

A photograph showing a safety rope anchoring system installed on a dark grey metal roof. The system consists of a long, perforated metal track with a black safety rope running along it. The track is secured with bolts and brackets. In the background, there are two large, dark grey rectangular structures, possibly ventilation units or skylights, mounted on the roof. The sky is clear and blue.

IMPLEMENTATION OF SAFETY ROPE ANCHORING POINTS

IMPLEMENTATION OF SAFETY ROPE ANCHORING POINTS

Proper and safe uninterrupted access to roofs must always be provided to all areas requiring maintenance, inspection, cleaning or other regular visits without endangering the user or bystanders. In addition, access to buildings between 9 and 28 metres high must be provided from both inside and outside. In addition, these routes and servicing points must be equipped with safety rope anchoring points if the height of the building is more than 9 metres. It is recommended that also buildings lower than this should be made safe to use as well, for example for people working on the roofs - Efforts should be made to prevent people from falling from roofs in all buildings.

When designing the safety rope anchoring points, the specific features of the building and the danger zones must be taken into account so that the user does not have to walk in the danger zones without personal protective equipment attached. The anchoring points for safety rope should be placed in appropriate locations, preferably along the access routes, so that the user cannot fall from the dangerous areas when attached to the anchoring point.

There are two ways to prevent the user from falling; by technical means, such as safety railings, or by personal fall protection by implementing safety rope anchoring points in the building. Anchoring points can be fall arresting and supportive, such as a rope fastener attached to a roof walkway, or fall arresting only, such as wire system installed along the access route. Often, a functional system is achieved by combining these solutions.

Typical equipment on roofs that require maintenance are listed below

- Ventilation equipment installations (various conduit entries in the ceiling, or ventilation machine rooms)
- Trap-doors
- Solar panels (snow guards and service routes must be provided for large panel fields)
- Chimneys and flue gas vents and other items requiring chimney sweeping
- Drainage systems such as rainwater systems, roof gutters and their surroundings (need for cleaning)
- Smoke and heat exhaust systems
- Building components, fittings and equipment etc. that need to be accessible for maintenance on the roof, during the lifetime of the building. In addition, people working on roofs to drop snow, for example, need appropriate solutions for attaching a safety rope to ensure safety at work.



How to implement safe access?

The safest way to implement the requirements of the "Decree of the Ministry of the Environment on Safety of use of buildings" is to combine access routes and safety rope anchoring points into a single, safe route, thus avoiding the need for maintenance personnel to move around in the danger zone without a safety rope attached and ensuring safe access also in the winter. In addition to safety, solid and clear access ways reduce the stress on the roofing material caused by regular use and thus improve the lifetime of the waterproofing.

Pisko building products are designed and tested to be installed permanently in the building and can also be used as safety rope anchoring points. Unlike security products that are only classified

as personal protective equipment and are intended to be incorporated (e.g. tested as a separate component according to EN 795), Pisko building products are tested as a complete roof-mounted system as if they were actually installed in a building. This means that the anchorage strength and functionality have been tested in a test environment under real operating conditions. The product standard Class 2 loads used in the type testing for Pisko access ways and their fastening systems correspond to the load stated in "Strength and stability of structures" section of the Finnish Building Code in section 8 "Accident loads" (design value $A_d = 10 \text{ kN}$). This is evidenced by the CE marking or equivalent national product approval in accordance with the Construction Products Regulation.

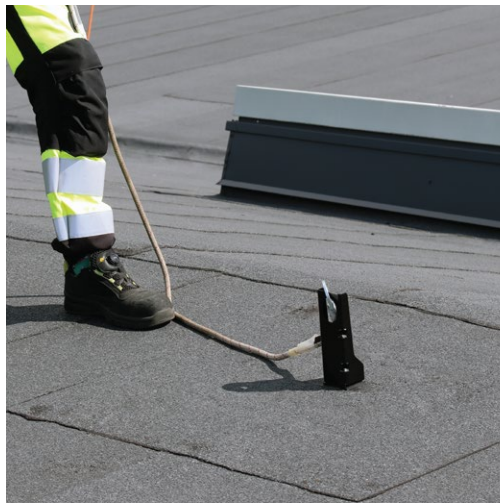


Which Pisko products can be used as an anchoring point for a safety rope?

