Kattsafe Height access and fall protection

INSTALLATION MANUAL

CONCRETE MOUNT ANCHORS

Kattsafe concrete mount anchors for personnel who use a harness and lanyard fall protection system, when working on a concrete surface.

Installation manual
Concrete mount anchors

Operation manual
Fall arrest anchors

Operation manual
Rope access anchors

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

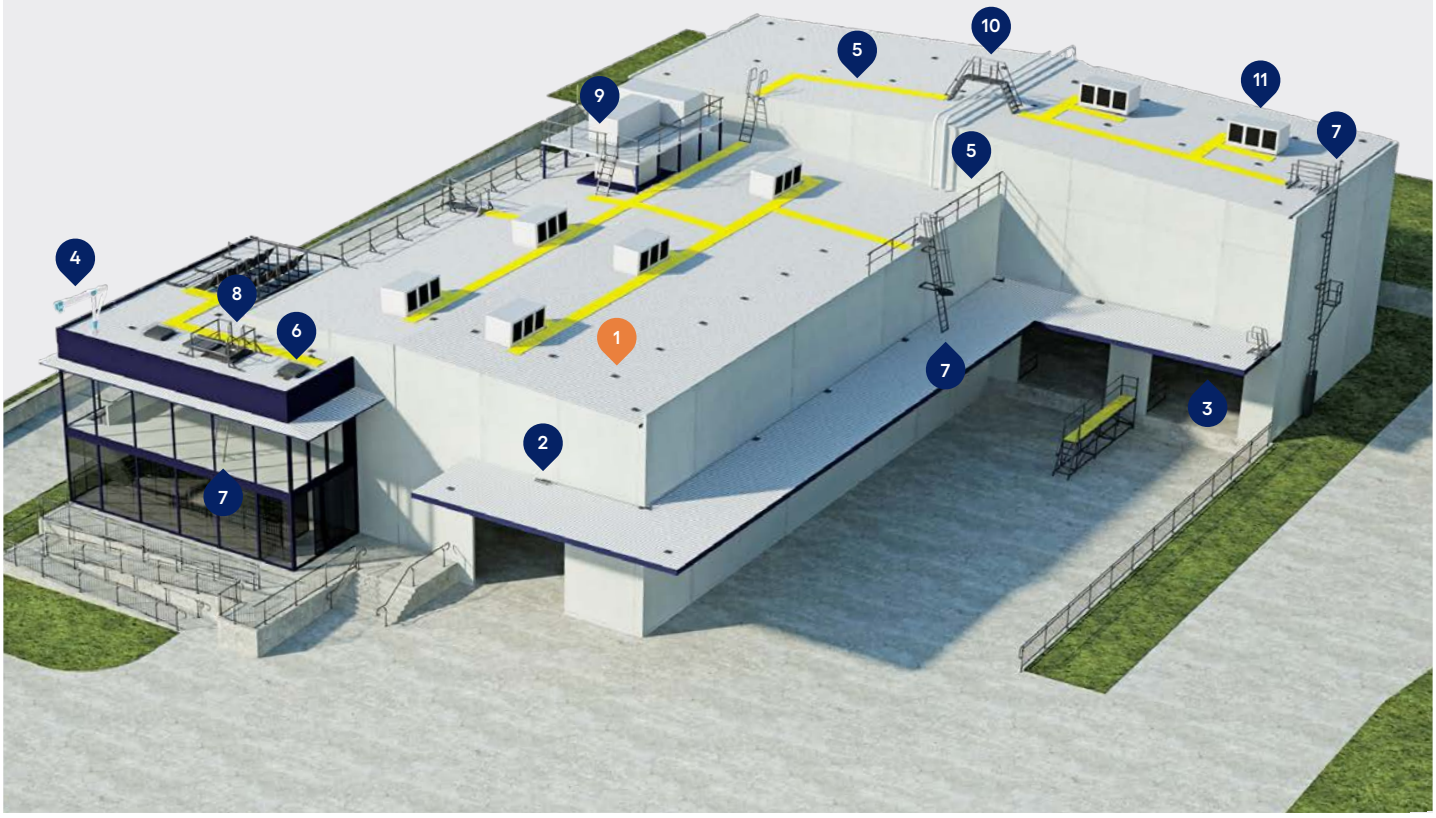
Commercial building height access and fall protection requirements

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



CONCRETE MOUNT ANCHOR RANGE

AP118 Raised concrete mount anchor

AP124 Through bolt anchor

AP125A/S Concrete mount anchor

AP126 Concrete mount anchor with torque indicator

AP127.10 Concrete mount anchor kit

AP129A/V Concrete cast-in anchor

TOOLS AND EQUIPMENT

Impact drill with a masonry drill bit

Hole cleaning blower

Hole cleaning brushes

Epoxy adhesive applicator

Epoxy adhesive

Load tester

Tape measure

Roof 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 and rope access systems.
2. Installers must and hold a current Kattsafe approved installer certificate, possess valid industry licenses, be appropriately trained, and comply with all relevant WHS 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 and rope access 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 structure suitability.
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. Glued in anchors using an epoxy adhesive are recommended to use EF500R+ (SD944E) or equivalent. Correct hole size, depth, cleanliness preparation and insertion or epoxy adhesive as per manufacturers recommendations is critical.
7. 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.
8. Complete all necessary WHS documentation, including a Job Safety Analysis and Work Method Statement and obtain consent from responsible person in the workplace prior to commencement of work.
9. Appropriate temporary access and safety equipment must be used during installation, such as platform ladders or scaffolding and fall protection anchorage points.
10. Do not modify or remove any element of the support structure without prior authorisation by a qualified engineer.
11. Decorative coatings and coverings must be removed to ensure correct evaluation of structure prior to attachment of system
12. Any re-routing of electrical and/or other services must be carried out by qualified or authorised personnel.
13. In case of emergency, fall arrest and rope access systems must be installed by a minimum of two persons.
14. Do not tamper with, modify or remove any part this system unless authorised by the manufacturer.
15. Appropriate labels or markings must be attached to each anchor 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
16. 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. Structural requirements for attachment of concrete mount anchors: minimum 25MPa concrete, 150mm thick with reinforcing.

   Confirmation of concrete structural suitability must be obtained from a structural engineer. Fixing anchors to brick, hollow blockwork or stone structure is not recommended.

2. The concrete mount anchor is suitable for single (1) person use and rescue in the case of a fall incident. (15kN)
3. Only to be used by competent persons with proof of training by a Registered Training Organisation (RTO) in the use fall protection and rope access systems.
4. Fall arrest and rope access equipment 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. Concrete mount anchors glued into concrete using an epoxy adhesive will require proof load testing prior to commissioning into service and then at least 12 monthly intervals thereafter. Depending on anchor rating. A 3 minute test load to 50% the ultimate design load must be performed. Anchors that have been cast into the concrete during construction of the slab structure do not require load testing.
7. Glued in or friction fit anchors must not be used in tension (pull out). Always position anchor to be loaded in shear.
8. Operators of this system must be connected via a lanyard with a personal energy absorber when used as a fall arrest system in accordance to Australian Standard AS/NZS 1891.1.
9. When installing this system as a rope access/abseil system, separate anchors must be provided for the working rope line and the safety back up rope line.
10. Do not exceed maximum number of users/persons per system. See specific system data plate for user configuration.
11. Do not tamper with or make alterations to system components without manufacturer's consent.
12. This system is not to be used for tethering or lifting machinery or equipment.
13. The safety system must be recertified by a competent height safety inspector as recommended (or as per statutory requirements):
    - Non corrosive/mild environment: 12 monthly.
    - Corrosive/harsh environment: 6 monthly (more frequent inspection may be required).

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

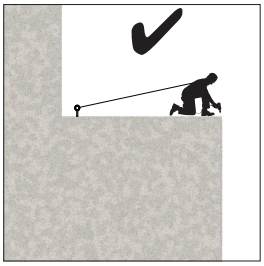


Figure 1

CORRECT Anchor loading in shear.

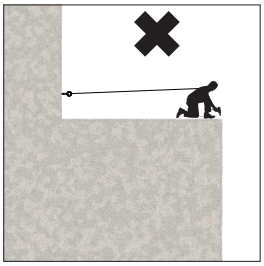


Figure 2

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

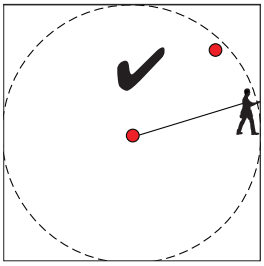


Figure 3

CORRECT Anchor positioning, NO risk of pendulum fall.

