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| SAFETY REQUIREMENT VV07 Use and construction of scaffolding |  Balen/Pelt |
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| Date 1° issue | 19/02/2015 |
| Date of last change | 24/05/2023 |
| Nature last changing | Review + see blue text |

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1 PURPOSE

If a scaffolding must be used during work, the following requirements apply with regard to the use and placement.

2 SCOPE

The requirements of this safety regulation apply to the premises of Nyrstar Belgium.

3 DEFINITIONS

Scaffolding are temporary structures that are sometimes necessary to carry out works at height.

4 PRESCRIPTION

4.1 Requirements when using scaffolding

The scaffolding must be inspected before commissioning by an inspection expert from Nyrstar (SPOC) or from the scaffolder. It should be evaluated whether evacuation in an emergency is possible. The inspection must be repeated if the scaffolding is adjusted in the meantime, the purpose of use changes, after a storm ≥ 9 beaufort) or 4 weeks after the previous inspection.

Only scaffolding that has a fully completed green inspection label with indication of inspection date and expiry date showing that the scaffolding has been approved may be used.

Every person entering must check whether the scaffolding can be entered in a safe condition. [Specific concerns here include;](#)

- Whether the access ladder is fixed,
- the working platform is equipped with skirting and handrails,
- there are no openings in the work platform,
- floor beams are fixed.



The image shows a green 'Steigerkaart' (Scaffolding Card) form. It contains fields for: Plant: Nyrstar Balen/Overpelt, Locatie, Plant: Nyrstar Balen/Overpelt, Steiger nr., Geïnspecteerd door, and three sets of inspection dates (Inspectiedat. and Tem.) and names (Naam).

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- It is not allowed to make changes to a scaffolding yourself.
- Anyone who notices a defect (change, damage, etc.) on the scaffolding has the duty to report this immediately. He draws the green inspection label, possibly mentions the reason on the back and puts this inspection label back with the 'forbidden to enter' side forward so that no one is allowed to enter the scaffolding. He immediately notifies the control room/area planner so that they can have the scaffolding repaired by the scaffolder. In the event of imminent danger, he shall inform the other users. Only after the scaffolding has been put back in order will the scaffolder release it and place the green inspection label.



- Load on the floors:
 - Standard there is a load of 3000N/m² (300kg/m²), deviating scaffolding gets a special inspection label (see orange scaffolding card), on which the load is stated.
 - Inform yourself in advance about the weights that you are going to place on the floors. Check that the permissible floor load is not exceeded.
 - When in doubt, stop work and ask for information.
 - Avoids point loading. These are not allowed on scaffolding floors, take pressure-distributing measures if necessary.
- No hoisting equipment may be attached to the scaffolding (unless the scaffolding is designed on that basis, see orange scaffolding card).
- Improper taxation:
 - Nothing may be deposited or stamped against the scaffolding structure.
 - Nothing may be supported on the scaffolding structure.(support racks must always be specially designed, calculated and drawn)
- After a storm (=> 9 beaufort) or in other situations where damage to the scaffolding can be suspected, the scaffolding may no longer be used before it is inspected again. In those cases, the inspection label must be removed and the correct persons must be informed of this.
- In case of thunderstorms, the scaffolding must be abandoned due to possible lightning strikes. At wind speeds above 6 Beaufort, sails and tents, etc. that do not belong to the scaffolding must be removed and one must stop working on scaffolding, tools, material, etc. and leave the scaffolding.

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4.2 Special scaffolding

Sometimes it can happen that there are deviations from the standard scaffolding. This is then indicated by an orange scaffolding card.

Possible deviations are:

- A lifting scaffolding: this is a scaffolding to which a hoist is attached and where one can hoist things upwards. The weight and maximum number of people allowed to enter the scaffolding is stated on the scaffolding card.
- A scaffolding where one must wear a safety harness when entering are also tagged in this way.

Steigerkaart
LET OP!
Alleen betreden door
geïnstrueerde personen.

