

Workers at height are in permanent danger of falling. That is why their safety should always come first. Workers' safety can be achieved by using various methods for setting up a personal safety chain. The structure of the safety chain should always correspond with the type of activity considering a high efficiency of work along with a maximal possible safety.

Basic skills and knowledge of workers at height include:

Work restraint: Technique of using PPE to prevent from motion to the areas with the risk of fall. This technique enables workers at height to move freely to the areas without the risk of fall. Moving into the higher-risk areas is restricted by appropriate PPE used.

Work positioning: Technique where the worker will be using the Personal Protective Equipment to access and process the work. This technique is based on the equipment which will protect a worker against any hazard from the workplace (fall from the heights). Choice of appropriate working position is essential for efficient working at height. It shall encourage the worker to concentrate on the job and thus it shall be safe, sure-footed and comfortable.

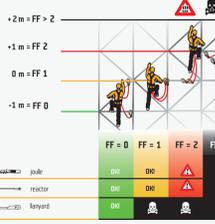
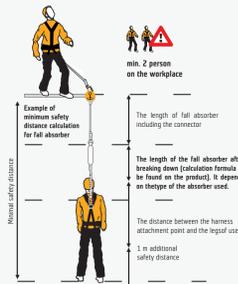
Fall arrest: In case of risk of fall, even for a short period of time, it is necessary to avoid a fall. Fall can be prevented or the impact force can be lowered to an acceptable level (5 kN) using a suitable fall absorber.

Rope access: Rope access is the most demanding technique of PPE use, allowing the access to the hard to reach areas in the workplace. An employee gets to the workplace and from the workplace using a rope access system in a way that free fall is prevented or caught. The system includes a working line and a safety line attached separately to the suitable anchor points.

General rules: Every worker at height must be properly trained for work at height and must use proper Personal Protective Equipment.

Fall absorbers:

When using a fall absorber, the elongation of the fall absorber during breaking action shall be considered. As there are different types of fall absorbers on the market, safe use of this product requires careful reading and understanding of instructions for use, where the method of calculation maximal possible elongation of fall absorber is stated. For your safety we recommend to add another 0.5 m to the calculated distance.

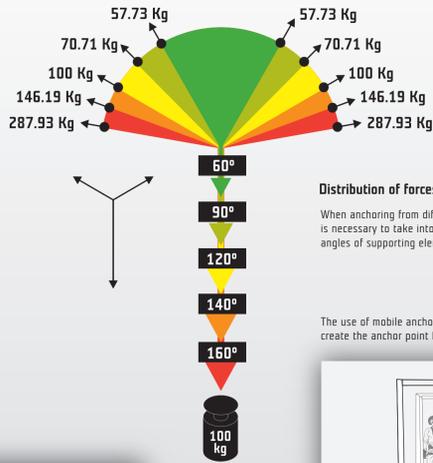
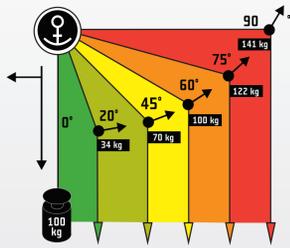


Ascent with fall absorber - Impact force

When safeguarding an ascent using a fall arrest type „Y“ it is necessary to move at the level FF1 and lower. It means that the connectors (EN362) connected to the fall absorber (EN355) during the ascent do not „fall“ below the connection point of the harness (EN361) in which the absorber is connected to the harness.

Anchoring

Load of continuous anchoring point. An example is creating a deviation using the rope techniques.



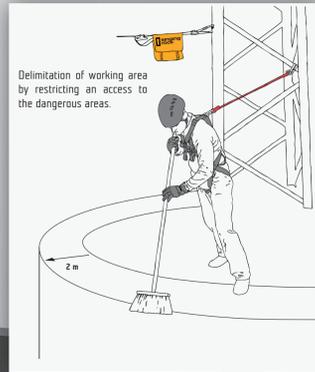
Distribution of forces on the anchoring point

When anchoring from different anchor points, it is necessary to take into the consideration the angles of supporting elements.

The use of mobile anchoring device (D-mobile) to create the anchor point for fall arrest system.



Work positioning on a frame tower.



Delimitation of working area by restricting an access to the dangerous areas.

Basic knots techniques

When making the knots remember that each knot reduces the strength of the rope by approx. 50 %.

Lanyard/rope with a stitched loop

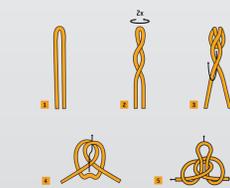
Using a lanyard or rope with a stitched eye is the best possible method of eliminating the possibility of tying a knot wrongly during the anchoring.



Alpine butterfly

Suitable for anchoring from separate points, inter-anchoring.

Reduces the strength of the rope in lab. conditions by approx. 39 %.



Stopper knot

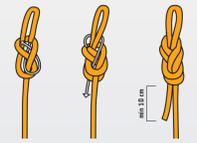
Double fisherman's knot



Without proper understanding of knotting techniques and their practical mastery, the use of the knots is dangerous and may lead to serious accidents!

Figure-Eight loop

Suitable to connect two ropes of the same type and same diameter, connection of the ends of a rope loop. Reduces the strength of the rope in lab. conditions by approx. 46 %.