- Roof ladder (Pisko SafeLine wire system can be installed on the roof ladder stile to make it a safety rope anchoring point that moves with the user)
- Roof walkway (for roof walkways, a rope fastener, horizontal safety rail or Pisko SafeLine wire system is also recommended, taking into account the intended use and the specific characteristics of the building)
- Wall ladder (with wall ladder it is always recommended to also use the vertical safety rail or Pisko SafeLine wire system)
- Anchor points
- Safety rail
- Pisko SafeLine wire system, which can be installed on all Pisko access ways or in some special cases also as a stand-alone system on the building roof or wall to form an uninterrupted safety rope anchoring point that moves with the user

In some roof areas it is not always appropriate to use a "continuous" anchoring point for the safety rope that moves with the user (e.g. a roof walkway-mounted horizontal rail where the carriage moves with the user's safety rope). Such cases may include, for example, the edges of large low-slope roofs or their details, where the access for moving to maintenance sites is expected to be infrequent. In this case, e.g. Pisko anchor points can be used, safely positioned at a sufficient safety distance from the eaves (min. 2 metres), or a solution can be installed on the wall of an elevated part (i.e. ventilation machine room) on the building roof. When using anchor points, it should be considered that the user does not have to work at the end of a long safety rope, so that a possible fall over the edge is not possible or the free fall distance is minimised. In other words, if one anchor point does not allow safe working with a short safety rope, the number of anchor points should be increased as necessary to allow working with two ropes. Often in such situations, it is a good idea to stop and consider whether it would be better from an overall safety point of view to implement fall protection, for example by using a roof walkway as an anchoring point for a safety rope.

In particular, situations should be avoided where the person has to walk to the dangerous edge of the roof in search of a safety rope anchoring point (e.g. a separate wire rope system close to the roof surface, following the eaves line), which at worst is hidden under the snow. There is a real risk of the person tripping

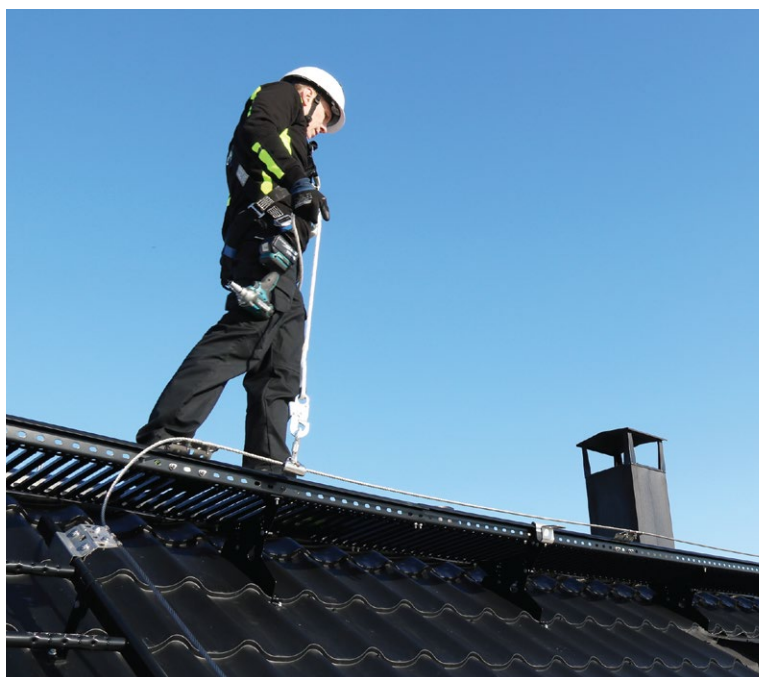


on a wire rope under the snow and falling without having had time to attach to any anchoring point on the safety rope. Safety rope anchoring solutions, particularly ones with a wire, should not be installed along the eaves, because in addition to the dangerous position, they interfere with snow removal work. Pisko anchor points and Pisko Safeline wire system can be equipped with a reflective indicator, making them easy and safe to find even under thick snow cover. The advantages of a wall-mounted safety rope anchoring solution are not only safe usability, but also unobstructed access and working on the roof, protection from weather conditions (e.g. snow loads on

products), no need for installation work on the roof surface and easier maintenance and inspection.

