



Climbing Wall Problem Solving

Floor-Walking  
Instructional  
Auto-Belay

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## Climbing Wall Services

Please note that not all situations can be accounted for and this document does not cover every imaginable situation. This document has been developed to give guidance on situations which a supervisor or floor-walking staff may encounter in a climbing wall. Please note this document is not intended to be definitive and relies on the skills of a qualified staff member, basic fundamentals still apply as per Mountain Training guidance. If a staff member does not feel they are capable of enacting any of the procedures they need to ask for assistance. I feel that asking a staff member to leave the ground to assist is a last resort, however when using auto-belays it may be necessary, this has a highly increased risk level so should only be enacted by the appropriate staff.

Please note that this document has been loosely based on the ABC rescue structure but it has thereafter been heavily modified and is still in draft format.

If there are any comments questions, changes or suggestions please send an email to Nate at [info@climbingwallservices.com](mailto:info@climbingwallservices.com)

### **Important!**

Depending on the height or location of the climber there may be an alternative action which may resolve the situation. Can they step onto a ledge? Can they down climb? Is there a member of the public on an adjacent line who can help? There are an infinite number of variables which cannot all be accounted for but some simple rules apply:

- Keep calm
- Assess the situation
- Safe your group and yourself
- Keep the incident from getting worse
- Reduce the severity of the outcome as much as possible
- Call for help if you think you need it
- Record the incident

In the event of an injury or suspected injury it is important to know what procedures are required at your facility, if you do not know than ask (before an incident). Some important points to consider are, but not limited to:

- Is first aid required? If so are you trained? If not do you need to get someone who is?
- Are emergency services needed?
- Does the causality have medical history?
- Be aware of spinal / back damage and only move if necessary (airway management)
- Do not admit fault
- Record the incident including witnesses

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### **Bottom Rope Rescues:**

1. **Harness not secured:**

This situation is not always resolvable, there are varying degrees to which the harness could be undone, if it is a leg loop then it may not be a critical situation and the climber could down climb or be lowered to the ground. However if the harness is completely undone or the waist loop compromised the situation is more serious.

Assess the situation and clear the area if needed.  
Put a crash mat under the climber (if possible)  
Calmly encourage the climber to down climb  
If the climber appears like they will fall, encourage them to “bear hug” the rope above them to help keep from inverting when weighting the rope
2. **Not tied in properly:**

Assess the situation and clear the area if needed.  
Encourage the climber to clip their harness into the nearest protection point (Quick-draw or Top Protection point) or down climb depending on their location on the wall  
Put a crash mat under the climber (if possible)  
Create an attachment point on an adjacent line (may need to be rigged) using a figure eight and screw-gate karabiner, put the rope on belay and raise it to the climber, have them attach it to their main attachment point and lower them to the floor
3. **Belay device compromised:**

Assess the situation and clear the area if needed.  
Calmly tell the climber to hold on to the wall.  
Install your belay plate behind the compromised plate  
Tie off your plate if necessary  
Remove the compromised plate  
Prussic may be needed to un weight the rope as in the short rope rescue  
Lower the climber
4. **Belay device jammed:**

Assess the situation and clear the area if needed.  
Calmly tell the climber to hold on to the wall.  
Install your belay plate behind the compromised plate  
Tie off your plate if necessary  
Remove the compromised plate  
Prussic may be needed to un weight the rope as in the short rope rescue  
Lower the climber

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5. Belayer Compromised:  
Take over the belay device and lower the climber
  
6. Soloing Climber:  
Assess the situation and clear the area if needed.  
Are they wearing a harness? (see not attached properly)  
If not,  
Put a crash mat under the climber (if possible)  
Calmly encourage the climber to down climb (or climb to a point of safety, depending on location and surrounding factors)  
Create an attachment point on an adjacent line using a figure eight and a large loop, put the rope on belay and raise it to the climber, if the climber cannot down climb use the rope loop and have the climber put it around the torso and hold the knot.  
Lower the climber.
  
7. Climber entrapment:  
Tie the belayer's plate off  
Counter weight the rope using other staff or climbers to raise the climber and allow them to free themselves  
Lower the climber to the ground  
If climber cannot free themselves it may be necessary to have a staff member belay another climber (ideally Staff) alongside them, ideally there will be no entrapment features – avoidance is the key!

### Lead Wall Rescues:

Mainly the difference for most scenarios encountered in lead climbing situations is that the climber may be above his protection and the forces are higher, however the advantage is that there are always protection points in close proximity. Managing the climber becomes even more important so don't forget to talk to them and keep them calm. Most situations are resolved in the same method, except you may have to get them to down climb before weighting the rope.

1. Short/Damaged rope:  
This is one of the most complicated situations which may happen and in the worst case scenario the climber would be hanging in free space a good distance from the floor and not able to down climb while un-clipping (which would be the preferred method).