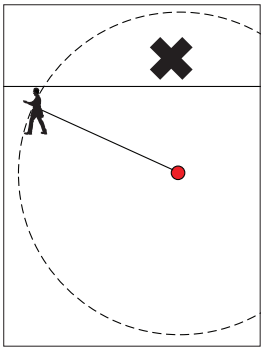


Figure 4

INCORRECT Anchor position, allows risk of pendulum fall.

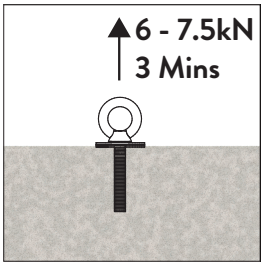


Figure 5

Glued in or friction fit anchors require proof load testing to 50% of the design load for 3 minutes without any anchor movement.

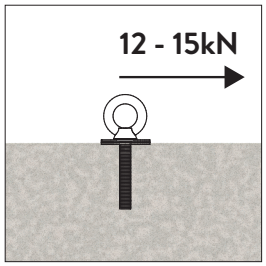


Figure 6

Load rating single person use

- 12kN design load - rope access/ single person
- 15kN design load - fall arrest/ single person

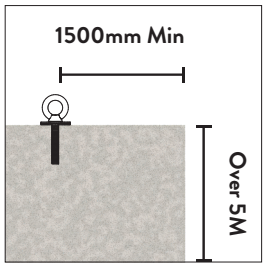


Figure 7

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

*See fall clearance page 28

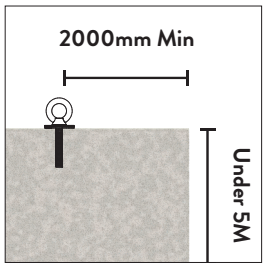


Figure 8

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

*See fall clearance page 28

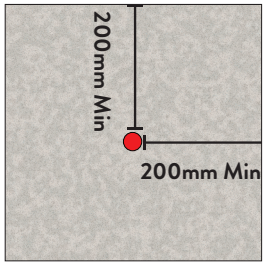


Figure 9

Minimum edge distance and between anchors on concrete slab to avoid cracking - 200mm.

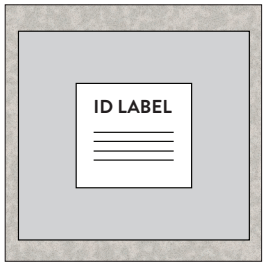


Figure 10

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 frequent 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 access system to be used such as ladder or stairway system.
6. Where possible, anchorage systems should always be positioned above the operator to minimise unnecessary fall distance.
7. Drilled in or glued in anchors must not be positioned to allow tensile loads to be applied (direct pull out).

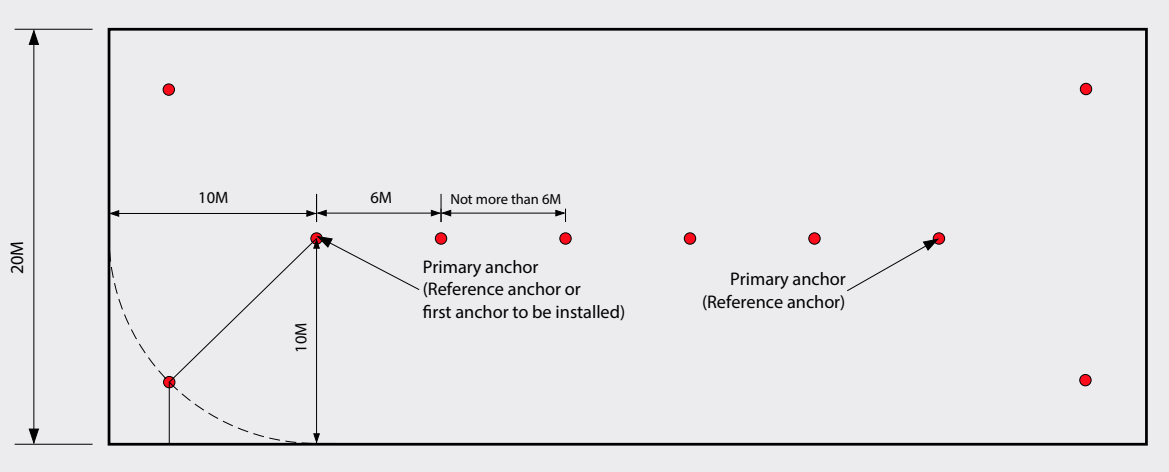
   Where a tensile load is required the anchor must be a non friction type anchor. i.e. either cast-in or through bolted.

8. 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.
9. 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.
10. When installing this system as a rope access/abseil system, separate anchors must be provided for the working rope line and the safety back up rope line.
11. Primarily 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.
12. 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.
13. Sufficient fall clearance is essential in order to ensure correct operation of the system in a fall situation (see drawing page 28). 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 and 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

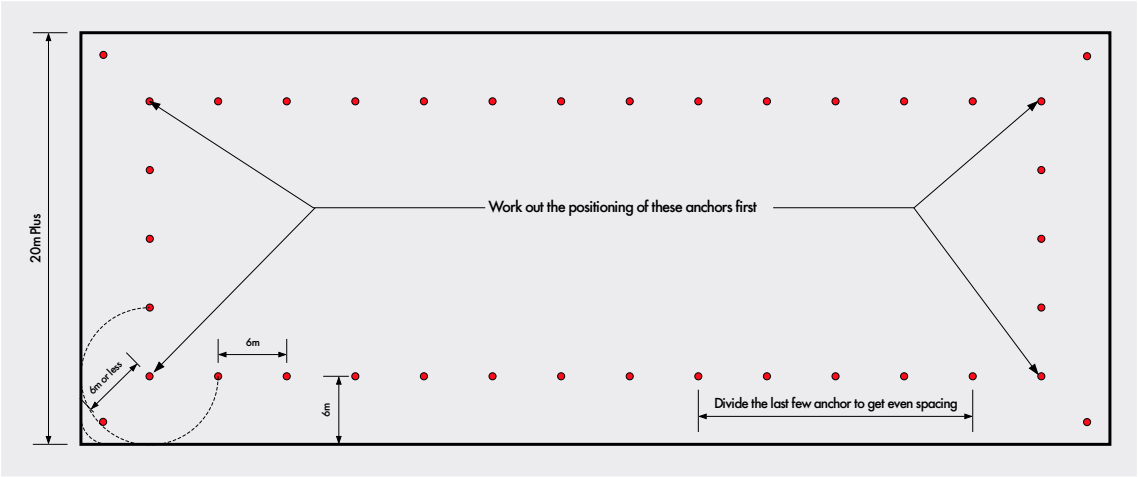
Roofs up to 20.0m in width



- 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

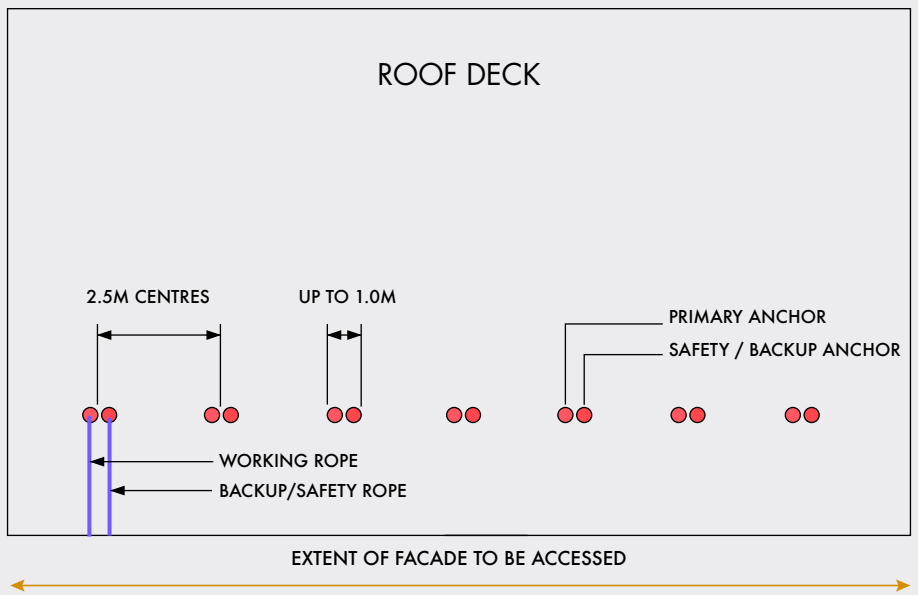


- All points mentioned for smaller roofs also apply to larger roofs.
- Avoid positioning anchors in close proximity to roof lights as these are classified as fall hazards. Ensure roof lights or skylights are protected with fall protection covers should an anchorage be positioned in close proximity.

