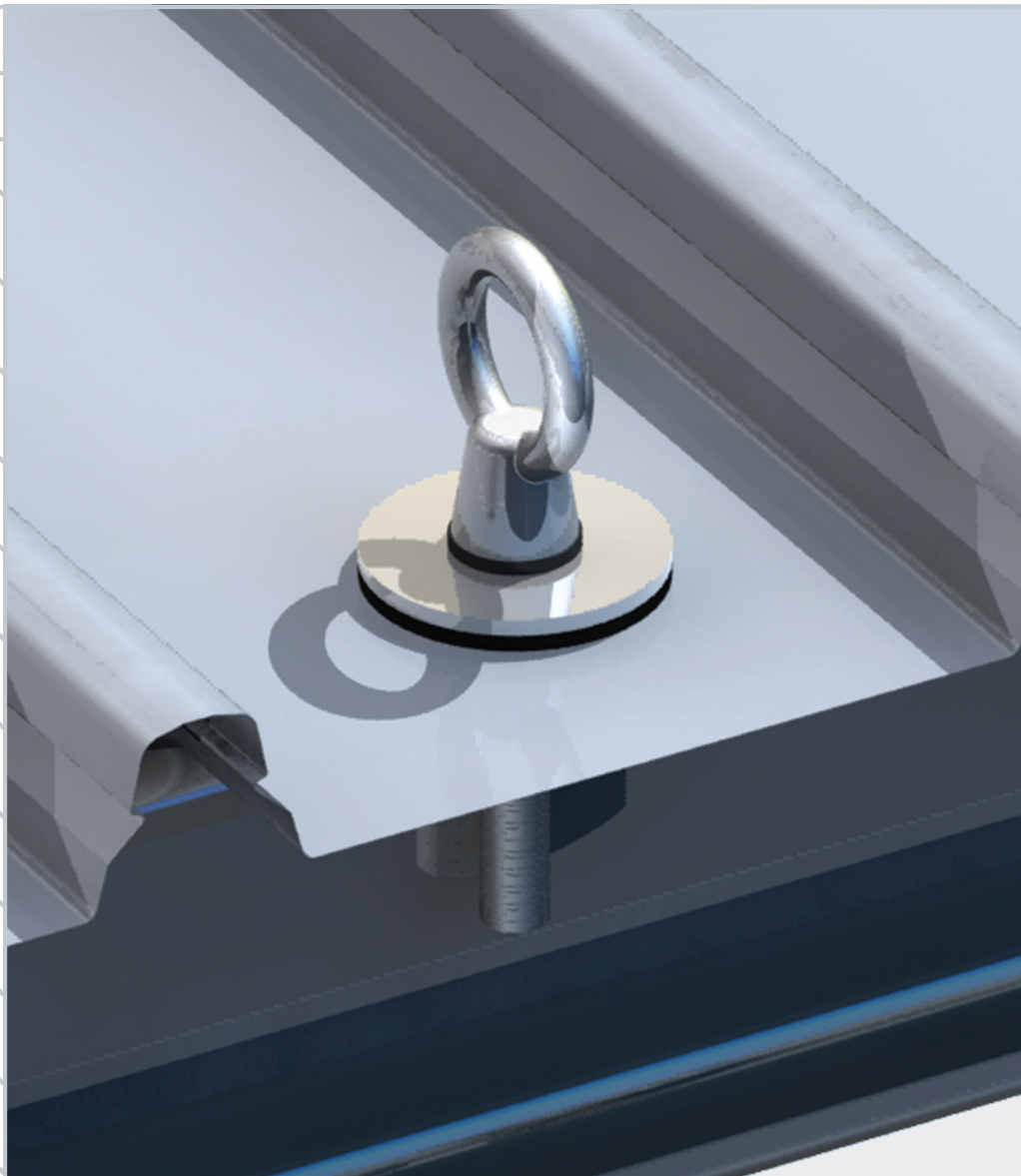
Kattsafe Height access and fall protection

INSTALLATION MANUAL

PURLIN MOUNT ANCHOR

AP123



The purlin mount anchor is a compact anchor that is installed on metal roof decks for rope access and fall arrest use.

