	I111-001 Working at height and on the waterfront	Instruction
		Doc. No: 2005-0049901

Working at height and on the waterfront

Scope	RWE Generation NL
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Document information

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<ul style="list-style-type: none"> Certification for AWP's; Anchor points for the purpose of rescue should be sufficiently strong, 12kN in accordance with EN-95 d; 				
Purpose instruction				
Controlling fall hazards when working at height and controlling fall and drowning hazards when working on the waterfront within RWE Generation NL				
Target				
All persons involved in the preparation, construction and use of work equipment to perform work at height.				
Related documents				
Type of document	Title			Code
Procedure	General RI&E			
Process	Managing H&S risks			P053b
Process	Maintain installations			P080
Process	WCM - Work Clearance Management			P001
Instruction	Task risk analysis			I002-001

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Terminology and abbreviations

Term or abbreviation	Description
Lanyard	A lanyard is a tool (cord) to attach tools and other items to a belt, belt or harness, for safely transporting tools by employees who need to work at height.
Rolling scaffold	By a mobile scaffold we mean a freestanding, semi-freestanding or a wall-mounted, mobile scaffold. Rolling scaffolds are equipped with (swivel) wheels and composed of prefabricated parts. They include auxiliary floors and one or more working floors for performing work at height. Chamber scaffolding is also included here.

Introduction

Definition working at height RWE Generation NL:

Work at height is referred to when there is a danger of falling in the presence of risky conditions, openings in floors, or when there is a danger of falling 2.5 metres or more. (arbobesluit 3.16)

Hazards when working at height

Several hazards may be present when working at height:

- Falls from height due to:
 - Falling from ladders or stairs;
 - Falling through openings in floors and/or landings;
 - Falls from structures, buildings;
- Drowning hazard when working at height above water or close to water (falling from a quay)
- Hazard of falling objects used when working at height, which may strike persons at lower levels;
- Possible longer escape route for the purpose of evacuation in case of calamities.




Life Saving Rule: "I protect myself from falling and drowning"

Risk assessment

A risk assessment should be carried out by a competent person before any work at height is carried out. This assessment will determine what controls are needed to avoid or reduce the risk to a level as low as reasonably practicable.

The risk assessment should cover the following points:

- The activity - equipment used, chemicals, weights involved and degree of physical activity, i.e. construction, maintenance, visual inspection, etc.
- Used access equipment - mobile powered access platforms, scaffolding, landings, boarding steps, ladders, personnel protection equipment, etc.
- The person - physical condition, age, specific medical condition, e.g. dizziness, pregnancy, effects of a drug being taken
- The height of a likely fall and likely consequences
- Location - near/over water, walkways, traffic routes, other work groups and proximity to handrails or other collective fall prevention measures,
- The environment - extreme weather conditions, temperature, wind, smoke or fumes,
- Duration of work,
- Probability of extension of working range,
- Condition and stability of work surface, e.g. fragile surfaces, soft ground, roofs.

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- Other hazards, e.g. exposure to electrical conductors, possible overhead obstacles, high-voltage lines, pipes, hot surfaces, fumes or smoke from adjacent buildings that are not under RWE's control.

Work equipment that can be used when working at height (temporarily)

- Fixed and/or mobile scaffolding (mobile scaffolding)
- Aerial platforms
- Rope Access
- Telehandlers
- Work buckets in combination with a mobile crane
- Suspended platforms
- Ladders
- Fall protection and facilities when working on roofs

If temporary work at height cannot be carried out safely and under appropriate ergonomic conditions on a suitable work floor, the most appropriate work equipment is selected to ensure and maintain safe working conditions. To achieve this:

- are the dimensions of work equipment:
 - tailored to the nature of the work to be performed;
 - tailored to the foreseeable loads, and
 - such that passage is possible without danger;
- the most appropriate means of access to the temporary workplace at height are chosen depending on the traffic, the height to be bridged and the duration of use;
- the chosen means of access offers the possibility of evacuation in the event of imminent danger;
- does switching from an access device to platforms, floors or walkways and vice versa not pose additional fall risks.
- collective security measures take precedence over personal security measures;

Collective fall protection devices (e.g. fixed guardrails) are interrupted only where there is access to a ladder or staircase.

Fall protection devices shall be of such configuration and strength as to prevent falls from heights or stop any fall, in such a way as to prevent injury to workers as far as possible.

