

Mecklenburg County Council

COPE & Climbing

Top Rope Climbing (Tower) SOP

Overview

The purpose of this document is to set a standard means for rigging and facilitating top rope climbing at either MCC camp's outdoor tower. Many of the aspects of this standard will apply to the indoor wall at MSR and natural rock climbing but they are outside of the scope of this document.

BSA NCAP standards require that all scouts are top rope belayed when climbing (PS-206-C-6). The towers at MSR and Belk are both designed with life safety systems above the climbing walls to facilitate a top rope anchor with a slingshot belay in which the belayer stands on the ground – not at the top of the climbing wall. Although the MSR tower requires rigging from the top of the climbing wall, no one is required to be at the top of the wall during climbing activities.

Equipment

The following lists the equipment needed to rig the top rope climb at each camp's tower as detailed below in this document.

- Belk Scout Camp
 - 1 dynamic rope
 - 1 triple action locking carabiner with captive eye
 - 1 Mammut SMART assisted braking belay device
 - 1 green screw gate locking aluminum carabiner
 - 1 rope ground tether – G (includes blue screw gate locking aluminum carabiner)
 - 1 pair of belay gloves
 - 1 ground tarp
- MSR
 - 1 shear reduction device
 - 1 steel oval screw gate carabiner
 - 1 dynamic rope
 - 1 triple action locking carabiner with captive eye
 - 1 Mammut SMART assisted braking belay device
 - 1 steel locking carabiner (screw gate or auto locking)
 - 1 rope ground tether – G (includes blue screw gate locking aluminum carabiner)
 - 1 pair of belay gloves
 - 1 ground tarp

Opening the Tower for Climbing

Belk Scout Camp

At Belk it is not necessary at any point to access the top of the climbing walls to rig a top rope climb. It is necessary to open/unlock the tower to access the ladder for rigging the bottom of the climbing walls as well as the climbing holds.

After the tower has been fully inspected the A frame ladder and the bucket of climbing holds should be brought out of the tower. When someone is on the ladder for any reason proper spotting techniques should be used. The ladder should be used to untie the paracord from the metal cleats on the side of the walls. The ladder should also be used to install the temporary climbing holds on the climbing walls. The ladder should not be opened. Rather it should be “seated” in the gravel around the tower and leaned against the tower wall for maximum stability.

The holds should be installed from the bottom up so that they provide additional grips for the instructor as he/she installs the higher holds. The climbing walls at Belk each have 2 climbing routes. If only one climbing route is planned to be used for a given day, then only that route’s climbing holds need to be set. Additionally, the paracord for routes not in use should be moved out of the way of the in-use route. The holds fit on the plastic cleats on the tower in only one orientation due to the groove on the back side of the holds. The holds must be placed from the top down then pushed in to the wall. It is sometimes necessary to *lightly* tap a hold with the rubber mallet to secure it in place. Due to wear and tear on the holds and plastic cleats some holds fit certain cleats better than others. You may need to try several holds to find a good match. It is worth the time to find a good match so that the holds do not pop off while a climber is on the wall. This can make it difficult for the climber to continue his/her ascent, but it also poses a danger of a falling hold. Sometimes the plastic cleats will break or chip. It is then necessary to find a new plastic cleat in a bucket inside the tower and replace it with the socket wrench kept in the tool bag in the storage closet.

MSR

At MSR it is necessary to access the top of the climbing wall to rig for top rope climbing (more below). The climbing routes on the MSR tower use the same removable holds as on the Belk tower. Follow the procedures above to install the holds. The removable holds are stored in a milk crate in the small, locked shelter under the tower. The A frame ladder is stored on the first platform of the tower behind the locked gate.

Rigging for a Top Rope Climb

Belk Scout Camp

Rig the Climbing Rope

Once the paracord has been untied from the cleats on the side of the tower the cord must be used to raise the climbing rope. On the Belk tower there are a pair of eye bolts above each climbing route. The climbing rope must be threaded through both eye bolts. To thread the rope from the ground you will use the paracord. Tie the paracord around the end of the climbing rope. It is best to use a clove hitch about 2-3 inches from the end of the rope then using the long end of the paracord (the end that goes up

to the eye bolts) tie a half hitch near the very end of the rope. Make sure to tighten each of these knots. This is necessary to pull the end of the rope through the eye bolts. If the knots are not snug the paracord may come loose. If the half hitch is not near the end of the climbing rope, then the “tail” of rope may snag on the eye bolt and will not pass through cleanly.



Note that it does not matter which eye bolt the climbing rope will pass through first. Another way of looking at this is that it does not matter which eye bolt is the climber’s side and which is the belay side. It is acceptable to rig the climbing rope either way. Some considerations may be in order. Some of the routes have one eye bolt that is more centered over the route than the other bolt. You may want to rig the climber’s end of the rope through this eye bolt. If using both routes on one side of the tower, you may choose to rig with the climber’s ends opposite each other to promote separation between climbers although in practice the climbers will choose their own way up the route and the rigging will not matter much.

