

# VCC Bolting and Fixed Protection Policy For Rock Climbing – Version 1.0

## INTRODUCTION/PREAMBLE

Bolting has an historical place in Australian climbing. It has both its supporters and its detractors, making it possibly one of the most divisive aspects of our sport. Well placed fixed protection allows climbers to climb, belay or rappel/abseil with improved safety. Conversely, poorly placed bolts and over-bolted climbs may diminish or destroy the climbing experience. It is important that these guidelines reflect the local traditions and attitudes to both climbing and the environmental management of the cliff and environs. Placing fixed protection permanently defaces the rock and as such it should be a last resort.

A bolting policy needs to address safety issues to minimise the risk of death or injury, and to alleviate land manager fears of litigation. The policy also needs to address environmental impacts, both positive and negative, resulting from the placement of fixed protection and anchors.

The VCC aims to promote safe bolting and environmentally sound practices. The VCC as an organisation cannot actively place or replace bolts or instruct on bolt placement due to terms of their insurance. The VCC may direct interested individuals to suppliers or manufacturers of bolting related products but it is up to the individual to properly research the products and follow the manufacturer's instructions when placing fixed protection.

## 1. WHERE TO PLACE FIXED PROTECTION/ANCHORS

- 1.1. It is the generally accepted practice that the first ascensionist chooses whether to place fixed protection, and where and what type of protection is used. It is important that the first ascensionist carefully considers where each point of fixed protection is placed, taking into account all safety, environmental and ethical considerations.
- 1.2. It is also vitally important that the first ascensionist uses a suitable product, has practiced placements before drilling a cliff (e.g. in concrete) and installs it according to the manufacturer's instructions.
- 1.3. Fixed protection is inappropriate on climbs that can be adequately protected by natural means. Fixed protection should be used as a last resort and only to enable a climb to be lead with minimum risk of serious injury (i.e. fixed protection should not be placed just to reduce the size of a fall where the fall can be considered 'safe').
- 1.4. Fixed protection should not be added or moved on a climb (i.e. retro-bolting) that has previously been done by naturally protected means without the express permission of the first ascensionist. If the bolt placement needs to be changed and the first ascensionist cannot be contacted then 'local best practice' should be used (see section – Replacing Bolts, Bolt Removal and Retro-bolting). Routes exist where the first ascensionist wanted to create a climb in the purest possible style. Adding or moving bolts may alter the nature of the climb and devalue the efforts of the first ascent.
- 1.5. Fixed protection/anchors should not interfere with nearby existing routes. Where a new climb is in close proximity to an existing route, where practicable, it is preferable to utilize the protection on the existing route.
- 1.6. Climbers should not place fixed protection on climbs that could reasonably be deemed short enough to be described as bouldering problems.
- 1.7. Fixed protection should be placed to prevent the risk of ground fall, hitting dangerous obstacles or factor two falls. However consistent with point the risk of a dangerous fall on an existing climb may not necessarily justify retro-bolting the climb.
- 1.8. Fixed protection within a climbing area preferably should be consistent with local practice and consistent with the nature of the climb (e.g. granite slab, steep sports climb etc.) unless safety considerations deem it necessary to use alternative protection (e.g. fixed hangers/ringbolts should be placed where putting a bracket on a bolt would be extremely difficult or where the climb is overhanging). Every effort should be made to find out what the local best practice is.
- 1.9. Bolts should not be added to an area that is declared either 'bolt free' or 'no more bolts'. This status should be defined by Park Management Plans, climbing guidebooks or local best practice.
- 1.10. Fixed protection should be placed with consideration for other climbers. It is preferable to top-rope the route first to assess natural protection placements and to mark best bolt locations. Placements should be consistent for the grade and where practicable should not disadvantage climbers with shorter reach.
- 1.11. When a climb is predominantly bolted then any need for natural protection should be stated in the route description. Also the method of descent should be clearly stated where lower-offs are not provided.

