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THE CUBE

How to use a movable boulder wall?
Quick manuals





This manual was created based on the construction of a movable boulder wall that we managed to build as part of the Hand in Hand project. A big thank to those who gave us the funds to carry out this project and put a smile on the faces of young people in various locations and occasions.

1. Pre-word

The ŠD Breza is a community of like-minded people who spend their days actively and as much as possible in the spirit of sport. We want sport to become the routine of everyone with a desire for a healthy lifestyle, so that movement itself becomes a way of life. We want to spread the idea of spending free time in nature or inside sports facilities among people of all ages, with an emphasis on children and young people. It is important that people realize the true meaning of good physical condition (and mental as well), self-satisfaction, and that they internalize healthy movement habits and good practices for spending time in nature.

With its activities, ŠD Breza connects recreational sports climbers and hikers, as well as lovers of trips to all corners of Slovenia.

Želim živeti intenzivno življenje. Vsa moja moč, energija in smisel so koncentrirani na življenje.

- Tomo Česen

1.1. Safety first!



Possible risk with medium level of risk

Not preventing that risk could result in fatal or serious injury.



Possible risk with a low level of risk

Not preventing this risk could result in slight or minor injury.



Indicates information which must be noted and complied with to ensure safe use.

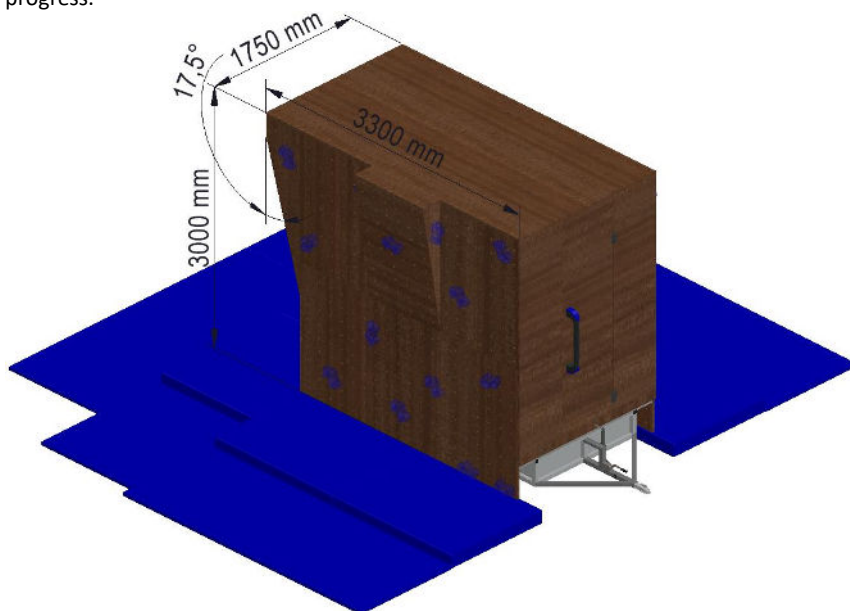
In this manual, you are informed about the different degrees of risk as shown above.





