Standard 9.2 Evacuation of an employee after a fall from a height

LG Energy Solution Wrocław Sp. z o.o.

1. Employer's obligations regarding evacuation

1. **The employer is obliged to appoint employees responsible** for providing first aid in life and health threatening situations as well as carrying out activities in the field of evacuation and firefighting. In addition, he is obliged to inform other employees of the company about the employees designated for this (contact details).

2. **It is also the employer's duty** to ensure the necessary conditions to evacuate employees and equip employees with the necessary rescue equipment available at the place of work.

3. **Before starting the work, it is necessary to develop an employee evacuation plan** after a fall from a height and to familiarize all people associated with the work with it - such a plan should also be taken into account when developing Safety Work Instruction (IBWR).

4. **The evacuation plan should include:**
   - description and place of work
   - alert path with contact numbers and communication method
   - type and location of emergency equipment
   - technical assessment of the capabilities and estimated travel time of emergency services
   - evacuation method adequate to the type of work performed
   - the negative effects of long waiting for help and starting evacuation before the arrival of emergency services
   - identifying employees who have theoretical and practical skills on the procedures included in the evacuation plan.

IF IN THE EVACUATION PLAN PROVISES THE USE OF MEWP (MOBILE ELEVATING WORK PLATFORM), SHOULD BE CONSIDERED ACCEPTABLE CEILING LOAD CAPASITY IN THE WORK AREA!

2. The composition of the evacuation kit

1. Due to the possible occurrence of various obstacles, especially those related to the lack of fixed anchor points or structural elements that could be used for them, it is important to take into account such issues at the stage of planning works at height and at the stage of planning a possible evacuation.

2. **The basic evacuation kit should consist of:**
   a. a fall protection device compliant with the standard **EN 341** (1)
   b. core rope with low sheath stretch in accordance with the standard **EN 1891A** (2)
   c. type B anchor device - compliant with the standard **EN 795B** (3)
   d. carabiners (snaps) - in accordance with the standard **EN 362** (4)
   e. transport bag (5)
   f. knife (6)

3. Evacuation kits, depending on the producers, may differ in the amount and type of equipment. The use of such kits is possible only in the following situations:

   a. when due to different circumstances, the employee is not able to leave the workstation at height on his own.

   b. when the fall has been stopped with the use of fall protection equipment and the employee is not able to evacuate to a safe place on his own.

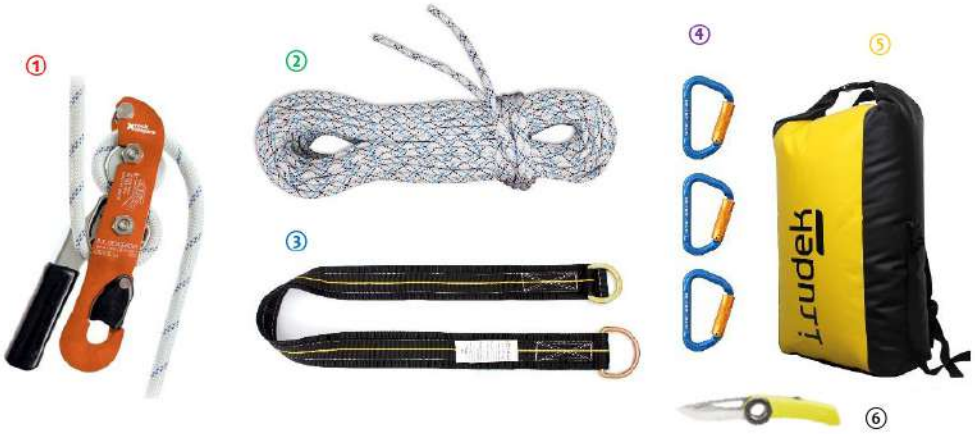
Remember!

During the performance of the work at heights, it is required that employees must have to use appropriate personal protective equipment:

a) a helmet for work at height, with a fastened chin strap,
b) harness for working at height with a safety rope with a shock absorber or other similar device,
c) footwear and workwear,
d) a warning vest,
e) depending on the type of work- other adequate PPE.

The use of personal protective equipment (PPE) by workers is the last line of defense against threats. The best way to eliminate the risk of falls from a height is to introduce preventive solutions (e.g. collective protection) already at the design stage, the effect of which will be no need to work at height.

