

## TO 002 PROTECTION AGAINST FALLING

### Contents

1	Introduction.....	1
2	Scaffolds.....	2
3	Protective structures to prevent falling.....	2
4	Straight ladders and A-ladders .....	2
5	Safety harness.....	2
6	Fall protection plan.....	3
7	Rescue plan .....	3
	APPENDIX: Safe use of straight ladders and A-ladders.....	4

### 1 Introduction

Falling must be prevented under all circumstances and in all work tasks. If necessary, a falling protection plan must be done. Work at height must not be started before a risk assessment has been carried out. The risk assessment can be a work task-specific assessment carried out on standard work or an assessment in 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 in 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).

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

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

Designing and building 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 Scaffolds and protective structures to prevent falling.



## 2 Scaffolds

A scaffold may be erected and dismantled, or the scaffold structure may be modified only by a person who has been trained to work with scaffolds. The scaffold must be inspected before it is taken into use and the inspection must be documented in a scaffold card. When working on a scaffold platform with an access way equipped with an entrance ladder, the cover of the manhole must be closed (lowered) during work. A movable scaffolding at least 2 meters high or higher must be equipped with a guard rail, toeboards, an internal access way and a scaffold card. The casters of a scaffold or service platform equipped with casters 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 way (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 it is subjected to. 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 Straight ladders and A-ladders

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

Straight ladders can be used as a temporary passageway or when a small and light lifting tool is attached/detached and when the arrester of the fall protection equipment is attached/detached. The maximum length of a straight 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, belt or tool pouches when climbing up or they must be lifted up with a rope, for example.

An A-ladder may be used as a working surface only when a working platform, scaffold or a personnel hoist cannot be reasonably recommended. A-ladders must not be used in work in which high-power tools are used or in work involving a risk of the ladder falling over or a risk of fire (e.g. hot work). If an A-ladder is used as a working surface at a height of 1–2 meters, the ladder must be equipped with extension bars which provide stability equivalent of a platform ladder.

The department should equip A-ladders and straight ladders with identification and check their condition at least once per year (a log should be kept).

## 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. self-propelled boom lift, scissor lifts, suspended scaffoldings)

must always be used with a safety harness attached to the lift cage, excluding work performed on a mast climbing work platform. 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.

## 6 Fall protection plan

If the above-mentioned 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 how to go to work site
2. Working and moving around in the work site
3. Escape and evacuation

Situations requiring a special attention include those in which a person may be left hanging on the fall protection equipment.

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

## 7 Rescue plan

- The written rescue plan describes the action to take if a person falls and is left hanging on 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 occupational safety tab of the KUTI work order, or a separate free-form document can be compiled (the responsible person for the work retains the rescue plan during the work).
- If a person has fallen and is hanging on the fall protection equipment, the factory's emergency number +358 16 45 2300 must be called. At a mine, the emergency number to call is +358 16 45 3737.
- On a case-by-case basis, the rescue can be performed by the factory's fire fighter 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)



## APPENDIX: Safe use of straight ladders and A-ladders

### Safe use of straight ladders

1. Consider 10 seconds before using the ladder. Is it necessary to use ladders? Is it possible to use a personnel hoist? Should a scaffold be built on the site? Remember Safety thinking! Safety first.
2. Use personal protective equipment and helmet with a chin strap and whenever possible a fall protection equipment.
3. It is forbidden to use a straight ladder as a permanent walkway. If the need to passage is longer and continuous, there is a need to build a fixed walkway with sufficient railings.
4. The uppermost steps of the straight ladder can only be used as handrails: the three top steps of the ladder are "prohibited area".
5. Do not stretch/reach from the ladder, it can cause ladders to fall.
6. The ladder must not be erected on the passageways or on the front of the doors without a guard or protective fence.
7. Setting up ladders on temporary platforms, boxes or podiums always includes a specific hazard.
8. Condition of a straight ladder, check if the ladders are in a condition that they can be used safely: The steps are intact, ladders are straight, the nonskid device is in place and the platform is suitable. Old and hardened nonskid devices must be replaced immediately.
9. The length of the straight ladders should not exceed 6 meters. Anti-slipping of the ladders: Straight ladders must be supported from the bottom and they must be fastened from above. Use, if necessary, lateral branches to attach the straight ladders in their position.
10. Position of the straight ladder: The right inclination angle of the straight ladder is significantly vertical (70-74 degrees).
11. Do not place straight ladders to lean on a narrow or circular pillar, unlocked doors, thin pipes, plastic pipes or any other flexible or movable structures.
12. If ladders lead to a level, they should continue at least 1 m above the level to ensure effortless and safe passage to the level.
13. When climbing the ladder, you must hold the ladder with both hands. Tools must be transported up in pockets, belts, tool bags, or they must be lifted by a rope.
14. When climbing the ladder face is towards the ladder. The ladder can have one person at a time.
15. Do not step on the two top steps of the ladder.
16. Intervene to risk-taking behavior immediately if you notice it. Report your observations.

### Safe use of A-ladders

1. A-ladder may only be used as a work platform instead of scaffold only when the scaffold cannot reasonably be required because of the short duration of the work or other similar circumstance. For longer and heavier work tasks, a work platform or scaffold must be built, or a personnel hoist must be used.
2. A-ladder can only be used on a firm and flat surface. Top two steps of the A-ladder are "prohibited area".
3. A-ladder must be designed for professional use. The use of over 2 m high A-ladder work platform is prohibited.
4. Always check the condition of the A-ladder before use. Broken steps and worn, hardened nonskid devices are dangerous.
5. If A-ladder is used as a work platform at an altitude of 1-2 m, it must be equipped with spreading beams which ensures the same stability as on the platform ladder.