

TO 002 PROTECTION AGAINST FALLING

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1 Introduction

Falling must be prevented under all circumstances and in all tasks. If necessary, a fall protection plan must be prepared. Work at height must not be started until a risk assessment has been carried out. The risk assessment can be a task-specific assessment carried out on standard work or an assessment based on a written work permit which includes all work-related hazards and measures to eliminate the hazards.

Outokumpu employees, contractors and visitors are not allowed to work on sites involving a risk of falling without appropriate fall protection equipment and a rescue plan. This is Cardinal Safety Rule No. 8 (Cardinal Safety Rules).

An appropriate rescue plan must be in place for the work. The person responsible for the work is tasked with preparing the rescue plan. A rescue plan refers to a plan that describes the rescue of a person hanging from their harness after a falling accident. Hanging from the harness for an extended period of time can cause serious problems with blood circulation. The risk will increase if the person is unconscious.

The design and building of machines and equipment comply with standards 141221-1, 141221-2 and 141221-3 concerning the permanent routes of machines. These instructions should be followed in maintenance and project work. More information and specific details can be found, for example, in guideline RIL 142-2010 Työtelineet ja putoamisen estävät suojarakenteet (Scaffolds and protective structures to prevent falling).

2 Scaffolds

A scaffold may be assembled and dismantled, or the scaffold structure may be altered, only by a person who has been trained to work with scaffolds. The scaffold must be inspected before it is deployed, and the inspection must be documented on a scaffold card. **The scaffolding must then be inspected weekly by a qualified person (trained in scaffolding). The weekly inspection must be documented in the scaffold card.** When working on a scaffold platform with an access route equipped with an entrance ladder, the cover of the manhole must be closed (lowered) during work. A movable scaffold of at least 2 meters high or higher must be equipped with a guard rail, kick plates, an internal access route and a scaffold card. The wheels of a scaffold or service platform equipped with wheels must be locked before anyone climbs on the working platform. The stability of a movable scaffold must be sufficient. However, measured from the top surface of the working platform, its height may not be more than three times the minimum supporting width of the scaffold.



3 Protective structures to prevent falling

Falling should be prevented by means of guard rails, covers or barriers (minimum distance to the edge 1.5 m), if there is a risk of falling through openings or over an edge in the work area or access route (e.g. pits, openings, roofs, crane runways and other areas with extensive differences between levels). The height of a temporary guard rail must be a minimum of 1 meter.

The structure to prevent falling should be proportionate to the potential load to which it is subjected. Special attention must be paid to ensuring that fasteners are appropriate. Ensure that the working platform can withstand the load caused by movement and other loads. Covers must be attached so that they do not move inadvertently. The cover must be marked in a visible manner.

4 Ladders

Lean-to ladder

As a rule, work must not be performed while standing on a lean-to ladder. Performing work while standing on a lean-to ladder (with a fall protection system) can only be allowed with the supervisor's permission if scaffolds cannot be erected on the work site and it is not possible to use a personnel hoist or a scissor lift. A written work permit is always required for work performed from a lean-to ladder.

Lean-to ladders can be used as temporary access routes or when a small and light lifting aid is detached or attached, and when the arrester of the fall protection equipment is attached/detached. The maximum length of a lean-to ladder is 6 meters. When climbing a ladder, always ensure that you maintain three-point contact with the ladder at all times. Tools must be placed in pockets, belts or tool pouches when climbing up, or they must be lifted up with a rope, for example.

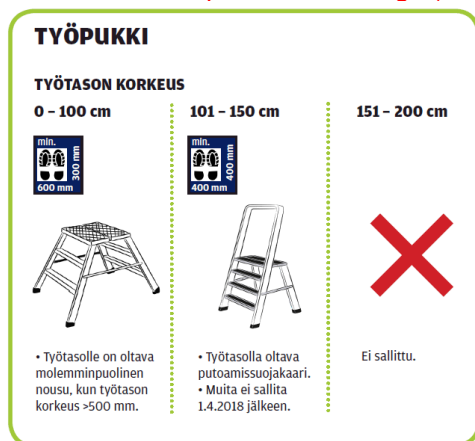
Stepladder (platform stepladder / A-ladder)

- When assessing the characteristics required of stepladders, the determining factor is the height of the working platform, not the level at which the work is performed. A stepladder may be used as a working surface only when a working platform, scaffold or personnel hoist cannot be reasonably required. Stepladders may not be used in work in which high-power tools are used or in work involving a risk of the ladder tipping over or a risk of fire (e.g. hot work).
- Stepladders with the working platform at a height of 1 to 2 m must have extension bars. The extension bars ensure the same stability as a trestle.
- The stepladder must have a fall protection rail above the platform.
- Stepladders with the working platform above 1.5 m must have a handrail on the side where the worker climbs up.
- Stepladders and lean-to ladders should be equipped with identification at the department, and their condition should be checked at least once per year (a log should be kept).
- Only one person is allowed on the ladder at a time.

Trestles

- The work platform of the trestle must be lockable so that it cannot open during operation.
- The trestle must have steps with a depth of at least 50 mm. The step distance shall not exceed 300 mm.
- The working platform must be accessible from both sides when the height of the platform exceeds 500 mm.