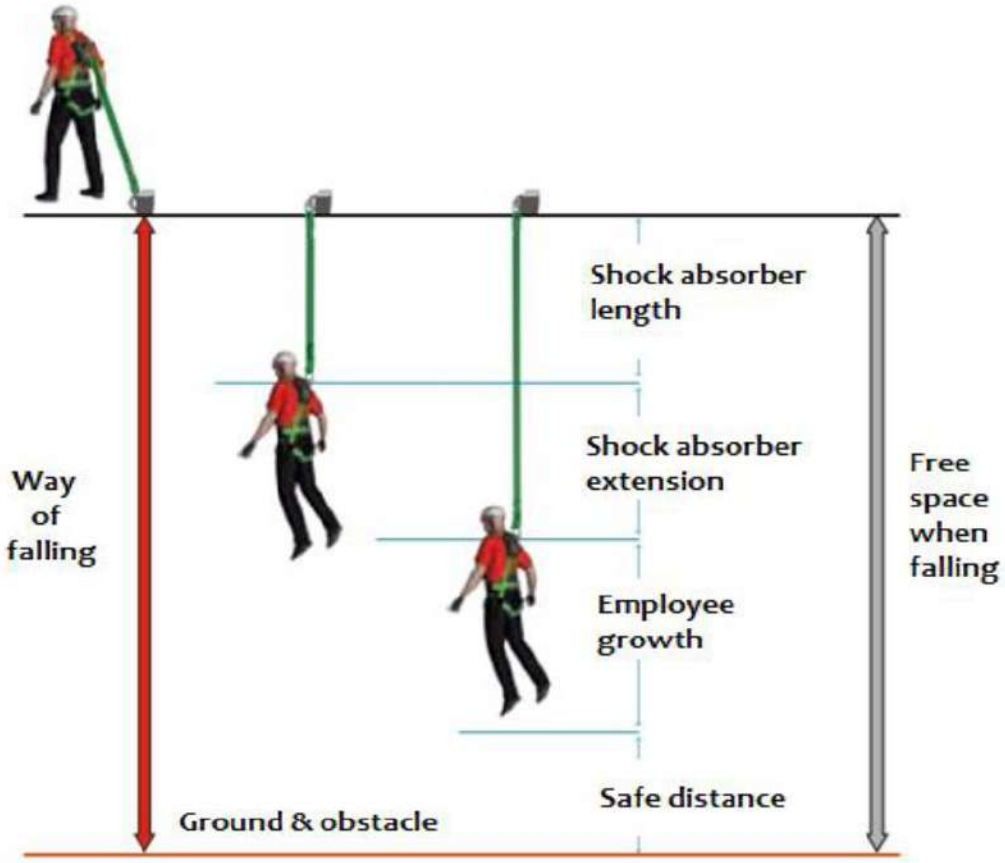
Employees designated by the employer to perform first aid, evacuation and firefighting activities must have completed training in scope of health and safety at work, whose a framework program includes these issues.



3. Selection of equipment for work at height

Effective protection of the employee against falling depends on the proper selection of equipment for work at height. At the stage of work planning, the following factors such be considered:

a. height from the floor level to the work level,
b. presence of obstructions on the possible path of the employee falling,
c. length of the safety line (shock absorber),
d. location of the employee's anchor point,
e. employee height.



Remember!

The composition of the evacuation kit may have different hardware configuration depending on the producer. The selection of the set should be dictated by the difficulties occurring at the workplace (availability of the construction, lack of anchoring points, etc.)

The best technical solution when working at height is to use a retractable device which, unlike a safety rope, stops the worker immediately. When choosing this device, make sure that it is intended for vertical (V) and / or horizontal (H) work.