Calc. No.:
Bouw dat.:
Geïnspecteerd door:
Gekeurd tot:

EXTRA MAATREGELEN:

HIJSSTEIGER
Aantal pers.:
Aantal kg:

SPECIALE STEIGER
 Veiligheidsgordel verplicht

BRAND
ENERGY & INFRASTRUCTURE SERVICES

4.3 Requirements when installing a scaffolding

Scaffolding is built by qualified workers. This is usually from a Nyrstar permanent homecontractor, unless otherwise contractually agreed. The requirements set out in the **Annex** to this Regulation shall apply.

- Building a scaffolding is preceded by an assignment description. It shall include at least:
 - the purpose of the scaffolding (nature of the work) from which it can be determined what the (floor) load will be,
 - the location,
 - the duration of use,
 - need to apply grounding. Grounding is required if there is an increased chance that parts of the scaffolding will come under tension, e.g. in case of use of machines > 240V or cables behind a fuse > 32A.
- The contract shall be accompanied by the relevant information of the location such as:
 - the presence of overhead high-voltage power lines within a distance of 10 m – measured horizontally (in the case of non-insulated high-voltage cables always consult the high-voltage responsible person)

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- clear overhead lines of a overhead crane within a distance of 5 m,
 - underground high-voltage lines at the place where the scaffolding is to be placed at the location,
 - Environments at risk of gas explosion (Ex)
 - Nature of the substances with which the scaffolding may become contaminated during use.
 - Other relevant information.
- In the following cases, a calculation, drawing and risk analysis must be made prior to the construction of a scaffolding:
- Scaffolding is higher than 24 meters.
 - Scaffolding where lifting work is carried out
 - Deviating upright tube distances, or anchoring patterns
 - Application of mesh, sail or plating (wind load) > 200 m²
 - Hanging and extension scaffolding
 - Bridgings longer than 6m
 - Scaffolding against which passenger or construction hoists are supported

This calculation, drawing and risk analysis should be available as part of the work preparation file as soon as the work permit for the construction of the scaffolding is applied for. Relevant parts for the use of the scaffolding must be present in the work preparation file of the works for which the scaffolding is intended.

The department that commissioned the construction of a scaffolding must also commission the dismantling. The dismantling of a scaffolding must take place as soon as possible after the end of the work.

4.4 Appendix: minimum scaffolding requirements at Nyrstar

4.4.1 General requirements for the construction

- Scaffold material must not be seriously soiled, contaminated or rusted. It shall not have any deformations/damage such as kinks, dents, cuts or cracks. The welded joints shall not show any cracks.
- Uprights standards should be on base plates. These base plates must be placed on a wooden blockage, such as continuous scaffolding parts or cramped slippers, if the floor is not sufficiently stable. If the wooden blockage can shift and therefore fall down, it must be anchored by a nail or a bolt.
- Rolling scaffolds on grid floors should be on planks to avoid point loads on the grid floors
- Scaffolding must be sufficiently illuminated (must be insured by the requesting service).
- The lower beam may be approximately 25 cm above the base and the welds shall be staggered.