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.

Anchor layout for rope access use

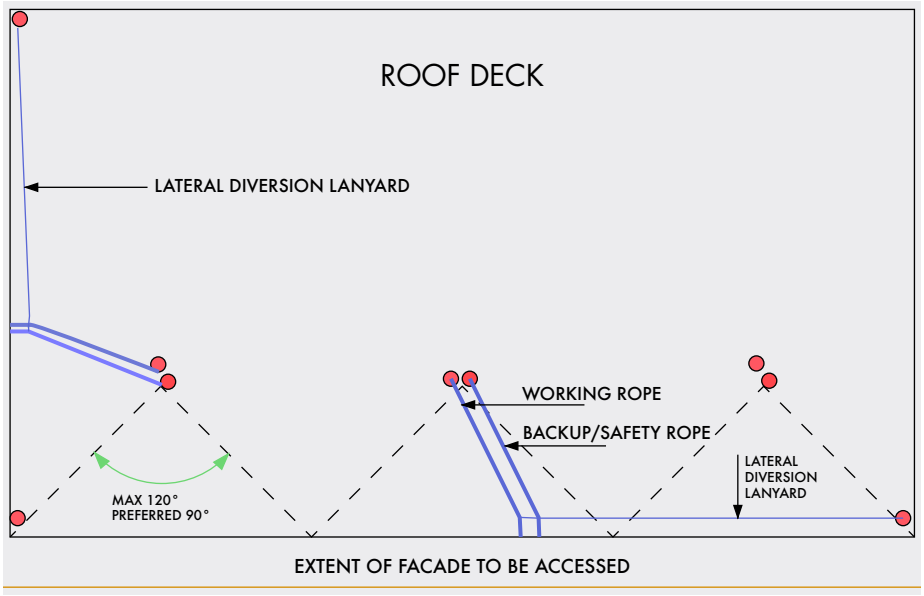
Option 1



- This layout is used where anchors are positioned closer than 4.0m to the edge
- Anchors positioned within 3.0m of the roof edge will require fall protection to be provided to allow operator to safely connect rope lines and hardware.
- This layout will allow access to the complete facade area for both window cleaning and maintenance.
- Anchor pairs spaced greater than 2.5m may restrict access to specific locations especially if maintenance such as caulking is required.

Anchor layout for rope access use

Option 2



Rope access loads

Working load: 400kg (4kN) (serviceability load)

Ultimate load on rope: 1200kg (12kN)

A risk assessment should be done for all areas where the rope will be on loading edges. For critical structures, if ultimate load was applied to the edge which could cause catastrophic failure, then edge capacity needs to be designed for the ultimate loads so that if a fall did occur there would be no damage to the structure or cause injury to the operator (eg. brick parapets, curtain walls, balustrade with glass).

For non-critical structures, if ultimate load was applied to the edge but would not cause catastrophic failure, then edge capacity may be designed for serviceability loads (eg, aluminium sun shade). However if a fall was to occur, there may be superficial damage but no catastrophic failure. It is the responsibility of the building designer to analyse risk. Note, for non structural edges (such as aluminium cladding) a load spreader plate can be used to minimise damage.

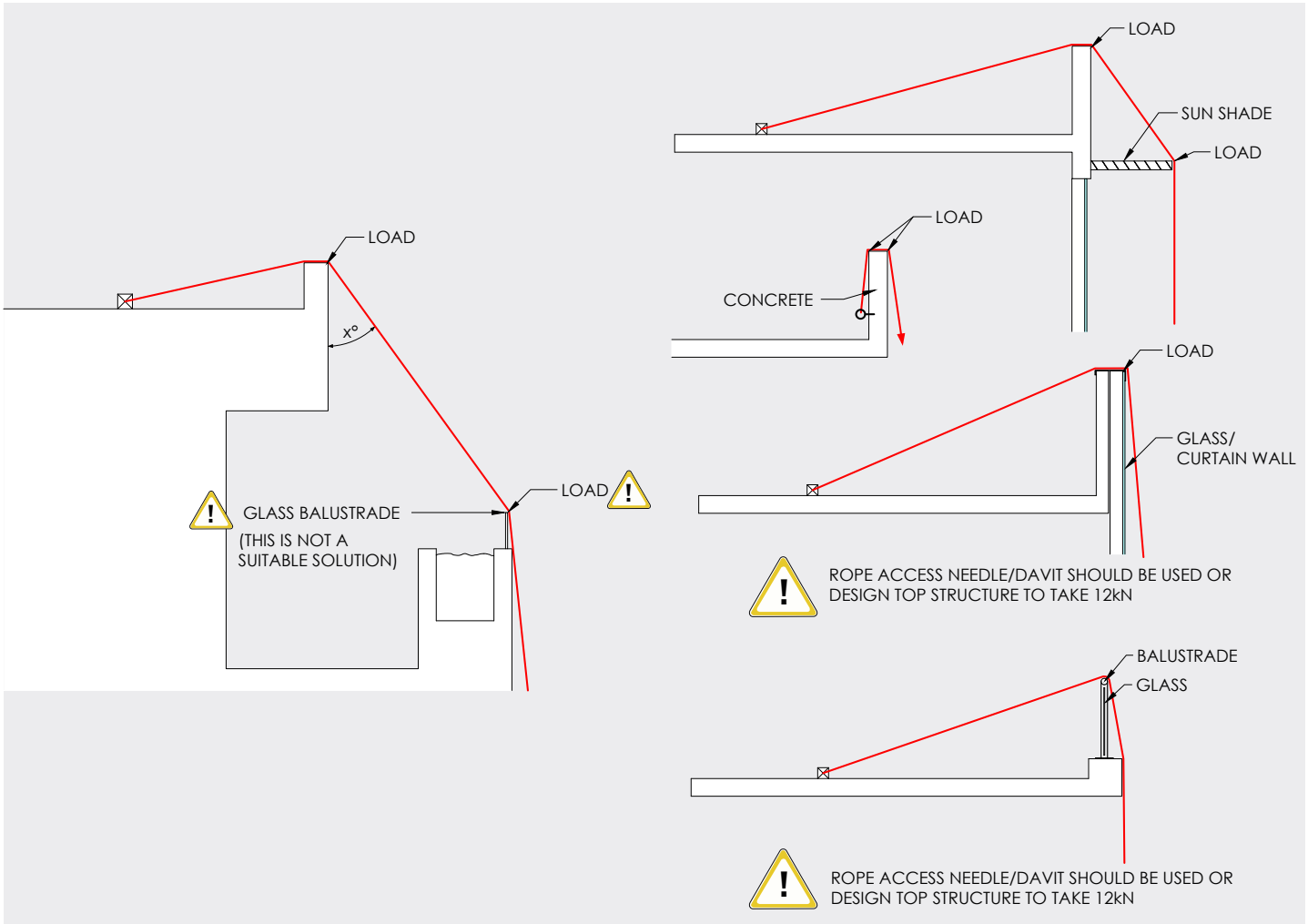
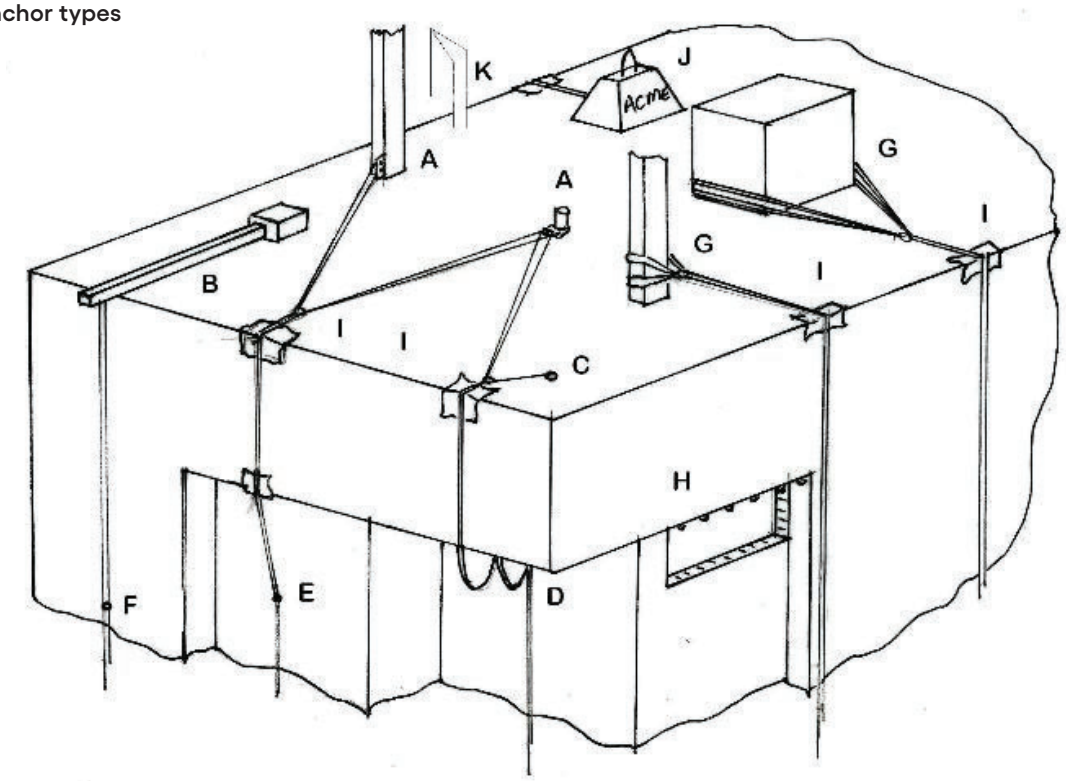