When the performance of work requires the temporary removal of a collective fall protection device, effective replacement safety devices shall be provided. Work shall not be carried out until such replacement facilities are in place.

After the final or temporary cessation of work, the collective fall protection devices are reinstalled.


Temporary work at height is only carried out when weather conditions do not endanger the health and safety of workers

Ladders and stairs are **only used for access and visual inspections**. An exception can be made if no alternatives are possible e.g. because of the existing characteristics of the site/workplace that we cannot change. The risk assessment and derived measures must then be laid down in a work permit or otherwise documented (LMRA).

Access and positioning techniques with lines (rope access) are only used in circumstances where, according to a task risk assessment, it is shown that the work can be performed safely and where the use of other, safer work equipment is not reasonably possible

Prevention of falling parts

There is always a danger of falling parts (tools, materials, etc.) when working at height. To prevent this, the use of tool lanyards is **mandatory** if one cannot make the workplace sufficiently safe to prevent falling parts. Examples include the installation of safety nets, toe boards and sealing openings in floors. The use of a tool lanyard also mandatory when working outside scaffolding, work floors, platforms, etc. Storage of (small) material at height in suitable plastic containers, lifting bags or sufficiently sturdy bags. Storage of small material at the workplace in cardboard is **not** permitted. Also, when going up/down ladders and stairs, ensure that material is in suitable bags and sacks so that on stairs one hand can always be kept on the handrail. For ladders, always keep two hands free.

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Scaffolding

General

For the design and construction of scaffolding, RWE Generation NL follows the Scaffolding Directive, see above: [https:](#)

Instructions for the user are described in the A-sheet scaffolding construction: [https:](#)

Additional requirements and policies RWE Generation-NL

Scaffolding may only be designed, erected, modified, inspected and released by an RWE selected prime contractor.

Within RWE, an additional requirement for category complex scaffolding with difficulty level 4 (according to scaffolding guideline) is that a **control calculation** is carried out by an independent body (e.g. IV Construction). The responsibility lies with the scaffolder to commission and demonstrate this. This is secured in the contract via procurement.

See link for iv construction: [https:](#)

For standard scaffolding configurations, see section 2.2.6 of the scaffolding guideline.

For complex scaffolding, see chapter 2.2.3 of the scaffolding guideline.

Furthermore, RWE Generation NL requires proper earthing for **all** scaffolding in accordance with section 4.9 of the Scaffolding Directive. Random checks on the effectiveness of the earthing are carried out by RWE.

Scaffolding that cannot be earthed restricts the use of work equipment. Draw up a Task Risk Analysis to see if and how work can still be done safely, including:

- hand tools with built-in battery;
- tool connected to safe voltage;
- tools connected to a safety power supply which is then not placed on the scaffold.

No wooden scaffolding boards and **wooden edge boards** are used with:

- installation parts showing characteristics of leaks releasing hot combustion air, flue gases and/or fly ash;
- installation parts on which hot-work is to be performed from scaffolding;
- installation parts where scaffolding parts can be irradiated by (infrared) heat sources.

As a supplement to the general scaffolding guidelines, RWE has the following policy in applying the preferred order of access to scaffolding by:


1. Folding gate
2. Safety bar
3. extend fixed scaffolding railing section

Anchor points for rescue should be sufficiently strong, 12kN in accordance with EN-795

Responsibilities and powers

Principal (RWE)

- The RWE client (usually in the role of Maintenance Coordinator) is responsible for indicating to the contractor the purpose for which the scaffolding will be used;
- The RWE client is responsible for indicating to the contractor whether the use of additional working lights is necessary during the erection of the scaffold(s);
- All scaffolding handed over to RWE by the main scaffolding contractor will be checked for suitability for the work by the RWE client;
- Should organise adequate supervision that ensures proper use of scaffolding.