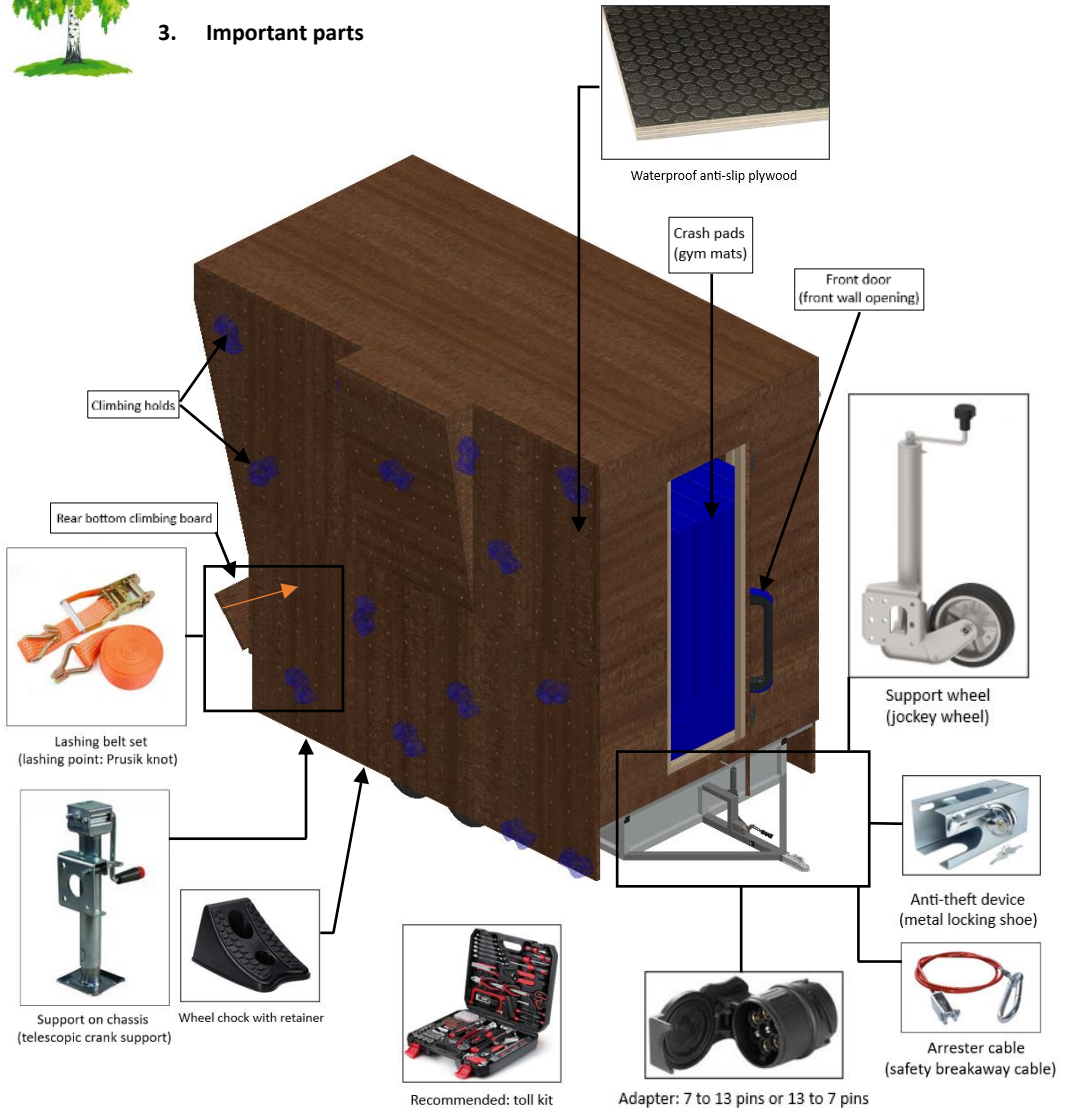
2. Introduction

Bouldering (boulder = large stone) is a form of free climbing performed on big stone formations or artificial walls in which we do not need protection with a rope, climbing harness, or belay devices. It is a great idea and a special challenge to bring bouldering as an outdoor activity to the urban city centers, to city parks or even to the rural areas, to remote villages on the countryside, without the need of disassembling and reassembly of complex boulder walls/reliefs, such as have grown in many urban centers in the last 10-15 years. Our movable boulder wall follows the norms of easy bouldering problems, with a peak height of about three meters. A pillow system under the wall (a system of crash pads) ensures a safe landing or fall. A desire to imitate this wonderful sport that requires only climbing shoes, a bag of chalk and a crash pad, inspired us with the idea of building a movable wall and create boulder problems and routes for a simple climbing practice anywhere and anytime. Bouldering can be a great sport for anyone, regardless of physical capabilities. Anyone can find and try climbing boulders that will suit them regardless of body constitution, physical fitness, age and other factors. On our movable wall the route setting is done in a manner where easy difficulties indicate where to start and advanced difficulties represent a challenge showing that there is always room for progress.





