

BOLIDEN



STEP

AGA kemira

SCAFFOLDING SAFETY INSTRUCTIONS SUURTEOLLISUUSPUISTO INDUSTRIAL PARK, HARJAVALTA

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Approved:	Safety manager group 17.12.2018			
Version:	Version no. 2			
Replaces:	Scaffolding safety instructions Harjavalta Suurteollisuuspuisto version 1			
Valid from:	1.3.2019			



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1. Overview

The purpose of these instructions is to establish common scaffolding policies throughout the plant area. The objective of these instructions is to achieve a consistent and safe operating model. All companies operating in the Suurteollisuuspuisto Industrial Park area in Harjavalta agree to comply with these instructions.

These instructions are prepared on the basis of the sections on work scaffolds in the Government Decree on the Safety of Construction Work (205/2009), and therefore the definitions of scaffolds and requirements included in these instructions are references from the decree.

In the Suurteollisuuspuisto area, scaffolds must be constructed with a stair tower next to the work platforms to ensure safe access to scaffolds, provided that the room available allows this structure.

2. What are scaffolds?

Necessary work and guard scaffolds must be arranged for the workers for all such work that cannot otherwise be carried out safely. The scaffolds must be planned and erected in such a way that they remain sufficiently strong, rigid and stable in all stages of erection and dismantling and during the use of the scaffold. The foundations of a scaffold must be laid so that there is no harmful sinking or dislocation. Scaffolds must be equipped with appropriate and safe work platforms and means of access.

Work platforms of a work scaffold

Work platforms must be suitable for their purpose, safe and wide enough.

The work platform must have the following characteristics:

1. the work platform must be of sufficiently strong construction and wide enough, considering the work carried out on the scaffold and transfer of materials and interim storage of materials
2. the work platform must be secured reliably and strongly to the frame of the work scaffold or other structure
3. the work platform must be in a horizontal position
4. the work platform must be secured in such a way that loading does not cause the work platform to move or be lifted from its base
5. the work platform may not have any unprotected openings
6. the work platform may not have any gaps that are wider than 30 millimetres
7. the work platform surface may not be slippery

8. the structure of the work platform may not cause any danger of tripping
9. the unobstructed space between two work platforms placed on top of each other must be at least 1.9 metres and, with structural elements supporting the work platform, at least 1.75 metres.

Work scaffold ramps

When ramps are provided, consideration must be given to the purpose of the scaffold, prevention of the risk of falls, duration of the work, number of workers using the scaffold and the structure and height of the scaffold. Construction, structural dimensions, location and inclination of the ramps and the levelness of the steps must be such that it is possible to move safely between the ramp and the work platform and that when the ramp is used the overall stability of the scaffold is not at risk.

Stairs must have guardrails on both open free sides for their whole length.

The ramps must be secured in such a way that they cannot be accidentally detached or dislocated during use.

If the person in charge for the work knows that scaffolding work is required already when planning the repair work, the scaffolding is ordered from an approved scaffolding supplier as early as possible. In case of an unexpected need for scaffolding, the person in charge informs the representative of a predetermined scaffolding supplier of the scaffolding need in question.

3. Scheduling scaffolding work

The person in charge of the repair work prepares a precise schedule and date on which the scaffolding must be ready for use and informs the scaffolding supplier of this schedule when placing the scaffolding order. The dismantling date is also communicated, if it is already known.

If the dismantling date is not known in advance, the scaffolding supplier is notified immediately when the scaffolding can be dismantled. As a rule, the scaffolding supplier is allowed about 1 week to dismantle the scaffolding to ensure that the supplier can use its resources evenly.

4. Ordering scaffolding

The person ordering the scaffolding specifies the location and the required working height of the scaffolding. If the scaffold load will be exceptionally high (over 150 kg/m²), the scaffolding supplier must be

notified of the load value and the value must be indicated in the scaffolding card of the completed scaffolding.

