviso: -**
  - Such an inspection scheme **SHOULD** be agreed with the manufacturer of the system involved and **REGARDLESS** of the circumstances, a single point anchor or horizontal safety line system **SHOULD NEVER BE USED** if a detailed inspection, in accordance with this ACR document, has **NOT** been carried out within the twelve months period immediately preceding the date of its intended use.

Note:- For Type A, C, and D anchors, which currently are not considered PPE by the EU manufacturers recommend a periodic examination at least every 12 months

131. A competent person authorised by the manufacturer should do all detailed inspections in accordance with the manufacturer's instructions and this ACR document.

132. Failure to comply with the criteria below should require the horizontal safety system to be removed from service and deemed unfit for use until remedial work is carried out by the manufacturer of the system or an authorised representative of the manufacturer.

133. The competent person carrying out the detailed inspection should refer to the documentation for the original installation, manufacturer's instructions, and the recent detailed inspection reports to determine the nature of the installation.

134. A detailed inspection should include all items from the Installation Handover Inspection ( see paragraph 125 above) and in addition:

- Check for any signs of corrosion on the anchor system and its fixings and examine the surface of all components in detail. Dismantling the system is recommended.
- The line or cable does not show visible wear amounting to a loss of cross sectional area of any strands;
- Remove the protective covers and check for corrosion, build up of dirt, dust, foreign objects;
- Ensure all nuts, bolts, fasteners are present and correct, and the torque is correct to the manufacturer's recommendations;
- Test all swaged connections according to the manufacturer's recommendations;
- The roof surface on which the single anchor or horizontal safety rail or cable is mounted is not damaged or showing signs of distress;
- All labels and markings are visible and in accordance with the requirements of EN365;
- That instructions for use / user manuals are available, complete and current;
- The manufacturer's design program software should be available to the inspector examining a system to confirm that the system was installed properly, i.e. spans, extremity brackets, corners, energy absorber rating;

NOTE: The latest version of the design calculation software obtained from the manufacturer should always be used.

- Pull Tests must be carried out on chemical anchors;

- A new detailed (or interim if required) inspection date must be added to all relevant labels or tags.

135. If considered unsatisfactory for use, the system should be withdrawn from service and tag(s) attached at points of access to it indicating so. The building owner/manager/occupier/manufacture should be informed.
136. The results of a detailed inspection should be recorded and given to the owner of the building. ( see paragraph 118 above in Inspection – General)
137. Checks should be undertaken to ensure that fall distances below roof lights or at the perimeter of the roof have not been reduced. ( see paragraph 116 - 117 above in Inspection – General)

### Interim Inspections

138. Interim inspections are additional to pre-use checks and detailed inspections. Interim inspections will be required where the employer's risk assessment, or the inspection process has identified a risk that could result in significant deterioration, affecting the integrity of the equipment before the next detailed inspection is due.
139. The need for and frequency of interim inspections will depend on the use, environment and findings from the inspection process as experience is gained. Examples of situations where interim inspections may be appropriate include: arduous working environments involving paints, chemicals, grit blasting operations and acidic or alkaline environments.
140. Interim inspections may also be required after an event which may jeopardise the integrity of the anchor system and hence the safety of the user, for example severe storms which may affect the roof, a person falling on the system, or accidental damage during a work activity.
141. The competent person carrying out the detailed inspection should refer to the documentation for the original installation, manufacturer's instructions, and the recent detailed inspection reports to determine the nature of the installation.
142. The results of an interim inspection should be recorded and given to the owner of the building. ( See paragraph 110 above in Inspection – General ).
143. A new detailed (or interim if required) inspection date must be added to all relevant labels or tags.

### MAINTENANCE AND REPAIR

144. **When a single point anchor or horizontal safety line system has arrested a fall it must be taken out of service**, and the manufacturer of the system or an authorised representative of the manufacturer of the equipment, contacted immediately for advice and guidance on any necessary remedial measures to be undertaken **before** the system is re-commissioned.
145. Repair or maintenance of an anchor system should only be carried out by competent personnel employed by the manufacturer of the equipment or by an authorised representative of the manufacturer.
146. Only genuine, new replacement components should be used for all repairs.
147. Only the special tools or equipment i.e. swaging tools etc, specified or approved by the manufacturer concerned should be used during repair or maintenance of an anchor system.
148. Any component considered to have failed due to a manufacturing or design flaw should always be sent to the manufacturer of the anchor system for inspection.
149. Damaged components that are not returned to the manufacturer must be disposed of in a controlled manner to ensure they cannot inadvertently be put back into service.
150. Any cleaning of an anchor system, or any component of an anchor system, should only be carried out according to the manufacturer's instructions.