Diagram not to scale. For illustration purposes only.

Rope access system design limitations

1. Design and installation of rope access systems must be in accordance with the requirements of AS/NZS4488.
2. Primary rope access anchors require a minimum ultimate design load of 12kN (single person use).
3. Appropriate labels or markings must be clearly visible on each anchor and include the following:
   - Ultimate design load
   - Limitations of the system
   - Number of persons allowed per anchor
   - Next service date
   - Installer / certifier info
4. Kattsafe recommends that the design layout and installation of any rope access system is done by a fully trained and competent person with a level 3 rope access industry certificate.
5. All structural loadings/forces on parapets, awnings and sunshades or canopies to be calculated and authorised by a qualified engineer.
6. Any awning, sunshade or canopy less than 3.0m below top of parapet must be traffic-able to allow operator to stand on whilst traversing past the canopy edge.
7. Any structural components required for rope access loads (12kN) will need to be designed and approved by a qualified engineer.
8. Any rope access anchorages placed within 3.0m of a fall edge, will require adequate fall protection to be provided for operator to access and attach to the rope access system safely.
9. Adequate protection for rope lines over sharp or fragile edges must be provided in accordance with current industry codes of practice and guidelines.
10. All products/systems to comply with relevant Australian Standards; WHS Regulations and Codes of Practice.

Rope access anchor types



REF	Anchor type	Ultimate load (kN)	Comments
A	Primary anchor	12	Design for 15kN where possible to also suit fall arrest
B	Counterweight anchor (sometimes known as a 'needle')	12	
C	Diversion anchor	12	Assists in varying the lateral positioning of the working rope line
D	Re-anchor (sometimes called a re-belay)	12	Where access is required underneath an overhang
E	Deviation anchor	6	Based on 20° max vertical deviation
F	Lateral restraint anchor	2	Stops lateral swing in windy or high access locations
G	Improvised anchor (using slings) in the cases above, use of a steel column and a lift motor room has been made but sometimes other devices are used such as rocks, trees, vehicles, machines etc		A structural engineer must be consulted unless it is not clear to a competent person that the improvised anchor will be capable of the load required.
H	Aid route anchor		
I	Edge protection		Prevents damage to rope line over sharp edges
J	Dead weight anchor	12	Designed as a portable anchor
K	Davit (primary anchor)	12	Where access over parapets or balustrades are required

INSTALLATION PROCEDURE

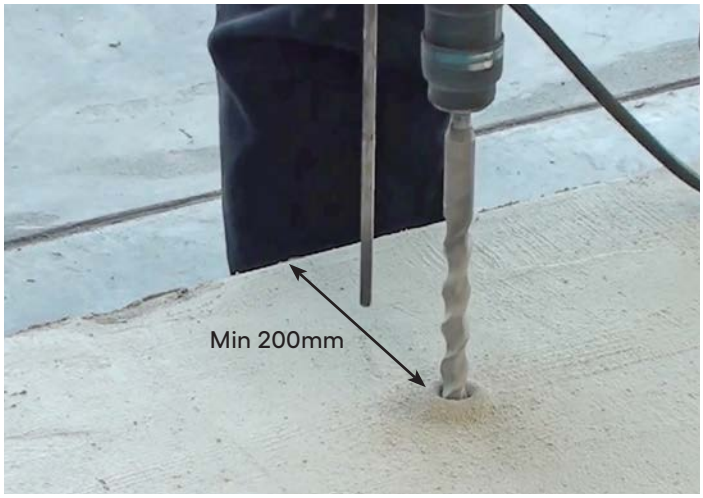
Step 1

Prior to installation, the condition of the structure must be checked for suitability. Correct positioning of the anchor is critical to avoid a potential pendulum fall set up.

Do not proceed with installation of this system if any of the checking criteria does not meet the required standards. Seek advice from the manufacturer regarding other options.

Step 2

- Hole must be a minimum of 200mm away from the concrete edge to avoid cracking.
- The hole must be drilled at least 10mm deeper than the shank length of the anchor.



Step 3

- A minimum of 4 initial pumps of the blower is required.
- Then brush out the hole using a wire brush, retracting the brush at least 4 times to remove dust.
- This process must be repeated 3 times to ensure all dust is removed.

Eye protection must be worn as dust can cause injury to eyes.

Step 4

- Kattsafe recommend using the EF500R+ (SD944E) epoxy adhesive.
- Ensure chemical is well mixed (discard approx 3 squeezes) prior to inserting into hole especially, if using new cartridge.
- Insert the chemical starting at the base of the hole and apply approximately 4 injections of chemical whilst retracting the nozzle towards the top of the hole.

Step 5

- Slowly insert the anchor rotating anti clockwise whilst pushing it into the hole.
- There must be visual overflow of chemical once anchor is in position confirming sufficient chemical has been inserted.
- Position eyelet and allow to set for a minimum of 24 hours prior to testing.

Step 6

- All friction or glued in anchorages must be pull tested to 50% of the design load.
- Load must be applied for a minimum of 3 minutes with no evidence of anchor movement.
- Attach label after load testing has completed

Anchorage type	Design load (kN)	Pull test (kN)
Fall arrest - 1 person	15	7.5
Rope access - 1 person	12	6

INSTALLATION PROCEDURE ANCHOR DETAILS

AP118 Raised concrete mount anchor

Limitations

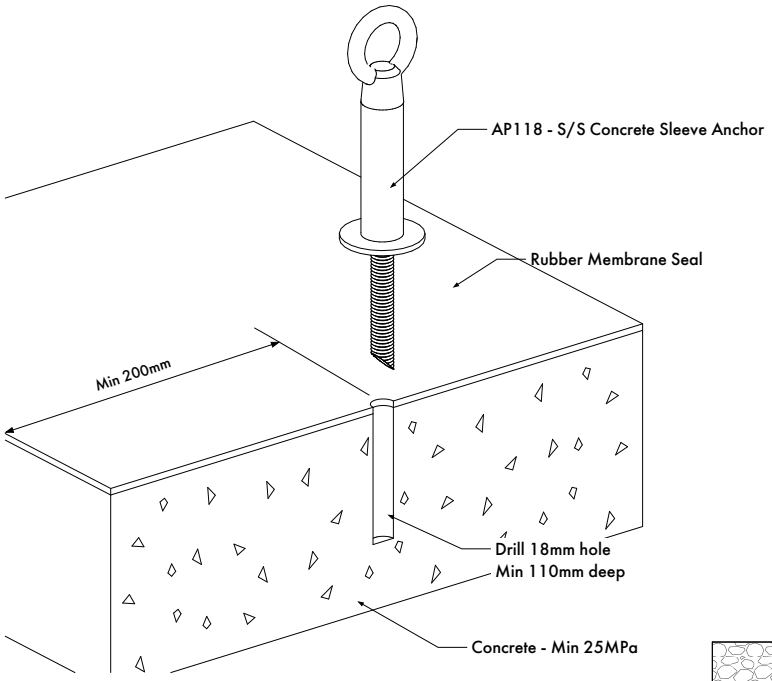
1. See page 7 for generic system limitations.
2. Minimum 25% concrete below hole depth required.
3. Maximum anchor load 15kN at minimum 25MPa concrete strength.
4. For rope access use, sleeve anchor must not extend above 150mm to base of eyelet.
5. For fall arrest use, sleeve anchor must not extend above 200mm to base of eyelet.
6. Minimum distance from edge of concrete or between anchors - 200mm
7. Anchor to be rated for single person use:
   - Fall arrest - 15kN
   - Rope access - 12kN

Installation procedure

1. See page 15 for generic installation procedure.
2. Use an epoxy adhesive (EF500R+ (SD944E) or equivalent) 2 pack compound to set anchor into concrete. (Approx 20ml per hole).

