

ASG

Activity Safety Guideline

Climbing and Abseiling



May 2026 v1

Preface

This Activity Safety Guideline (ASG) was originally developed for abseiling only by Tourism Industry Aotearoa (TIA) with support from WorkSafe New Zealand. This guideline was facilitated by the Register of Outdoor Safety Auditors (ROSA) using experts from the climbing and abseiling sector. Information about the guideline development process can be found at www.supportadventure.co.nz

The guideline will be reviewed and updated as required. The current version is available at www.worksafe.govt.nz. Users should check the date and version number of the current online document to ensure that their printed copies are up to date.

ROSA, WorkSafe New Zealand, and the climbing and abseiling community have made every effort to ensure that the information is reliable. We make no guarantee of its accuracy or completeness and don't accept liability for any errors. We may change, add to, or delete from the contents at any time without notice.

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Document control

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Significant changes from Abseiling ASG v3	Where
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Qualifications updated	Section 5.2
Anchor bolt inspections revised	Section 7.2
Definitions added	Definitions

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Cover photo: Kawakawa Bay, Lake Taupo. Photo: Sash Nukada

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Section 1: Introduction

1.1: The climbing and abseiling sector

Rock climbing activities occur in commercial operations, outdoor education programmes, and the training or guiding of recreationalists. Operations vary widely in terms of the crags and the style of climbing (top roping, leading, and bouldering).

Abseiling as a specific activity occurs through outdoor education providers. It's usually offered as a challenge within educational and personal growth courses or as part of an instructional skills course for aspirant outdoor instructors or guides. It's also a component of activities such as rock climbing, mountaineering, canyoning, and caving.

The climbing and abseiling sector is connected with the New Zealand Mountain Guides Association (NZMGA), New Zealand Outdoor Instructors Association (NZOIA), Mountain Safety Council (MSC), the New Zealand Alpine Club (NZAC), and outdoor education providers.

1.2 Scope

The guideline describes what operators and technical experts consider to be good practice for managing safety when providing the following activities:

Rock climbing: an activity where a person ascends natural rock formations, usually with safety equipment to manage risk.

Tree climbing: an activity where a person ascends a tree using safety equipment.

Bouldering: a form of rock climbing that involves climbing short routes or problems close to the ground without the use of ropes or harnesses.

Abseiling: descending steep surfaces using ropes and friction devices to manage the descent. It's also known as rappelling.

This ASG focuses on preventing serious injury or death. It identifies significant hazards that participants and guides and instructors may be exposed to and makes recommendations for managing the risks from these hazards. It should be used in conjunction with the information in the [Core ASG](#) and the [SupportAdventure](#) website.

Exclusions

Activities that aren't covered by this ASG are challenge courses, via ferrata, and crate stacking (see the [Aerial Activities ASG](#)), indoor climbing (the guideline is currently being revised), advanced rescue techniques, industrial rope access (see [Industrial Rope Access in New Zealand: Best Practice Guidelines 2012](#)), mountaineering, and activities associated with taking participants to and from activities (see the [Driving Good Practice Guideline 2021](#)).

1.3 Legislation

Climbing and abseiling operations are subject to the Health and Safety at Work Act 2015. Unless they provide the activity indoors, they're also subject to the Health and Safety at Work (Adventure Activities) Regulations 2016.

The Adventure Activities Regulations

Climbing and abseiling activities expose the participant to risks of the kind defined in the Adventure Activities Regulations. The regulations cover activities where:

- the recreational or educational experience the participant has is the main purpose
- the participant is guided, taught or otherwise assisted to participate in the activities
- the design of the activities deliberately exposes the participant to a serious risk to their health and safety that must be managed by the operator
- failure of the operator's management systems is likely to result in a serious risk to the participant's health and safety.

The regulations require operations providing these activities to undergo an external safety audit and be registered with WorkSafe.

This guideline, the [Core ASG](#), and the [SupportAdventure website](#) act as companions to the health and safety legislation. Following their recommendations will help operators to meet their legal requirements to take all practicable steps to identify hazards and manage risks.

SupportAdventure.co.nz
SAFETY SYSTEMS DRIVEN BY SAFETY CULTURE

The site for adventure operators

An investigation into an accident may look at how well an operator followed this guideline. However, risks may be managed in ways other than those recommended here and achieve the same level of safety or better.

1.4 Using this guideline

Building safety into your SOPs

This guideline outlines good practice for climbing and abseiling activities.

Conduct a site-specific hazard identification and risk management process, consider the recommendations in this guideline, and add the relevant procedures to your SOPs.

Before departing from these recommendations, seek advice from a climbing and abseiling technical advisor. Variations must be at least as good as the guidelines, and an operator will need to be able to justify why they use a different procedure from the guideline.

It's essential that, alongside site-specific assessments and the use of this guideline, guides and instructors conduct dynamic hazard identification and risk management.

This guideline gives examples which aren't exhaustive – consider other examples that could apply to your

specific activity. The responsibility for making safe decisions remains with the operator.

Passing safety audits

The Adventure Activities Regulations require climbing and abseiling operators to pass safety audits by an audit provider recognised by WorkSafe New Zealand. Following this guideline will help operators do this.

The [Safety Audit Standard for Adventure Activities](#) outlines the requirements that adventure activity operators must comply with to reduce risks when providing adventure activities, including implementing good practice.

This ASG helps safety auditors assess whether an operator is complying with good practice.

Other publications

For further information, see:

- [Abseiling: A Manual for Instructors](#) 2013, MSC
- Climbing Anchors 2024, John Long, Bob Gaines
- [Bolting Standards](#) 2025, NZAC
- [Bolts: A guide to installing and replacing bolts on climbing routes](#) 2025, UIAA

1.5 Protecting the environment

Crags are often areas with considerable use. Keep to established tracks and check with land managers before removing vegetation.