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- The anchoring must be staggered, the purpose of the anchoring is: to shorten the buckling length of the uprights; preventing falls over; compensating for the lack of a chimney bandage in the inner compartment.
- This anchoring must take place at fixed points of the construction, already from a height of 2 m, as close as possible to nodes of uprights and beams of both the inner and outer surface.
- The height of a scaffolding should not exceed 3 times the size of the smallest base. From then on, anchors must be placed.
- A work floor at >1.2m height, a standard handrail at 1.05m height and an intermediate handrail must be provided, and for a work floor >2m, a side plate must be provided.
- Uprights must be placed on base plates and these must be secured against sagging. And only 1 lever may be made between two consecutive beams.
- Scaffolding must be able to meet a minimum structural load of 3000 N/m²(300kg/m²) as standard.
- Work floors must be completely sealed and equipped with edge boards and double handrails all around. All boards must be secured against rocking, blowing up and shifting. Where possible, the work floor access should be equipped with clappers. Access to the scaffolding must always be safe and ergonomic.
- Minimum thickness of the boards is 5 cm and properly executed without large knots or cracks. In the case of system scaffolding, steel floorboards may be used. In case of fire hazard, it is not allowed to use wooden floorboards.
- There must be no dangerous openings between the edges of the floor and the structure against which the scaffolding is placed. If this is not possible, additional protective measures must be taken.
- Work floors up to a maximum height of 5 meters may be accessible directly from the outside via ladders, whereby the ladder must be attached to the upper handrail or extension thereof. Work floors higher than 5 meters are accessible via a separate ladder entrance or stair tower.
- The access to the scaffolding is done by means of a ladder. Ladders should be placed at an angle between 75° and 85° at an angle where passages or escape routes must not be blocked. Ladders linked together must be scraped off on the scaffolding.
- For ladder entrances in stair towers more than 5 meters, ladder floors must be installed with a staggered ladder entrance at least every 2.5 meters in height.
- If, exceptionally, for example in the event of lack of space, ladder entrances have been installed in work floors, these openings must be secured by means of deposits.
- Stair towers should be placed if the scaffolding is used intensively by many people and therefore a wide escape route is necessary or if the scaffolding construction blocks an existing staircase.

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- In the event of a risk of collision, collision protection must be placed, for example by means of fences or cones; if necessary, the roadway (in consultation with the department and gatekeeper) must be blocked.
- In case grounding is necessary: a ground resistance $< 100 \Omega$. Grounding should be carried out by an expert person and recorded in an inspection report. The grounding is inspected (measured) at least once a month.
- Protruding parts presenting a risk of falling and tripping shall be provided with appropriate shielding.
- Protruding parts that pose a risk of impact should be avoided. If this is not possible, the protruding parts should be shielded from injury.
- In case of welding and/or burning on the jetty, the sails must be of class M1 (self-extinguishing)
- The possibility of evacuating must always be taken into account. If necessary, devices shall be provided or descriptions shall be drawn up showing how to evacuate in emergency situations.
- In the basement of the electrolysis one should use polyester scaffolding unless the voltage is 0 and the hall is grounded.. Between the cells one can use standard scaffolding, but then they must be properly shielded against current bumps. Construction must be done at current 0.

4.4.2 Requirements for rolling scaffolding

- Rolling scaffolding must at least comply with NBN-EN 1004:2020 (excluding aluminium scaffolding) and must be installed by persons who are familiar with the construction and operating instructions. The accompanying user manual must comply with the standard. At first stroke, the wind bandage must be placed.
- In the vicinity of above-ground (strong) power lines, consultation with the department must be held in advance about the distance to be kept from the pipes; the use of a plastic rolling scaffolding is preferable in such a case.
- Rolling scaffolding higher than 8 meters may not be moved, these must then be broken down to a height of 8 meters before they can be moved.
- Rolling scaffolding must always be moved with two people within the agreed working area. Never move if there are people or objects on the rolling scaffold.

The requirements related to weather conditions (thunderstorms, wind) also apply to rolling scaffolding that is located in the outdoor environment.

4.4.3 Requirements for assembly and disassembly

The personnel who build or dismantle the scaffolding shall:

- Is expertly trained.

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- When working (dis)assembly, scaffolding personnel above a height of 1.8 meters must be provided with an inspected safety harness and be leashed with at least 1 of the 2 approved lifelines with built-in shock absorber.
- Has overall risk analysis in which attention is paid to the prevention of fall hazards, weather influences (lightning / thunderstorms, ice formation, snow, wind) and dangers from the environment where the scaffolding is built.
- Has the manufacturer's instructions for use accompanied by a note containing a strength and stability calculation. If this calculation note does not provide for the considered structure configuration, a strength and stability calculation must be carried out in accordance with the Royal Decree 31/08/2005 working at height
- Has the assembly/ conversion and disassembly scheme.