Pisko SafeLine wire system is a fall arresting safety rope anchoring point primarily recommended to be installed as a part of access ways. SafeLine stops the fall if the user wobbles/falls from the access way into the danger zone. SafeLine is best installed as a single unit along the main access ways of the building. Access ways branching from the main route, such as roof ladders descending from the roof walkway, can be fitted with separate SafeLine wire pulls.

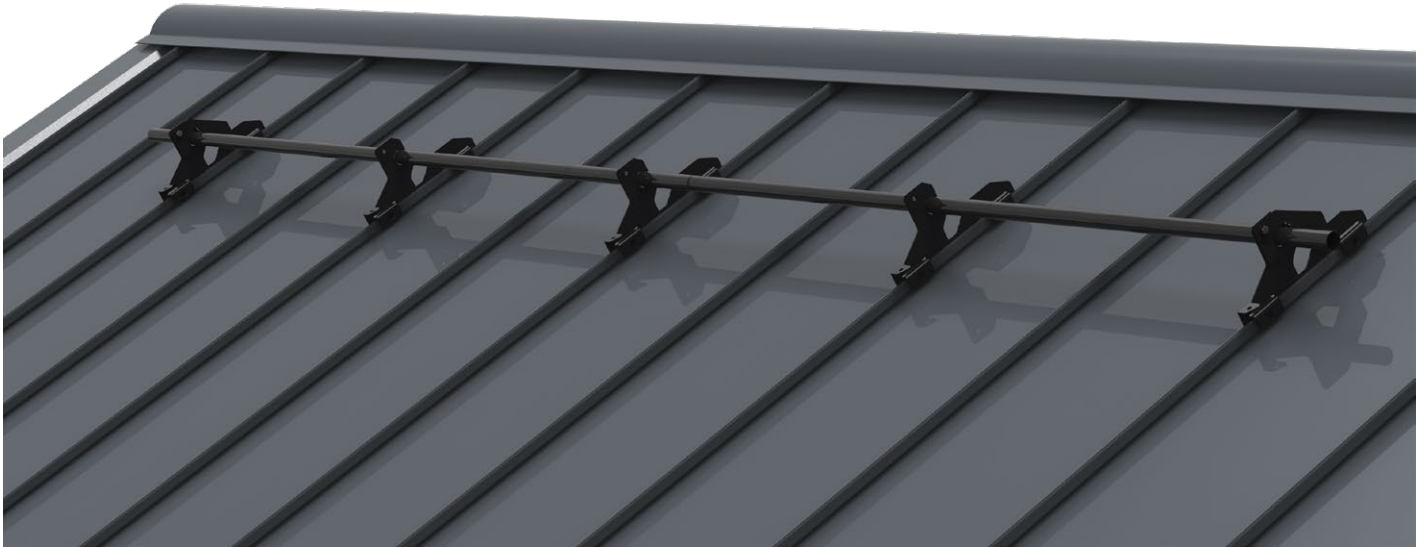
If maintenance work is also to be carried out on the roof danger zone from the roof walkway using a safety rope, it is practical to complement the SafeLine wire system by adding rope fasteners to walkway at such points, which act as a better anchoring point for the safety rope to support the user.



Pisko SafeLine and Pisko rope fastener are complementary solutions. Pisko SafeLine wire system is a fall arresting safety rope anchoring point primarily recommended as part of access ways. Rope fastener attached to a walkway enables better maintenance work in the danger zones of the roof with the user attached to a safety rope.