Check with the local climbing community and the land manager before bolting traditional routes or rebolting sport routes.

Professional operators set the tone for environmental protection.

Note!

It's critical that operators and participants carefully follow the [Leave No Trace](#) principles at all times. Don't accept anything else from guides and instructors or participants.



Sebastopol, Aoraki Mt Cook. Photo: Sash Nukada

Section 2: Managing Risks

Many hazards and risks are common to both climbing and abseiling.

Note!

Climbing and abseiling serious injuries are typically caused by falls from height or impact from falling objects – risk management should prioritise preventing these incidents.

Climbing and abseiling take place in many different environments and the significance of particular hazard will vary hugely from site to site.

2.1 Falling from height

Consider the entire site, including access and egress routes, and manage the risk of falling whenever a person could be injured. This may include when a person faces a fall from any height.

Assess the likelihood of a fall by considering how close people are to the edge, how much the surface slopes down, how unstable or slippery the surface is, and the ability of participants to follow instructions.

Note!

It's a common error to overlook staff when focusing on participants. You must ensure that staff are protected from falling from height, both during the setup and during the activity itself.

When choosing equipment, use a locking carabiner to attach the belay rope to the participant and ensure that participants can't fall out of their harness if they invert.

Managing the risks

Ensure that:

- supervision systems are suited to the risk – consider using assistants and/or buddy systems
- people stay far enough back from edges to minimise the risk of overbalancing or being bumped by another person and falling – this will usually involve establishing safe zones and communicating those zones to participants
- anchors are fit for purpose, building redundancy into the system
- anchors and safety lines are positioned to prevent people falling over edges – an instructor or guide may need to be attached in order to protect participants safely
- protect ropes and webbing from sharp or abrasive surfaces – use edge protection such as padding or directionals
- at critical single-attachment points, use triple lock (or similar) carabiners – twist-lock and other single-action carabiners aren't recommended at single, critical points of failure in reach of participants. (An exception may be on abseil access safety lines when two lanyards are being used and twist locks are easier to manage and supervise).
- unclip and clipping points are within safe reach of participants
- attachment points are above waist height, reducing potential fall factors
- where there's one point of attachment, the tie on and the attachment to safety lines or anchors is managed under direct supervision of a guide or instructor

Note!

Instruct participants at ground level on how to clean an anchor before they do it at height or directly supervise them until they're competent.

Using a personal anchor system

A personal anchor system (PAS) is commonly used to manage exposure to edges by containing participants in a safe place or guarding against falls, particularly when accessing the top of a crag and when preparing to descend or change systems. A PAS isn't to catch a fall but is used to prevent a fall.

A PAS uses webbing or rope and one or two carabiners.

Personal anchor systems may be managed by a guide or instructor or be self-managed by the participant. It involves the risk of participants completely detaching, losing their balance, and falling.



Self-management requires appropriate supervision, some participant technical skill, and a high level of task focus.

It's uncommon to use a PAS with vertical travel for climbing, eg when it's possible that the participant will climb above an anchor where a fall could generate a high fall factor.

Hazards when using a PAS

Factors to consider when identifying hazards for PAS use include:

- anchors or safety lines not adequately protecting people from falls
- clipping to only one bolt in the anchor
- carabiner gates opening accidentally
- high peak forces in a fall.

Factors to consider when identifying hazards for self-managed PAS use include:

- insufficient training or supervision
- not focusing on the task
- incorrect attachment to the safety line
- not being able to reach clip and unclip points
- when there are intermediate changeovers, a self-managed PAS should have at least two independent points of attachment and use simple systems to identify clip and unclip points.

Participant briefing

If PAS use is managed by the guide or instructor, brief the participants on:

- the importance of waiting for the guide or instructor before moving
- the importance of keeping the attachments to the safety line above waist height
- the importance of diligent PAS use, how to identify clip and unclip points, and the consequences of a full unclip
- using strategies for staying attached, such as add before you subtract, a squeeze test, and buddy and/or supervisor checks.

Participant management

When safety is self-managed, directly supervise participants attaching and re-clipping personal safety system to safety lines unless:

- the participant has practised first in a low-consequence environment
- the participant has been approved for indirect supervision by an experienced guide or instructor
- the participant understands and accepts the increased responsibility this places on them.

2.2 Falling objects

Falling objects can be a significant hazard and have the potential to injure without warning. This section considers both natural and human-related objects.

Assess, monitor, and manage the site for the likelihood of natural objects falling. Consider the quality of the rock and vegetation at the top of the site and on the cliff face. Establish monitoring schedules based on the associated risk.

Strategies for managing risks may include but aren't limited to:

- removing loose objects before the activity
- using a different route on the crag or a completely different site
- cordoning off areas at the top of the crag where there's loose rock
- stabilising loose objects – this may be simple or complex, such as using experts to stabilise or remove loose rock
- wearing helmets
- ensuring participants know to move quickly out of fall zones and ensuring the fall zone is clear of non-participants
- ensuring staff and participants have agreed protocols for falling objects
- ensure that any loose equipment such as cell phones is well secured, eg in zip pockets.

2.3 Unstable cliff face

The collapse of the cliff face being used for climbing or abseiling has the potential to injure a large number of people.

Assess and monitor the site for the likelihood of cliff face collapse, considering the quality of the rock and vegetation. Obtain advice from a technical advisor and establish monitoring schedules.

2.4 Suspension trauma

Climbing and abseiling involves the risk of suspension trauma, which results from being suspended in a harness for an unsafe period of time.

Ensure that procedures involve people being able to adjust pressure points and knowing that they should.

