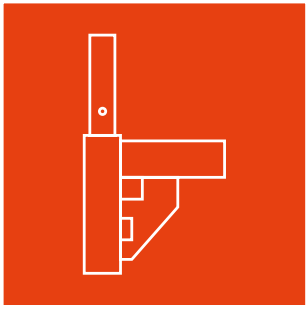
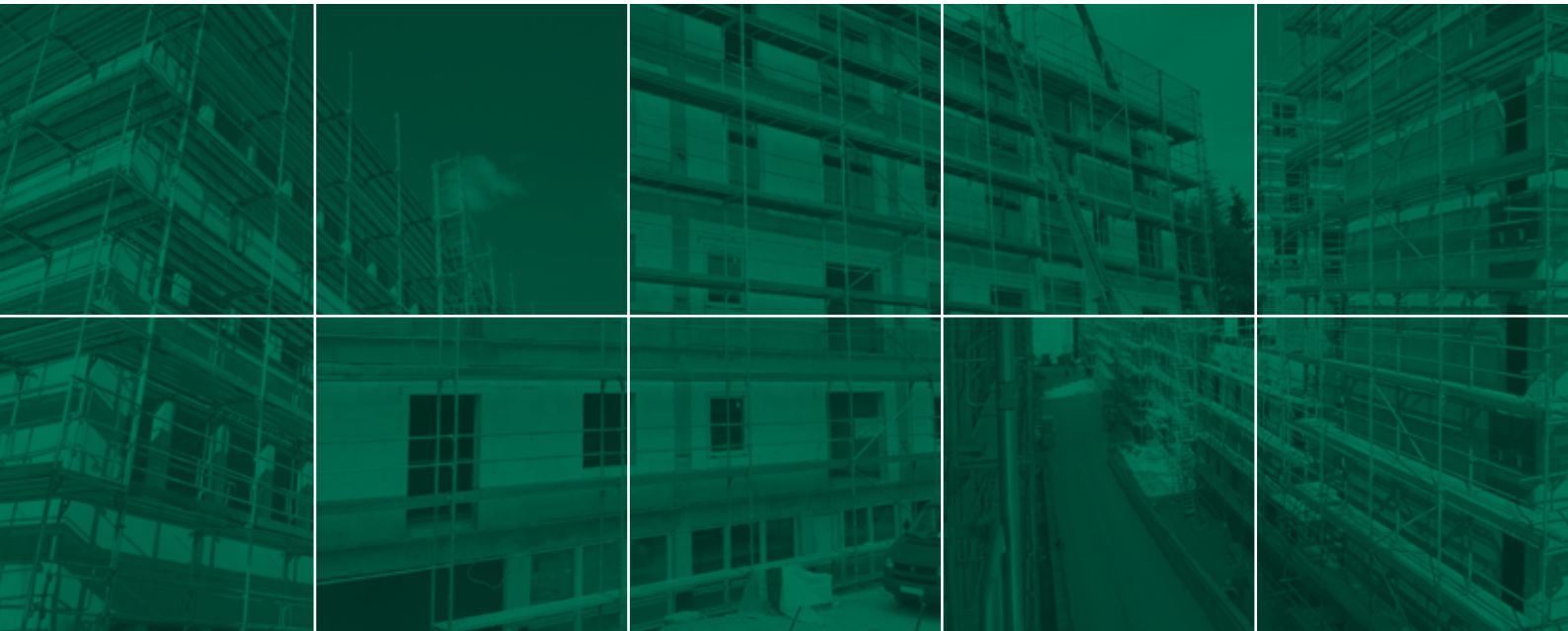
MJ-GERÜST
Scaffolding Systems

SCAFFOLDING MADE IN
PLETTENBERG

UNI-CONNECT 70



INSTRUCTIONS FOR ASSEMBLY AND USE | EDITION 12.2019



MJ-GERÜST
Scaffolding Systems

Preliminary remarks

These instructions for assembly and use are valid only for the scaffold system UNI-CONNECT 70 of the manufacturer MJ-Gerüst GmbH described in them, and are provided for commercial scaffold construction in Germany.

The use of the scaffold system by private persons without the required expertise is not permitted.