4. Fall from the structure and hang on the lunge

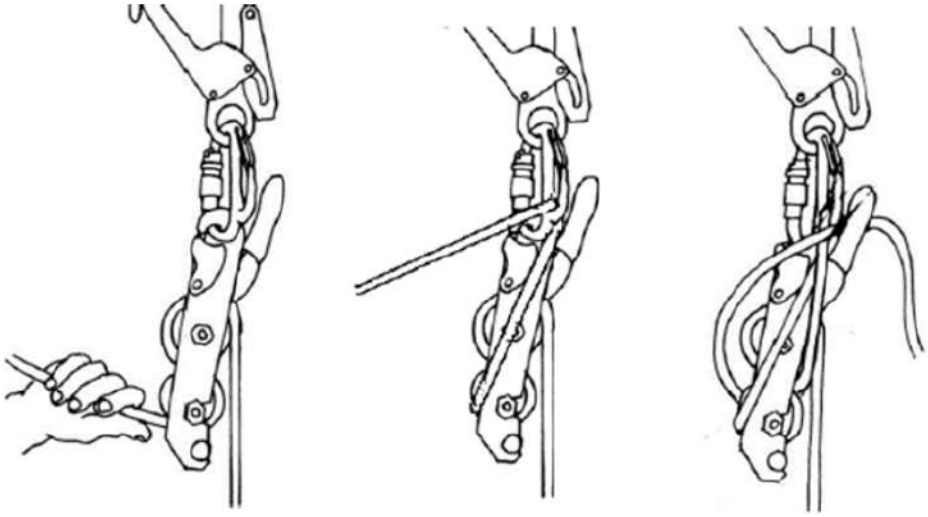
1. Variants of a rescue operation

a) **The rescuer only installs the rope,** and the injured person climbs onto the structure on his own or descends to the ground, using individual equipment.

b) **Quick lowering of the injured -** the injured hangs in a safety harness and is not able to free himself; the energy absorber (damper) has ripped open.

The course of action:

1) Evaluate the situation. Make sure the incident area is safe, to start providing help.
2) Notify the supervision.
3) Reach the injured person, make contact with him. Determine whether or not he was injured as a result of the accident. If so, immediately notify the ambulance service.
4) Install the **evacuation kit -** Install the evacuation kit (descender, anchorage device, carabiner) next to the carabiner of the injured.
5) Attach the end of the rope to the victim's safety harness **(Fig. 2) ->**
6) Pull the rope as tight as possible and block the rope **(Fig. 3) ->**
7) With a knife, cut the line with the absorber on which the injured person has hung.
8) Unblock the rope and carefully leave the injured person
9) After bringing the injured to the ground, he should be provided with first aid, includes the rules of dealing with a person who may have suffered the "shock of hanging" **(described in point No. 6.)**



If two or three people can participate in the rescue operation, the given procedure can be modified:

- pass the rope through the upper carabiner as shown in **(Fig. 4)**, and put the rescue kit on at the additional lower position. This makes it easier to leaving the injured, and moreover a lifeguard can accompany the abandoned person **(Fig. 5)**.

Remember!

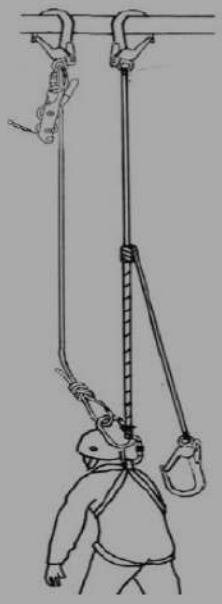


Fig. 2 The worker hangs after falling from a height. The evacuation kit is attached to the victim's harness.

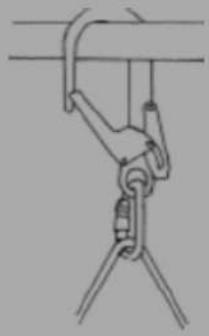


Fig. 4 Passing the rope through the carabiner.

Fig. 5 Installation of the set on the lower station

5. Falling out of the mobile platform basket and hanging

In the event that an employee falls out of the mobile platform basket, which is raised at a height and hangs on the harness - **the employee performing the observer function / belayer** who is at the floor level **should immediately inform the manager / supervisor** about the incident and **proceed to evacuate** the employee to the ground level - the scope of his activities includes:

1) **Assessment of the situation** - the belayer makes sure that the accident area is safe to start providing help and makes sure that there is no risk of crushing the worker hanging on the harness by the moving parts of the machine.

2) **Service of the mobile platform**:

a. before start operating, verify that the battery pack is connected.
b. sets the key switch to ground control.
c. releases the red emergency stop button to the "on" position.
d. enables the down function button on the control panel.
e. proceeds to leave the platform, do it calmly, slowly, paying attention to the suspended injured person and taking care that the person being lowered does not hit the scissor boom and other parts of the machine.

3) **Provision of first aid** - after bringing the victim to the ground, he should be provided with first aid, includes the rules of dealing with a person who may have suffered the shock of hanging **(described in point 6).**

If there is a risk of being crushed by the moving parts of the machine during lowering, the person supervising the work instructs the operator of the second lift to approach the person hanging on the harness, and then, by lifting the machine, take the injured from below.

WARNING!

The maximum time for evacuation an employee from the moment he is hanged on the harness is 15 minutes! Exceeding this time may result in irreversible injuries and even death due to brain hypoxia.

---

6. Hanging shock - use of rescue tapes

Hanging shock is defined as the state of shock caused by the blood circulation stopping in the lower limbs as a result of passive hovering in a harness. It occurs when the human body remains suspended in an upright position for some time.

