

TO 002 PROTECTION AGAINST FALLING

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Changes from the previous version in red font.

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 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

Steps to be followed

1. The orderer of the scaffold (usually Outokumpu's foreman) contacts the scaffolding service supplier in a contractual relationship.
2. The orderer of the scaffold indicates to the scaffold builder the location of the scaffold and the fastening points of the support, and they are inspected together with the orderer and the service provider (e.g. moving structures are considered).
3. **Access to scaffolding must primarily be carried out by step-style ascent.**
4. The use of ladders is only allowed in situations where a step-style ascent is not possible.
 - When using a ladder, make sure that there are always three points of contact.
 - When moving tools and supplies to the scaffold platform, e.g. a bucket and string or a backpack/tool bag shall be used.



5. The scaffolding company builds/assembles the necessary scaffolding with the information provided by the orderer. The length, height, width and maximum load of the scaffold, the number and location of the scaffold are marked on the scaffold card. The scaffold is built and equipped in such a way that it's safe to use.
 - Due to some external reason, some scaffolds must be built in such a way that falling cannot be prevented in all situations.
 - In this case, a sign requiring the use of fall protection (safety harness and connecting rope with shock absorber) is installed on the scaffolding.
6. It is the duty of the scaffolding orderer to check after the scaffold is completed that it has been built with the given information.
7. Before commissioning, the scaffolding undergoes a **Reception and Operation Inspection**, which is documented on the scaffold card.
8. **The recipient of the scaffolding** (a supervisor from Outokumpu or his/her authorized supervisor) **shall enter on the scaffolding card** date, his/her full name and telephone number
9. During the acceptance inspection of the scaffold, the following is documented on the scaffold card:
 - Orderer of the scaffold (first and last name)
 - A contractual service supplier company,
 - Name (first and last name) of the scaffold installer
 - Date
10. The scaffolding may only be erected, dismantled or altered by a person who has been trained in scaffolding work (contracted service provider).
11. After installation, the scaffolding must be inspected weekly by a qualified person (contracted service provider). The weekly inspection must be documented on the scaffolding card.
12. Scaffolding 2 metres or higher shall have a guardrail, skirting boards, an internal walkway and a scaffolding card. When working on the work surface, the cover of the access hole must be closed (lowered) down.
13. The wheels of the wheeled rack or service platform must be locked before entering the work platform. The movable scaffolding must have sufficient standing stability. However, its height, measured above the top surface of the work platform, shall not exceed three times the minimum support width of the rack.
14. When the person ordering the scaffolding has given a request to dismantle the scaffolding, the scaffolding company must notify the person ordering the scaffolding when the dismantling work has been completed (acknowledgement that the work is completed).
15. When the work scaffolding is dismantled, the person ordering the work scaffolding must check at the workstation whether the dismantling poses a risk of falling into the area/work site.
16. During the assembly of the rack, modification work and dismantling of the rack, there is a sign on the rack "Scaffolding not in use", which is installed by the scaffolding builder (service provider).
17. If a fall danger area remains, the customer must reliably isolate the danger area primarily by technical means: appropriate guardrails, opening guards or a fixed access barrier. The scaffolding builder places a safety sign "Safety harness must be used" on the scaffolding. When using ladders, care is taken to ensure that three contact points are in use at all times.
 - An access barrier prevents access to an area hazardous to falling. The barrier must be at least 2 m from the edge or from an object that is in danger of falling. An obstacle must always be marked with a clear and sufficiently large warning sign indicating the risk of falling.
 - Flag line, warning tape, etc. is insufficient fall protection anywhere

Picture: Scaffold card

Glossary

Käyttöönottotarkastus

Commissioning inspection

Vastaanotto

Reception

Viikkotarkastus

Weekly inspection

Telineen käyttö kielletty

Use of the scaffolding is prohibited!

TELINEKATAJA
Telinettä saa muokata vain Telinekataja Oy:n henkilöstö.

TELINENUMERO OSASTO/KOHDE

ASIAKASRYTYS

TELINEEN KOKO
Pituus m Korkeus m Leveys m

KUORMITETTAVUUS TELINEEN TILAAJA (IETU- JA SUKUNIMI)
kg/m² TELINEEN TILAAJAN PUHELINNUMERO

KÄYTTÖÖNOTTOTARKASTUS PVM TARKASTAJA ASENTAJA

VASTAANOTTO PVM VASTAANOTTAJA PUHELINNUMERO

| VIKKOTARKASTUS | TARKASTAJA | VIKKOTARKASTUS | TARKASTAJA |
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3 Protective structures to prevent falling

If a fall risk area remains, the customer must reliably isolate the danger area by technical means: appropriate safety railings, opening guards or a fixed access barrier.

When using a barrier, it must be at least 2 m from the edge or from an object in danger of falling. The barrier must be clearly visible and must not be moved out of place unintentionally (must be attached). It must always be marked with a clear and sufficiently large warning sign indicating the risk of falling.

Flag lines or warning tapes are not sufficient fall protection at any location.

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 (= safety harness and a double lanyard [with shock absorber]) can only be allowed with the supervisor's permission in the case when scaffolds cannot be erected on the work site and it is not possible to use a personnel hoist or a scissor lift.

A written permit to work 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 always maintain three-point contact with the ladder.
- Tools must be placed in pockets, belts or tool pouches when climbing up, or they must be lifted 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 climb up side.







Stepladders and lean-to ladders should be equipped with identification, 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.

Stepladders - dimensions and structure

TASOTIKAS, "A-TIKAS"

TYÖTASON KORKEUS

| 0 - 100 cm | 101 - 150 cm | 151 - 200 cm |
|---|--|---|
|  |  |  |
|  |  |  |
| <ul style="list-style-type: none"> • Työtason yläpuolella on oltava putoamis-suojakaari. • Ei saa käyttää voimaa vaativissa töissä tai tulitöissä ellei täytä työpukin vakavuusvaatimuksia (Vna 205/2009, liite 6). | <ul style="list-style-type: none"> • Työtason yläpuolella on oltava putoamis-suojakaari. • Yli metrin korkuisten tasotikkaiden on täytettävä työpukin vakavuusvaatimukset. | <ul style="list-style-type: none"> • Työtason yläpuolella on oltava putoamis-suojakaari. • Nousupuolella on oltava käsijohteet. • Muita ei sallita 1.4.2018 jälkeen. |






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.

Trestlers - dimensions and structure

TYÖPUKKI

TYÖTASON KORKEUS

| 0 - 100 cm | 101 - 150 cm | 151 - 200 cm |
|---|---|---|
|  |  | |
|  |  |  |
| <ul style="list-style-type: none"> • Työtasolle on oltava molemminpuolinen nousu, kun työtason korkeus >500 mm. | <ul style="list-style-type: none"> • Työtasolla oltava putoamissuojakaari. • Muita ei sallita 1.4.2018 jälkeen. | <p>Ei sallittu.</p> |

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 työpuikot
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, etc. 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, etc.

To prevent tools from falling out at the workplace, it is proven to use a tool backpack. The backpack is designed so that it stays upright.

When taking tools or putting them in a backpack/bag, the zipper/bag lid must always be closed at the end.



If preventive maintenance work turns into fault repair, the environment below the work area shall always be protected from falling objects by appropriately demarcating the area with flag line, railings or fencing.

When lifting tools with a service crane with a lifting basket attached to the hook, the basket must not be overloaded to prevent the tools from falling

9 Overlapping work

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