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Contractor (main scaffolding contractor)

- Ensuring the design, calculation, construction, modification and dismantling of all scaffolding in compliance with Directive scaffolding and the specific requirements per site and intended use by RWE;
- Ensures workplace safety during construction, modifications and dismantling;
- Ensures the quality of the scaffolding, including adequate earthing, throughout the period of use;
- Carry out periodic checks during the period of use with **monthly re-inspections** before the end of the inspection period and be recorded in the scaffolding logbook
- Ensures that the documents and control calculations of complex scaffolding and training certificates of main contractor scaffolding construction personnel are on site.
- The timely commissioning of the performance of the check on the drawing and calculation of complex scaffolding by IV Construction;
- Makes contract arrangements with IV Construction on the above control calculations;
- Approving all scaffolding for the specific purpose described in the brief;
- Applying (hoisting) scaffolding labels (green - normal, yellow - hoisting or orange - special measures scaffolding card /scafftag) and signing them off;
- Handing over the scaffolding to the client;

User

The user can tell from a few simple observations whether the scaffolding is safe to use. These may include:

- the support of the uprights;
- A regular anchoring pattern;
- sealed work floors;
- the presence of double railings and toe boards;
- a regular pattern of braces;
- safely accessible work floors;
- a working stock that does not overload and does not block the floor for normal use.

Furthermore, the user ensures that:

- any defects found are immediately reported to the supervisor and the work stopped;
- the scaffolding is used for its intended purpose;
- he does not make any adjustments to scaffolding himself or others, but has the designated scaffolding builder hired for this purpose;
- the workplace is tidy, and work equipment and materials are not a tripping hazard;
- material and work equipment is stored in crates or boxes as much as possible to prevent them from falling off the scaffolding.

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High-risk scaffolding near high voltage

Measures for scaffolding to be built near overhead or underground power lines

- The RWE Installation Manager (IV) should be involved in TRA discussion during the work preparation period in the risk analysis and design of the scaffold;
- RWE site manager should be involved in TRA discussion during the work preparation period if underground high-voltage power lines are involved;
- It may also be necessary to consult, inform or involve the grid operator (TenneT) or the network distribution company (e.g. Enexis) during the work preparation period. All contacts are then made via the Installation Manager.

Mobile scaffolding (mobile scaffolds)

General

Scaffolding within the blue zone/ pbm zone is assembled and inspected at RWE by the main scaffolding contractor.

In the office environment, third-party mobile scaffolding may be allowed for maintenance work using only properly maintained mobile scaffolds that visibly comply with the NEN-EN1004 standard.

The A-Sheet on mobile scaffolds serves as a minimum starting point for the assembly and disassembly of mobile scaffolds


Alternatives to using mobile scaffolding are fixed scaffolding, scissor lifts, aerial work platforms, or mobile work platforms.

Responsibility of client (RWE)

- Indicate to the contractor for what purpose the mobile scaffold may be used, if ordinary scaffolding is not properly applicable (the contractor must consult with the client before mobile scaffolds can be permitted);
- Organise adequate RWE supervision during the execution of the works in consultation with the contractor;
- Ensure that users of the mobile scaffold tower are sufficiently instructed to ensure safe use of the mobile scaffold tower.

Responsibility of contractor

- The user responsible for assembling the mobile scaffold to be used must have been sufficiently instructed or trained to erect a safe mobile scaffold, also making careful use of the instructions for use of the mobile scaffold;
- A mobile scaffold is always erected or dismantled by at least two people;
- Ensures that the scaffolding is always placed on a horizontal surface that is level and load-bearing;
- A rolling scaffold is always built with a front guardrail;
- Climb a mobile scaffold only from the inside of the mobile scaffold. Never climb from the outside
- All wheels on the brake!
- Rolling scaffolds should always be stabilised sideways with stabiliser bars.
- Work floor must have edge boards

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Aerial platforms

General

Do not use the AWP to transport employees to higher places. Getting in and out of the work basket at height is strictly prohibited. The AWP should not be used in wind speeds exceeding wind force 6. If a thunderstorm occurs, work in the AWP must be stopped immediately. The work basket door/beam must be closed at all times. Use positioning belt in accordance with EN-358 and keep as short a leash as possible on the appropriate fastening eye.

An AWP is not a lifting device. It is therefore prohibited to use the AWP to lift loads. This exceeds the maximum working load. The worker must have adequate visibility in the work basket for the work to be carried out. Additional lighting may be required. It is also necessary for the worker to have a good view of the undercarriage. If circumstances arise where this is not the case, a colleague should be present on the ground to give instructions, via a means of communication. Demarcation around to be secured in accordance with I-112.

Responsibility of client (RWE)

Organise adequate RWE supervision, on compliance with the agreements made, during the execution of the work in consultation with the contractor.