Connection of two ropes using a figure eight bend

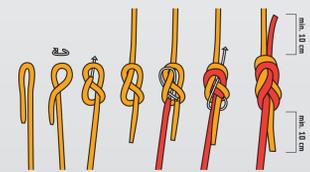
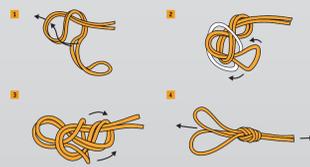


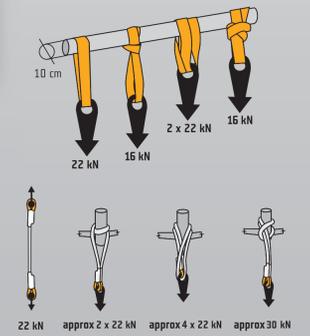
Figure eight double loop (Bunny Ears)

Very useful for equalizing the load on two anchor points.



Some basic principles of using the ropes and lanyards:

Keep your rope out of any sharp edges, rough surfaces and chemicals. Especially on slopes anticipate potential direction of a fall and the strain of your rope. When working on constructions, pay attention to the direction of leading your rope and anticipate its possible strain. When using lanyards either to climb the construction or to positioning, take heed to reduce potential fall to minimum! Therefore always place the anchor point above the worker.



EMERGENCY

EU 112

US 911

UK 999

The most important is the prevention! It is important when working at height to work in a team at least two people.

Always be physically well prepared and have a charged mobile phone and first aid kit.



STOP MASSIVE BLEEDING



FIRST RESPONSE

In case of loss of consciousness, when the affected person does not communicate, does not respond to the painful object:

- ROLL THE CASUALTY ONTO HIS BACK
- TILT THE HEAD
- CHECK FOR AIRWAY CLEARANCE
- LISTEN FOR 10 SECONDS TO SEE IF THE CASUALTY IS BREATHING



If the casualty is not breathing, start CARDIOPULMONARY RESUSCITATION

- HEAD TILT
- AIRWAY CLEARANCE
- CHEST COMPRESSION 5 - 6 cm FOR AN ADULT PERSON IN A RATIO OF 30 COMPRESSIONS x 2 INHALES

- FREQUENCY CHEST MASSAGE 100 - 120 x min.



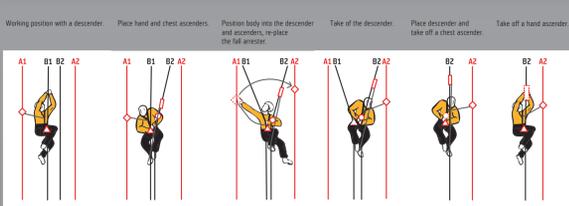
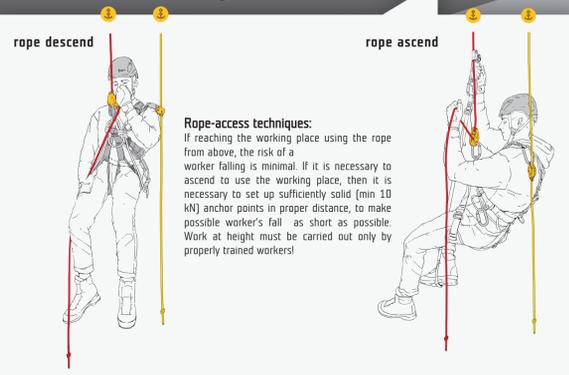
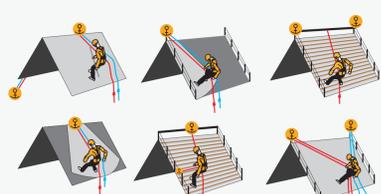
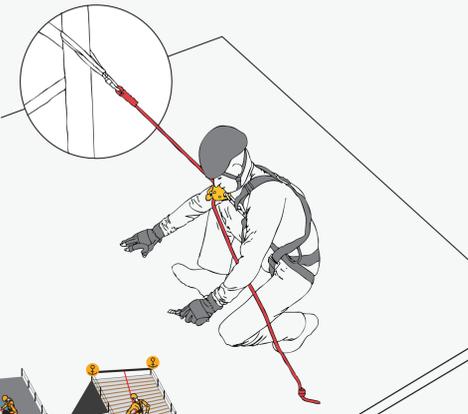
MONITORING UNTIL THE ARRIVAL OF EMERGENCY SERVICES

- MORE DETAILED EXAMINATION
- RECOVERY POSITION
- PRESENCE OF THE SECOND PERSON
- REGULAR CONTROL
- THERMAL COMFORT



Roofing

When moving on the roofs, there is always the risk of fall-through or slip followed by a fall. To eliminate this risk, it is necessary to set up sufficiently strong anchor point and to use proper PPE. If there is no sufficiently strong anchor point, it is necessary to use more anchor points together. The anchorage must be placed above a user to prevent the fall. If there is a high risk of fall, it is necessary to incorporate a fall absorber into the safety chain. Pay attention to the horizontal distance from the vertical of the anchor point. The bigger it is the more dangerous possible fall will be.



Short rope-to-rope transfer: off-belay descender (SIR) hand ascender (LIFT) chest ascender (CAM CLEAN) positioning sling in a knot (EDW'S TAIL) fall arrester (LOCKER)

Basic safety rules for work at height are based on many years of experience of the SINGING ROCK members and EU and Czech Republic laws and directives.