Practise emergency scenarios – including one with an unconscious person.

Ensure that guides and instructors:

- are aware that for unconscious people it can be as little as five minutes
- know how to identify and manage suspension trauma – likely signs and symptoms include a tingling or numbness of the toes and fingers, sweating on the side of the head, disorientation, and nausea. For a conscious participant, provide a way to relieve pressure points, eg a sling to stand in.
- use releasable systems or another option for recovering the participant in stuck scenarios, eg hauling systems or lowering using another rope.



Ensure any person who has been unconscious while suspended receives immediate medical attention.

2.5 Emotional and psychological trauma

Emotional and psychological trauma is a real risk and is sometimes given insufficient attention.

When setting up systems and operating the activity, this risk may be managed through careful briefing, progression, and challenge by choice. Being in a position to maintain good visual and verbal contact with a participant is important.

2.6 Being swept into the sea

Some climbing and abseiling include the risk of people being swept into the sea.

Assess the likelihood of people being swept into the sea. Consider the effect of tides, rogue waves, winds and ocean swell height, force, and direction.

Strategies for managing this risk may include:

- ensuring guides and instructors know and use the best available methods for predicting ocean conditions such as forecasting services and local indicators
- establishing parameters for site use such as time margins either side of high or low tide, maximum ocean swell height, direction, and wind combinations
- using local no-go indicators such as whether a particular rock is clear of waves
- ensuring pre-activity procedures include checking that ocean conditions are suitable
- ensuring there are procedures for cancelling the activity due to concerns about ocean conditions
- establishing procedures for managing unexpected changes in ocean conditions such as safe waiting areas, escape routes, and evacuation procedures.

2.7 Other hazards

Other hazards common to climbing and abseiling include:

- the guide or instructor making a mistake due to fatigue or repetition
- incorrect technique or equipment use
- getting stuck on a ledge – the instructor or guide must have competence in ledge rescue and have appropriate equipment available, such as a separate rope.

2.8 Public access

Most crags have public access, so you should rig the site to minimise the risk of the public using it without adequate supervision.

Lock systems or remove equipment in a way that prevents their use. If this isn't practicable, provide signage to warn people of the hazard and tell them not to use the site.

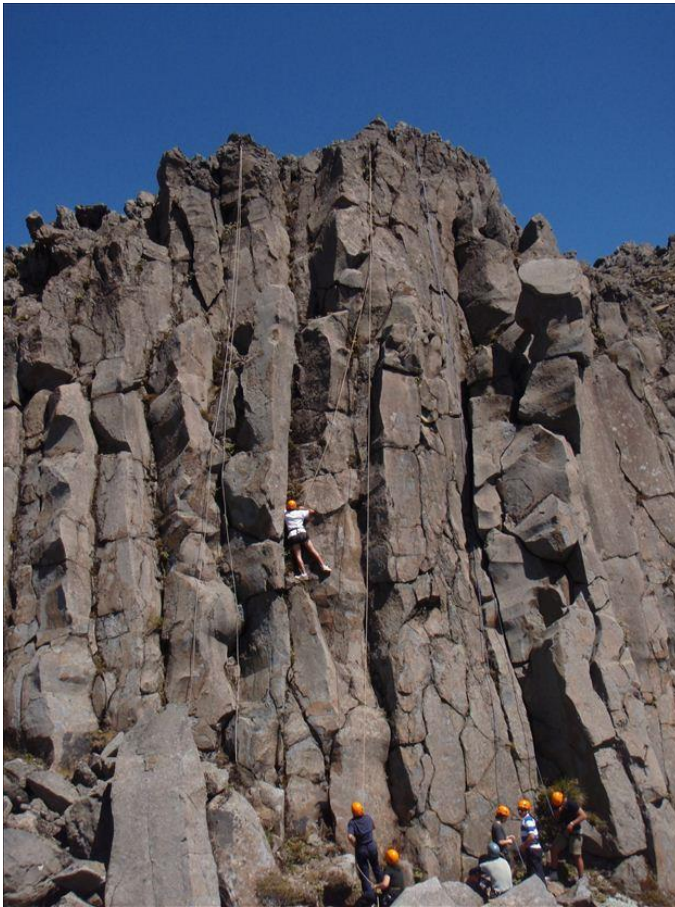
2.9 Changes to hazards

Significant environmental events such as heavy rain, high winds, and earthquakes may affect known hazards at a site or create new hazards.

Check sites after such events, record any changes, and notify staff and, if applicable, other site users.

Section 3: Climbing

Consider providing rock climbing shoes for rock climbing, including bouldering. This enhances the experience and can improve safety when bouldering.



Pehi's Bluff, Ruapehu. Photo: Stu Allan

3.1 Hazards specific to climbing

Also see [section 2](#) for hazards common to both abseiling and climbing.

Factors to consider when identifying hazards for climbing include:

- the route choice or anchor sites not enabling safe participant management or gear retrieval
- being hit by objects that have been dislodged while retrieving ropes
- being unable to retrieve the rope from the previous pitch
- a jammed belay device – skin, hair, clothing, or helmet strap
- lead climbers hitting rock features during a fall
- the time needed to complete a multi-pitch route before weather and darkness intervene.

3.2 Participants belaying

Lowering climbers is usually easier to manage than having climbers exit at the top of the climb.

Assisted braking devices (ABDs) may appear more secure than open tubular devices, but this isn't always the case, particularly for novice belayers on the transition from an unweighted to a weighted climber.

Pay particular attention to assessing participants and allocating belaying tasks to a suitable person. This may

need to be the guide or instructor.

Ensure there are:

- clear belaying instructions, including communications around the transition between an unweighted and a weighted climber (the transition may need direct supervision)
- buddy checks and, for novices at least, instructor checks before a climber leaves the ground.