Product brochure
Purlin mount anchors

Installation manual
Purlin mount anchors

Operation manual
Fall arrest anchors

Operation manual
Rope access anchors

Find all related products and resources on our website kattsafe.com.au

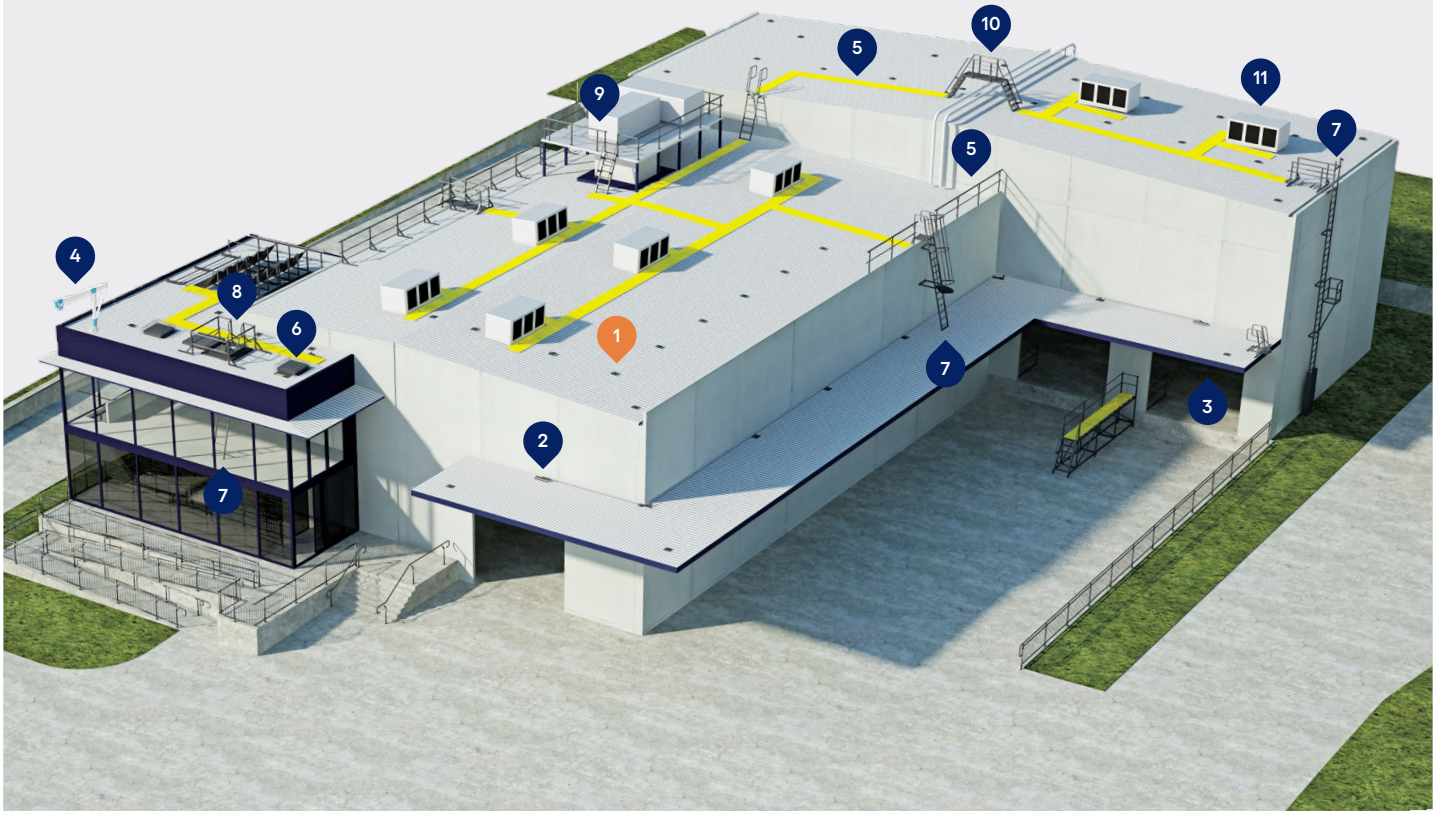
Commercial building height access and fall protection requirements

Kattsafe leads the industry in the design, installation and management of access and fall protection safety systems.

The in-action model demonstrates access and fall protection requirements for a commercial building design. Kattsafe recommendations fulfill current workplace requirements for the safety of building maintenance subcontractors, employees and the general public.

For more information please contact Kattsafe.
kattsafe.com.au

1 Anchor points
2 Static lines
3 Rigid rail
4 Davits and needles
5 Guardrail and walkway
6 Skylight protectors
7 Rung ladders
8 Access hatches
9 Platforms and stairs
10 Step ladders
11 HVAC platforms



PURLIN MOUNT ANCHORS

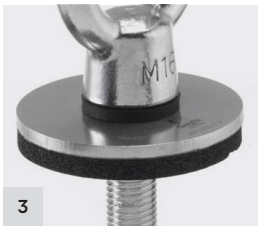
High strength purlin mount anchor installed into purlins under metal roof decks for twin rope access and fall arrest use.

Large eyelet

Stainless steel eyebolt for easy snap hook attachment, with a 50kN tensile load ability

Captured seal

O ring seal designed to be protected from exposure to UV.



Large support flange

Increases penetration seal area, and is protected with an EPDM seal.

Anchor block

Stainless steel anchor block with rounded edges for easy installation.

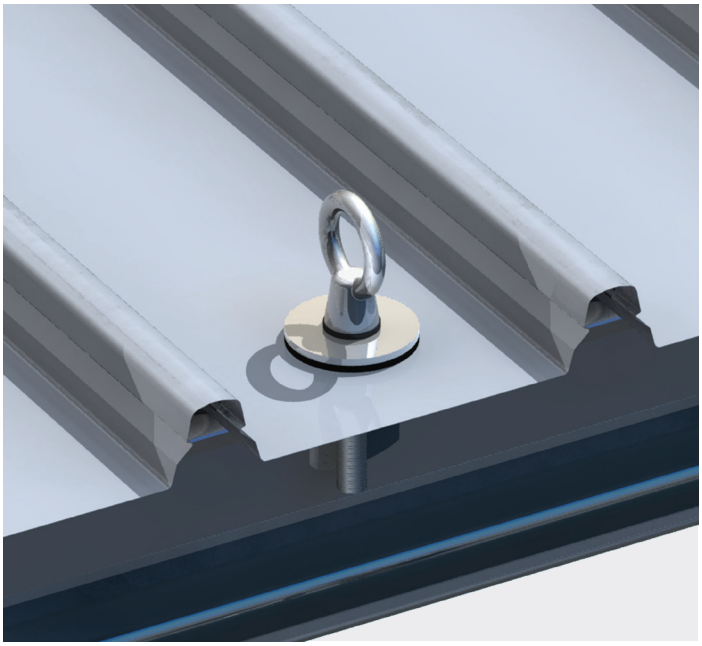
Eyebolt shank

High strength M16 stainless steel construction.

PURLIN MOUNT ANCHOR CONFIGURATIONS

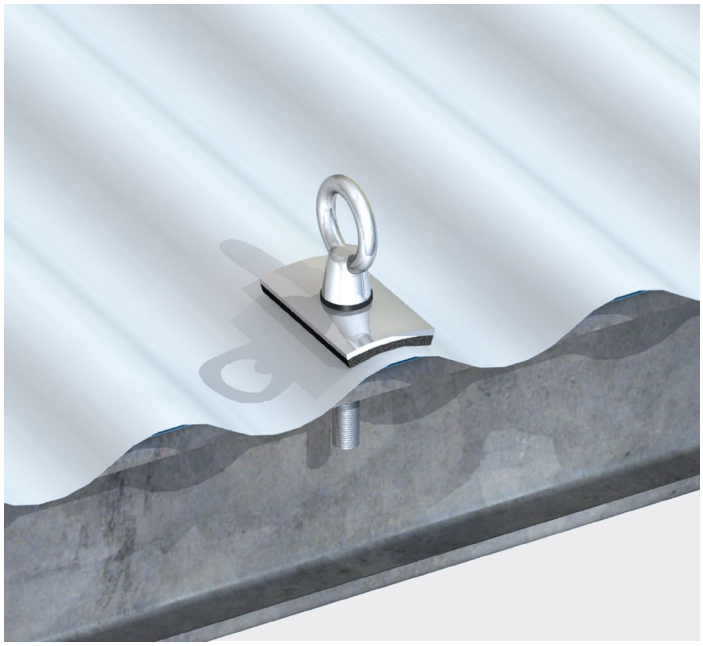
Ap123F Purlin mount anchor - flat

– Flat flange for mounting to flat pan areas of roof decks.