Installation criteria

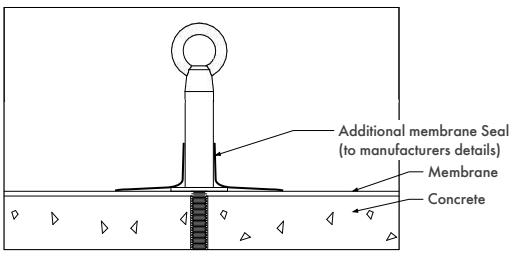
1. See page 24 for generic checklist.
2. For rope access use, the raised anchor must not extend above 150mm to base of eyelet.
3. For fall arrest use, the raised anchor must not extend above 200mm to base of eyelet.



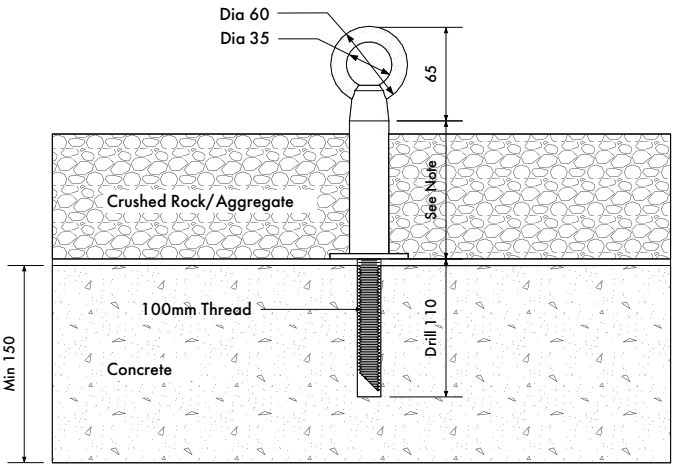
Drill Depth	110mm*
Hole Size	18mm
Min Edge Distance	200mm*
Min Concrete Thickness	150mm*
Min Spacing between Anchors	200mm*
Anchor Rating (Depending on substrate)	15kN
Break test peak load rating (anchor only)	>60kN

*Anchor edge distances, spacing and depth are the minimum recommendations required to maintain anchor strength. Any variation from these recommendations will require engineering data verification from an Engineer or the chemical adhesive manufacturer. Concrete is to be minimum 25MPa.

NOTE: Height of Anchor depends on Usage
FOR ABSEIL USE - MAX 150mm
FOR FALL ARREST USE - MAX 200mm



Sealing Details (by others)



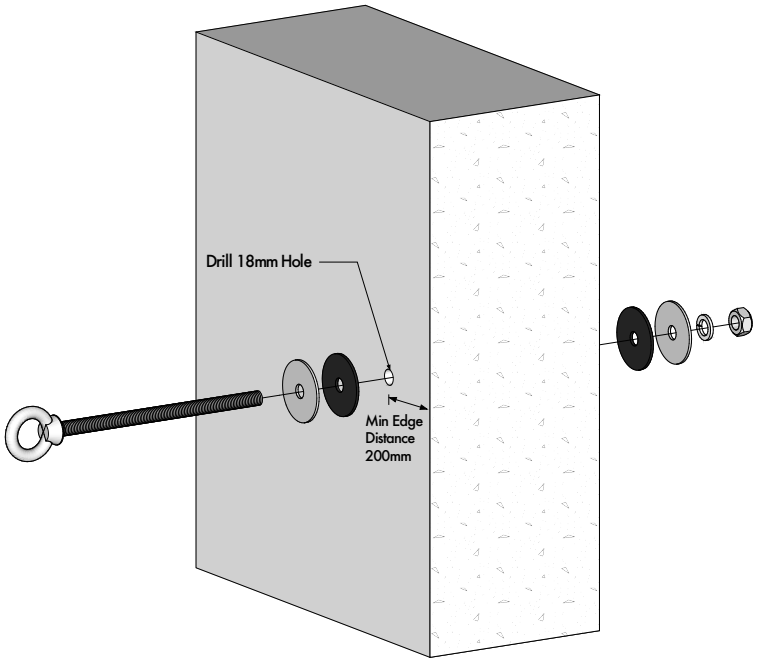
AP124 Through bolt anchor

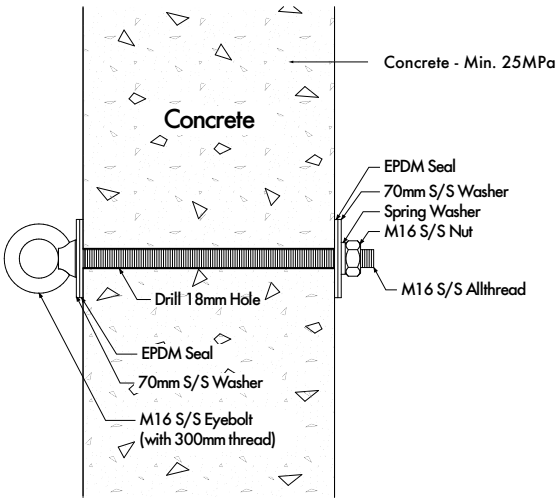
Installation procedure

1. Drill 18mm hole through concrete, 200mm from edge.
2. As this anchor is not a glued in or friction fit anchor, no proof load testing will be required.
3. Insert threaded eyebolt through 70mm washer and EPDM seal and into hole.
4. Tighten eyebolt by applying 70mm EPDM seal and stainless steel washer.

Maintenance

1. See page 26 and 27 for generic maintenance requirements.
2. As this anchor is not a glued in or friction fit anchor, proof load testing is not required, provided the anchor and structure have been certified by a structural engineer.





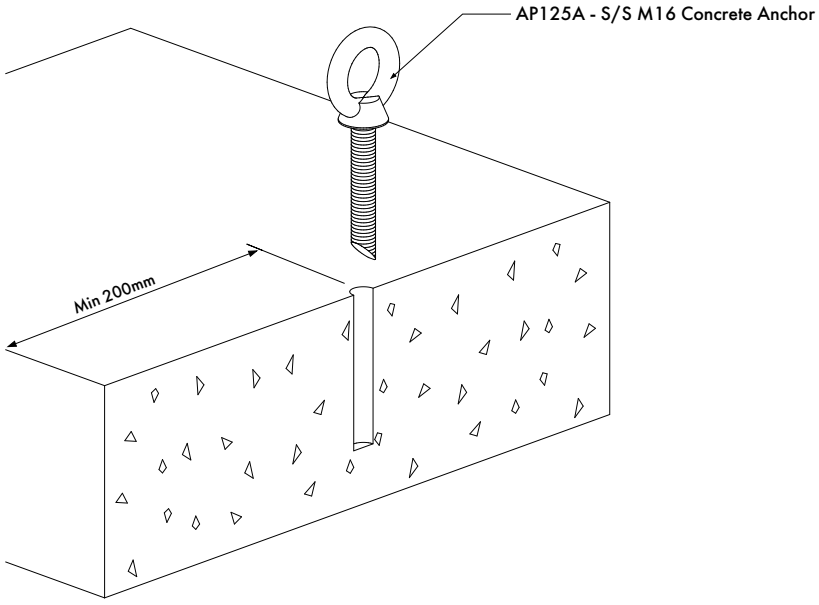
AP125A Concrete mount anchor

Limitations

1. See page 7 for generic system limitations.
2. Minimum 25% concrete below hole depth required.
3. Anchor to be rated for single person use:
   - Fall arrest - 15kN
   - Rope access - 12kN