 Note!

Use a back-up belayer if the primary belayer is not yet competent.

Back-up options include:

- using one or more back-up belayers holding the dead end of the rope
- involving an assistant or improving the instructor-to-participant ratio
- the backup belayer using a 'third hand'
- the back-up belayer using a waist belay.

Supervision

Stress the importance of diligent belaying and the consequences of belay failure.

Whether participants are top roping or lead climbing, the chosen site will be a critical factor in determining how many ropes can be safely supervised (see below).

Directly supervise belayers unless the following conditions are all met:

- the belayer is old enough to belay safely
- the guide or instructor has previously taught or observed the belayer performing the task required and has confidence that they'll perform the skills correctly, including holding an unexpected fall
- the belayer and the guide or instructor are able to communicate throughout the belay process – ideally, they're able to see each other.

 Note!

Instruct the belayer to secure loose items that could interfere with belay devices, such as hair, clothes, and helmet straps.

3.3 Top roping

Top roping is typically provided on crags but is sometimes used tree climbing.

Tree climbing usually involves holds attached to the tree. An arborist should check the integrity of the tree periodically and after severe storms.

Pull cords are common if the climbing area isn't open to the public or the pull cords are set so that a ladder is required to reach them.

Ensure that:

- there are procedures to protect instructors and participants when setting up top rope systems, including safe zones and helmets
- climbers don't climb too quickly as this can lead to loss of control and/or incorrect belay technique and may cause sudden loading on the anchors and the belayer if the fall is arrested
- pendulum falls that could cause harm are minimised.

Instructors usually supervise 1 to 4 ropes depending on what they can see, the experience of the instructor and participants, and the belay device and system used.

3.4 Lead climbing

Lead climbing can be traditional climbing or sport climbing. The potential forces involved are higher and therefore the opportunity for harm is greater.

Note!

It's common to use an additional top rope when introducing participants to leading until they're competent, particularly when instructing trad climbing when the protection is less secure.



Photo: Gregg Beisly

Ensure that:

- lead climbers are competent to protect themselves during the climb and when setting up or clipping anchors, such as using opposing carabiners
- lead climbers understand rope management, such as avoiding having the rope behind a leg, z-clipping, and back clipping
- clear communication systems are taught
- any specific hazards are communicated
- belayers are competent, including knowing how and when to feed rope to the climber

Instructors usually supervise 1 to 2 ropes, depending on what they can see, the experience of the instructor, how familiar the instructor is with the participants and their abilities, and the belay system used.

Multi-pitch

Note!

Multi-pitch climbing requires effective group management, especially around transfers from one pitch to another, and clear communications on what participants need to do.

Consider teaching non-verbal communications if pitches are long or the wind makes hearing difficult.

Multi-pitch climbing requires a high level of instructor or guide skill.

Instructors usually supervise 1 or 2 ropes, depending on what they can see, the experience of the instructor, how familiar the instructor is with the participants and their abilities, and the belay system used.

Managing the risks

Ensure route choice and anchor sites and setups enable safe participant management, including transferring to the next pitch.

Factors to consider include the ability to communicate with participants while they're climbing or abseiling, the amount of space and equipment needed at anchor sites to manage participants, and the amount of time required to complete the activity.

When developing emergency procedures, consider whether hauling or lowering participants will be more efficient, hauling equipment, egress options such as ledges, and management of multiple participants.

Participant management

Ensure guides and instructors are confident that participants undertaking multi-pitch climbs are competent to do so. This will usually mean they have climbed and abseiled before.

Ensure participants and guides:

- are adequately clothed for the weather and have sufficient food and water
- are aware of the increased risk involved and the extra responsibility it places on them.

3.5 Bouldering

Bouldering is a form of rock climbing that involves climbing short routes or problems close to the ground without the use of ropes or harnesses

Ensure that:

- consider using bouldering mats, maybe stacking two or more in a fall zone
- descents are identified before climbing
- spotters are trained – they too are at risk of injury.

Consider providing participants with helmets.

Note!

Accidents such as sprained ankles are more common when bouldering than in other forms of climbing and the focus should be on preventing these injuries.

Bouldering often involves participants roaming over a wider area and requires vigilance around those participants who have moved out of sight.

Instructors usually supervise up to 10 participants, depending on the site complexity (including the fall or jump landings) and whether participants can follow instructions.



Castle Hill. Photo: Gregg Beisly

Section 4: Abseiling

The most likely serious injuries are associated with falling from height and the incorrect attachment or use of the abseiling or belaying system.

Most abseiling involves the participant facing the rock face or artificial structure but some operators set up forward abseiling. This form of abseiling has additional complexities, including using specialised harnesses.

4.1 Hazards specific to abseiling

Also see [section 2](#) for hazards common to both abseiling and climbing.

- a difficult abseil starting area affecting the ease of weighting the rope, body position, and options to practise
- a participant not following the correct abseil line and penduluming into a rock feature or a tree
- abseiling at speed causing rope burn
- an abseiler stuck, eg through the belay rope becoming tangled, getting stuck on a ledge, or the abseil device being jammed by hair, clothing, helmet strap, or jewellery
- abseiling off the end of the rope
- difficult communications when there's no assistant at the bottom of the abseil

Ensure that:

- the rope reaches the ground and is long enough for emergencies
- an abseil system is releasable or includes another option for recovering the abseiler in a stuck abseiler scenario, eg a hauling system
- abseil sites and instructor or guide positions enable suitable supervision of an abseiler's descent, such as being able to see and talk with a nervous abseiler
- where possible, use a high focal point for abseils that begin with a short transition from horizontal to vertical.