5. Erecting instructions

When using a modular system scaffold, its instructions for use must be followed and the following issues must be taken into account accordingly:

- standard solutions for the purpose/purposes of the work scaffold
- structure, assembly, anchoring, ramps
- maximum load of the platforms
- instructions for foundations
- instructions for safe use
- inspections, instructions for handling the parts, instructions concerning restrictions for use
- For a movable system scaffold: instructions for preventing accidental movements of the supports and the work scaffold

6. Structural plan

When using a modular system scaffold, its instructions for use must be followed in accordance with Government Decree 205/2009. If the instructions do not contain all information specified in the decree or if the structure or assembly of the work scaffold is different from the one described in the instructions, a structural plan of the modular system scaffold must be drawn up. The plan must at least detail the following in accordance with the decree:

1. structure of the work scaffold:
 - materials of the structural parts
 - structure of the frame and work platforms of the work scaffold and their measurements
 - structure and location of the ramps
 - structures providing protection against falls
 - anchoring and other structures increasing overall stability
2. basis for the design:
 - purpose of the scaffold
 - loads and load combinations used in the measurement
 - maximum load of the work platforms
 - calculations or other sufficient information providing details of the strength, rigidity and overall stability of the work scaffold
 - details of the non-sinking of the foundations
 - measurement methods and any harmonised standards or other documents that have been used in the measurements

- for a covered scaffold, details showing that the rigidity and anchoring of the work scaffold are adequate for withstanding loads arising from wind forces.

The plan must not be deviated from unless permitted by the person who drew up the plan.

7. Use plan

A use plan must be drawn up if, on account of its height or large size, dangerous location, special use or other similar factor, the work scaffold has a substantial effect on the use of the site area.

The use plan must contain the following information:

- 1) details of the risks arising from the erection, use and dismantling of the scaffold and on preventing them;
- 2) details of the use of the work scaffold in different work stages;
- 3) location of the means of access and ramps of the work scaffold and how they are connected with the building or structure;
- 4) details of the measures aimed at preventing the risks arising from construction site traffic, movement of materials and other factors to the use of the scaffold;
- 5) details of how the danger of objects falling is prevented and how access routes below are protected by means of covers or other measures;
- 6) instructions for scaffold users.

When structural plans and scaffold use plans are drawn up, sufficient and necessary information about the conditions at the site and the work carried out on scaffolds must be available.

The use plan is drawn up in cooperation with the orderer, based on the information provided by the orderer.

8. Erecting and dismantling scaffolds

Scaffolds may only be erected, dismantled and altered by an employee who is supervised by a competent person and who has received special instructions and guidance relating to the planned tasks and special risks.

The instructions and guidance must include information at least on the following:

- 1) work stages involving the erecting, use and dismantling of the scaffolds;

- 2) safety during the erecting, dismantling and altering of the scaffolds;
- 3) measures aimed at preventing the risk of falls of persons or objects; 4) safety measures relating to weather conditions weakening the safety of the scaffolds;
- 5) maximum loads;
- 6) other potential risks relating to the erecting, dismantling or alteration

The person in charge of the work and the employees concerned must have the instructions referred to above and, when necessary, the structural plan and the use plan.

When a scaffold or its part is erected, dismantled or altered, it must be labelled with signs prohibiting its use or warning signs and appropriate barriers must be used to prevent access to the dangerous zone.

Before starting work, the scaffolding supplier must apply for a written work permit from the orderer.

The risks specific to the site, area and process are addressed in the permit.

The supplier erects the scaffolding according to Työ- ja suojatelineohje (RIL 142) (instructions for work and guard scaffolds). The scaffolding is erected at the location specified by the orderer and by following the occupational safety instructions. The scaffolding should be erected in one continuous operation.

Safety harnesses must be attached immediately when it is possible.

Harnesses must be attached when working at a height over 2 metres.