3. Important parts





4. Intended use

Movable boulder wall is intended for sport climbing only. If not used as intended could pose a risk to the user of third parties and could result in material damage. Intended use includes complying with descriptions and information providing in this operating manual.

Regularly presenting the movable boulder wall for a general inspection and safety tests carried out by qualified personnel. Proof of this is a prerequisite for driving it on public roads.

The user is responsible for regular care, cleaning and maintenance.



Within the context of »use« the following conditions for operating the movable boulder wall must be met.

1. Trailer licensing
 - Licensing is country-specific.
 - As a general rule, you need to insure the trailer that carries the wall and get a permit to use it on public roads.
2. Driving licence for driving with a trailer
 - Depending on the country, it may be necessary to have a specific driving licence to drive with a movable boulder wall. Find out about the specific conditions.
3. Presence of vehicle documents and type plate
 - Carry the vehicle documents for your car and trailer always with you. Check that the type plate is in place.
4. Periodic examination/general inspection
 - The regulations on a general inspection are country-specific. Please find out:
 - When a general inspection is required.
 - When you can have a general inspection carried out.
 - Carry out regular maintenance/repair.

Permitted are:

- Transporting the movable boulder wall with a permitted vehicle (and coupling unit).
- Transporting (and climbing) only if in perfect technical condition.
- Driving with a properly secured load. The driver of the towing vehicle is responsible for securing the load (especially inside the wall) and the equipment for load securing.
- Driving while complying with the max. permissible top speed by law and with suitable speed for bad road or weather conditions.
- Operating within the permissible gross weight.
- Operating with even weight distribution of load inside the wall.
- Securing the movable boulder wall against rolling away when parked.





5. Foreseeable misuse

Any use extending beyond the prescribed transport (and climbing) applications is regarded as other than intended. Misuse is a subject of negligent performance of human behavior that is non-compliant with safety measures.

It is not permitted:

- Transporting people.
- To impose a burden inside the wall that is too heavy and thus overloading the trailer.
- Driving with a poor load distribution (one-sided, spot loading).
- Driving at an unsuitable speed in and weather as well as on a bad road surface.
- Driving with a wall's body not closed (front door) or with a rear bottom climbing board in a lowered position and thus covering the trailer's type plate.
- Driving with a faulty lighting system or malfunction of the lighting system.
- Exceeding the max. permissible axle/drawbar and trailer load.
- Parking the movable boulder wall without taking safety precautions against it rolling away, such as applying the hand brake, using wheel chocks.
- Driving the trailer and/or climbing on the wall with visible wear of parts or breakage of safety-relevant components and accessories.
- Driving the trailer when it is damaged, which can cause danger on public roads and could also lead to personal injury.

5.1. Sources of danger

It is absolutely essential to comply with the following points:

- Driving with unsecured support devices.
- Poorly secured or unsecured goods and/or body components.
- Reversing – keep an eye on the area behind the trailer.
- Overloading the trailer, axles and brakes.
- Overstressing as a result of reckless and inappropriate driving or handling.
- Speed inappropriate for the road conditions and the loading status of trailer.
- Parked trailer can roll away, tip or sink in on soft, un even ground.

5.2. In the chassis area

Note the following in general:

- Lock the coupling properly.
- Check that the ball head and the ball itself are not damaged.
- Establish the electrical connections.
- Check the trailer lights, repair faulty lights.
- Retract the support devices and lock them.
- Check the tyres, and rims for damage.
- Check the tyre pressure and check the tightening torque of the wheel nuts.
- Comply with the permissible gross weight.





6. General safety instructions For people



Children playing in the vicinity

Trailers are not toys! Children are unable to properly assess the risks associated with a trailer and could injure themselves playing with the trailers' parts.

- Do not let children play unsupervised near the movable boulder wall.
- Keep children away when manoeuvring with the trailer.



Not complying with safety measures

Ignoring safety measures and not following the steps of action can lead to accidents resulting in personal injury. Incorrect handling can make you injure yourself and other people.

- Comply with steps for handling.
- Pay attention to all the safety advices.



Never allow people to climb on the roof!