Installation procedure

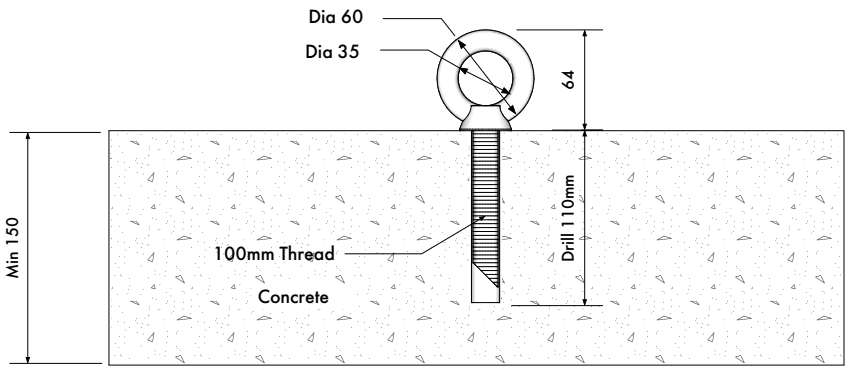
1. See page 15 for generic installation procedure.
2. Use an epoxy adhesive (EF500R+ (SD944E) or equivalent) 2 pack compound to set anchor into concrete. (Approx 20ml per hole).



Drill Depth	110mm*
Hole Size	18mm
Min Edge Distance	200mm*
Min Concrete Thickness	150mm*
Min Spacing between Anchors	200mm*
Anchor Rating (Depending on substrate)	15kN
Break test peak load rating (anchor only)	>60kN

*Anchor edge distances, spacing and depth are the minimum recommendations required to maintain anchor strength. Any variation from these recommendations will require engineering data verification from an Engineer or the chemical adhesive manufacturer. Concrete is to be minimum 25MPa.

Anchor should be rated for Single Person use - 15kN
Pull Test to 7.5kN - For 3 mins



Use an Acrylic Epoxy (HILTI RE 500 or Equivalent)
Chemical 2 pack compound to set anchor into concrete.
(Approx 20ml per hole)

AP125S Concrete mount swivel anchor

Limitations

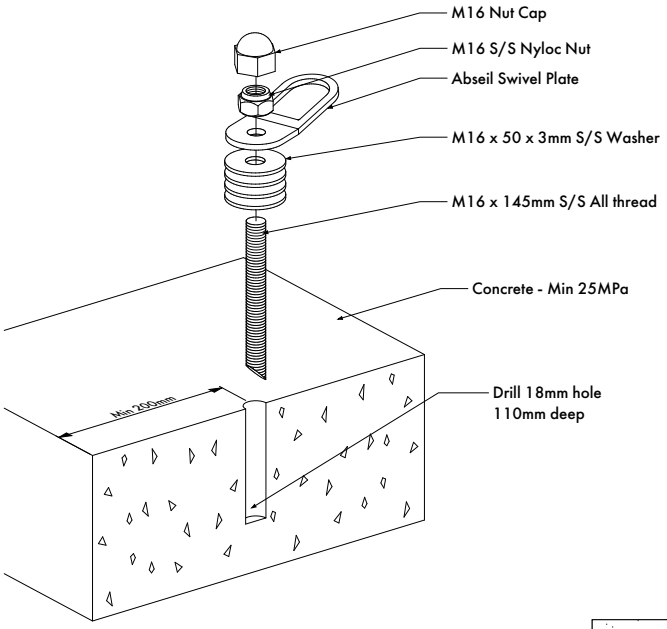
1. See page 7 for generic system limitations.
2. Minimum 25% concrete below hole depth required.
3. Anchor to be rated for single person use:
   - Fall arrest - 15kN
   - Rope access - 12kN

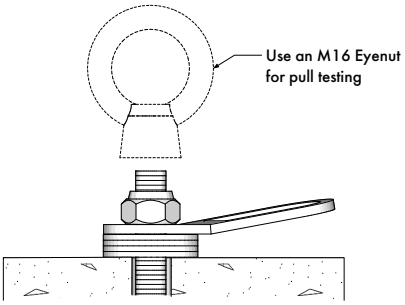
Installation procedure

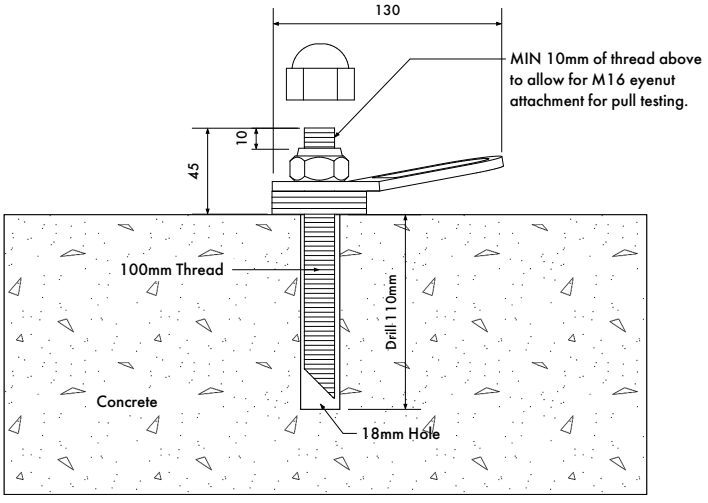
1. See page 15 for generic installation procedure.
2. Ensure a minimum of 10mm thread is exposed above the lock nut to allow attachment of M16 eye nut for load testing the anchor.
3. Use an epoxy adhesive (EF500R+ (SD944E) or equivalent) 2 pack compound to set anchor into concrete. (Approx 20ml per hole).

Installation criteria

1. See page 24 for generic criteria.
2. Attach M16 eyelet to exposed thread for pull testing.







Drill Depth	110mm*
Hole Size	18mm
Min Edge Distance	200mm*
Min Concrete Thickness	150mm*
Min Spacing between Anchors	200mm*
Anchor Rating (Depending on substrate)	15kN
Break test peak load rating (anchor only)	25kN

*Anchor edge distances, spacing and depth are the minimum recommendations required to maintain anchor strength. Any variation from these recommendations will require engineering data verification from an Engineer or the chemical adhesive manufacturer. Concrete is to be minimum 25MPa.

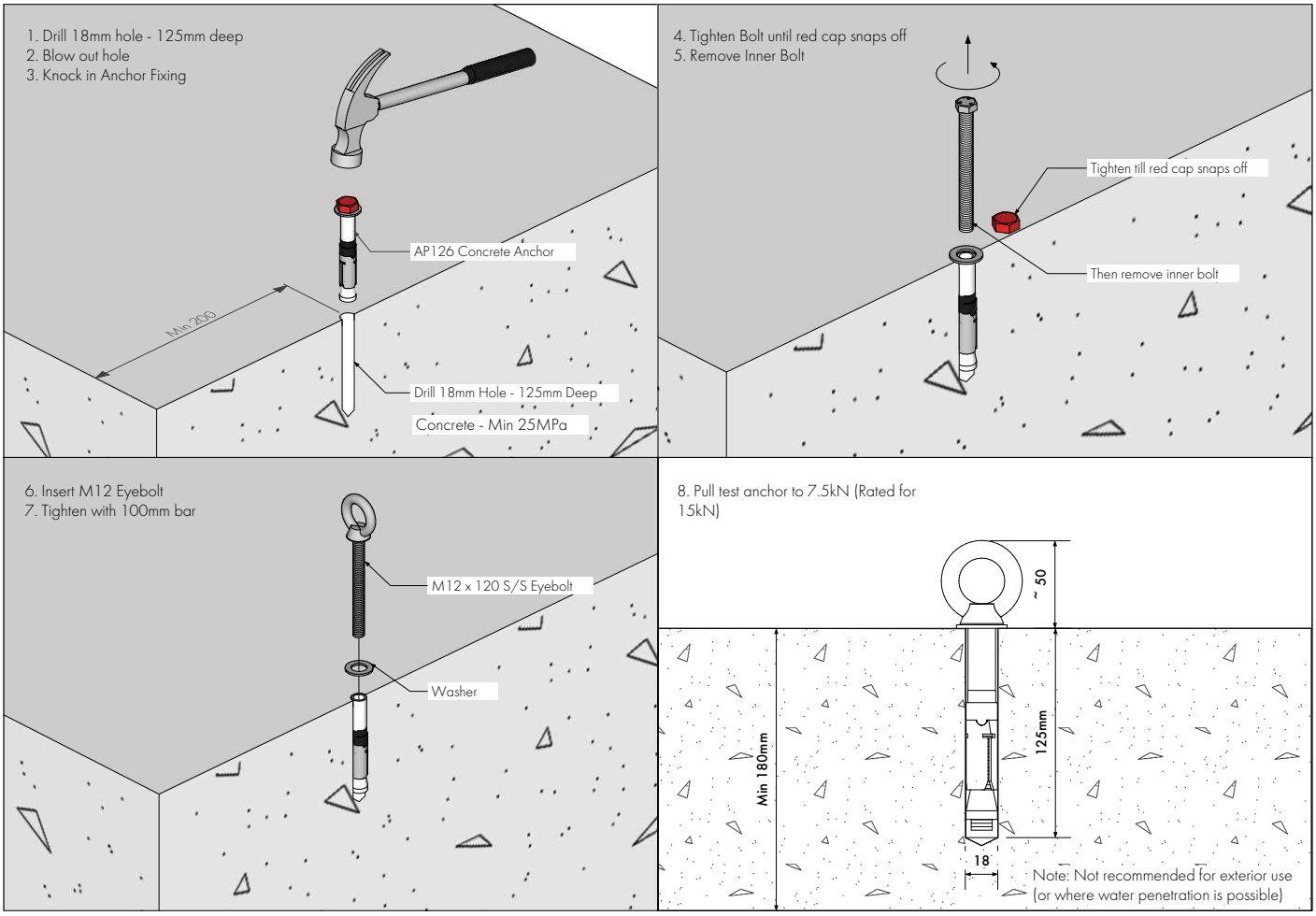
AP126 Concrete mount anchor with tourque indicator