Work platforms must always be equipped with toe boards. Scaffolds must be fitted with guardrails also at a height under 2 metres if the risk of falling is moderate or higher.

Scaffolds that are being erected do not have a scaffolding card as long as the erection work is ongoing.

Dismantling scaffolds

Scaffolds may be dismantled as specified in section 8.

Dismantling is ordered as specified in section 3. The supplier should dismantle the scaffolding in one continuous operation and according to the schedule provided by the orderer.

The scaffolding supplier inspects the scaffolding material in connection with dismantling. A representative of the orderer is notified of any damage found immediately.

SCAFFOLDING CARD

Scaffolding information

- Number, location and orderer of the scaffolding
- Scaffolding class

- Load-bearing capacity
- Length, width and height of the scaffolding

Sign-offs for the erection, acceptance and weekly inspections

- Erection date and the names of the scaffolders
- Acceptance inspection
- Weekly inspection

Always check the last inspection date from the scaffolding card before using the scaffolding. The inspection date must not be older than 7 days.

If the scaffolding does not have a scaffolding card or the card has been flipped over to indicate that the scaffolding is banned for use, using the scaffolding is prohibited.

Use of the scaffolding must be prohibited if defects or damage are found. The prohibition is signalled by flipping over the scaffolding card. The supplier of the scaffolding must also be informed of the prohibition.

Do not remove the scaffolding card from the scaffolding (a running number is used to identify the scaffolding)

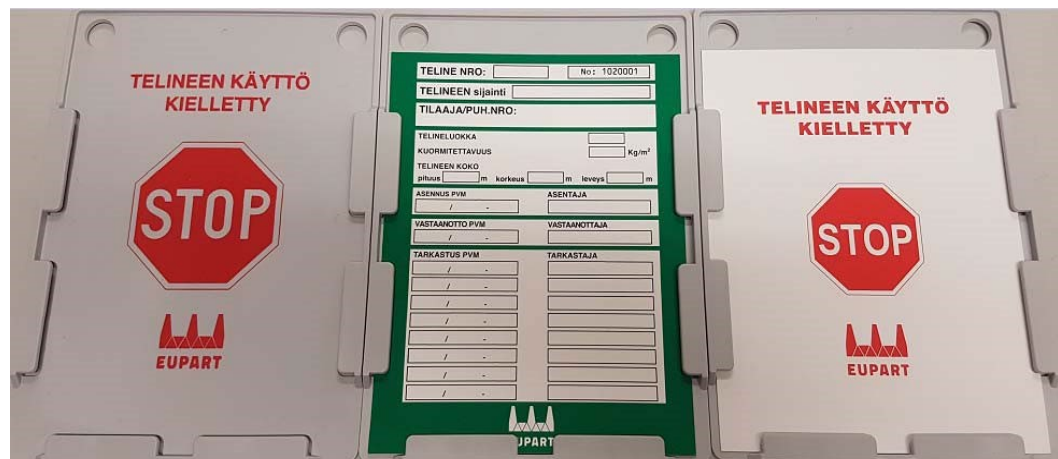


Figure 3. A scaffolding card and additional signs that can be used with it

9. Accepting scaffolds

After erection is completed, the erector writes the scaffolding information on the scaffolding card and enters the necessary information to the electronic scaffolding information system.

The orderer and erector inspect the scaffolding and sign the scaffolding card together.

The scaffolding is always banned for use until the acceptance inspection referred to above is completed.

10. Altering scaffolds during use

If scaffolding must be altered, the erector of the scaffolding must be notified of this.

After the alteration work is completed, the work is recorded on the scaffolding card and commissioning protocol.

Under any circumstances, the user must not remove any part of the scaffold during the use of the scaffold.

After the alteration work is completed, an acceptance inspection must be carried out on the scaffolding before can be used.

The scaffolding manufacturer must maintain a system for recording scaffold-specific inspections and this information is available from the supplier when necessary.