Responsibility of contractor

- Ensure that only AWP's are used that are CE marked, demonstrably inspected and used according to the manual;
- Ensure employees can use fall protection, communication equipment and personal protective equipment;
- Ensure that the knowledge and experience of employees is appropriate to the hazards, work activities and workplace environment, trained with certification (to meet standards according to SSVV Training Guide, see under required certification);
- Ensure proper instructions and agreements are in place prior to using the AWP, tailored to the hazards and risks present;
- Ensure that an inspection of the work equipment has taken place daily before using the AWP according to the operating instructions. This includes: the guard rails, closure of the access gate, emergency stop devices, mast, oil level, fuel level and tyre pressure);
- Beware of soft surfaces and use the outriggers with driving plates if necessary.

Required certification for operation (depending on type of AWP):

SOG-P Working with a static boom lift (category 1B) SOG-P Working with a mobile vertical boom lift (category 3A)

SOG-P Working with a mobile boom lift (category 3B)


Telehandler

General

A telescopic handler (rigid or rotating) must only be used in accordance with the requirements set out in the operating manual.

Furthermore, a telehandler may **NOT be** used as an aerial work platform. Thus, **NO** passenger work bucket may be attached to the telehandler.

Attachments may only be used if they have an EC declaration of conformity (CE mark), are permitted according to the operating instructions of the telehandler **and** the Machinery Directive must be complied with.

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- if a telescopic handler is used as a crane, the same standards and rules apply as for cranes. (Dutch Certificate of Professional Competence, issued by TCVT at an operating load moment ≥ 10 ton metres according to I032)

If the machine and/or user does not meet all requirements, it should not be used

The operator must have adequate visibility of the work to be carried out from the cab. Additional lighting may be required. It is also necessary for the operator to have a good view of the surroundings. If circumstances arise where this is not the case, a colleague should be present to give instructions, via a means of communication. Demarcation around to be secured in accordance with I-112.

Responsibility of client (RWE)

Organise adequate RWE supervision, on compliance with the agreements made, during the execution of the work in consultation with the contractor.

Responsibility of contractor

- Ensure that only telescopic handlers are used that have an EC Declaration of Conformity (CE mark), are demonstrably inspected and used according to the manual;
- Ensure employees can use communication tools and personal protective equipment;
- Ensure that the knowledge and experience of employees is appropriate to the hazards, the work and the environment of the workplace, trained with certificate (to meet standards according to SSVV Training Guide);
- If the telescopic handler is converted into a mobile crane with a capacity of 10 tonne metres or more, the operator must also hold a certificate of professional competence (TCVT certificate). A TCVT mobile crane certificate is also sufficient.
- Ensure proper instructions and agreements are in place prior to using the telehandler, tailored to the hazards and risks present;
- Ensure that daily before the telehandler is used, a check of the work equipment has taken place according to the operating instructions. Think about: seat belt, closure of door(s), emergency stop devices, mast, oil level, fuel level and tyre pressure);
- While driving, the telescopic handler's scoops should be protected;
- Beware of soft surfaces and use the outriggers with driving plates if necessary.

Working bucket in combination with a mobile lifting vehicle

In principle, cranes are not suitable for lifting people. The European Work Equipment Directive gives national governments the power to deviate from this when it comes to working with work platforms. RWE Generation NL only allows working with work platforms in necessary cases, taking the following into account.

It is prohibited to start work before:

- A. a written work plan has been drawn up by the employer, indicating at least:
 1. justification as to why appropriate work equipment designed for the transport of persons is not available for the hard-to-reach locations, or that its use will lead to an unsafe situation given the environmental factors present;
 2. the justification as to why there are also no other work methods by which those locations can be reached safely under the environmental conditions present; and
- B. also judged, elaborated and laid down in the work plan how, at the location where the work will take place, that work will be performed safely. A safety expert must be involved in the preparation of the work plan by the employer.

Work involving the use of a work basket or work platform shall be reported by the employer to the supervisor (Netherlands Labour Inspectorate) no later than two days before commencement of the work. The notification contains at least a brief description of:

- the location where the work will be carried out;
- the number of persons involved; and

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- The date and time when the work will start, as well as its duration.

Only workboxes or work platforms shall be used where the full load of the workbox or work platform and associated lifting equipment does not exceed 25% of the maximum working load of the crane, unless there is a technical provision that limits the working load to 50% or less of the maximum working load that can be lifted with the crane. The maximum number of persons that may be transported must be indicated on the workbench, as well as the maximum workload in kilograms, the weight of the workbench itself and the registration number of the workbench.