## 2. TYPE OF FIXED PROTECTION

- 2.1. Bolts must be stainless steel or titanium. Grade 304 stainless steel is recommended for inland areas and Grade 316 stainless steel or titanium is recommended for coastal areas or other highly corrosive environments.
- 2.2. Where two metal components of an anchor are in contact both components should be the same grade of stainless steel, for example a fixed hanger and an expansion bolt.
- 2.3. All forms of fixed protection placed should be manufactured to meet or exceed the European standard EN 959 of 15kN in the axial direction and 25kN in the radial direction. Note: this standard is for the ultimate load for the product. Most products state the normal 'working load' so check with the manufacturer how to convert 'working load' to 'ultimate load'.
- 2.4. Consistent with point all forms of fixed protection should be installed in accordance with the manufacturer's instructions. Incorrect installation may lead to failure of fixed protection regardless of the strength rating of the product.
- 2.5. The use of hammer-in 'carrots' is not recommended, as their reliability will vary depending on the skill of the installer and the hardness of the rock. They may also be subject to corrosion and bolt 'creep'.
- 2.6. Glues used should be industrial masonry glues suitable for dynamic loading and prepared and applied in accordance with the manufacturer's instructions.
- 2.7. Glue in fixed protection/anchors must be checked and moderately load tested sometime after the recommended curing time.
- 2.8. Glue in U-staples should not be used unless they are specifically made for rock climbing and tested to the minimum European standard when installed according to instruction.
- 2.9. Self-tapping/self-drilling bolts should not be used unless they are specifically recommended for rock climbing and meet the minimum European standard when installed according to instruction.
- 2.10. Pitons should not be placed as fixed protection. (see point for replacing Pitons.)

## 3. BELAY ANCHORS AND RAPPEL/ABSEIL STATIONS

- 3.1. Installing of rappel/abseil anchors should be kept to a minimum. Where possible one rappel station should service the tops of all climbs in the immediate area that can safely access the rappel/abseil point.
- 3.2. Natural protection should be used for belay anchors where at least 2, preferably 3, independent bombproof anchors can be used.
- 3.3. Additional belay anchors may be installed/replaced where no natural means of protection is available and where the existing belay anchor is inadequate.
- 3.4. Rappel/abseil stations should be installed where a tree is used for the anchor or where other features used may be unsafe (e.g. old fixed sling or unsafe natural "bollard").
- 3.5. Each rappel/abseil station should have two separate anchors installed at least 200mm apart. The rappel/abseil rope should feed through each of the two anchors independently unless the anchor has been specifically manufactured as a rappel/abseil anchor and designed with one point of contact (i.e. it is not acceptable to feed the rope through a single non-rated D-shackle or similar product).
- 3.6. Rappel/abseil station components through which the rope is threaded should be replaceable.
- 3.7. Products used for rappel/abseil stations should be tested and rated to at least meet UIAA standard 25kN. Home made brackets, and non-rated components such as D-shackles, maillons rapide, chain links etc. should not be used.

## 4. ENVIRONMENTAL CONSIDERATIONS

- 4.1. Fixed protection/anchors should not be visually intrusive particularly where the climb is located next to popular walking tracks. For climbs less than vertical hangerless machine bolts are recommended to reduce visual impact. Rock coloured stainless steel should be used.
- 4.2. While all effort should be made to minimise the visual impact of fixed protection this should not compromise the ability of a climber to see the protection. Fixed protection should be placed on clear rock within the line of climbing.
- 4.3. Rappel/abseil stations should be installed where descending by foot is likely to cause erosion problems.
- 4.4. Rappel/abseil stations should be installed where climbers lower off trees.
- 4.5. The placement of any fixed protection/anchors is banned within a Government defined wilderness area or reference area.
- 4.6. When drilling holes every effort should be made to minimise the impact on other visitors to the area. Dust is to be brushed away from the rock and drilling should be done at a time that is not likely to disturb other people.
- 4.7. Fixed protection/anchors should not be placed within any area of importance to Aboriginal communities. If in doubt, the VCC Access Officer should be able to find out if there are any potential problems.