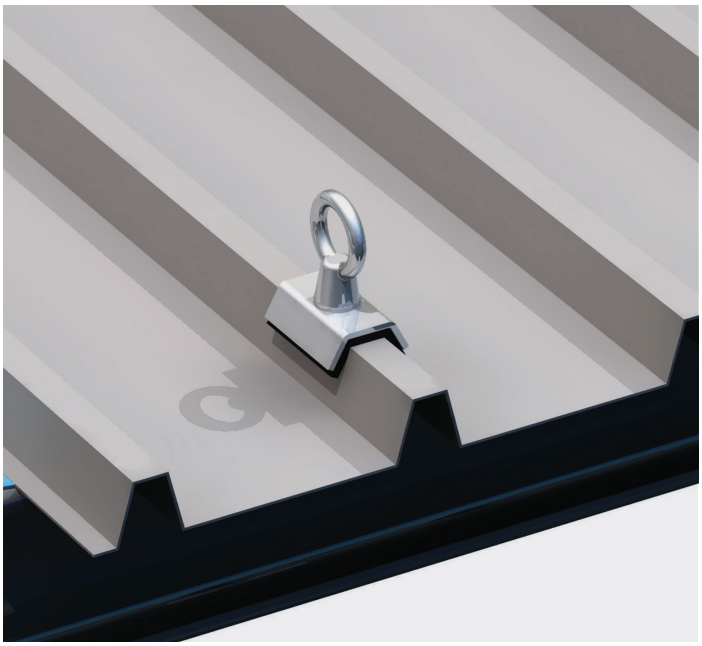
AP123C Purlin mount anchor - corrugated

– Curved flange for mounting to corrugated roofs.



AP123S Purlin mount anchor - square corrugated

– Square flange for mounting to square corrugated roofs.



TOOLS AND EQUIPMENT

Cordless drill

Step drill or hole saw

Shifting spanner

Silicone sealant and applicator

Rag, brush or vacuum

Tape measure

Marking pen

INSTALLATION REQUIREMENTS

Must be read prior to installation

1. This system must only be installed by competent persons trained in the selection, use and maintenance of fall arrest systems and hold a current Kattsafe approved installer certificate.
2. Installers must possess valid industry licenses, be appropriately trained, and comply with all relevant OH&S legislation prior to installation of this product.
3. Persons installing this system are required to have a comprehensive knowledge of the Australian Standards, codes of practice and industry guidelines that relate to the selection, use and maintenance of fall arrest systems and equipment.
4. Integrity and suitability of the structure to which this system is attached must be approved by a structural engineer unless it is clear to a competent person as to the suitability of connection to structure.
5. Read installation and operating instructions carefully before commencing any work. Consent to deviate from the installation guide must be obtained in writing from the manufacturer.
6. Conduct an initial work/risk assessment, and take all reasonable precautions to eliminate or control potential hazards and risks during the installation of this product.
7. Complete all necessary WHS documentation, including a Job Safety Analysis and Work Method Statement and obtain consent from responsible person in workplace prior to commencement of work.
8. There is a possibility for the anchor block to fall to the surface below whilst inserting to the underside of the purlin. If there is any chance of persons in this area, it must be prohibited from access during the installation process.
9. Do not modify or remove any element of the support structure without prior authorisation by a qualified engineer.
10. Any re-routing of electrical and/or other services must be carried out by qualified or authorised personnel.
11. Appropriate temporary access and safety equipment must be used during installation, such as platform ladders or scaffolding and fall protection anchorage points.
12. In case of emergency, access and fall arrest systems must be installed by a minimum of two persons.
13. Do not tamper with, modify or remove any part this system unless authorised by the manufacturer.
14. Appropriate labels or markings must be attached to each system and include the following:
    - System for personnel use only
    - Service entry date
    - Next examination/service due date
    - Harness gear requirements and system compatibility
    - Maximum designed load ratings
    - Installer/Certifier contact details
    - Decorative coatings and coverings must be removed to ensure correct evaluation of structure prior to attachment of system
15. Documentation confirming correct use and maintenance of the system and equipment must be provided to the workplace manager on completion of installation. (See operation manual).

Kattsafe instructions and recommendations, drawings and diagrams, and all other documentation are copyright, errors and omissions excepted, and must be carefully read and implemented. Any assistance or guidance given is without prejudice, and Kattsafe cannot be held responsible for any inaccuracy or misinterpretation whatever. Failure to follow site installation requirements and warnings, may result in serious injury or death.

Kattsafe accepts no direct or indirect responsibility and/or consequential liability whatever, for any products and systems incorrectly installed or certified. Kattsafe cannot warrant the integrity or suitability of the structure to which the products may be attached. Prior assessment must be made by a qualified structural engineer, unless the structure is authorised or approved by a competent person.