11. Inspecting the condition of scaffolds during use

The orderer is responsible to ensure that the scaffolding is inspected at least once a week.

The inspection date and inspector must be recorded on the scaffolding card.

The scaffolding is banned for use if the scaffolding card is missing or if the marking for the weekly inspection is more than a week old.

The orderer must report any deficiencies observed to the erector of the scaffolding without delay. The erector must correct all deficiencies without delay.

12. Cleanliness of scaffolds

The user is responsible for taking care of the cleanliness of the scaffolding. If unnecessary goods or other material gets accumulated on the scaffolding, the user must make sure that the scaffolding is cleaned up and, if necessary, washed.

Goods must not be stored on the scaffolding.

13. Storing scaffolding supplies

Scaffolding supplies must be stored in dedicated locations only. After dismantling, scaffolding supplies must be immediately cleared out and placed in their dedicated location.

A scaffolding plank must not be reused if acid has leaked on the plank or there are other similar spills.

14. Mobile scaffolds

The wheels of mobile scaffolds must be locked during use, and nobody may be on the work platform when a scaffold is moved. Anchoring and

reinforcements increase the strength of the scaffold. Work platforms must be locked securely to the structure of the scaffold. Guardrails must have intermediate guardrails and toe boards. Safety regulations require that stairs are first choice as the scaffold ramps. The scaffold is erected according to the instructions for scaffolds or the instructions provided by the scaffold manufacturer. Fall protection must be ensured.

A mobile scaffold may not be moved if there is an employee on the work platform. Any such materials that may drop or cause other hazards must be removed from the work platform for the duration of the movement.

Work-specific stairs:

Stairs or a slope must be used if the height difference is over 50 cm. Stairs that are over 1.5 m in height must have handrails and intermediate rails on both sides. For stairs under 1.5 m, these must be fitted at least on one side.

A good step rise is 160 mm and run 275 mm, and these must not change in the middle of stairs.

Inclination 30 to 45 degrees, minimum width 60 cm.

If necessary, suitable anti-slip devices must be used to prevent slipping.

15.A-ladders

Safe use of A-ladders

When using A-ladders in the area, the provisions of Government Decree 205/2009 (Section 32) must be followed:

An A-ladder may only be used as a work platform instead of work scaffolds when work scaffolds cannot be used on account of the short duration of the work or other similar factors.

In such cases, an A-ladder may, as a rule, only be used as a work platform when the employee stands on it **at a height of less than 1 metre**. An A-ladder may, however, be used as a work platform when the work platform is **at a height of 1 to 2 metres** and the **overall stability** of the A-ladder is in accordance with the stability requirements laid down for a trestle, as appropriate, referred to in Annex 6 to Government Decree 205/2009 (see the figures below).

An A-ladder may not be used in work where it is necessary to use tools requiring **a great deal of force** or in work where there is danger of a folding ladder overturning or a fire hazard. An A-ladder may only be used on non-sinking and level platforms.



Figure 1. This may only be used when the employee stands on it at a height of less than 1 metre. Recommendation: A-ladders without stabilisers should not be used!



Figure 2. An A-ladder whose overall stability is secured with, for example, a stabiliser may also be used when an employee stands on its work platform at a height of 1 to 2 metres (the minimum stabiliser bar length is 90 cm).

In terms of measurement, strength, rigidity, overall stability, materials and type, the ladders must be suitable for work and conditions of use at a construction site. The strength and rigidity of the steps, stops, joints and the fastening hooks of the ladder must be adequate. The ladder must be mounted on a stable platform in such a way that it does not overturn or slip. When necessary, the ladder must be separated from its surroundings by such means as sufficiently discernible barriers or a streamer line blocking access.