### REFERENCES

151. In addition to the information provided in this book, additional advice concerning:
- The technical requirements relating to aspects of single point anchors, horizontal safety lines and personal fall protection can be found in the following publications:
  - BS 7883: 2005, Code of practice for the design, selection, installation, use and maintenance of anchor devices conforming to BS EN 795;
  - BS EN 795: 2012, Protection against falls from a height – Anchor devices – Requirements and testing;
  - PD CEN/TS 16415 : 2013, Personal fall protection equipment – Anchor devices- recommendations for anchor devices for use by more than one person simultaneously.

- BS 8437: 2005 + A1 : 2012, Code of practice for selection, use and maintenance of personal fall protection systems and equipment for use in the workplace; and
- BS 7985: 2009, Code of practice for the use of rope access methods for industrial purposes.
- BS 8560 : 2012 Code of practice for the design of buildings incorporating safe work at height.
- Competence and Training for Work at Height

**BS 8454:2006 DELIVERY OF TRAINING FOR WORK AT HEIGHT AND RESCUE.**

## APPENDIX 1 – TASK GROUP AND REVISIONS

### CONSTITUTION OF THE TASK GROUPS

The following people represented the Associations and Manufacturers of the original task group:

David Thomas	HSE
Ralph N Bennett	MCRMA
Vince Cranmer	NARM
Mike Luke	CSS Worksafe
James Burns	Horizon Safety Access
Nick Lear	OCS
Nick Hayes	The Access Group
Jim Atwood	Safeline UK Ltd
Tim Bisset	Latchways
Simon Rood	Roodsafe
Peter Davis	Roodsafe
Mike Baldwin	Capital Safety Group
Steve Jervis	Capital Safety Group
Scott Bennett	Dunn & Cowe
Simon Luke	Uniline Safety Systems Ltd
Steve Ball	Kingspan Panels
Lee Davies	CA Group Ltd
Derek Cowe	Dunn and Cowe
Peter Baker	Corus Roof Panels & Profiles
Chris Chapman	BSI

The following people represented the Associations and Manufacturers invited to the revision task group on this version:

Rob Hirst	Capital Safety
Jim Grieve	HSE
John Ingram	Kee Safety
Tim Bissett	Latchways (CEN/TC160)
Dave Spencer	Spanset Limited (WAHSA)
Graham Willmott	Kee Safety (BSIF)

### REVISIONS

The following revisions were made in this version

#### Section

Working group details  
Terminology  
Client  
Architects & Designers  
Paragraph 11

Para 13

Para 15

Para 16

Para 18

Para 23

Para 28

Para 41

Para 47

Para 65-67

Para 69

Para 80 & 81

Para 88

Para 93

#### Revision

Moved to Appendix 1

Moved from clause 16 to clause 2

Clause 4 additional Paragraph

Clause 6 additional paragraphs

Additional notes on CE marking and update on status EN 795 2012.

Additional requirement relating to compatibility

Clarification “person in control”

Further responsibility

Addition of “pre-use checks and emergency rescue procedures”

Additional Standards and legislation

New reference to the ACR information sheet 1

New paragraph requiring instructions to be issued

New reference to PD CEN/TS 16415 and notes on CE marking

New scheme plan

New clauses

Rewording regarding one and two users

New clauses

New clause

Re-numbered from para 64

Para 100, 103,104  
Para 109  
Inspection Para 110-121  
Installation handover Inspection Para 122-124  
Installation Documentation Para 125  
Para 128 -130

New clause and note BS EN 2012 & CEN/TS 16415  
Reworded  
New section  
New section  
New section  
Reworded and new note