Such a situation may happen when the worker hangs in the safety harness, e.g. as a result of a fall from a height. Then, by the inertial weight of the body, it presses the harness straps against the femoral arteries. The muscles of the lower limbs must contract for the blood to return to the heart. The pressure on the femoral arteries prevents this, causing a retention of blood in the lower limbs.

Then the inertial mass of your own body

Remember!

In the baskets (platforms) of mobile platforms, it is mandatory to have fixed, factory-installed anchoring points, enabling the employees to attach safety lines. Clamping into points other than those designated by the manufacturer is prohibited.

When working with a mobile platform, it is strictly forbidden to leave the basket and perform work while standing on its barriers.

Symptoms of hanging shock:

The onset of symptoms appears **after about 3 minutes of inertia hanging**, and after about 20 minutes a developed complex of symptoms occurs.

Common symptoms include pallor, sweating, shortness of breath, blurred vision, dizziness, nausea, high blood pressure, and numbness in the legs.

As a result, fainting occurs, which can lead to death due to cerebral hypoxia. Normally, the human body defends itself by tipping over, which causes the blood to flow back to the brain and the bloodstream to function normally again. Of course, this will not happen in a suspended hanging situation, and special countermeasures and first aid are necessary.

Procedure in case of hanging shock - rescue tapes:

If the worker hanging in the harness is conscious, it is helpful to prop their legs on something that will allow them to take advantage of the movement of the leg muscles. This allows the blood to return to the heart. It is not recommended that he move his legs in the air. Admittedly, this would keep the blood flowing from the legs to the torso, but eventually, if the person gets tired, the legs will start collecting blood. The best solution is to use rescue tapes, which form a kind of stirrups in which the worker "stands". As a result, the pressure on the femoral arteries is relaxed and the leg muscles can move. The rescue tapes are rolled up and fastened on the sides of the harness at waist level. During rescue operations, the worker fastens the straps together, adjusting their length in such a way as to stand in them, improving blood circulation from the legs to the heart.

Hanging shock - first aid

In a situation where the injured worker is unconscious, he should be evacuated as soon as possible to a place where he can be helped. We perform cardiopulmonary resuscitation when live functions are stopped.

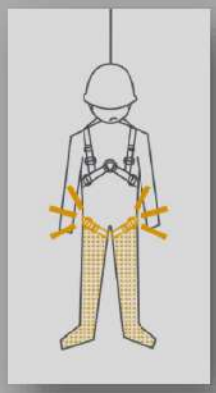
After the evacuation of an employee who has been suspended for an extended period of time, he should sit down with his legs bent for at least 30 minutes. In this position, the worker sits straight on the ground, back straight and legs bent, keeping the knees in line with the chin.

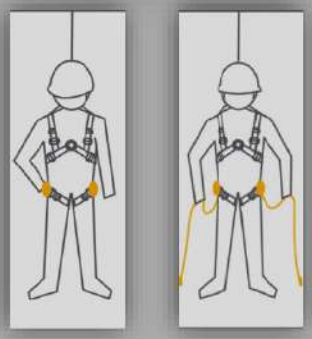
By sitting like this, he lets the blood flow slowly from the legs to the heart. It also helps to filter the collected blood better. The injured person must not be placed lying down, because the change of body position causes such inflow of blood to the heart that exceeds its ability to enlarge the ventricles, and as a result, cardiac arrest. Therefore, the transition to a flat position should be done gradually. Continuous monitoring of respiration and circulation is required.

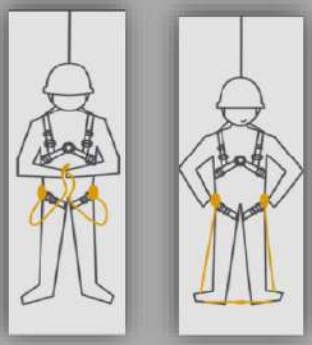
In any case, when the employee hung limp for more than 20 minutes, even without symptoms, medical assistance should be called.

It is unpredictable that a worker may find themselves in an inertia overhang, e.g. as a result of arresting a fall from a height. Until such an event may can lead a various factors, including fatigue, human error, weather conditions. It is recommended that each worker is equipped with rescue tapes that can protect him from the shock of hanging.

Remember!







In case of emergency, call:

MEDICOVER CLUSTER EMERGENCY

+48 660 703 286

LG FIRE BRIGADE

+48 532 728 587
+48 532 728 587

Emergency number 112