4.2 Participants belaying

Participants are sometimes used to bottom-brake belay (fireman's belay) an abseiler, although the site must be safe from rock fall, and participants at the top should be instructed to be careful not to drop items. Occasionally, participants belay from the top of the abseil site.

Using participant belayers exposes the abseiler to a risk of belayer error.

Identifying the hazards

Factors to consider when identifying hazards when using participants to bottom belay include:

- the belayer not being competent to manage the task
- the belayer not focusing on the task
- the rope having too much stretch for a bottom-brake belay to be effective.

Participant briefing

Consider using a low-level practice site or other progression. Instruct participants on:

- the abseil body position and techniques for speed control and braking
- the abseil line and how to negotiate it, including how to avoid pendulums
- securing loose items that could catch in the abseil device, eg hair, clothing, helmet strap, and jewellery
- if there's no instructor or guide at the bottom of the abseil, instruct participants on how to detach from the rope and how to communicate if there's a problem.

Participant management

Ensure guides and instructors conduct a pre-use safety check before transferring the participant to an abseil system. This includes checking the connection of each participant's abseil device to the rope unless all the following conditions are met:

- the guide or instructor has previously taught and/or observed the participant performing the skills required and has confidence that the participant will consistently perform the skills correctly
- buddy checks are used.

Ensure emergency procedures consider guide or instructor location and overall management of the group, particularly around communication systems and management of participants exposed to edges.

Self-belaying

Self-belaying or abseiling with a backup such as a 'third hand' requires skilled participants as there's a risk that participants will make an error and fall. It's used when teaching the skills required for independent abseiling.

Identifying the hazards

Factors to consider when identifying hazards for self-belayed abseiling include:

- the participant not being competent to manage the system
- the self-belay system not engaging or becoming locked or jammed
- the self-belay system interfering with the abseil device and releasing it
- the participant being incapacitated and unable to work the self-belay
- the system relying on one rope
- using an unsuitable self-belay system.

Managing the risks

Ensure that participants understand the need to keep the abseil device clear of anything that could jam it.

 **Note!** Clip the abseil device into their PAS so that it's clear of their body (unless the situation makes this unwieldy such as on low-angle slabs).

Use a backup system and understand:

- the pros and cons of various set-ups, eg placing the prusik above or below the abseil device and attaching the prusik to the leg loop or the belay loop
- the number of wraps is critical to the prusik's effectiveness
- how to avoid disabling or locking the prusik, eg by holding the rope with the bottom hand below the prusik and the top hand holding the prusik.

Ensure the risk of objects falling from above is extremely low.

Use a self-managed belay system that aligns with participant competence and the hazards of the route.

Consider the ease of setup and of releasing the system if it's locked.

Before self-belaying, participants should practise with a top-rope belay as well, including practising how to release from a jammed abseil.



Ensure the self-managed belay system is checked and weighted before detaching from other safety systems.

Ensure that the guide or instructor has observed the participant performing the skills required and has confidence that they'll perform the skills correctly or provide a progression starting on easy terrain.



Halfmoon Crag, Whakapapa. Photo: Sash Nukada

4.3 Using one or two ropes

Use an abseil system suited to the participants and the line, particularly that the abseil device enables appropriate friction.

Two-rope systems

Two-rope systems are most common. They involve an abseil line plus a separate belay rope and are usually managed by the guide or instructor, who will usually belay from the top.

They have the benefit of enabling simple rescues and providing the belayer with control of the abseiler's descent. Other factors to consider include:

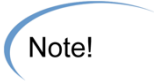
- rescue scenarios include the option of releasing the abseil rope and lowering the participant on the belay rope
- there's less chance that a sharp edge will result in a fall

The disadvantage is that there are two ropes to rig and manage when setting up and operating the abseil.

One-rope systems

Single-rope systems are less commonly used, involving one rope as both the abseil and belay rope. Belaying may involve a bottom belayer (fireman's belay) or the abseiler self-belaying using a 'third hand'. The most likely abseiling activity to use a single-rope system is a long abseil.

Self-belaying requires a high level of competence and has a number of other hazards. It occurs with competent participants in longer instructional courses with skills-based outcomes – see [section 4.8](#) for more information.

 Note!

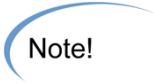
Single-rope systems are more susceptible to cutting on sharp edges, especially in the mountains.

Other factors to consider include:

- rescue scenarios are usually more complex than those for two-rope systems and require a rope twice the length of the abseil or a hauling system to raise the participant back up
- careful consideration needs to be given to the time required to rescue a stuck abseiler in order to manage the risk of suspension trauma
- bottom-brake belay systems require a competent person (often a trained participant) to belay, and a guide or instructor to remain at the top to manage rescue scenarios
- the abseiler requires a higher level of competence than those using two-rope systems. The advantage is there's only one rope to rig and operate.

4.4 Difficult abseils

Sometimes verbal communication is difficult, visual communication may not be possible, and rope weight has a significant influence on safely managing the activity. When the abseil is difficult, the participant may have less supervision and communication from the instructor or guide.

 Note!

These factors are most common on long abseils but are site specific and may also occur on shorter abseils.

Multi-pitch abseiling involves transfers from one abseil to another and requires attaching to safety points. Stacked abseils is one way of managing participants safely.

Identifying the hazards

Factors to consider when identifying hazards for difficult abseils include:

- compromised ability of the guide or instructor to communicate with the participant
- heat build-up in the device causing burnt hands and, possibly, rope-sheath glazing
- difficulty of managing a two-rope system
- weight of the rope affecting abseil device friction
- environmental factors such as cold, wet, darkness, and noise affecting communication and the participant's ability to abseil
- participant spending a long time hanging in their harness, increasing the risk of suspension trauma
- ineffective bottom-brake belaying, eg through rope stretch.