SYSTEM LIMITATIONS

Must be read prior to installation

1. Minimum structural requirements for attachment of purlin mount anchors:
   - Steel purlin 150 x 1.9mm base metal thickness
2. The purlin mount anchor is suitable for single (1) person use and rescue in the case of a fall incident. (15kN) when attached to a structural steel purlin.
3. Only to be used by competent persons with proof of training by a Registered Training Organisation (RTO) in the use of height safety and fall protection systems.
4. Harness gear is susceptible to deterioration when exposed to chemicals or hazardous environments and must be approved by the manufacturer for use in these applications.
5. This system, under normal use and environment, has a life expectancy of up to 10 years. A manufacturer's assessment and certification to confirm suitability for an additional 5 years use is recommended. This will depend on location, usage and scheduled maintenance as per manufacturer and legislative requirements.
6. Operators of this system must be connected via a lanyard with a personal energy absorber, in accordance to Australian Standard AS/NZS 1891.1.
7. Where slopes exceed 40°, the purlin mount anchor installation design should be set up to be used as a rope access/ abseil system with twin rope attachment for increased safety of the operator.
8. Do not exceed maximum number of users per system. See specific system data plate for user configuration.
9. Do not tamper with or make alterations to system components without manufacturer's consent.
10. This system is not to be used for tethering or lifting machinery or equipment.
11. The safety system must be recertified by a competent height safety inspector as recommended:
    - Non corrosive/mild environment – 12 monthly.
    - Corrosive/harsh environment – 6 monthly (more frequent inspection may be required.)

(Inspection intervals may also depend on statutory requirements.)

Kattsafe recommends that persons using fall arrest systems do not work alone in case of an emergency and help is required.

Should any part of the system/equipment have been subjected to abnormal loading, use must be discontinued until replaced/recertified by a competent height safety inspector.

AUSTRALIAN STANDARDS SUMMARY

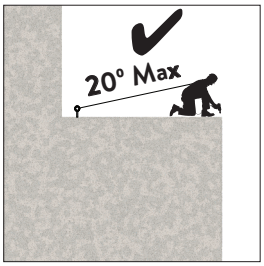


Figure 1

CORRECT Anchor loading in shear.

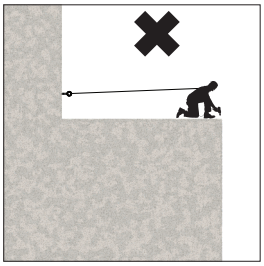


Figure 2

INCORRECT Anchor loading in tension. (Through bolt or cast-in anchors acceptable)

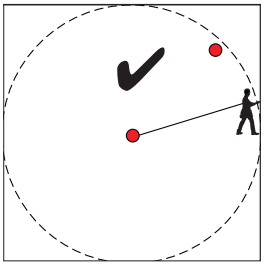


Figure 3

CORRECT Anchor positioning, NO risk of pendulum fall.

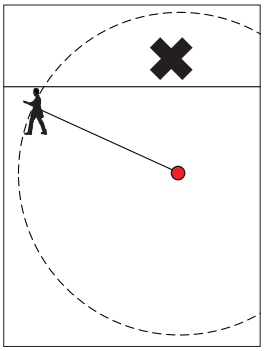


Figure 4

INCORRECT Anchor position, allows risk of pendulum fall.

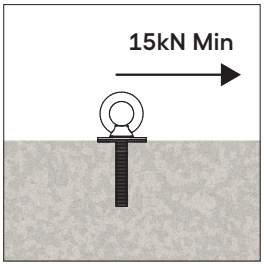


Figure 6

Load rating single person use

– 15kN design load - fall arrest/ single person

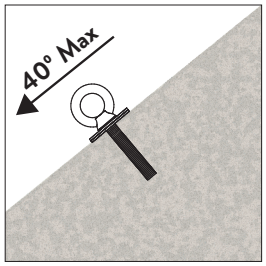


Figure 6

Angle of slope max 40° for fall arrest anchor.

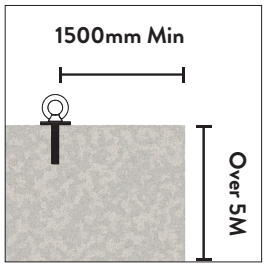


Figure 7

Anchor positioning for fall arrest minimum 1500mm from edge if vertical height is over 5000mm.

*See fall clearance page

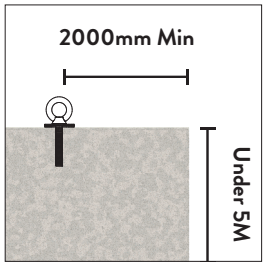


Figure 8

Anchor positioning fall arrest minimum 2000mm from edge if vertical height is under 5000mm.

*See fall clearance page

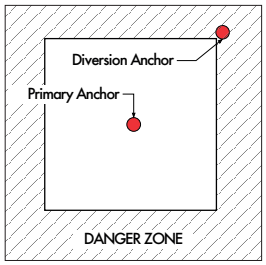


Figure 9

Primary anchor required in safe zone. Diversion anchor required in danger zone.

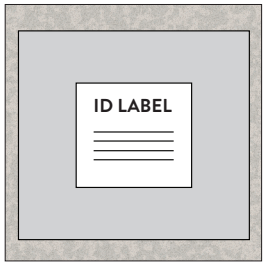


Figure 10

Anchor must include identification label confirming load rating and maintenance records, and installer/certifier details.