16. Leaning ladders

These ladders may only be used as temporary, one-time means of access. A leaning ladder may not be used as work platform. The following instructions on leaning ladders must be followed in the area:

- maximum length 6 m
- stable and intact structure
- the ladder must be marked "EN-131"
- the ladder must be mounted in the correct leaning angle of 68 to 75 degrees
- in order to prevent the ladder from slipping and when necessary, anti-slip devices and devices preventing the ladder from overturning must be used, such as a top stabiliser at the top of the ladder and a stabiliser bar to increase the support width of the base.
- if the ladder is 1 metre or higher above a scaffold, the area must be separated from its surroundings by such means as sufficiently discernible barriers or a streamer line.

Risk assessment for own work: suitability for the work in question and conditions of use at the site (for example, working in pairs), a safety harness must be used if necessary.

17. Extra-long ladders

The use of these requires a job-specific risk assessment in writing, appropriate fall protection and a plan for familiarising the users with the manufacturer's instructions.

18. Rope ladders

Rope ladders may be used in exceptional cases only.

The use of rope ladders must be avoided, especially in cases where the ladder cannot be supported against a wall or a similar structure. The use of the rope ladder must always be planned.

The plan must, among other things, consider the strength of the attachment points and safety when moving on the ladder. When using the rope ladder, a safety harness and a separate safety rope that is attached to the harness and stays tight must be used.

The rope ladder must be steel-reinforced and secured at the top at two separate points, preferably with reinforced tie-down loops at the ends of the ropes.

The condition and attachment of the rope ladder must be checked always before use, and at least weekly if the rope ladder is attached for a longer period.

SPECIAL CONSIDERATION FOR USING ROPE LADDERS: ALWAYS USE APPROPRIATE RESCUE EQUIPMENT, SUCH AS A RETRACTABLE FALL ARRESTER AND A RESCUE LIFTING DEVICE THAT COMPLIES WITH

STANDARD EN-1496. FALL ARREST AND SIMILAR FALL PROTECTION IS NOT ENOUGH – IF A PERSON FALLS, THERE MUST BE A METHOD TO LIFT OR LOWER THE PERSON TO SAFETY.

19. Additional provisions on trestles

In terms of strength, overall stability, materials and type, the trestles must be suitable for work and conditions of use at a construction site.

Trestles used in construction work must meet the following requirements:

- 1) trestles that are more than 0.5 metres high must be equipped with integral horizontal steps with a depth of at least 50 millimetres and a length of at least 0.3 metres.
- 2) the height of the risers may not be more than 0.3 metres.
- 3) the height of the trestle may not be more than 2.0 metres.
- 4) work platforms of trestles of less than 1.0 metres high must be at least 0.3 metres wide, and if the height is more than 1.0 metres and less than 2.0 metres, the width of the work platform must be at least 0.4 metres.
- 5) overall stability of the trestle must be in accordance with the requirements laid down in Government Decree 205/2009.

The locking of the adjustable legs and other structural elements of the trestle may not open or loosen during use.

The trestle must be placed on a platform that is of such levelness and strength that it cannot overturn or be dislocated during use and that its work platform is horizontal enough.

20. Lifting platforms



Figure 6. Appropriate fall protection must always be worn on mobile lifting platforms



Figure 7. A scissor lift is also a lifting platform and appropriate fall protection must be worn when working on a scissor lift. The stability of the lifting platform and the carrying capacity of the ground or other base must also be ensured.

According to the Government Decree on the Safe Use and Inspection of Work Equipment (403/2008, Section 14), operators must have a written authorisation from the employer for operating forklift trucks and devices for lifting persons. Before granting the authorisation, employers must ensure that the operators have sufficient ability and skills to operate the work equipment.

21. Working at height

Regarding working at height, instructions by the company that ordered the work are to be followed.



Figure 5. Appropriate fall protection must always be worn when working at height, for example, on a roof.

22. Job-specific risk assessment

The company that ordered the work informs of area-specific risks and they are addressed in the work permit, at which time the safety measures for the site are determined, taking the process risks into account.

Before starting work, the company that erects scaffolding must assess the future risks of their own work and how to protect against them.