To raise the climbing rope, hold the rope with one hand keeping light tension on the rope while you pull down on the paracord with your other hand. Take care to never let go of the paracord. The weight of the rope may pull the paracord up unexpectedly and you may lose control. The whole of the paracord may then rise up out of your reach. If the rope end does become snagged on the eye bolts, you may be able to wiggle the rope from the ground to skip the end up and through the eye bolt. DO NOT let go of

the paracord! Once the rope end has passed through both eye bolts continue pulling down on the paracord until you have control of both ends of the rope.

Untie the paracord from the end of the rope. Coil the paracord around your hand using a butterfly coil. We sometimes refer to this as a “cherry bomb.” This helps to prevent the paracord from becoming tangled when you are derigging the tower at the end of the program session. You may place the paracord coil under the wall of the tower where it does not pose a tripping or fall hazard.



Rig the Climber's End

During normal climbing operations we use a triple action captive eye carabiner to clip in the climber. This improves throughput at the tower via ease and simplicity of operations.

Tie a figure 8 follow through around the eye of the captive eye carabiner. Note you may also tie a figure 8 on a bite if you place the captive eye carabiner on the rope first. The bite of rope through the captive eye should be as small as possible. Make sure to properly dress the knot.



Instead of using the captive eye carabiner, scouts may also tie in to the climbing rope using a figure 8 follow through knot. If you will be running program in this manner, then you may leave the climbing end of the rope loose with no knot tied.

Rig the Belay

Scouting America standards require that a ground anchor be used for the belayer whenever possible. The ground anchor at Belk is one of the guy wire poles from the top of the tower (the 8 poles around the outside of the tower).

The ground tether uses a pre-tied rope tether (marked with a G) which includes a steel screw gate locking carabiner and the locking belay carabiner. Using the end of the rope tether with the steel locking carabiner, wrap it once around the pole near the ground (about 6 inches from the ground) and clip the carabiner back to the tether rope. Lock the carabiner.



Best practice is for the rope tether to run as straight as possible through the carabiner as it wraps around the back of the pole.

Spread the tarp down on the ground near where the belayer will stand. The tarps are important to keep the ropes out of the dirt and damp grass thus preserving the useful life span of the rope.

Pull the rope back to the tarp placing extra coils of rope on the tarp. Thread a bite of rope through the belay device, clip in with the locking carabiner at the end of the rope tether. Ideally the screw gate of the belay carabiner is facing away from the instructor. If the instructor is right-handed and therefore will be standing on the left side of the tether, the gate of the belay carabiner should be facing to the right. This is done to minimize the chance of the screw gate rubbing against the instructor and opening while belaying. Clip an aluminum locking carabiner to the spine side of the belay carabiner. This carabiner will be clipped to the belayer's belay loop. Pull enough tension on the rope to keep the hardware off the ground.



If the ground tether is too long for the height of the belayer there are two recommended methods to shorten the tether. First consider tying an overhand on a bite knot in the middle of the rope tether. Second, the rope tether may be wrapped around the pole more than one time.



Overhand on a bite to shorten the tether.



Rope tether wrapped around the pole twice.

When the climbs have been rigged, the ladder and the bucket of climbing holds must be returned inside the tower. Do not leave anything out around the rock garden that could pose a fall or tripping hazard.

MSR

Rig the Climbing Rope

At MSR you must rig the climbing rope from the top of the tower. Unlock the tower stair gate and ascend to the top level of the tower. You will need to bring with you the climbing rope, a steel oval locking carabiner and the shear reduction device (SRD).

Once at the top of the tower thread the one end of the climbing rope through the SRD. Clip the SRD to the oval steel carabiner and clip the carabiner to the overhead life safety cable above one of the two climbing routes. Both cables across the span must be clipped by the carabiner even though only one has separation clamps. (Note that there is a third small length of cable between the clamps giving the impression that the carabiner is clipping three cables.)



Pull enough rope through the SRD so that both ends of the rope will reach the ground. Yell “ROPE!” and toss the climbing rope over the railing to the ground. You may want to hold the ends of the rope near the SRD so that they do not pull through and the entire rope winds up on the ground. Either look over the rail to ensure both ends have reached the ground or ask someone on the ground if both ends are on the ground. Walk down the stairs of the tower.

Rig the Climber’s End and the Belay

Follow the same procedures as above to rig the climber’s end and the belay station. Note that the climber’s end of the rope should be exiting the SRD closer to the tower wall and the belay end of the rope should exit the SRD away from the tower. The climber and belay lines should not cross when exiting the SRD.