## 5. REPLACING BOLTS, BOLT REMOVAL AND RETRO-BOLTING

- 5.1. Unsafe fixed protection should be reported to a representative of the local climbing group.
- 5.2. Unsafe fixed protection should, where practicable, be replaced by the local climbing community, the first ascensionist or other experienced and interested climber.
- 5.3. Carrot bolts requiring the placing of a bolt-plate should only be replaced with a glue in hangerless machine bolt, except in situations where a hangerless bolt may be unsafe such as on an overhang or at a tenuous clip with a dangerous fall.
- 5.4. Fixed hangers or ringbolts should only be replaced by fixed hangers or ringbolts.
- 5.5. When a piton is intentionally removed it should be replaced with a fixed hanger or ringbolt.
- 5.6. If a piton is unintentionally removed then it should not be replaced if good natural protection is available. Where good natural protection is not available a fixed hanger or ringbolt should replace the piton. Old pitons should not be reused once they fall out.
- 5.7. Piton scars should not be filled. Often natural protection can be placed in the scars so that the rock isn't damaged any further.
- 5.8. Where possible old fixed protection should be extracted from the rock. If appropriate, old 10mm holes should be re-drilled to 12mm and the new bolt placed in the same position. Note: in soft rocks extracting fixed protection may leave unsightly damage in the form of a crater.
- 5.9. Where old fixed protection cannot be removed the old protection should be cut off flush with the rock or (preferably) sheared off below the rock surface and the hole then plugged. Old bolts must not be left protruding from the rock surface.
- 5.10. When a fixed wire/sling/rope/cord is an essential point of protection then it should be removed and replaced with fixed hanger/ringbolt/rappel/abseil anchors.
- 5.11. Old bolt holes not re-used should be filled in with glue/resin/putty of a similar colour to the rock. Note: small or crushed stones of the same rock type mixed with the glue can improve the colour match and make excellent plugs.
- 5.12. Where there has been a change in bolt type, number or placement then the route description should be re-written by the person placing the bolts and published as a modified route (same as for new route descriptions).

### A FINAL NOTE

No fixed protection can be considered 100% safe. It is the VCC's aim to promote improvement in the quality of fixed protection and minimise the risk of fixed protection failure. It is the individual climber's responsibility to assess each and every piece of fixed protection and make a calculated and informed decision on whether or not the protection is adequate and whether or not to proceed with the climb.

### APPENDIX 1 - GLOSSARY OF TERMS:

Anchor – point of attachment to the rock, a piece of natural or fixed protection.

Belay/belaying – secure position and the system of controlling the safety rope while climbing.

Bolt – types of metal pin used for fixed protection, requires a hole to be drilled in the rock for placement.

Bolting – act of placing bolts.

Bolt-plate/bracket – removable bolt hanger, plate with a keyhole slot to put on a hangerless bolt and kept in place by clipping in a karabiner.

Bouldering problem – usually a short sequence of climbing moves close to the ground that do not require a safety rope.

Carrots – most often machine bolts that are filed down to a taper then hammered into a slightly under sized hole.

D-shackle – type of coupling link with threaded bar for gate closure. Not designed for rock climbing use.

Dynamic loading – force being applied to anything by a moving object, i.e. a climber falling onto a rope would be dynamic loading of the rope.

European standard – standards defined by the European Union which products must meet before sale in the EU. Australia has no equivalent for rock climbing equipment.

Expansion bolt – type of bolt with threaded sleeve and wedge, when the bolt is tightened the wedge forces the sleeve out to grip the rock.

Factor two fall – falling twice the distance of the rope paid out, i.e. directly onto the belay with no other protection. Produces severe shock loading on the belay system.

First ascensionist – person who first successfully completes a climb is given particular rights and responsibilities for it, e.g. naming it.

Fixed hanger – hanger that is permanently attached to a bolt.

Fixed protection – permanent anchor, usually made by drilling a hole and inserting a bolt.

Fixed wire/sling/rope/cord – natural protection that is left in place on a climb, usually when it provides an essential point of protection.