Read this quick manual carefully!

6.2. When parking



Unsecured trailer

The trailer can start moving out of control and could injure people – risk of accident!

- Secure the trailer against rolling away.
- Place wheel chocks under the wheels.
- Apply the parking brake.



Unsecured trailer can pose risk!

- Try not to park on a slope.
- Park the trailer so that it does not pose any further risks.



Trapped inside the wall

Risks of overheating, claustrophobia and in extreme case suffocation due to lack of O₂.

- Before closing (and locking) the doors on the front side of the wall, make sure that no people (or animals) are inside.



Risk of overheating!

- It can get really hot inside the wall since the outer surface is in dark colour and there are no openings on the structure.





6.3. While driving



Poor road/extreme weather conditions

If the road surface is uneven, has potholes, or if the weather is bad, e.g. storm, snow, slipperiness, ice, hail, the trailer could start snaking – risk of accident!

- Adapt the speed to the prevalent road and weather conditions.
- Keep to the max. permissible top speed for car vs. trailer combinations.



Gusts of wind/side wind

In the event of gusts of wind/side wind that can occur near bridges, tunnels, cuttings through woods, sound protection walls or when overtaking lorries, if you steer sharply, it could cause the trailer to start snaking – risk of accidents!

- Slowly reduce the speed and adapt the driving to the weather conditions.



Wall is too high for the selected road

The wall is more than 3m high and could be ripped off when driving through the tunnel or under the bridges (underpasses) etc. – risk of accident!

- Before driving into a tunnel or towards the bridge (underpass), pay attention to the traffic signs with the max. height permissible for the vehicles.



Loose wheel nuts/wheel bolts

The wheel nuts/wheel bolts could come loose. The trailer could lose a wheel – risk of snaking/accident.

- After the first 50 km and every time after changing the tyres, tighten the wheel nuts/wheel bolts.
- Check that the wheel nuts/wheel bolts are tight at regular intervals.



Objects on trailer body/on top of the wall

Object such as branches, ice, snow etc. can be thrown on the road during the journey – risk of accident!

- Remove all objects (do not forget for tools) from the trailer/wall before start.



Worn tyre profile/incorrect tyre pressure

The tyres can burst when driving along and the trailer will start to break away. Breaking distances get longer – risk of accident.

- Regularly check the tyres.
- Check the tyre pressure, profile depth and conditions of the tyres.





6.4. Before driving



Non-compliance with the drawbar load

Exceeding the max. permissible drawbar load/not reaching the min. drawbar load can cause accident – risk of snaking!

- Distribute the load so that no negative drawbar load is created or that the max. permissible drawbar load is complied with.
- Do not exceed the max. permissible drawbar load of the towing vehicle and the trailer coupling.



Worn trailer coupling

A worn trailer coupling leads to poor road handling of the trailer – risk of snaking!

- Make sure that the coupling is not worn or deformed before driving off.
- Carry out regular maintenance of the coupling to prevent wear.



Find the information on max. permissible loads!



Inadequate/faulty lighting

It is difficult to see the trailer or it will not be seen in time by other road users – risk of accident!

- Before setting off, check that the lighting on the trailer is working and is not covered by anything.
- Remedy any defects to the lightning.



Driving without the safety cable/arrester cable attached

In the event of the trailer becoming detached or if the coupling fails, the trailer will not be braked/caught.

- Connect the safety cable/arrester cable to the towing vehicle.
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7. Getting ready for departure