Managing the risks

Guides and instructors should:

- use termination knots and be careful when throwing ropes down so that they don't tangle

- ensure there's a system in place to indicate when the abseiler is safe on the ground such as using a participant at the bottom who is able to see the abseiler and can communicate with the guide or instructor at the top or use rope tugs or radios.
- using an abseil device that has sufficient friction to enable the abseiler to descend at a safe rate – consider the weight of the participant and the weight of the rope
- consider providing the abseiler with gloves
- manage the risk of suspension trauma
- If considering using bottom-brake belaying on long abseils, test its effectiveness first.

Participant management

Ensure guides and instructors are confident that participants undertaking difficult abseils are competent to do so. This will usually mean they have abseiled before.

Ensure participants are aware of the increased risk involved with long abseils and the extra responsibility it places on them.

Brief the participant on how to:

- negotiate the entire abseil route before they start the abseil, such as how to get past a ledge or an overhanging section
- manage the additional weight of the rope
- signal to let the guide or instructor know when they're safely on the ground
- avoid the abseil device heating by descending slowly and steadily and not stopping.

Using guided lines

Guided-line abseils refer to those using an additional rope to track participants away from hazards as they abseil. This guideline refers to guided-line abseils where most of the abseiler's weight is held by the abseil line and the guided line is solely for directional purposes.

Identifying the hazards

Factors to consider when identifying hazards for abseiling using guided lines include:

- overly horizontal angle on guided line, increasing the load on equipment and anchors
- not avoiding the hazard as intended
- a harmful pendulum in event of failure of the guided line
- longer time spent hanging in the harness (suspension trauma).

Managing the risks

Ensure that:

- The vast majority of the abseiler's weight is supported by the abseil line – consider vector effects when establishing guided line angles and anchors.
- Guided-line tension and the angle are sufficient to track the participant away from the relevant hazard and to the landing zone. Consider making the guided line adjustable at one end so that the tension can be managed to keep the abseiler in the right location and to keep angles acceptable.
- Abseil devices don't overheat.
- Instruct participants to ensure that the abseil rope is slack before they unclip from the guided line at the end of the abseil.

4.5 Abseiling into water

Abseiling in waterfalls or into water adds the risk of drowning. See the [Canyoning ASG v4](#) for more information.

Identifying the hazards

Factors to consider when identifying hazards include:

- features in the rock behind the waterfall trapping the abseiler, eg cracks, chockstones, and hanging pools
- water hitting the abseiler or belayer, affecting their ability to abseil or belay
- a slippery surface leading to foot entrapments or inability to maintain the abseil stance
- difficult communication between participant and the instructor or guide
- the abseiler becoming entangled in rope in the water
- the abseil finishing in deep or moving water where swimming is required.

Managing the risks

When participants are exposed to the risk of drowning, and where the risk isn't managed by techniques such as clipping to fixed lines to keep out of the water, ensure the equipment provides sufficient buoyancy for participants to float, eg neoprene, inner tubes, or a PFD.

Factors to consider include:

- the swimming ability of the participant
- the likelihood of a participant being trapped by hazards such as the river bottom, hydraulics, recirculation, siphons, strainers, and hanging pools in waterfalls
- aerated water providing insufficient buoyancy
- the likelihood of a participant being flushed downstream or being in moving water for a long time.

Ensure the abseil line finishes at or above water level (when loaded), the abseil device allows easy rope release, and there's no knot in the end of the rope.

Packs shouldn't be worn when abseiling in waterfalls with significant water flows.

Ensure participant bottom-brake belayers stand back from the waterfall, have stable footing, and have good visibility of the abseiler.

Participant management

Ensure the abseiler is within sight of the guide or instructor in the parts of their descent involving significant water flows, ledges containing pools of water which present a drowning risk, or rock features which present an entrapment risk.

If bottom-brake belayers need to assist in rescues, such as those requiring them to assist with moving the abseiler out of the main flow, observe them competently performing the tasks required to assist in the rescue before they belay.

If swimming is required, check participants' swimming ability and instruct them on how to get clear of the rope.

Briefing will vary depending on the actual hazards of a particular waterfall. Points to consider include instruction on managing slippery surfaces, avoiding entrapment features, and ways to maintain a breathing space, such as body and head positions.

Section 5: Staff



Instructor or guide competence is key to safety.

5.1 Site and activity management

Site and activity management includes ensuring that each climbing or abseiling activity is staffed and monitored effectively and that the most practicable communications systems are in place.

Ensure that guides or instructors are familiar with the hazards of the site and with the operator's SOPs. The amount of training this requires will vary. Factors to consider include:

- the specific hazards and associated safety management strategies of the site, eg those that affect accessing and rigging the site, especially if it's wet, windy, and slippery
- the complexity of the activity such as single-pitch climbing and abseiling compared with multi-pitch climbing and abseiling
- the competence of the guide or instructor.

Communication between guides or instructors

If instructors or guides are working together to manage safety of the same activity, ensure they can communicate easily or are managing tasks that don't require them to communicate with each other.

Communicating between the top and bottom of sites can be difficult. If this is required, such as when a guide or instructor at the bottom of the site is offering belaying support, ensure there's an effective communication system in place, eg verbal calls, visual signals, or use of communication devices such as radios

5.2 Competency

The *Safety Management System Requirements for Adventure Activity Operators 2023* notes that nationally recognised qualifications should be used where relevant.

Qualifications

Nationally recognised climbing and abseiling qualifications are administered by NZOIA, NZMGA, and Te Maho Ako. The qualifications are:

NZOIA

- Abseil Leader
- Rock Leader
- Rock 1
- Sport climbing
- Rock 2
- Canyon 2

The rock climbing qualifications are currently being reviewed.