When designing safety rope anchoring points, it is important to think first and foremost from the user's point of view. If there is, for example, no walkway on the roof, where it is safe to install a safety rope anchoring point, a Pisko ridge rail can be used as an

alternative. The roof ridge safety rail is a simple solution to provide a rigid safety rope anchoring point in the required areas of the roof.



The roof ridge safety rail is a very practical solution, e.g. to secure the cleaning of eaves in a detached house in areas where

Anti-pendulum anchors

The purpose of anti-pendulum anchors is to prevent a dangerous fall of the user on a long safety rope over the gable end of the building. The pendulum swing is dangerous for the user and, in the worst case, long, free rope allows the user to fall all the way to the ground. The anti-pendulum anchor is based on an anchoring platform that has been tested for safety rope attachment and a low and rigid anchoring bracket attached to it. The anti-pendulum

anchor is installed in the lower corner of the building roof with a minimum distance of 2 meters to each eave end. The user carries his safety rope through the anti-pendulum anchor by means of a carabiner before starting work. The upper part of the safety rope is attached to a safety rope anchoring point such as a rope fastener, on a roof walkway, that is located as directly as possible above the working area.



Inspection of safety rope anchoring points

Building products permanently installed in a building that can be used as an anchoring point for a safety rope should be inspected annually by an authorised inspector to ensure that performance level is maintained. This on-site inspection corresponds to the inspection of personal safety equipment to be

taken with you, such as safety harnesses. Regular inspections are carried out to ensure that the user always has a safe and still fit-for-purpose environment when moving around the most dangerous areas of the building.

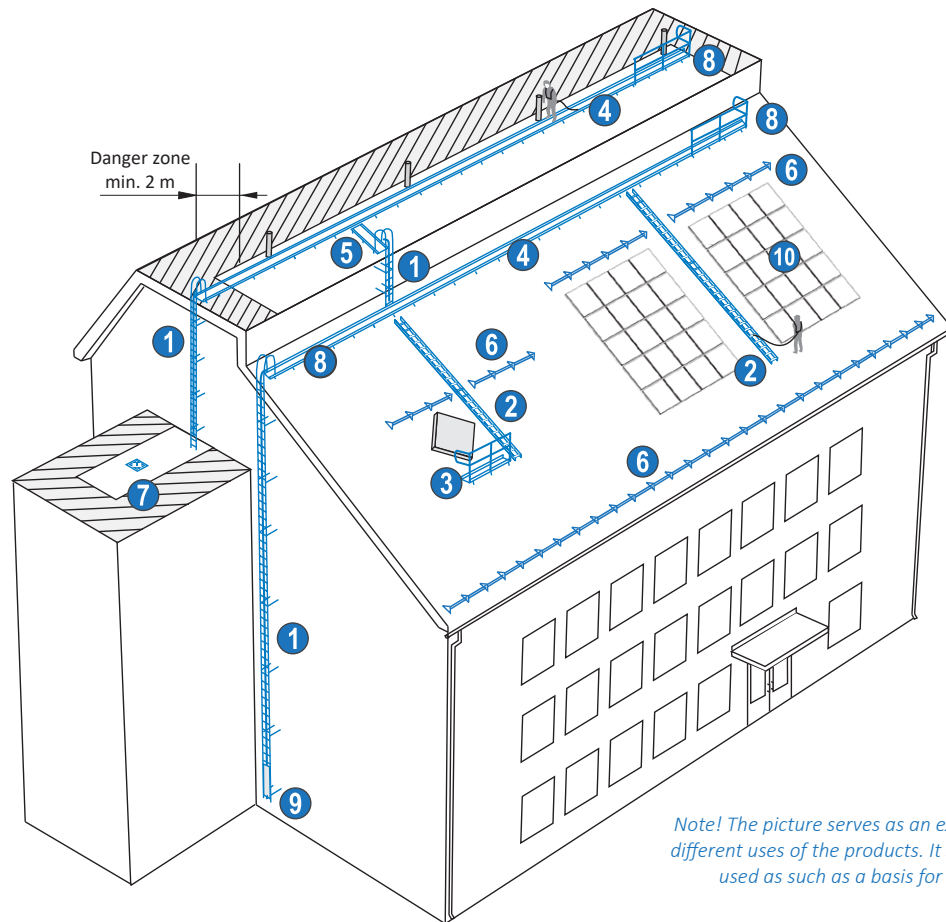
Use of Pisko products in buildings - Example picture 1

Danger zone



Note!