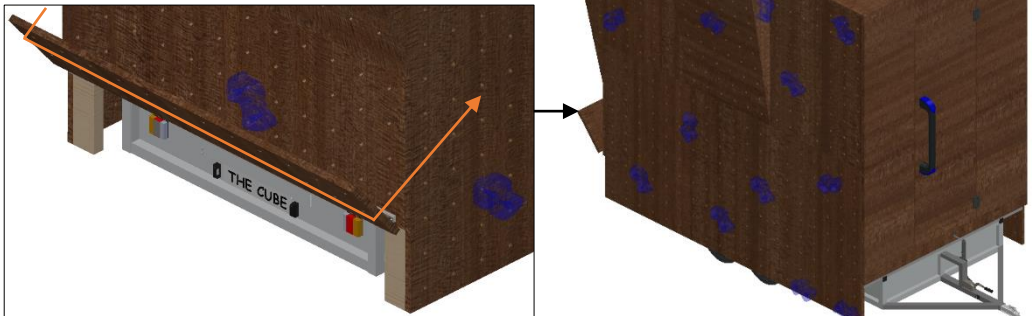
7.1. Coupling process

To be able to move the trailer, remove the wheel chocks and store them onto the brackets mounted on the chassis. If applicable: do not forget to raise the telescopic support by putting them into a stowed position under the chassis.

- Move the car/trailer close enough for coupling.
- Attach the arrester/safety cable around the ball head.
- Pull the handle all the way up. The ball head coupling is open.
- Place the spherical cup onto the ball head. If there is sufficient drawbar load, then the ball head coupling will click into place by itself. If there is little drawbar load (e.g. tandem trailer):
 - If applicable, wind the support wheel (jockey wheel) up into a folded state.
 - Press the ball head coupling down manually until it clicks into place. The green cylinder on the safety display is visible.
 - To be safe, try to lift it off.
- Insert the electric plug into the car socket.

7.2. Load in place

Make sure the load is distributed correctly. Place the light-weight items to the back and the gym mats to the front part of the trailer. Secure the front door with a lock out hasp.



7.3. Retracting the rear bottom climbing board

Put the rear bottom climbing board into a raised position so that the type plate is not obscured. Secure the raised position by tying the board with a lashing belt that fits into the loop hiding on each side of the climbing wall. The loop is made out of the short Prusik rope attached with the Prusik knot on the inner side of the wall.



8. Arrival at the location

It is recommended to stop in the area where there is enough space for manoeuvring with the trailer. The ground should be level, dry and solid.

8.1. Uncoupling process

- Apply the parking brake.
- Release the arrester/safety cable from the ball head coupling.
- Release the electric plug from the car socket.
- Unlock the handle in the barrier.
- Pull the handle all the way up. The coupling is open.
- Lower the support wheel (jockey wheel) to lift the spherical cup off the ball head coupling.

8.2. Manoeuvring

- Wind the support wheel (jockey wheel) down in a manner that can move under the drawbar.
- Release the hand brake lever.
- If applicable, hold the manoeuvring handle or the round rod of the jockey wheel.
- Move the trailer in the required direction - watch out for your feet.
- After manoeuvring, secure the trailer from rolling away.

8.3. Level the trailer

Supports (e.g. telescopic cranks supports) are used to stabilize the climbing wall and for height adjustment to minimize the height differences at uneven ground. There are four telescopic crank supports placed under the chassis, one in each corner of the climbing wall.

8.4. Lengthening

- Press the bracket lock out of the plug pin.
- Adjust the adjustable support downwards using the socket wrench so that it can be locked in place in a drill hole. If necessary, crank up the support legs slightly.
- Insert the plug pins and secure them with the bracket lock.



Operating the supports

It is possible to crush your feet/hands between the chassis and telescopic cranks.



Use gloves and keep your feet out of the danger zone!





8.5. Put the rear bottom climbing board in position

Remove the lashing belt and lower the rear bottom climbing board to get the climbing surface. Secure the lowered position by fixing the board with 4 bolts using a torx bit on the screwdriver.

9. Getting ready for climbing

After setting-up the trailer and securing it against any movement, you are ready to prepare the climbing area. Use Allen key to tighten the holds (or footholds) to be sure none of them is subject to movement. Move them across the climbing wall in the desired position as there are more than 600 holes on the climbing surface. There are plenty of opportunities for setting the routes or boulders. When climbing problems are set, open the front door and take out all the gym mats out of the trailer's torso. Place the big mats close to the climbing wall and if the trailer is leveled correctly the mats should fit right under the bottom line of the climbing lower climbing boards. Additionally secure the possible falling area with small mats by placing them against the outer side of the big mats and all around the climbing wall. **Let's go climbing!**