The control site of the lifting equipment is permanently manned.

the work basket or work platform at height shall not be left by persons on it and shall not be entered by persons outside the work basket or work platform.

When using work platforms, with regard to the crane used in combination with a work bucket or work platform,:

- a mobile crane to which a manned work bucket or a manned work platform is attached is not driven;
- using a crane travelling on a crane track with a manned work bucket or a manned work platform at a speed not exceeding 2.5 km/h;
- the speed at which the load is moved vertically, the angular speed at which the jib is rotated and the speed at which the flight is changed do not exceed one quarter of the speed of the crane for which it is designed; and
- the wind speed measured at the highest point of the hoisting equipment neither exceeds 13.8 m/s nor exceeds the wind speeds permissible for the hoisting equipment in normal operation.

For those involved in the workbox:

- they have an effective means of communication in the course of their work; and
- effective arrangements are in place to evacuate them in case of danger.


There are several factors that will have to be considered situationally in the work plan, such as weather conditions, the occurrence of a pendulum effect (swaying) of a work basket or work platform, which creates pinch and crush hazards. Demarcation of the lifting area to be secured according to I-112.

Responsibility of client (RWE)

- Ensure that a TRA is drawn up during the work preparation phase and discussed jointly with work permit preparer Operations and the contractor, discussing the job, the risks and possible measures.
- Organising adequate supervision during the execution of works.

Responsibility of contractor

- For the work to be performed, the TRA and Work Plan must always be present at the workplace;
- Only persons over 18 years old should use the work bucket;
- Only one crew member gives instructions to the crane operator;
- Duration of work (without break) is maximum 4 hours;
- There should always be eye contact between the crane operator and the person in the work bucket;
- Before use, the workbox should be visually inspected and have a valid inspection;
- Each crew member must wear a fall protection device (short line). This safety line is attached directly to the designated attachment points in the work bucket;

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Suspended platform systems

General

A suspended platform system (HBI) means a temporary mobile suspended scaffold consisting of a mobile suspension structure to which, attached to cables, a freely suspended work platform is attached. For a HBI manufactured after 1997, CE marking and declaration of conformity is mandatory. The HBI with all its parts is considered a composite machine, and must meet the requirements of the Machinery Directive. This means that the HBI must be CE marked by the manufacturer, accompanied by a CE declaration of conformity.

Responsibility of client (RWE)

- Indicate to the contractor the purpose for which the HBI will be deployed;
- Ensure that a TRA is prepared during the work preparation phase and discussed jointly with work permit preparer OPS and the contractor;
- Organise adequate RWE supervision during the execution of the works in consultation with the contractor.


Responsibility of contractor

- Ensuring that the HBI is tailored to the number of users and usage requirements, and is strong enough to support the loads - including those of the additional tooling;
- Ensure that all users have received and understood instruction for the safe use of the HBI;
- Ensure that a work plan is drawn up. The work plan defines project-specific agreements on preconditions. It also defines the responsibilities of the parties involved. The work plan is drawn up in consultation between the parties involved, and updated where necessary during the project. The work plan specifies: the type of TBI, the length of suspended platform to be used, and the specific maximum working load. Any subsequent modification of the HBI, including any relocations, should be based on this work plan. The work plan will be updated if there are any deviations and/or further agreements recorded in the project discussions. The work plan should be accessible to all concerned, including users. The work plan is always present at the workplace. If there is a H&S plan, the HBI work plan must be part of it and be drawn up on the basis of a **project-specific (task-specific) risk inventory**. A H&S plan is mandatory if there are special hazards due to the environment or work location; such as danger of drowning, danger of falling, exposure to hazardous substances, ionising radiation, high voltage, assembly or disassembly of heavy prefabricated elements (art. 2.28 Health and Safety Decree).
- The work plan contains all the elements of a TRA according to I-002 and should, among other things, also weigh up the risks and measures with regard to good communication, supervision and an adequate rescue plan.
- All parties and persons involved in the workplace should be aware of the danger zones and the agreed control measures.

Working at height using Rope Access

Rope access is an alternative method of safe working at height where we use ropes, climbing techniques and safety equipment to access hard-to-reach areas. This can be in height or depth such as, work locations above water, in confined spaces or just inside buildings. With this, we avoid obstacles in a safe and efficient way to carry out various jobs. We use rope access when the other working methods cannot be used more safely.