Steep roofs are a danger zone altogether.



Note! The picture serves as an example of the different uses of the products. It should not be used as such as a basis for a safety plan.

- ① Pisko SafeGrip wall ladder in accordance with the safety certificate, equipped with Pisko vertical safety rail or Pisko SafeLine wire system. The carriage moves with the user.
- ② Pisko SafeGrip roof ladder according to class 2, the most recommended anchoring point for the safety rope is a rope fastener attached to a roof walkway above the ladder, or alternatively Pisko SafeLine wire installed on the side stile of the ladder.
- ③ Pisko roof walkway according to class 2, with Pisko SafeLine wire or a rope fastener as an anchoring point for the safety rope and a roof walkway safety railing for additional safety. Alternative access from inside the building to the roof for maintenance work.
- ④ Pisko roof walkway according to class 2, with Pisko SafeLine wire or a Pisko horizontal safety rail as an anchoring point for the safety rope. The carriage moves with the user. A rope fastener for working points. A roof walkway provides a safe and designated access way even on low slope roofs and improves the long-term durability of the waterproofing (typically e.g. bitumen sheet). Pisko roof walkway can be installed on low slope roofs with the Pisko MultiFast fastener and it can be equipped with Pisko SafeLine wire or rope fastener.
- ⑤ Installed parallel to the slope of the low slope roof, the Pisko roof walkway provides a safe and stable access way on slopes of less than 12 degrees and can be used as an anchoring point for the safety rope in combination with Pisko SafeLine or a Pisko rope fastener. The Pisko roof walkway can be installed as an access way parallel to the slope on low slope roofs with the Pisko MultiFast fastener.
- ⑥ Snow guards are installed on the building along the entire length of the eaves with either Pisko snow fence or Pisko snow guards. according to RT 85-11132 sizing guide. They also protect accessories and equipment on the sloping roof.
- ⑦ A separate Pisko anchor point in the middle of the danger zone allows safe working with a short safety rope.
- ⑧ The end of the roof walkway should be before the edge of the danger zone and swaying should be prevented with railing. A safety rope anchoring point that moves with the user should not extend to the end of the roof walkway if the walkway ends close to the eaves.
- ⑨ The lower part of the wall ladder should be equipped with an anti-climb plate (the main purpose is to keep children from climbing on the roof).
- ⑩ Service routes for solar panel arrays must also be planned. Sufficient clearance is left below the panels to prevent snow from sliding over the snow guards as it falls.