DESIGN & LAYOUT

Must be read prior to installation

1. The hierarchy of risk control must be followed at all times

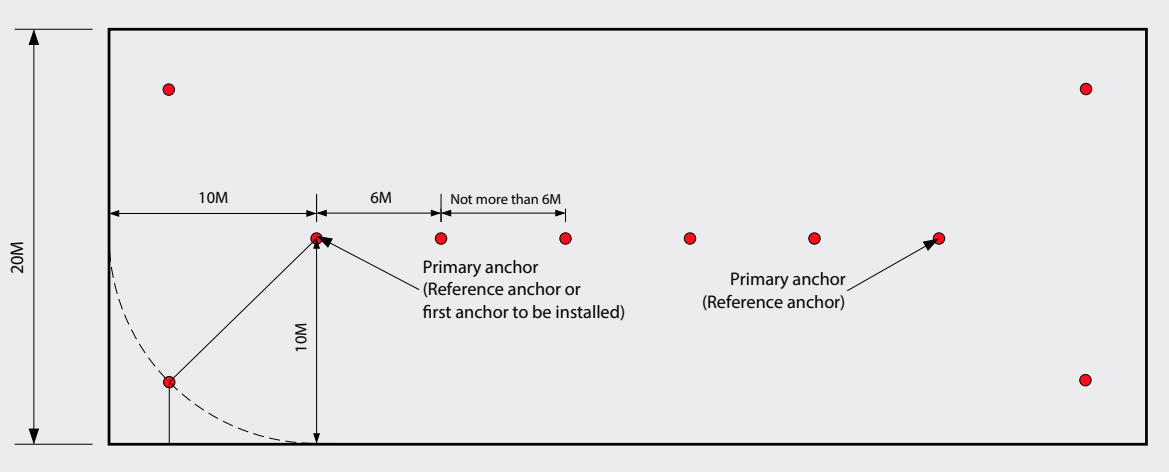
   It is important to note that the lower the hierarchy of control, the greater the skill of the operator required and therefore is least preferred compared with a higher hierarchy requiring minimal operator skill and less risk of operator injury as a result of incompetence.

2. Professional guidance on the design and set out of this system should be obtained prior to installation.
3. Certain environments produce acidic atmospheric conditions which are detrimental to steel structures and concrete surfaces. Any acidic environment must be assessed and structural components certified by a competent person prior to installation of this system.
4. Australian Standard AS/NZS 5532 does require each sub-structure type to which a fall arrest anchor system is attached to be individually tested and certified for safe use by the manufacturer.
5. When designing or positioning fall arrest and rope access systems it is important to check the following:
   - Roof pitch over 15° will require constant user attachment.
   - Sub-structure type will determine best suited fixing method.
   - Number of persons required to work in the same area will determine preferred type of fall protection system provided.
   - Type of work to be done will determine best suited fixing type of fall protection system provided.
   - How frequently the area will need to be accessed will determine preferred type of fall protection system provided.
   - Safe access to the work zone will determine preferred type of fall protection system provided.
6. Where possible, anchorage systems should always be positioned above the operator to minimise unnecessary fall distance.
7. When connected to an anchorage system using a rope line lanyard, the anchorage must be placed a sufficient distance behind the operator to limit angle on lanyard to 20°. This is to avoid excessive tensile load on the anchor.
8. When positioning the anchor system it is important to ensure that there is no possibility of pendulum action should the operator accidentally fall as a result of incorrect anchor spacing between fall edge and spacing between anchorages.
9. Primary anchors must be positioned in the ‘safe zone’ a minimum of 2.5m from fall edge of the roof area ensuring operator safety whilst connecting to the system prior to moving into the danger zone area.
10. Anti pendulum or diversion anchors must be provided to allow rope line extension into extreme corners preventing pendulum action in the case of a fall.
11. Any angle of roof pitch above 40° will require rope access anchorages for use as a work positioning system (abseil) in place of a fall arrest system.
12. Sufficient fall clearance is essential in order to ensure correct operation of the system in a fall situation. Should fall distance be less than 5.0m, anchorage system must be positioned at least 2.0m or more from the fall edge to allow operator to work effectively in full restraint.

This document does not in any way replace the full Australian Standard document AS/NZS 1891 & AS/NZS 4488 which must be read and properly and understood prior to installation of this system.

Anchor layout for fall arrest use - Small roofs

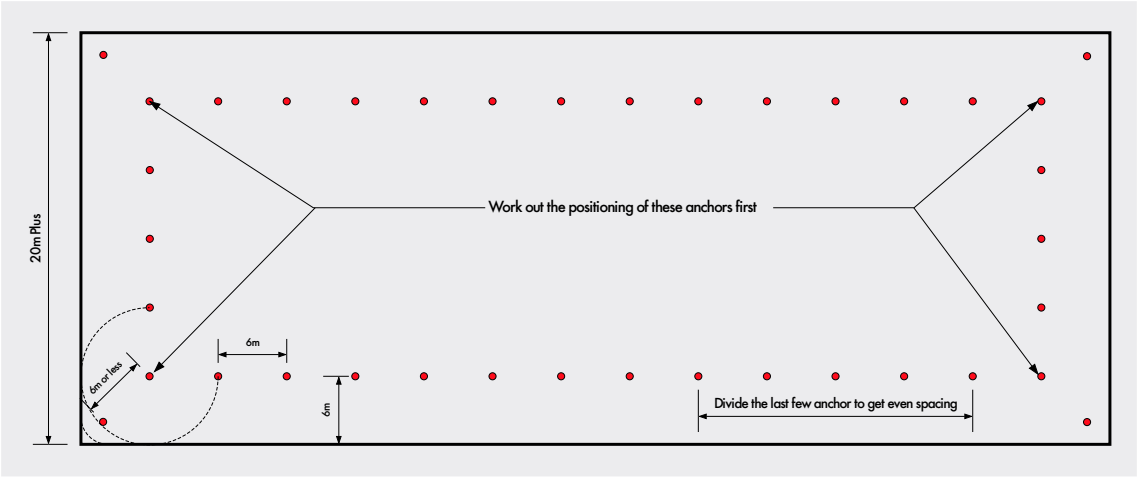
Roofs up to 20.0m in width



- Avoid positioning an anchor more than 10.0m from the roof edge. Further than this will require longer than standard rope line (15.0m) which is heavy and cumbersome to manage.
- Never allow more than 6.0m between anchors as this will create large ‘dead zone’ areas at the roof edge causing a pendulum fall possibility.
- The primary anchor (or reference anchor) must always be placed such that the distance away from the gutter edge of the roof is the same as from the gable end of the roof.

Anchor layout for fall arrest use - Large roofs

Roofs over 20.0m in width



- All points mentioned for smaller roofs also apply to larger roofs.
- Avoid positioning anchors in close proximity to roof lights as these are classified as fall hazards. Ensure roof lights or skylights are protected with fall protection covers should an anchorage be positioned in close proximity.

For roof pitches above 15° Kattsafe recommend that 100% attachment of the operator be maintained at all times. These diagrams are a guide only. All risks must be clearly identified and eliminated as far as reasonably practicable.