Ground fall – to fall and hit the ground, great potential for serious injury.  
Hanger – usually a piece of angled stainless steel, connects a karabiner to a bolt.  
Hangerless bolt – less visually obvious, but less easy to use than a Fixed hanger, as they require the climber to place a bolt-plate on the bolt.  
Karabiner – type of coupling link with sprung hinged gate closure.  
Load testing – load shear and tension with a quickdraw chain or slings whilst on top-rope (jump up and down on it).  
Check fixed hanger will not slip, or bolt-plate will fit over the bolt head.  
Lower offs – permanent anchors at the top of a climb positioned for easy descent.  
Maillon rapide – type of coupling link with threaded sleeve for gate closure.  
Natural protection – utilizes rock features (cracks, spikes, holes) to place anchors that can be removed without having altered the rock.  
Piton – metal spike that is hammered into a crack as an anchor. A staple of early climbers, they are not widely used anymore.  
Piton scar – the mark left in a crack once a piton is removed.  
EN 959 – European standard applying to Rock anchors: Anchoring equipment with an eye in which a connector can be attached for belaying purposes by inserting into a drill hole in rock and kept in place by gluing or expansion forces.  
Protection – safety equipment placed to minimize the length of a fall.  
Rappel/Abseil – Descending by sliding down a rope. Often used as a way to get off a climb.  
Retro-bolting – adding or moving bolts after the first ascent, can change the feel of a climb.  
Ring bolts – single shafted stainless steel rods bent and welded at the end to form an eyelet through which a karabiner can be attached.  
Self tapping/self drilling bolt – types of expansion bolt that include their own drill bit, often used in caving.  
Sling – band of nylon webbing usually tied or sewn into a loop.  
Sports climb – usually 1 or 2 pitch climb that is heavily protected by bolts.  
Top-rope – where the rope is anchored above the climber either by belaying from above or setting up a pulley system above the climb and belaying from below.  
U-staples – ‘U’ shaped glue in bolt, requires two drilled holes.  
UIAA – Union International des Associations d’Alpinisme is a climbing organization that tests climbing equipment, see web address below.  
VCC – Victorian Climbing Club, see address below.

## **APPENDIX 2 – CONTACTS, LINKS AND REFERENCES**

For further information, suggestions or comments on the policy, contact:

Victorian Climbing Club Incorporated  
GPO Box 1725, Melbourne Vic 3001  
Email: [info@vicclimb.org.au](mailto:info@vicclimb.org.au)  
Web: [www.vicclimb.org.au](http://www.vicclimb.org.au)

Send all new route descriptions and Beta to the VCC newsletter:

ARGUS  
GPO Box 1725, Melbourne Vic 3001  
Email: [argus@vicclimb.org.au](mailto:argus@vicclimb.org.au)

You can report unsafe fixed protection on Victorian crags to Safer Cliffs Victoria:

[www.chockstone.org/Forum/Forum.asp?Action=Forum&ForumID=11](http://www.chockstone.org/Forum/Forum.asp?Action=Forum&ForumID=11)

They also have practical articles about bolting:  
[www.chockstone.org/rebolting/introduction.html](http://www.chockstone.org/rebolting/introduction.html)

Parks Victoria Climbing Code

[www.parkweb.vic.gov.au/1process\\_details.cfm?note=20](http://www.parkweb.vic.gov.au/1process_details.cfm?note=20)

Union Internationale des Associations d’Alpinism (UIAA)

[www.uiaa.ch](http://www.uiaa.ch)

UIAA Standards for Mountaineering and Climbing Equipment 123 Bolts (references EN 959)

[www.uiaa.ch/webstorage/download/34/Std123n.doc](http://www.uiaa.ch/webstorage/download/34/Std123n.doc)

To Bolt Or Not To Be

Discussion on bolting by the UIAA Mountaineering Commission, 6/28/1998

[www.uiaa.ch/webstorage/download/36/tobolte.doc](http://www.uiaa.ch/webstorage/download/36/tobolte.doc)