Here, taking into account the task risk analysis and the duration of the work and ergonomic requirements, a seat with suitable accessories shall be provided. Depending on the work equipment to be used, the necessary measures shall be taken to minimise the risks to workers associated with this work equipment.

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Responsibilities client (RWE)

- Indicate to the contractor for what purpose and under what circumstances the Rope Access activity will be deployed;
- Organise consultations with the IRATA-level 3 employee on the anchor points to be deployed that will be used during the Rope Access activity(s);
- Organise adequate RWE supervision during the execution of the works in consultation with the contractor.

Requirements for the contractor

- Contractor shall be demonstrably an IRATA (Industrial Rope Access Trade Association) certified company;
- At least 1 employee on the project should hold the IRATA-level 3 certificate;
- All employees must have their training and experience records (IRATA logbook + certificate).

Responsibilities of contractor

- For each assignment, a Rope Access work plan should be drawn up during the work preparation period, giving attention to the specific risks that occur during the execution of that specific activity.
- The risks and associated control measures must be recorded in a Task Risk Analysis document (TRA) which is discussed according to I-002 TRA with involved persons and departments of RWE and contractor.
- A Rescue Plan is a mandatory integral part of this.
- The same goes for secured communication and supervision (never work alone).
- Fence to be secured all around as per I-112 and use of safety nets if necessary.

Working on flat roofs

Measures organisation and employees when working on a flat roof

Before you start

- Make sure you have a valid work permit.
- At a roof height of 2.5 m and above, as well as at a roof of 2m with a fall hazard, no one should work without provision, here the consequences in case of a fall can still be very serious.
- The requirements for roof edge protection on flat roofs depend on the distance from the edge to the workplace:
 - < 2 metres: full guardrail or railing (details on strength of guardrail are given in AI-15);
 - between 2 and 4 metres: demarcation of the workplace by means of bollards with chains or fencing, the workplace and the way to it should be clearly marked;
 - 4 metres: roof edge protection can be omitted, the workplace and the way to it should be clearly marked (line/warning pictograms).

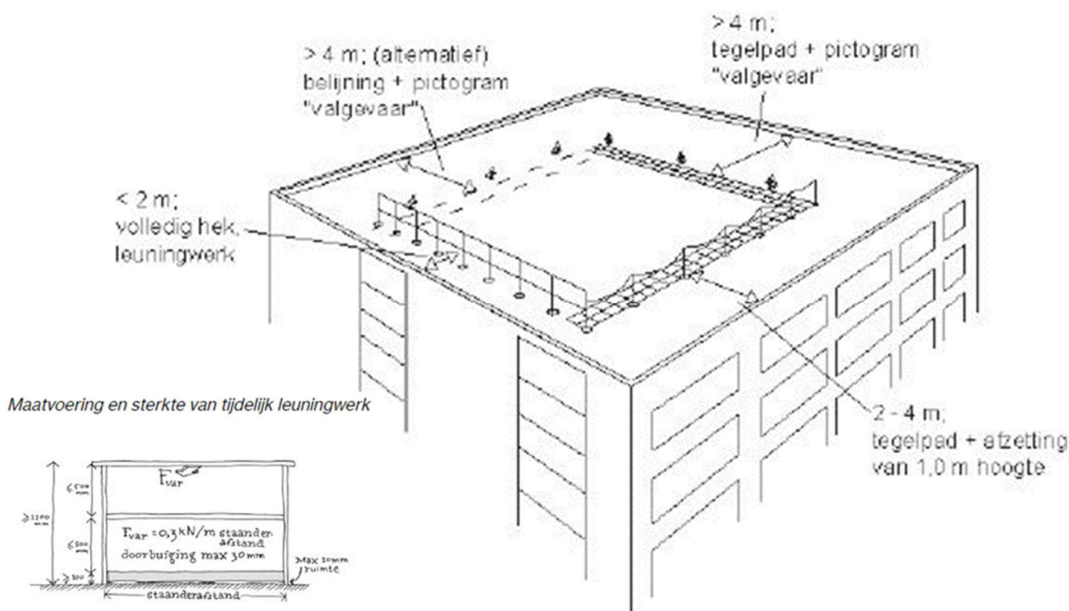


Figure: Delineation/markings depends on distance from roof edge


If collective fall protection is not reasonably practicable, use (in this order) within 4 metres of the roof edge:

- Anchoring point (demonstrably suitable) with fixed working line
- Personal fall protection (only if other measures are not possible)
- Check that the materials and personal protective equipment to be used are inspected.
- Find out how to escape safely.
- Be alert to changing weather conditions.
- Conduct a last minute risk assessment (LMRA).