Staging for Climbing Operations

All spectators must be instructed to remain outside of the 8 poles around the tower at all times. Scouts waiting to climb must line up behind the belay anchor pole for the route they would like to climb.

Spectators taking pictures may come inside the 8 poles provided that they are wearing a helmet. They must be instructed to stay off the rock garden at all times and to not interfere with any climbing or belay operations.

While climbing, only the climber should be on the rock garden. However, since the tower has multiple routes that could be in action at one time, climbers and staff may be moving on and off the rock garden during operations. However, everyone should move off the rock garden if they are not actively assisting a climber.

Facilitating a Top Rope Climb

There are many styles and techniques to facilitate a top rope climb. However, there are certain steps that must always be followed. These are detailed below.

- CHECK
- Clip in (Tie in) to Climbing Rope
- Climbing Commands
 - On Belay
 - Climbing
 - Lowering
 - Off Belay
- Unclip (untie) from the Climbing Rope

CHECK

Before beginning any climbing session, the climbing instructor must go through CHECK.

The first step is to CHECK the overall rigging and himself/herself.

Once facilitating a climbing session each participant must be CHECK'ed. A trained climbing staff member must check the harness and helmet of the climber every time the climber approaches a route. Climbers will often take off their harness or loosen it between climbs. Never assume that a harness or helmet is OK. Check every time.

It is very useful to ask the climber his/her name. Use it and repeat it often. It reinforces the connection between the climber and the belayer. It also helps to get the climber's attention when there is a lot of noise and commotion around the tower.

Clip in (Tie in) to the Climbing Rope

The belayer may need to unclip from the belay device and walk the climber up the tower wall. The belayer may also clip the climber in to the climbing rope from the belay station and have the climber walk up to the wall. The belayer will have much more slack in the climbing rope to pull through the device in this second scenario. Alternatively, other climbing staff may assist the belayer by walking the climber up to the wall and clipping the climbing into the climbing rope. Examples of this staffer might be the backup belayer, climbing instructors not otherwise occupied, youth or adult staff assigned to the station for the day. This role is filled at the discretion of the lead instructor on site.

If using the captive eye carabiner, clip the climber in to the climbing rope through the colored belay loop if using a program harness. Clip from the top down so that the gate is facing out, away from the climber's body. Double check the carabiner is locked by squeezing the gate – “click, click.” The outward orientation of the gate also allows the belayer to see the gate and visually check that the carabiner is locked. Due to the shape of the captive eye carabiners that we use this orientation also puts the least strain or discomfort on the climber.

If the scouts are tying in to the rope, they must use a figure 8 follow through knot. This knot must be checked by the climbing staff member.

If a harness other than a program harness is in use, the manufacturer's recommendation must be followed for the clip in or tie in point(s) on the harness.

Climbing Commands

The climber and belayer must exchange the climbing commands before the climber may ascend the tower.

Ask the climber to face the belayer. This aids in hearing the climber issue commands but also allows the belayer an additional check of the climber. A good technique is to have the climber put his/her back against the tower wall.



On Belay

The climber asks “On Belay?” The belayer must:

- Check that he/she is clipped in to the belay device properly and the ground tether.
- The backup belayer must be in position
- Visually check the climbing area. No one out of place, belay stance is clear, etc.
- Pull slack out of the rope – the belayer should see the climbing rope tensioned on the climber’s belay loop.

The belayer now responds “Belay On.” The belayer may make a sentence out of each command response. For example, “Timmy, the belay is on.”

Climbing

The climber issues the command “Climbing.” The belayer responds “Climb On.” (“Timmy, you may now climb the wall.”) The climber may now turn, face the wall and begin to climb.

Some of the smaller or shorter climbers may need help reaching the first climbing holds. An assistant may approach the climber to give them a hand or leg up to the first holds.

While the climber is ascending, the belayer should be looking out for safety concerns. These might include but are not limited to the following:

- Climber must keep his head above his waist
- The climbing rope must remain between the climber's arms
- Climber should face the wall and the climbing holds

At no point should the climber ascend beyond the two eye bolts on the Belk tower or the top platform at the MSR tower. At Belk the climber must not grab an eye bolt. His or her hand or fingers could be pinched under the rope and serious injury could result.

Further climbing techniques and belaying techniques (such as dealing with fear) are outside of this document's scope.

Lowering

Usually the climbers are inexperienced and forget the command to "Lower". The belayer needs to be clear with the climber that he is about to be lowered to the ground using what language is deemed appropriate by the belayer for the given situation. Often the climber will be too emotionally distraught to issue a clear command. As long as the intent is clear lowering may begin.

The climber must be instructed to keep both hands on the rope and face the wall. The climber's legs should be straight out in front of him/her with their feet on the wall. Avoid lowering the climber if they are grabbing a hold or have their back turned to the wall. Injury could result.