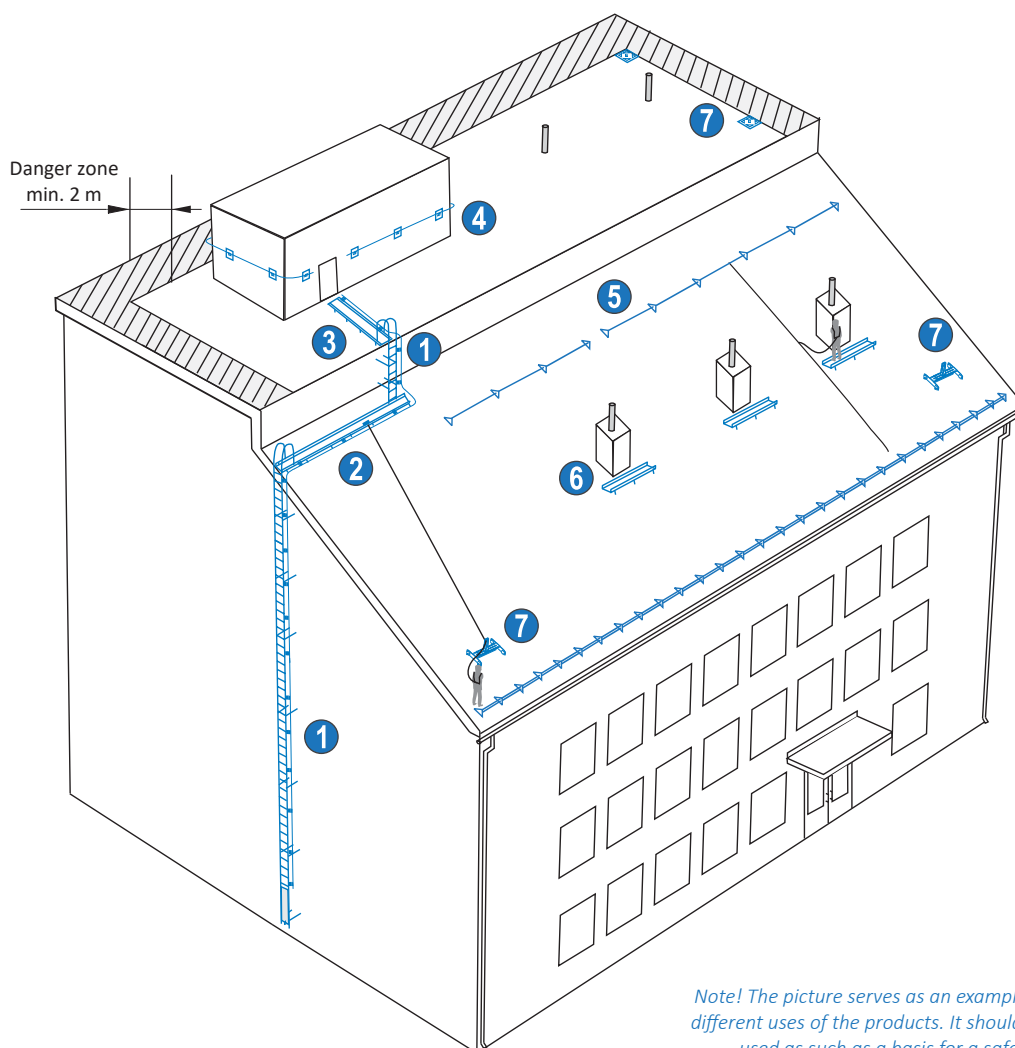
Use of Pisko products in buildings - Example picture 2

Danger zone



Note!

Steep roofs are a danger zone altogether.



Note! The picture serves as an example of the different uses of the products. It should not be used as such as a basis for a safety plan.

- ① Pisko SafeGrip wall ladder equipped with Pisko SafeLine wire system. SafeLine as an uninterrupted, fall arresting safety rope anchoring point that moves with the user.
- ② Pisko roof walkway according to class 2 equipped with Pisko SafeLine as well as Pisko rope fastener. Rope fastener enables user to work safely close to the eaves.
- ③ Installed parallel to the slope of the low slope roof, the Pisko roof walkway provides a safe and stable access way on slopes of less than 12 degrees. Pisko roof walkway can be installed as an access way parallel to the slope on a low slope roof with Pisko MultiFast fastener. In the picture, SafeLine is terminated on the roof walkway and the user can safely pass through the door, or change their safety rope to the solution No. 4, i.e. the SafeLine mounted on a Sandwich-panel wall.
- ④ Pisko SafeLine mounted on a Sandwich panel wall. A simple and long-lasting solution for securing moving on the roof, if no separate walkways are installed on the low slope roof to indicate access routes for users. There is no need to work on the low slope roof using safety rope, so a fall arresting system is sufficient.
- ⑤ Roof ridge safety rail. A safety rail can improve the safety of the building in pitched roof areas where there is a need for maintenance or repair work and no access way has been installed on the entire length of the slope.
- ⑥ Roof walkway as a working level. A level that supports the safe performance of chimney sweeping work in all working areas is necessary.
- ⑦ Anti-pendulum anchors in areas, where a user cannot prevent a long fall by adjusting the length of the rope.