## APPENDIX 2 – SUMMARY OF RESPONSIBILITIES UNDER CDM 2015

CDM Dutyholders* – Who are they?	Main duties – What they need to do
<p><u>Commercial clients</u> – Organisations or individuals for whom a construction project is carried out that is done as part of a business.</p>	<p>Make suitable arrangements for managing a project, including making sure:</p> <ul style="list-style-type: none"> <li>other dutyholders are appointed as appropriate</li> <li>sufficient time and resources are allocated</li> </ul> <p>Make sure:</p> <ul style="list-style-type: none"> <li>relevant information is prepared and provided to other dutyholders</li> <li>the principal designer and principal contractor carry out their duties</li> <li>welfare facilities are provided</li> </ul>
<p><u>Domestic clients</u> – People who have construction work carried out on their own home (or the home of a family member) that is <b>not</b> done as part of a business.**</p>	<p>Though in scope of CDM 2015, their client duties are normally transferred to:</p> <ul style="list-style-type: none"> <li>the contractor for single contractor projects</li> <li>the principal contractor for projects with more than one contractor</li> </ul> <p>However, the domestic client can instead choose to have a written agreement with the principal designer to carry out the client duties.</p>
<p><u>Designers</u> - Organisations or individuals who as part of a business, prepare or modify designs for a building, product or system relating to construction work.</p>	<p>When preparing or modifying designs, eliminate, reduce or control foreseeable risks that may arise during:</p> <ul style="list-style-type: none"> <li>construction</li> <li>the maintenance and use of a building once it is built</li> </ul> <p>Provide information to other members of the project team to help them fulfil their duties.</p>

<p><u>Principal designers</u> - Designers appointed by the client in projects involving more than one contractor. They can be an organisation or an individual with sufficient knowledge, experience and ability to carry out the role.</p>	<p>Plan, manage, monitor and coordinate health and safety in the pre-construction phase of a project. This includes:</p> <ul style="list-style-type: none"> <li>identifying, eliminating or controlling foreseeable risks</li> <li>ensuring designers carry out their duties</li> </ul> <p>Prepare and provide relevant information to other dutyholders.</p> <p>Liaise with the principal contractor to help in the planning, management, monitoring and coordination of the construction phase.</p>
<p><u>Principal contractors</u> – Contractors appointed by the client to coordinate the construction phase of a project where it involves more than one contractor.</p>	<p>Plan, manage, monitor and coordinate health and safety in the construction phase of a project. This includes:</p> <ul style="list-style-type: none"> <li>liaising with the client and principal designer</li> <li>preparing the construction phase plan (see <a href="http://www.hse.gov.uk/pubns/cis80.pdf">www.hse.gov.uk/pubns/cis80.pdf</a>)</li> <li>organising cooperation between contractors and coordinating their work</li> </ul> <p>Make sure:</p> <ul style="list-style-type: none"> <li>suitable site inductions are provided</li> <li>reasonable steps are taken to prevent unauthorised access</li> <li>workers are consulted and engaged in securing their health and safety</li> <li>welfare facilities are provided</li> </ul>
<p><u>Contractors</u> – Those who carry out the actual construction work, contractors can be an individual or a company.</p>	<p>Plan, manage and monitor construction work under their control so it is carried out without risks to health and safety.</p> <p>For projects involving more than one contractor, coordinate their activities with others in the project team – in particular, comply with directions given to them by the principal designer or principal contractor.</p>

	For single contractor projects, prepare a construction phase plan (see <a href="http://www.hse.gov.uk/pubns/cis80.pdf">www.hse.gov.uk/pubns/cis80.pdf</a> )
<u>Workers</u> – Those working for or under the control of contractors on a construction site.	<p>Workers must:</p> <ul style="list-style-type: none"><li>be consulted about matters which affect their health, safety and welfare</li><li>take care of their own health and safety, and of others who might be affected by their actions</li><li>report anything they see which is likely to endanger either their own or others' health and safety</li><li>cooperate with their employer, fellow workers, contractors and other dutyholders</li></ul>

This document can be downloaded free of charge from the ACR website at  
<http://www.roofworkadvice.info>

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The Advisory Committee for Roofsafety (ACR) is a body dedicated to making working on roofs safer. Its membership is made up of nominees from the major roof working Federations and Associations and the Health and Safety Executive, who provide the experience of many years of involvement in working on roofs in the advice given in their documents

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