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- a. Calmly tie off the belayers belay plate. If there is not enough rope to do this than use a prussic (French) above the plate and pulling down to get adequate rope into the system.
  - b. Attach a second lead rope (single dynamic) to the belayer's harness (using a figure 8 re-threaded) and put this rope on belay.
  - c. Have the original belayer ascend the line in which they were climbing, unclipping the "short" rope and clipping the added lead rope as they ascend.
  - d. When the original climber is on the ground (continue to have the original climber walk backwards keeping tension on the rope to secure the original belayer), have the original belayer clip the added rope to the next protection point above them, and take them in tightly.
  - e. Ask the original climber to walk forward and untie from the rope.
  - f. Lower the original belayer to the ground.
2. Harness not secured:  
See previous section – the climber will need to down climb first
  3. Not tied in properly:  
See previous section – look for the closest protection point to attach to
  4. Belay device compromised:  
See previous section – more urgent if climber is likely to fall – use protection points
  5. Belay device jammed:  
See previous section
  6. Belayer Compromised:  
Take over control of the belay device and lower the climber
  7. Soloing Climber:  
See previous section -
  8. Climber entrapment:  
See previous section – consider steeper ground as on lead walls and access

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### **Auto-Belay Rescues:**

When an auto-belay is being used prevention is the best option, adequate safety briefings and clear obvious signage will help eliminate the need for rescues. The two main issues for auto-belays are; not clipping in and entrapments when being lowered. Many facilities have a large triangle of fabric at the start of all auto-belay routes (for the line to attach to), ideally this will cover the starting holds for the line making climbing without being attached very unlikely. Additionally, eye level reminders to check your harness are recommended to be installed.

To reduce the chance of entrapment, the removal of quick-draws and hooked holds are recommended, a full risk assessment of the area to be used should help to decide if the location is appropriate. It is not recommended to have ropes in-situ on the same lines as active auto-belays, however it may help facilitate rescues if an adjacent line has an in-situ bottom rope.

NOTE: It may be necessary to ascend the wall to assist the climber, this is a high risk activity and must only be undertaken by trained and competent staff. Be aware that the stuck climber may grab/ jump on/ otherwise compromise your ability to hold on the wall, you must be able to safely go hands free and secured at all times if getting close to stuck climber.

#### 1. Harness not secured:

This situation is not always resolvable, there are varying degrees to which the harness could be undone, if it is a leg loop then it may not be a critical situation and the climber could down climb or be lowered to the ground. However if the harness is completely undone or the waist loop compromised the situation is more serious.

Assess the situation and clear the area if needed.

Put a crash mat under the climber (if possible)

Calmly encourage the climber to down climb

If the climber appears like they will fall, encourage them to “bear hug” the line above them to help keep from inverting when weighting the system

#### 2: Not clipped in properly:

Assess the situation and clear the area if needed.

Encourage the climber to clip their harness into the nearest protection point (Quick-draw or Top Protection point) or down climb depending on their location on the wall  
Put a crash mat under the climber (if possible)

Create an attachment point on an adjacent line (may need to be rigged) and raise it to the climber (adjacent line with a rope attached to control it), have them attach it to their main attachment point and lower them to the floor

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2. Climber entrapped on wall (no issues with auto belay – Climber can help them self – bottom rope on adjacent line):  
Evaluate the level of entrapment  
Can the climber free them self if talked through how to do it? (do not put the climber in a situation where they could shock load the system) if not;  
Is there an adjacent bottom rope? If so make an attachment point and send to climber, have them connect to bottom rope (on belay) and counter weight rope to raise climber so they can free them self and lower them to the ground.
  
3. Climber entrapped on wall (no issues with auto-belay – climber cannot help self):  
Evaluate the entrapment  
If there is an adjacent bottom rope line:  
Self-ascend, backing up as per best practice  
Connect dynamic cow's tail from your main attachment point to the main attachment point of the climber  
Assist to free the entrapment  
Do not get in a position where the climber can shock load the system  
Descend while attached to the climber (keep them attached to the auto-belay) – you may need additional friction on your descender
  
4. No bottom rope present:  
Ascend on auto-belay (trailing single dynamic rope) or lead climb as necessary to access adjacent top protection of adjacent line.  
If on auto-belay:  
    Connect single rope into top protection point and either rig as self-ascend or be put on belay by belayer on ground  
Lower to stuck climber  
Connect dynamic cow's tail from your main attachment point to the main attachment point of the climber  
Assist to free the entrapment  
Do not get in a position where the climber can shock load the system  
Descend while attached to the climber (keep them attached to the auto-belay) – you may need additional friction on your descender
  
5. Auto Belay Malfunction – Climber stuck at height:  
Climber can help self:  
    Send adjacent auto-belay (on rope to control) or bottom roped line up to climber with attachment point  
    Have climber attach to new system  
    Ensure they are attached properly

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Have them detach from stuck system (Critical they detach from correct system)  
Descend on new system accounting for swing if new line is offset

### 6. Climber cannot help self:

Ascend on adjacent auto-belay (trailing single dynamic rope), bottom rope (self-ascend as per best practice) or lead climb as necessary to access adjacent top protection of adjacent line.

If on auto-belay:

Connect single rope into top protection point and either rig as self-ascent or be put on belay by belayer on ground

Lower to stuck climber

Connect dynamic cow's tail from your main attachment point to the main attachment point of the climber

Double check that the climber is connected to you correctly on short cows tail)

Do not get in a position where the climber can shock load the system

Disconnect climber from malfunctioning system

Descend while attached to the climber – you may need an additional friction karabiner on your descender

Ideally a ground staff member could send up an adjacent line (other side of climber) just remember the swing and that NEVER to have ropes / lines crossed as they could be cut.

NOTE: if using a ground based belayer they must be able to control the weight of the rescuer and the stuck climber, it may be necessary to use an assisted braking device and sand bags.

### Conclusion:

It is strongly recommended to test / tweak any procedures and adapt them if they are not appropriate to the location and or staff competency. This document is written as guidance only and additional training may be necessary to safely complete these procedures. It is the responsibility of the centre and staff to seek this additional training and to decide if the procedures are appropriate for the facility in question. Nathaniel McMullan and Climbing Wall Services cannot accept any liability for the actions of those who choose to use these procedures, they may not be safe for some facilities and or staff. It is strongly recommended a Technical Expert be consulted before deciding to implement any of the content of this document.

If there are any questions or comments please contact Climbing Wall Services using the below contact information.

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