Limitations

1. See page 7 for generic system limitations.
2. Not recommended for exterior use or where water penetration is possible.

Installation procedure

1. Drill 18mm hole to a depth of 125mm.
2. Remove dust from hole using blow out pump and brush.
3. Insert anchor assembly into hole, hammer down until flush with hole.
4. Tighten red torque nut until it shears off. This ensures correct tightening torque.
5. Remove the bolt and washer from the expansion sleeve.
6. Insert M12 eyebolt with washer into expansion sleeve.
7. Tension eyebolt using a 100mm lever to ensure correct tightening torque.
8. Carry out mandatory proof load testing to 50% of design load for 3 minutes.



AP127.10 Concrete mount anchor kit

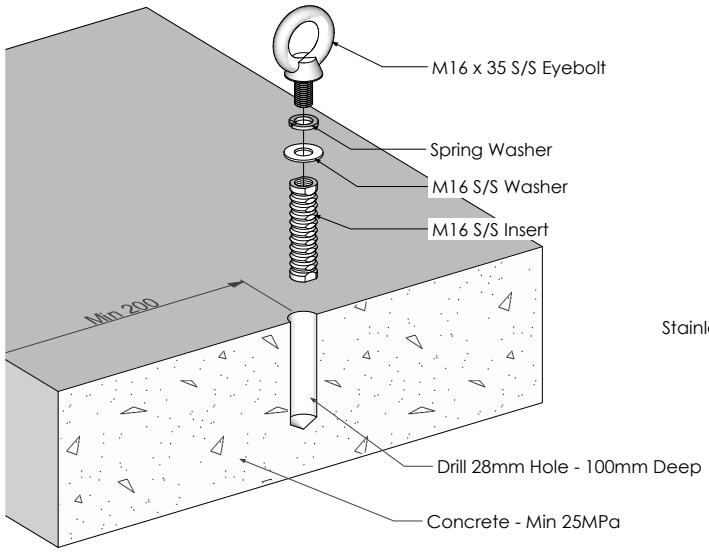
Limitations

1. See page 7 for generic system limitations.
2. Minimum 25% concrete below hole depth required.
3. Anchor to be rated for single person use:
   - Fall arrest 15kN
   - Rope access 12kN

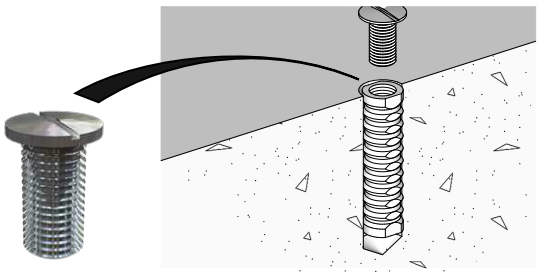
Installation procedure

1. See page 15 for generic installation procedure.
2. Drill a 28mm hole.
3. Use an epoxy adhesive (EF500R+ (SD944E) or equivalent) 2 pack compound to set anchor into concrete. (Approx 20ml per hole).

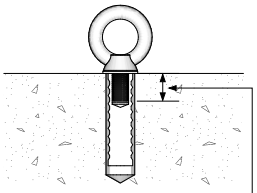
Removable eyebolt must be threaded into sleeve by a minimum of 20mm or 10 full turns.

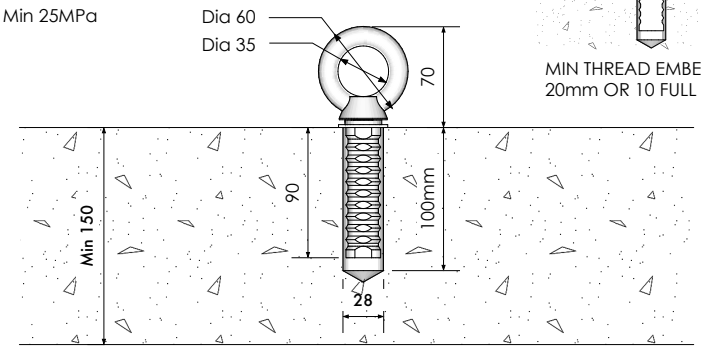


Use an Acrylic Epoxy (HILTI RE 500 /HY 200 or Equivalent) Chemical 2 pack compound to set anchor into concrete. (Approx 20ml per hole)



Stainless Steel Cap (Optional)





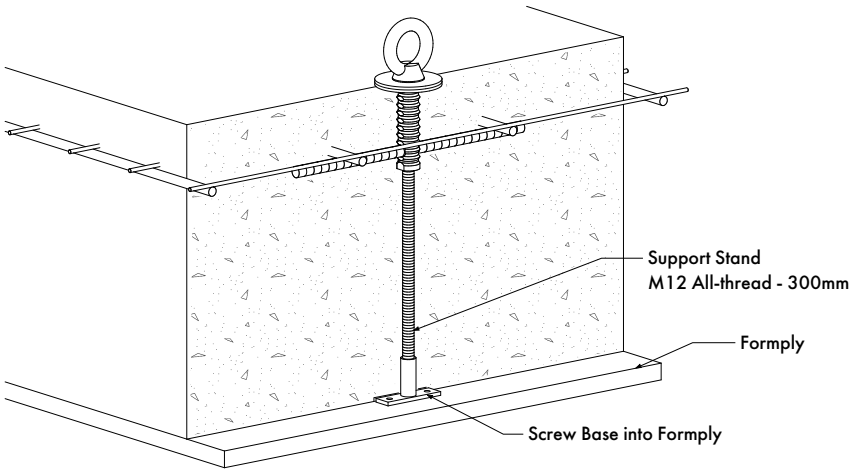
Drill Depth	100mm*
Hole Size	26-28mm
Min Edge Distance	200mm*
Min Concrete Thickness	150mm*
Min Spacing between Anchors	200mm*
Anchor Rating (Depending on substrate)	15kN
Break test peak load rating (anchor only)	>40kN
*Anchor edge distances, spacing and depth are the minimum recommendations required to maintain anchor strength. Any variation from these recommendations will require engineering data verification from an Engineer or the chemical adhesive manufacturer. Concrete is to be minimum 25MPa. Chemical epoxy to be applied as per manufacturer s instructions.	