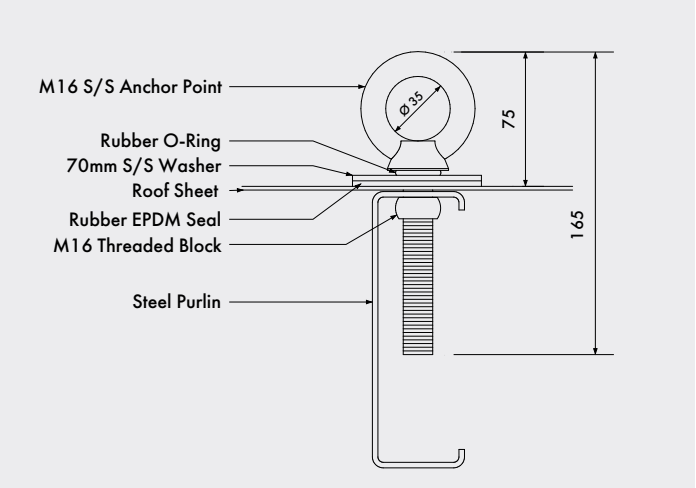
INSTALLATION PROCEDURE

Step 1

- Prior to installation the condition of the roof deck and structure must be checked for suitability with no visible damage or deterioration.
- Correct positioning of the anchor is critical to avoid a potential pendulum fall set up.
- A minimum of 3 purlins connected to the roof deck is required.
- The installation checklist will assist with critical assessment criteria.

Ensure correct flange profile is used to suit roof deck.

If roof deck is a clip fix system with no screw fix penetrations see specific install requirements in page 14.



Step 2

- Once position of anchor is determined, prepare area for installation.
- Remove roof screws if necessary and locate centre of purlin.
- Drill a 25mm hole through roof sheet & purlin.

Hole must be through centre of purlin to maintain strength requirements. Clean roof crest with rag to remove swarf and ensure a good seal.

If roof deck is clip fix system, please refer to page 14.

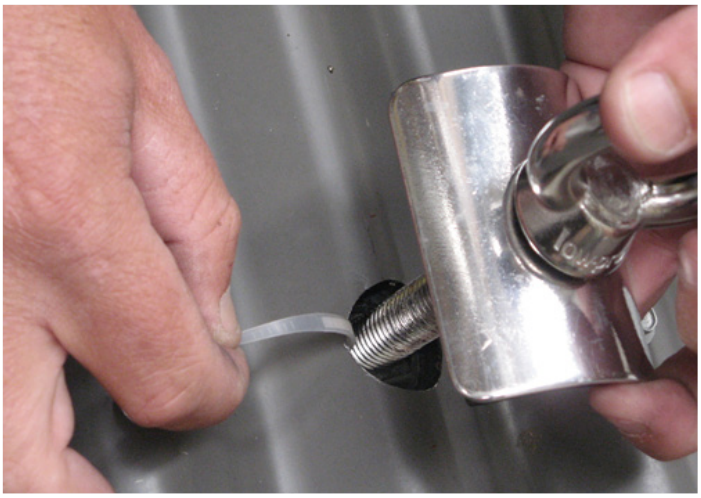
Step 3

- Place cable tie through fixing block (small hole) and insert the block into hole.
- Once through the hole pull back block up against underside of purlin.
- Line up fixing block thread with hole in purlin.

As there is a possibility to let go of the cable tie allowing the fixing block to fall to the ground, the floor area below the anchor installation must be restricted of any access by personnel.

Step 4

- Still holding firmly onto the cable tie, insert the eyebolt into the threaded block, turning it clockwise.
- Once the eyebolt has penetrated the fixing block the cable tie can be released and pushed through, into the roof. It is recommended at this stage to apply Loctite about 35mm from the top of the thread to prevent it from working loose overtime.
- A bead of silicone around the penetration is recommended to ensure a watertight seal.



Step 2

- Continue turning the eyebolt until it starts to tighten. Once it starts to tighten apply 3 to 4 full turns.
- Face anchor in fall direction ie. parallel with roof sheet direction.

DO NOT over tighten as this can crease or damage the roof deck.

If anchor is installed onto structural steel tighten to 110Nm.

Step 3

- Place identification label on roof deck and complete details on label.
- Complete anchor installation check using checklist provided.

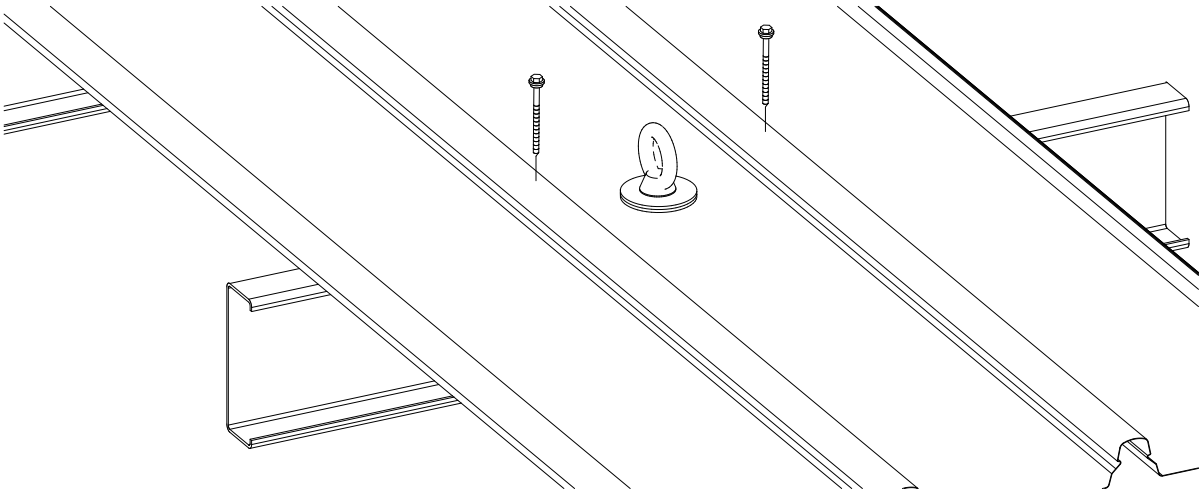
CLIP FIX ROOF DECK INSTALLATION PROCEDURE

Installation criteria to clip fix roof deck system i.e. No screw fix penetrations.