NZOIA's canyoning and caving qualifications also include belaying and abseiling skills.

NZMGA

- IFMGA Guide
- Climbing Guide

Te Maho Ako

- Abseiling Level 4
- Rock climbing Level 4
- Rock climbing Level 5

For more information on these qualifications, see: [NZOIA](#), [NZMGA](#), and [Te Maho Ako](#)

Emergencies

Assess emergency scenarios for the risk that a staff member will be suspended and injured or at risk of suspension trauma. Factors to consider include:

- the likelihood that the staff member would suffer an injury if they fell, particularly impact injuries that could affect their ability to self-rescue, alleviate pressure points, or call for help
- the ability of the staff member to self-rescue if they fall
- the ability of the staff member to alleviate pressure points if they are suspended – what type of harness are they using, do they have equipment to help them (such as slings to stand up in), and are they trained in its use?

Ensure that rescue support is available to staff within a time that enable effective rescue for identified emergency scenarios. Base safety management strategies on the associated risk and the following recommendations:

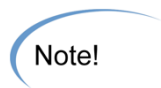
- a single staff member working under normal activity procedures may be suitable if emergency scenarios don't include falling and the staff member is able to self-rescue – ensure the staff member is carrying a communication device
- if staff could fall and be injured or not self-rescue or alleviate pressure points, ensure there are at least two staff members working together and that they're competent to rescue each other.



Sebastopol, Aoraki Mt Cook. Photo: Sash Nukada

Section 6: Participants

6.1 Informing participants about safety



Managing safety is more effective if participants are well informed.

Briefing

Before beginning the activity, inform participants that:

- climbing and abseiling is an adventure activity involving risk of serious injury or death. Participants should be aware that the operator can't totally guarantee the participant's safety
- the activity may be mentally and physically demanding and requires the participant to operate at height
- the procedures for managing exposure to edges and falling objects, such as staying back from edges, how to use safety systems, and the location of safe zones
- the need to follow the guide or instructor's instructions at all times and understand that this is critical to their safety and that of the group
- relevant communication systems
- what they need to do when they complete their activity
- any difficulties related to leaving the site and communicating with external emergency support.
- some hazards can't be eliminated or place extra responsibility on the participant, eg sole-guided activities in remote areas, difficult site access, difficult abseils, abseils involving water, multi-pitch abseils, and self-belayed or participant-belayed abseils.

Use demonstrations and activity progressions

Use demonstrations and activity progressions where practicable. This could involve a practice abseil on a steep, grass slope or scrambling and bouldering before roped climbing.

6.2 Supervision systems

Ensure there's an experienced staff member at the site responsible for managing the supervision system. For more information on site and activity management, see [section 5.1](#).

Strategies to consider when developing a supervision system include:

- ensuring instructors and guides are aware of the risk of fatigue and task repetition and that workplace culture includes a focus of self and peer awareness and support on these issues
- using pre-use safety checks such as instructor or guide buddy checks, repeating out loud, or safety calls at crucial safety moments such as before the participant detaches from the abseil setup safety system to begin Climbing and abseiling
- having an overall safety supervisor who roams between abseil stations to check safety systems and monitor instructor and guide performance – ensure the ratio of supervisor to instructors and guides allows for effective checking and monitoring
- scheduling regular breaks for instructors and guides
- rotating instructors and guides through different roles on a regular basis
- managing exposure of people to edges and falling from height

- slowing the activity down and using buddy checks, checklists, and simple and consistent systems where there's a risk of instructor error due to fatigue or repetition.

Parameters for sole instructing

Climbing and abseiling activities are often sole instructed.

The challenge for a sole instructor is that the group becomes split between the top and the bottom, and some participants may be out of sight.

Group management actions include:

- clearly instructing participants what to do when they've completed their abseil or climb, eg walking the group back to the top before the abseil activity to clarify the route and/or marking the return route so that participants don't stray into hazards
- instructing a helper to manage the participant to detach and move to a safe place.



Charleston: Photo: Gregg Beisly

Section 7: Equipment

Use equipment that complies with relevant international or national standards such as the International Mountaineering and Climbing Federation (UIAA), the European Conformity (CE), the Cordage Institute (CI), and New Zealand and Australian standards (AS/NZS).

7.1 Building anchors

Placed-protection anchors

Ensure anchor construction and rigging is carried out by a competent person and follows these guidelines:

- there's load sharing with multi-point anchors
- sites with sharp edges or abrasive surfaces are avoided – if this isn't possible, avoid direct contact with those surfaces or use metal chain or cable
- when using re-directionals, consider the forces involved and the consequences of failure of the re-directional, including shock loading of the main anchor
- place anchors where they're protected from falling debris
- if leaving anchor rigging in place for extended periods of time, metal should be preferred over webbing or rope – if it isn't practicable to use metal, identify webbing or rope failure as a hazard requiring monitoring within the hazard management system.

Metal pickets

If using metal picket anchors, ensure that:

- the metal is verified as strong enough to hold the required loads
- the metal is an anticorrosive steel
- sufficient length is in the ground, allowing for the firmness of the ground. Consider slipping galvanised steel pipe over the picket to eliminate sharp edges.

Traditional star pickets – fencing standards or waratahs – don't meet these requirements.

7.2 Bolt anchor inspection

There should be scheduled expert inspections and pre-activity checks that bolt anchors are safe to use .