- In addition, the working platform must have a fall protection rail if the height of the platform is more than 1 m. Platforms higher than 1.5 m are not allowed.
- Trestles must not be used for work requiring force or hot work, unless the trestle meets the trestle stability requirements (Government Decree 205/2009, Appendix 6).
- The shoeprints in the image (below) illustrate the minimum size of the working platform.



It is the responsibility of the manufacturer or importer of the trestle or stepladder to indicate with which technical solutions the stability required of the equipment is ensured (Government Decree 205/2009, Appendix 6).

This is done, for example, by labeling the equipment with a sticker indicating compliance with the stability requirements, using the marking “Vna 205/2009.”

In addition, any additional stability support (type, number, length and correct use) that may be required for the product in question must be specified.

If the product does not bear the manufacturer's mark of conformity, the following assessment guidelines are followed:

Vapaasti seisovan alumiinisen tasotikkaan vakavuusvaatimusten mukainen alatukipalkki

Jos vain yksi palkki: **Jos kaksi palkkia:**

askelmia (taso mukaan lukien)	alatukipalkin pituus (m)	tasokorkeus (m)	askelmia (taso mukaan lukien)	alatukipalkkien pituus (m)	tasokorkeus (m)
5	1,2 - 1,3	1,0 - 1,3	5	0,8 - 0,9	1,0 - 1,3
6	1,6 - 1,7	1,5 - 1,6	6	1,0 - 1,1	1,5 - 1,6
7	1,9 - 2,0	1,7 - 1,8	7	1,1 - 1,2	1,7 - 1,8
8	2,3 - 2,4	1,9 - 2,0	8	1,2 - 1,3	1,9 - 2,0

• Alle yhden metrin tasokorkeuksissa riittää yksi 80 cm leveä palkki.
• Levennys voidaan toteuttaa palkin sijaan myös tukijaloilla tai muulla valmistajan mitoittamalla ratkaisulla.

Vakavuusvaatimuksen täyttävät työpuukit
Etu- ja takajalkojen harituksen tulee olla noin kolme kertaa suurempi (n. 90 mm/askelma) kuin vapaasti seisovan A-tikkaan (n. 30 mm/askelma).

5 Safety harness

A safety harness must always be worn when there is a risk of falling unless fall protection can be provided otherwise. Personnel hoists (e.g. lunar rover, scissor platforms, hanging scaffolding) should always be used with a safety harness attached to the lift cage, excluding work performed on a mast lifter.

In the lift cage of a personnel hoist, the harness must be attached to the fastening point located inside the cage.

When wearing a safety harness, pay attention to the lanyard/retractable arrester and the fastening point. Placing the arrester and its fastening point above one's head ensures that, with short falling distances, the person does not hit the ground and get injured.

If the retractable arrester of the fall protection equipment must be detached during work or movement, a double lanyard (with shock absorber) must always be used in the fall protection equipment in these tasks, to ensure attachment during work and movement. In addition, work at height requires a helmet equipped with a chin strap.

6 Fall protection plan

If the aforementioned safe working methods are not used in the task, a fall protection plan, including a risk assessment and a rescue plan, must be drawn up. Before entering the work site, determine the following:

1. A safe method of entry
2. Working and moving around in the work site
3. Getting out and evacuation.

In particular, pay attention to situations in which a person may be left hanging from the fall protection equipment.

- In this situation, the person should be rescued as quickly as possible. Hanging from the harness for an extended period can cause serious problems with blood circulation. The risk will increase if the person is unconscious. The resting strap provides additional time for rescuing the person and, therefore, resting straps are mandatory with safety harnesses.

7 Rescue plan

- A written rescue plan describes the action to take if a person falls and is left suspended from the fall protection equipment.
- The rescue plan should, at a minimum, include the rescue method, assistive tools, participants and communication.
- The rescue plan must be reviewed with the team members.
- The rescue plan is documented in a written work permit or the safety page of the KUTI work order, or a separate free-form document can be compiled (the person responsible for the work retains the rescue plan during the work).
- If a person has fallen and is suspended from the fall protection equipment, call the respective emergency number, which is +358 16 45 2300 at the plant and +358 16 45 3737 at the mine.
- On a case-by-case basis, the rescue can be performed by the site's fire team or the emergency department using a ladder unit, for example, or a trained rescuer descends to the affected person to attach a hoisting cable or rope to the person; by means of a personnel hoist; or with a rescue/descent device specifically designed and manufactured for hoisting (e.g. Honeywell SafEscape).

8 Protection against falling objects

If the work to be carried out involves a risk of building/installation supplies or waste, tools, and so on, falling on work sites or access routes, suitable railings, fences, canopies or safety nets must be provided to protect the environment below. If safety devices are not in place, access to the danger zone must be prevented with a barrier or other reliable means, such as the use of a security guard.



Work at height must be interrupted if there are people moving around in the area with a risk of falling supplies, materials, and so on.

9 Overlapping work

It is forbidden to work on platforms that are on top of each other, due to the risk of falling objects, for example. Work must be planned so that tasks are not carried out simultaneously on overlapping sites.