At openings in the roof (think also of skylights):

- Cordon off the area with hard deposits.

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- Block off the dangerous area below/next to it to prevent passage, according to I-112.
- Keep the area around the opening free of obstacles.

While working

- Make sure nothing can fall, including through openings in the roof.
- Keep escape routes clear and accessible.
- Ensure a tidy workplace.
- Consider the roof load
- Ensure adequate supervision during implementation


Organisational measures when working on a flat roof

Make sure a TRA is drawn up:

- Check whether the roof's supporting structure is suitable for the work, paying specific attention to point and roof loads.
- In the absence of collective fall protection, provide a certified structure to which individual fall protection can be attached.
- For the specific work situation, determine what length the lanyard should be.
- Make sure a rescue plan is in place and how communication will take place in that case.
- Adjust escape routes and passages at cordons if necessary.
- Pay attention to activities that can affect each other.
- Pay attention to environmental factors such as weather conditions (rain/wind/freezing/slipperiness)

Draw up a work permit, specifying the fall line to be used.

PS. Sloping roofs do not or hardly occur at RWE GC-NL. If this does occur somewhere, a TRA should be drawn up and the AI-15 checked with Safety Experts.

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Ladders and stairs

Please note, Ladders and stairs are **used only for access and visual inspections**. Only if absolutely no alternatives are possible, and this can be substantiated, can a ladder or staircase be used. The risk assessment and derived measures should then be recorded in a work permit or otherwise documented (LMRA).

Risks when using ladders and stairs

- the forces exerted on them can cause ladders to slip or tip over
- when climbing or standing on the ladder, one can lose contact and grip with the ladder and therefore lose balance
- when transferring to the higher level in case of insufficient support fall backwards

Requirements for ladders and stairways

Ladders and stairs must comply with the following standards and legislation, for both design, and use:

NEN 2484 - Portable climbing equipment - Ladders and stairways - Terms, definitions, requirements, test methods, use and maintenance

NEN-EN 131 - Ladders part 1-8

Warenwetbesluit draagbaar klimmieel (**Commodities Act Decree on Portable Climbing Equipment**)

Working Conditions Decree 7.23a

Ladders and stairs should be inspected annually and bear a valid inspection sticker, and inspected for defects before each use

Introduction

A ladder refers to portable climbing equipment consisting of stiles (ladder uprights), rungs and fittings. We distinguish between single-section and multi-section nonfreestanding ladders (sliding or extension ladders, telescopic ladders, and push-up ladders), multi-section nonfreestanding ladders (A-ladders or reform ladders) and folding ladders. In principle, ladders can be used to reach a higher level, but not as a workplace, nor are they suitable for carrying materials up or down with them.

A ladder consists of two uprights on the side with the rungs in the middle. So the rungs are the steps you stand on. A staircase also has stiles on the sides, but unlike the ladder, the staircase always has a fixed length and flat steps to stand on, rather than rungs. A staircase can have a platform (bordestrap), and should then always have a railing at least 60 cm high.

The use of ladders as a **workplace at height** is **not permitted**. However, it is possible to use, as an alternative, e.g. a boarding ladder with stabiliser bars, or a so-called eco-lift.



Left: Eco-lift


Right: Breast stairs with stabiliser bars and access gate as fall protection

used only for access and visual inspections Ladders and stairs should be secured against slipping (both laterally and longitudinally). Ladders should be equipped with a stabiliser or spaced-out uprights at the bottom that can prevent sideways tilting. The top and bottom of the stiles should be fitted with anti-slip material (caps). On slippery floors, it is advisable to use a ladder mat to prevent slipping.



Ladder with spaced-out styles

Ladder with stabiliser and ladder mat

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Use of ladders and stairs

Ladders and stairs shall be positioned so that their stability is always guaranteed when in use. In any case, the following measures, combined if necessary, shall be taken for this purpose:

- A. the supports of portable ladders and stairs rest on a stable, firm and immobile surface of sufficient size so that the rungs remain horizontal;
- B. slipping of the foot of portable ladders and steps during use shall be prevented by any of the following, combined if necessary:
 - a. securing upper or lower ladder uprights;
 - b. an adequate anti-slip device;
 - c. another equally effective measure;
- C. access ladders extend at least 1 metre above the access level, unless other arrangements allow a safe handhold;
- D. rolling ladders and stairs are secured before entering;
- E. When using ladders and stairs, workers always have safe support and handholds (always 3-point contact). In any case, the following measures, combined if necessary, are taken for this purpose:
 - a. carrying loads by hand on a ladder or stairs should be avoided and in no case impede a safe hold;
 - b. suspended ladders shall be securely fastened and, with the exception of rope ladders, so that they cannot shift and that swinging back and forth is avoided; or
 - c. the different parts of multi-part ladders and sliding ladders do not shift in relation to each other during use.