Scheduled inspections

On a planned schedule, senior instructors and guides should inspect and record:

- the stability/solidity of the surrounding rock, considering hardness, friability, cracks, and bulges
- the appropriateness of bolt type (expansion or glue-in) and size for rock quality and angle of the rock face
- the bolt position in relation to other bolts, holes, and cracks – the cone of stress has a radius that is about 1.5 times the length of the bolt, so:
 - for a 75mm expansion bolt, 12cm from any crack or edge and 25cm between anchor bolts
 - for a 100mm glue-in bolt, 15cm from any crack or edge and 30cm between anchor bolts



The softer the rock and the longer the bolt, the more space is needed between bolts and to cracks and edges.

- the bolt position in terms of whether a carabiner or quickdraw will be loaded over an edge
- signs of bolt and hanger damage, including signs of rust and/or corrosion
- that the nut is tight.

For expansion bolts::

- check that the hanger is sitting flush and the bolt is perpendicular with the rock surface
- check the bolt stability by adding some torque with a spanner, being careful not to over torque.

Pre-activity checks

Before use, instructors and guides should check:

- the stability/solidity of the surrounding rock (considering friability and cracks)
- for signs of bolt and hanger damage, including signs of rust and/or corrosion.
- that the nut is tight.

7.3 General use equipment

Use equipment according to manufacturers' recommendations.

Selecting equipment

Ensure that equipment is suitable and in good condition. Base equipment choices on:

- the anchor style – part of a purpose- built abseiling structure, permanent, fixed or placed protection
- the type of activity
- identified hazards and associated management strategies
- emergency scenarios and response plans
- factors such as guide or instructor skills, participant ability, and environmental conditions.

Participant equipment

Correctly fit equipment as per the manufacturers' instructions. Check equipment for fit as suitable throughout the activity.

Ensure all participants have the following equipment:

- a helmet designed for climbing and abseiling
- a harness
- footwear that is unlikely to fall off during the descent – consider closed-toe shoes.

Ensure the following equipment is available for each participant as required:

- a descent device suited to the activity (consider the friction requirement)
- a locking carabiner
- a chest or full body harness.

Guides or instructors equipment

Essential equipment is:

- a belay device
- equipment for ascending a rope

- equipment for freeing a jammed device, such as a lowering or hauling system, or a knife
- a sufficient number of locking carabiners to run the activity and manage identified emergency scenarios.

Additional equipment may be required, such as a lanyard, a personal edge kit, a length of webbing, a spanner and hair-ties.

Choose ropes based on the expected use of the rope, such as belaying (dynamic) or abseiling (static). Ensure that ropes are UIAA accredited, used to the manufacturer's recommendations, and are fit for purpose.

7.4 Emergency equipment

Accessibility

Ensure that emergency equipment is available and accessible. The nature of the site will determine whether equipment is attached to the guide or instructor's harness, carried in a backpack, and/or staged at the top or bottom of the site.

It's often most useful to have first aid supplies at the bottom of the crag rather than the top.

Emergency equipment

Ensure that emergency equipment is sufficient and suitable for managing group safety.

The easiest rescue technique for lowering an abseiler to the ground usually involves releasing the abseil line and using belay line to lower the abseiler. Some rescues may involve raising the abseiler to safety or using pick-off techniques.

Ensure there's sufficient equipment and rope to manage emergency scenarios – for multi-pitch activities, consider the longest pitch.

First aid supplies

Ensure that first aid supplies are suitable for the identified first aid scenarios of the activity. Suggestions for first aid kit contents can be found at www.supportadventure.co.nz.

Definitions

For the purposes of this document, the following definitions apply.

ABD

Assisted Braking Device. Unlike manual tubular belay devices, eg ATCs, ABDs add friction to the rope when engaged suddenly. They're of two types:

- Tubular Assisted Braking Devices, eg Pilots
- Mechanical Assisted Braking Devices, eg GRIGRIs

Add before you subtract

The principle of adding a safety component before taken one away.

Back clipping

Clipping the rope into a carabiner from the front toward the rock creating a higher risk of the rope unclipping during a fall.

Bottom-brake belay

A safety technique used in abseiling where a person at the bottom of the pitch holds and controls the rope. Also called a bottom-rope belay, a fireman's belay, or bell ringing.

Cone of stress

Also called the 'break-out zone'. The area of rock that is stressed when a bolt is loaded.

Edge

The place over which a person could fall if they're not attached to a safety system.

Fall factor

A fall factor is the ratio of the length of fall over the length of rope or lanyard available to absorb the energy.

Fixed anchors

Anchors that aren't placed protection anchors, eg bolts or natural features such as strong trees or boulders.

MSC

New Zealand Mountain Safety Council.

NZAC

New Zealand Alpine Club.

NZMGA

New Zealand Mountain Guides Association – the professional association of mountain and ski guides, including rock climbing and abseiling.

NZOIA

New Zealand Outdoor Instructors Association – the professional association of outdoor instructors of nine disciplines, including rock climbing and abseiling.

Personal Anchor System (PAS)

A piece of equipment that secures you directly to the anchor or rope. It includes cow's tails, lanyards,

adjustable tethers, and anchor chains.

PFD

Personal Flotation Device.

Placed protection anchors

Temporary anchors such as camming devices, wires, and nuts that are constructed at a site and removed on departure.

Pull cords

A thin, non-load-bearing cord left in position for setting up a top rope.

Spotter

A person positioned to break the fall of a boulderer by offering supporting their head and upper body when they fall or jump.

Squeeze test

A hand check to see if a carabiner gate is locked.

Sport climbing

Climbing where the leader clips fixed bolts to protect themselves.

Stacked abseils

A way to safeguard participants by attaching them to the abseil rope before the guide or instructor abseils.

Third hand

Use of a prusik or other rope-grab device to self-manage an abseil.

Trad or traditional climbing

Climbing where the leader places protection as they climb.

Z-clipping

Z-clipping occurs when a lead climber clips a quickdraw by taking the rope from below the last clipped quickdraw instead of from above it.