The belayer must have both hands on the brake strand of the rope with the rope in the brake position below the belay device. Lower the climber in a slow, controlled fashion until both feet are safely on the ground.

Off Belay

Once the climber is safely on the ground the belayer may release the belay. Usually the climber is not aware or forgets to issue the "Off Belay" command. Once off belay the belayer may relax his hold on the rope, unclip from the belay device and ready himself/herself for the next climber.

The backup belayer may release the rope and attend to the current climber or help prepare the next climber.

Unclip (untie) from the Climbing Rope

In a reverse of the clip in or tie in process, the belayer may unclip from the belay device, approach the wall and unclip the climber. The climber may also walk back to the belay station and the belayer can unclip the climber from there. If additional climbing staff is available, they may unclip the climber while the belayer resets or ready's the next climber.

In between climbing sessions, the belay device should remain rigged on the climbing rope. Enough tension should be pulled so that the hardware is not resting on the ground. The climbing rope may either be left hanging against the wall if it will not interfere with other tower operations or may be pulled back to the belay station and clipped in to the belay carabiner.

Derig (Take Down) a Top Rope Climb

Belk Scout Camp

First you need to take down the belay station. Unclip the belay device from the carabiner on the end of the rope tether. Do not remove the belay carabiner from the rope tether. Do not place hardware on the ground. Clip it to a gear loop on your harness. Place the rope on the gravel around the tower. Remove the rope tether from the guy wire pole. The tarp should also be picked up, folded neatly and placed on the gravel.

Untie the captive eye carabiner if in use.

To lower the climbing rope, follow the same process as you used to raise the rope. Tie the paracord to the end of the rope using the same series of knots. Pull down on one end of the rope while the paracord end is raised up and through the eye bolts. Be sure to keep one hand on the paracord at all times. As the rope comes through the eye bolts gravity will take over and the rope can come down quickly, pulling the paracord up and out of reach. This is a particular risk if the paracord bundle has become tangled. Once the rope is completely down, untie the end and tie the two ends of the paracord together using an overhand knot.

The rope must be inspected and butterfly coiled. This is easiest to do while still on the gravel around the tower. There is plenty of space to spread out the rope to reduce tangles while keeping the rope out of the dirt and grass. If it is raining or dark, then you may need to carry the rope to the shelter before coiling but there is a risk of increased tangles when carrying an uncoiled rope.

Do not untie the rope tether. Clip one end to the other end for easy carrying and storage.



Carry all gear to the shelter. Hardware and tethers may be hung in the closet, but the ropes should be laid out on the tables. Do not put the rope away in the closet until after it has been entered into the log book.

MSR

Taking down a top rope climb at MSR is very similar to Belk. However, since we do not use paracord to raise the rope these steps are different at MSR. Simply pull the climbing rope down from the ground. Yell “ROPE!” and be aware of the falling rope. DO NOT LOOK UP. You do not want the rope to come down and whip you in the face. Stand to the side and let the rope fall to the ground. Once the rope is down you will need to walk up the top platform of the tower to retrieve the SRD and the carabiner.

Alternatively, you may walk up the top platform first. You will then need to pull the rope up to the top of the platform to unthread the SRD. You may then drop the rope to the ground (look down to see that the area is clear, yell “ROPE!” and drop the rope to the ground). Carry the SRD and carabiner back down.

Closing the Tower

Belk Scout Camp

All temporary climbing holds must be removed from the tower at the end of the session. It is best to start removing holds from the top down. In this manner you can use the lower holds to balance and support yourself. You may choose to use the ladder to reach the higher holds. In both cases proper spotting should be used. It is preferred to remove a hold with your hands to reduce the chance of damage to a hold or to the wall. However, after the holds have been weighted most of them will not come off with hand pressure alone. In the bucket of holds there is a metal wedge. The wedge can be placed just slightly under the bottom edge of a hold then pry the wedge up and away from the wall. This will lift the hold up from the bottom and raise it off of the plastic cleat. Do not drive the wedge too far under the hold as you may damage the cleat or the wood of the wall.



Place all of the holds back in the bucket and the bucket should be returned inside the tower on the shelf under the stairs.

The paracord must be tied down to the metal cleats on the side of the tower. Use the ladder to access the cleats safely. Wrap the paracord around the cleat so that little or no tail is dangling down. It is necessary to tie more than one length of paracord to each cleat. Once finished with the paracord return the ladder inside the tower.

Complete a walk around the tower inspecting the tower for any remaining holds, paracord or other hardware or climbing gear. Once everything has been taken down and stowed inside the tower, be sure to turn off the tower lights and lock the tower door.

MSR

Following the same procedures outlined above for Belk, remove all of the temporary climbing holds and store them back in the milk crates in the locked shelter under the tower. Return the A frame ladder to the first platform of the tower and lock the tower gate.