Clip fix roof decks are common on larger roof deck areas where roof pitch is often less than 5°. The roof deck clip is not designed to prevent the roof deck from sliding or shifting under extreme load which means the purlin connector to the roof sheet is not fully secure. In this situation the roof sheet requires specific screw fix attachment at the location of the anchor to provide increased purlin support.

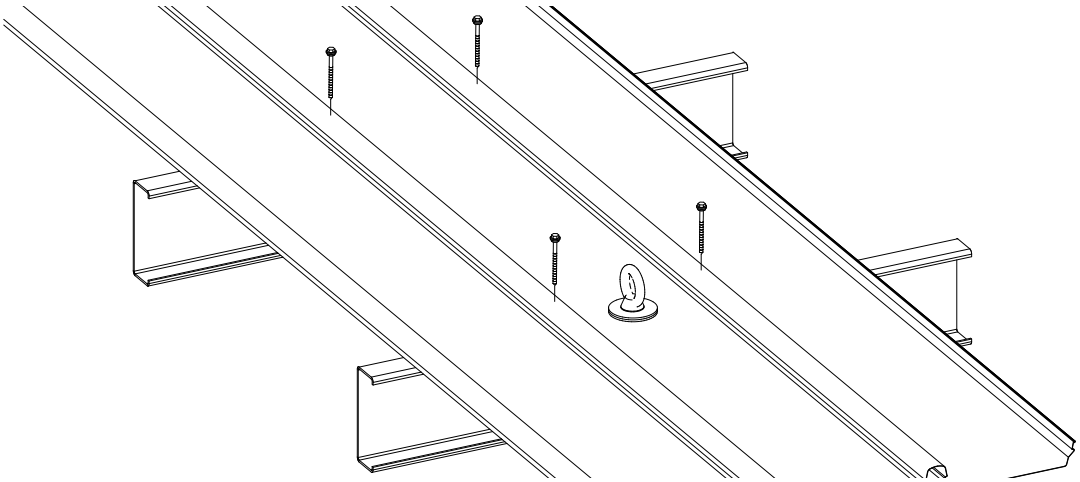
Fall arrest use (15kN)

If clip fix roof has 5 or more purlins, then no screw fixing is required. If less than 5 purlins the roof sheet must be screwed using 2 x 14g tek screws through the roof sheet, into the purlin on which the anchor point is attached.

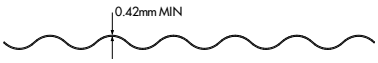


Rope access/abseil use (12kN)

Minimum 3 purlins supporting roof structure. Then fix 2 x 14g tek screws through the roof sheet, into the purlin on which the anchor point is attached. Fix another 2 x 14g tek screws through the roof sheet, into the purlin (one purlin back from which the anchor is attached)



INSTALLATION CRITERIA

Component	Installation criteria
Structure condition 	Roof structure in good condition.
	Roof sheet fixings in good condition.
	No rust or corrosion on roof sheet, purlins or structure.
Roof thickness 	Minimum 0.42mm base metal thickness.
	Structurally sound ie. no rust/corrosion/visible damage.
Structural requirements  **Purlin - 150 x 1.9mm**	Steel Purlin – 150 x 1.9mm base metal thickness.
	Structurally sound ie. no rust/corrosion/splits/visible damage.
Purlins 	Minimum quantity 3 purlins connected to roof deck.
Eyelet 	Ensure eyelet is facing fall direction i.e. parallel with roof sheet direction.
	Ensure eyebolt is correctly tightened to prevent any movement under load.
Data label 	Anchor data label attached at each anchor.
	All relevant data filled out including next maintenance date.
Swarf	Rust will form quickly if swarf abrasions are not removed completely.

SYSTEM MAINTENANCE

Must be read prior to checklist

1. The anchor system needs to be checked and recertified by a competent height safety inspector every 12 months for non corrosive environments or 6 monthly for corrosive or harsh environments. (To be determined by competent person depending on severity of surrounding conditions.)
2. Glued in chemical fixed anchors will require load testing to 50% of the ultimate design load and held for 3 minutes without any movement of anchor. Removable eyebolts must be checked to ensure thread integrity as well as correct penetration depth into ferrule (20mm or a minimum of 10 full turns.)
3. Concrete structure must be sound and any signs of break down must be assessed by a structural engineer or competent person as to suitability.
4. The identification label must be completed confirming certification, maintenance and recertification of the system.
5. Harness gear and equipment must be maintained and stored in a dry, protected area, away from acids and ultra violet rays which cause material fibres to break down and reduce their safety and life expectancy.
6. Any deterioration or damage to the system or equipment must be reported to person in control of the workplace and relevant corrective action undertaken.
7. Maintenance inspections must be clearly documented. Any non-conformance must be clearly identified and tagged ‘Do Not Use’ until corrective action by a competent person has been completed.

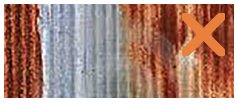
MAINTENANCE CHECKLIST

The checklist below outlines key checking criteria required to ensure the safe use of this system. Any item of concern not shown on the checklist must be noted on the maintenance report and brought to the attention of the workplace manager.

Items ticked PASS - YES means they conform with the required checking criteria and are suitable for normal use until the next recertification date. System data plates must be updated showing current check date and next check date.

Item ticked PASS - NO means they do not conform to the required checking criteria. These items must be clearly tagged ‘ Do Not Use’ and the required corrective actions put in place. The maintenance report must clearly document all non-conforming criteria.

This system must be maintained by a competent height safety inspector trained in the safe use and maintenance of this system.