AP129 Concrete cast-in anchor

Installation procedure

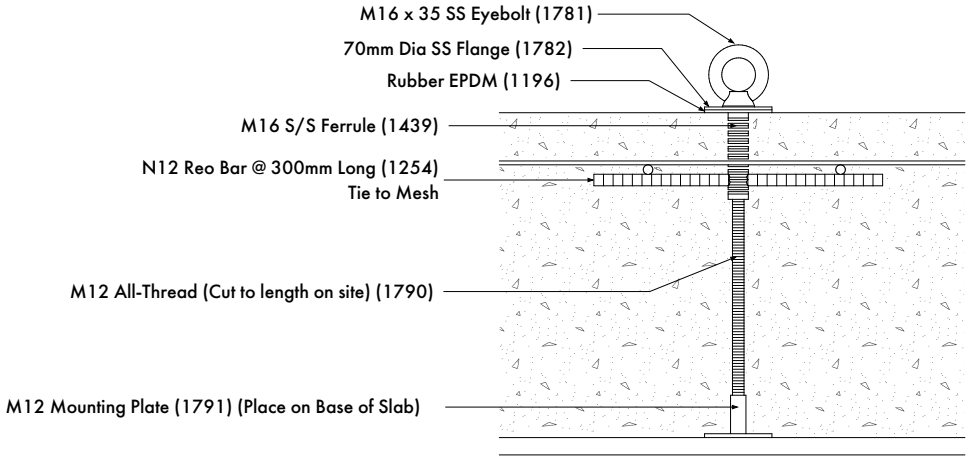
1. Position cast in ferule on support stand.
2. Insert 12mm bar through anchor ferrule.
3. Secure ferrule reinforced bar to main slab reinforcing. (Place under slab mesh where possible).
4. Check positioning and finished ferrule height.
5. Pour slab.
6. After 28 days, anchor is ready for use.

Removable eyebolt must be threaded into sleeve by a minimum of 20mm or 10 full turns.

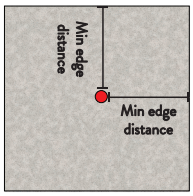
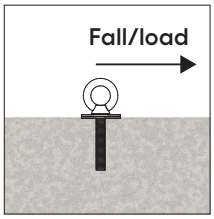
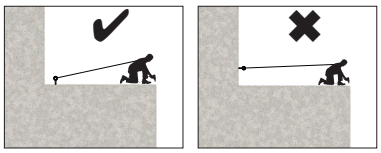
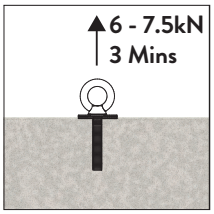
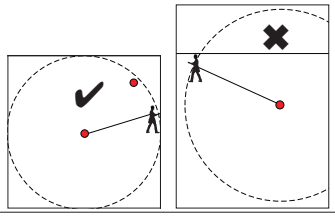


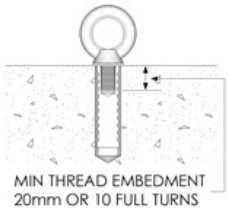
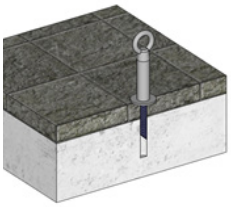
Drill Depth	N/A
Hole Size	N/A
Min Edge Distance	200mm*
Min Concrete Thickness	150mm*
Min Spacing between Anchors	150mm*
Anchor Rating (Depending on substrate)	21kN
Break test peak load rating (anchor only)	>60kN

*Anchor edge distances, spacing and depth are the minimum recommendations required to maintain anchor strength. Any variation from these recommendations will require engineering data verification from an Engineer or the chemical adhesive manufacturer. Concrete is to be minimum 25MPa.



INSTALLATION CRITERIA

Component	Installation criteria
Concrete 	Structure must be a minimum or 25 MPa with reinforcing.
	Slab thickness to be 150mm minimum.
	Structure to be sound, not flaky or sandy.
Edge distance 	Anchors must have a minimum of 200mm distance from slab edge and between consecutive anchors.
Anchor eyebolt 	No eyebolt rotation.
	Anchor facing fall/load direction.
Anchors in tension 	Friction fixed anchors must not be loaded in tension, must be shear.
	Non friction anchors can be loaded in tension.
Pull test 	Friction fit anchors secure under live load test to 50% of ultimate design load for 3 minutes. – 12kN design : 6kN load test – 15kN design : 7.5kN load test
Positioning 	Correct anchor spacing and diversion anchors in corners to ensure no pendulum swing.
Data label 	Anchor data label attached at each anchor.
	All relevant data filled out including next maintenance date.

Component	Installation criteria
Epoxy  ✓	Is there sufficient chemical adhesive?
 ✓	There must be evidence of epoxy adhesive near the surface for it to be safe for use.
 ✗	Check correct epoxy adhesive penetration. Epoxy must be visual near the surface of the penetration to ensure correct effectiveness.
	Australian Standards require epoxy adhesive anchors to be load tested to 50% of the ultimate design load and held for 3 minutes. If there is any doubt as to the strength of the epoxy or structure the anchor point shall be pull tested to the full design load (15kN) and held for 3 minutes or get approval from a structural engineer before use.
Removable anchors 	When using a removable anchor (AP127), the anchor must be threaded into sleeve by a minimum of 20mm or 10 full turns.
Anchors in screed or pavers 	Any anchor positioned on pavers/screed or similar, must have evidence confirming the thread has full 100mm embedment into concrete. If unsure, anchor must not be used until verified.
Maintenance and recertification 	The anchor must not be used if it has not been recertified within 12 months of installation or between consecutive inspections.

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.

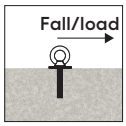
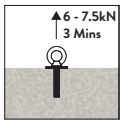
MAINTENANCE CHECKLIST

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
Structure 	Concrete structure to be visually sound.			
	No evidence of cracks or flaky surface.			
Anchor 	No evidence of anchor deterioration or damage.			
	Removable anchors must be threaded into sleeve by a minimum 20mm or 10 full turns.			
Positioning 	Anchor to be correctly tensioned and facing the load / fall direction.			
Load testing 	Glued in anchors secure under live load test to 50% of ultimate design load for 3 minutes. – Rope access 12kN - 6kN load test – Fall arrest 15kN - 7.5kN load test			
Data label 	Anchor data label attached at each anchor.			
	All relevant data filled out including next maintenance due date.			

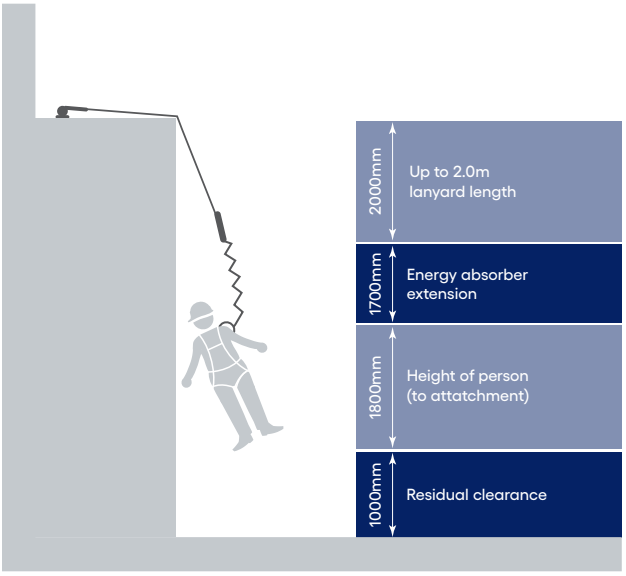
TECHNICAL INFORMATION

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

Concrete mount anchors

The Kattsafe concrete mount anchor range for safe work at height for concrete mount applications. The system is to be designed, installed and used by Kattsafe approved partners only. System design, supply, layout, installation and certification by a Kattsafe approved installer, as per the manufacturer's installation instructions and current standards.

Materials

- Stainless steel
- AP126: Zinc and stainless steel

Fixings

See installation procedure.

Working load limit

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

Compliance

Kattsafe concrete mount anchors are designed and manufactured in accordance with requirements of Australian and New Zealand Standards AS/ NZS 1891.4:2009, AS/NZS ISO 22846 and AS/NZS 5532:2013 and relevant statutory WHS Codes of Practice/Guidelines.

Testing

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

- Dynamic load tested – 15kN
- Static load tested – 15kN

Product warranty

10 years from 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 height safety system inspector in accordance with manufacturer's specifications and requirements of Australian and New Zealand Standards AS/NZS 1891.4:2009 Section (9), and AS/NZS ISO 22846.

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.

Installation manual
Concrete mount anchors

Operation manual
Fall arrest anchor

Operation manual
Rope access anchor

QMS Certification
ISO 9001:2015

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

Kattsafe

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and fall protection

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