Responsibility of client (RWE)

In case of intended use of stairs or ladders, an assessment must be made by the client in consultation with the contractor whether the ladder or stairs can be used in the circumstances of the work with the necessary safety guarantees.

Responsibility of contractor

If no work equipment other than the ladder or stairs can be used, the following arrangements must be taken into account.

Work preparation is an important step in preventing unnecessary use of ladders

- Prior to the work, the best work equipment to use should be identified.
- If there are no operationally-necessary obstacles, the safest means of work should be chosen.
- Improving occupational health and safety is a goal that cannot be subordinated to purely economic considerations.
- Operational, economic and safety technical aspects should therefore always be considered in conjunction.
- In principle, ladders can only be used to reach a higher level, but not as a workplace.
- The use of ladders or stairs as a workplace at height is not allowed unless there are no alternatives left, in which case the conditions below must be met.

Additional conditions and measures for working on ladders:

- Perform a TRA for working at height with a ladder, when a foot-stand height > 1.5 metres;
- Make sure standing time is kept to a minimum, no more than 1 hour;
- Only use ladders and stairs that have been approved. A (mobile) chest ladder is preferred.
- The reach at a ladder should be a maximum of one arm's length (about 75 cm) beyond the ladder uprights.
- The set-up angle of the ladder in relation to the horizontal ground plane should be between 70° and 75°.
- Never stand on the four highest rungs.

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- Always have three supports (one hand and two feet or two hands and one foot). Always hold a sport with at least one hand, even while working;
- Do not place the ladder/stairs in front of a door or in an escape route, watch out for other collision or impact hazards;
- No material should be carried on ladders in the hands;
- Working outside on ladders and stairs depends on the weather, wind force (< 6 Bft), rain, hail, thunder, and sleet should not compromise safety;
- Work equipment and machines that require safe use with two hands (e.g. grinders, hand-held milling machines and crowbars) are not allowed on a ladder;
- Never place ladders near live parts. Consult what the safe distance should be. Always have (even when changing lamps!) the installation or component de-energised and fuses removed;
- Conduct a joint LMRA on site before you start!

Working with fall protection

If there is no other way and it is necessary to work with fall protection, work with approved equipment according to the standard, see instruction I-103. RWE additionally requires the use of safety harness relief steps to prevent the risk of so-called hanging trauma.

With fall belts, a fall stopper is also mandatory, unless the line already needs to be as short as possible. Because an automatic fall stopper in almost all cases automatically locks immediately upon a fall, its use in this situation (when attached at the highest point above the head) ensures the lowest fall clearance (and the shortest fall factor). RWE also requires fall arrestors between the hook and the fall stopper.

A 2nd person should always be present for supervision and communication and a worked out and released rescue plan (also due to the risk of hanging trauma).

RWE applies the rule: never climb a cage ladder with several people at the same time. Cage ladders should be included in the RIE for work equipment in connection with the inspection of the entry gate.

Working on the waterfront


Working above, on or at the waterfront entails additional hazards and risks that need to be considered during work preparation in order to mitigate them. To manage the potential hazards and risks, it may be necessary to draw up a TRA for this purpose.

Circumstances to be considered:

- Tides (ebb and flow)
- Weather conditions
- Work can/can't be safely carried out alone, see above I021 (working alone)
- Shipping

Furthermore, the following applies:

- Work less than 4 metres from the water's edge or within the orange lines: hard barriers at the water's edge (guardrails) or use lifejackets.
- Work on water: wearing life jacket mandatory
- Working on an installation on the quay within 4 metres of the water's edge with risk of falling: wear a fall arrest harness and use a suitable anchor point and positioning line so that the distance to the water cannot be reached

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Areas where the use of a life jacket is compulsory are marked with orange lines and signs requiring the use of a life jacket.

Local (additional) instructions may apply.