Component	Inspection criteria	Pass Y/N	Corrective action	Completion date
Anchor 	Anchor to be secure with no rotation of eyelet or movement in profiled flange.			
Eyelet 	Anchor eyelet to be facing fall direction i.e. parallel with roof sheet direction.			
Roof deck 	Roof deck and steel support structure quality in good condition i.e. no visible rust or roof deterioration.			
Data label 	Anchor data label attached at each anchor.			
	All relevant data filled out including next maintenance due date.			

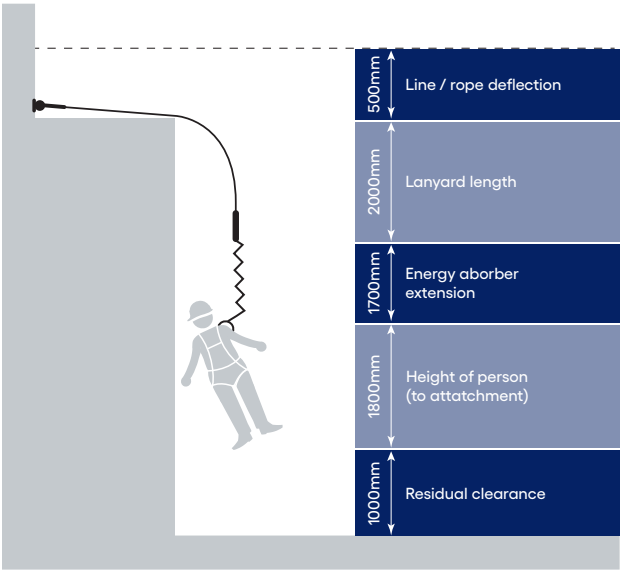
TECHNICAL INFORMATION

Fall clearance

There must be sufficient clearance below the user to arrest a fall before the user strikes the ground or another lower level hazard. The clearance required is dependent on the following factors:

- Elevation of anchorage
- Anchorage deflection
- Lanyard length
- Lanyard elongation on deceleration pull out (personal energy absorber)
- Operator height
- Fall distance residual clearance

See AS/NZS 1891.4:2009 Section 7 for a detailed explanation.



System requirements

The worker must wear a full body harness when connected to any fall arrest system including a personal energy absorber compliant with AS/NZS 1891.2:2001 and AS/NZS 1891.4:2009 limiting the force on the anchor and operator to a maximum of 6kN.

Harness connectors must support at least 15kN. Non-compatible connectors may unintentionally disengage (roll-out). Carabiners supplied with proprietary systems must not be removed or substituted with any other component.

Inspection and Maintenance

Inspection and recertification of fall arrest systems and equipment is required at least every 12 months by competent person in accordance with manufacturer's specifications and requirements of Australian Standard AS/NZS1891.4:2009 Section (9).

Important note

Failure to supply and/or install Kattsafe proprietary products in accordance with above standards and codes, specifications and instructions voids complete system certification and/or warranty.

TECHNICAL SPECIFICATION

Purlin mount anchor

AP123

Compact purlin mount anchors installed into purlins under metal roof decks for twin rope access and fall arrest use. System design, supply, layout, installation and certification by a Kattsafe approved installer, as per the manufacturer's installation instructions and current standards.

Materials

- 316 stainless steel
- Penetration seal: EPDM rubber

Dimensions

- Total height: 165mm
- Eyebolt diameter: 60mm OD, 35mm ID
- Threaded rod: 100mm
- Flange: 70mm

Weight

0.7kg

Fixings (refer to installation manual)

See installation procedure.

Substructure requirements

- Minimum purlin size: 150 x 1.5mm
- Minimum roof deck thickness: 0.42mm
- A minimum of three purlins connected to the roof deck
- Clip fix roofs with less than 5 purlins require additional fixings. Refer to the installation manual for more details.

Rating

- Fall arrest use: 15kN
- Rope access use: 12kN

Compliance

The AP123 purlin mount anchor is designed and manufactured to conform to requirements of Australian and New Zealand Standards AS/NZS 5532:2013, AS/NZS 1891.4:2009 and relevant statutory WHS Codes of Practice/ Guidelines.

Testing

Testing and performance based on requirements of Australian & New Zealand Standard AS/NZS 5532:2013.

- Dynamic load tested: 15kN
- Static load tested: 15kN

Product warranty

10 years from the date of purchase subject to correct installation. Use and maintenance to be in accordance with manufacturer's specifications and recommendations. (This excludes wearing parts).

Inspection and maintenance

Inspection and certification required every 12 months by competent person in accordance with manufacturer's specifications and requirements of Australian and New Zealand Standard AS/NZS 1891.4:2009.

Important note

Failure to supply and/or install proprietary product in accordance with above standards and codes, specifications and instructions voids complete system certification and/or warranty.

WARRANTY INFORMATION

Warranty period on this system:
10 years from date of purchase

Should you have a warranty claim as a result of a defect the following procedure must be followed:

Identify the following information:

- The product/system name and code number.
- The date of purchase/installation.
- Installation company details.
- The installation identification number.
- The name of the company using this system.
- A description of the defect/warranty claim.
- The periodic system maintenance report.

Forward the above information to sales@kattsafe.com.au or contact technical helpline, 1300 301 755.

Terms and conditions

All warranty claims must be made in writing within 14 days of the appearance of the defect.

Incorrect installation or work done by a non accredited Kattsafe system installer will void all warranty rights.

Systems that have been installed using non proprietary equipment will void all warranties.

System roof/cladding and concrete penetration seals are not covered in this warranty.

Systems/components that have not been maintained in accordance with manufacturer's/legislative requirements will void warranty.

Systems used by incompetent persons or use with non compatible accessories ie. harness gear, lanyards, travellers, fall arrestors etc. will void warranty.

Systems/components used for purposes other than their intended use will void warranty.

General wear and tear is expected and will depend on the frequency of use and is not covered by warranty.

Product brochure
Purlin mount anchors

Installation manual
Concrete mount anchors

Operation manual
Fall arrest anchors

Operation manual
Rope access anchors

QMS Certification
ISO 9001:2015

Find all related products and resources on our website.
kattsafe.com.au

Kattsafe

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