With these instructions for assembly and use, notes and possibilities are provided to the installer and the user to take into account the requirements of the operational safety ordinance (BetrSichV) in the respective installation situation. The notes and listed technical details should help the installer and user in ensuring compliance with the requirements of BetrSichV and are not to be considered as mandatory stipulations.

Based on the danger assessment to be generated by himself an subject to the conditions of BetrSichV, the installer or user has to stipulate and implement the required measures in accordance with obligatory discretion. The special features of the individual case are to be considered in each case.

The basic requirement is that the following instructions for assembly and use are followed. For a simpler identification of details, the representations in these instructions and assembly and use are to be understood as examples and are therefore not always complete regarding technical safety considerations. The applicable specifications for occupational safety are to be considered as a matter of course.

Date of issue

The date of issue of this English edition of the technical information is 01.03.2017.

Copyrights and proprietary rights

Utilization not according to specification

Any utilization of the scaffold system contrary to intended purpose is considered as utilisation not according to specification, as specified by the law covering the appropriation of products on the market (Product Safety Law - ProdSG, dated 01.12.2011). This also applies for any disregard of the standards and directives listed in these instructions for assembly and use.

Author / Manufacturer

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Scaffolding Systems

Table of contents

MJ-GERÜST
Scaffolding Systems

1 General

1.1 Basic instructions

These instructions for assembly and use (AuV) regulate the assembly, conversion and dismantling of a scaffold in standard implementation, according to Authorisation No. Z-8.1-872, of the scaffold system UNI-CONNECT 70 of the manufacturer MJ-Gerüst GmbH, and stipulates the utilisation according to specification of this scaffold system.

As well as the regulations of these instruction, the following specifications are to be adhered to:

- general construction-supervision-related authorisation No. Z-8.1-872,
- DIN EN 12811-1: temporary structures for buildings - Part. 1: work scaffold,
- DIN 4420-1: work and protection scaffold - Part 1: protection scaffold,
- regulations of the operational safety ordinance (BetrSichV), the explanatory technical regulations for operational security TRBS 2121 and TBRS 1111 in the currently valid version
- accident prevention specification „Building Work“ (BGV C22).

The UNI-CONNECT 70 scaffold system is authorised in the standard implementation as a work and protection scaffold of the load classes ≤ 3, as well as an interception guard and roof guard scaffold.

Classification	Scaffold EN 12810-3D-SW06/307-H2-B-LS
Load class	≤ 3
Bay length	≤ 3,072 m
Payload/equally distributed load	≤ 2,0 kN/m²

The standard implementation, in accordance with Authorisation Z-8.1-872, is represented in Sect. 5. The proof of structural stability and the verification of fitness for purpose through conferring of the authorisation is valid as provided for this standard implementation. Deviations from this standard implementation are admissible when, in the individual case, the stability and the fitness for purpose, according to the technical building stipulations and the stipulations of Authorisation Z-8.1-872, are verified. The proof of structural stability can also be provided with the aid of dimensioning tables and dimensioning aids, which were generated on the basis of the technical building stipulations.

Deviations from this instruction in the sequence of the assembly, conversion and dismantling are admissible when the safety of the assembly process sequences (for example safety against fall from a height, stability in intermediate states etc.) is verified in the individual case by the scaffold constructor / scaffold generator.

The function-technical specifications and notes on the products listed and/or represented in this document are to be adhered to. Any deviation from the specifications for the installation of the individual parts (wedges, couplers, protections etc.) on an individual basis is also not admissible.

These instructions apply only subject to the prerequisite that those component parts are used exclusively which are listed in the component part list in Sect. 5.1, and the original component parts of the manufacturer MJ-Gerüst GmbH, which are marked with the compliance label <UE> and the corresponding certification number Z-8.1-872, or component parts which are marked with the compliance label <UE> and the corresponding certification number Z-8.1-16.2, are used. In case of the utilisation of other component parts, these instructions do not apply.

For the installation, according to complexity of the implementation, a plan for the assembly, conversion and dismantling, as well as an installation instruction on the basis of a danger assessment according for the operational safety ordinance (see Sect. 1.3.3), is to be generated by the company of the scaffold building work responsible for the assembly, conversion and dismantling or is to be generated by an enabled person stipulated by this company.

These instructions assembly and use, extended by technical details for the respective implementation, can be used for this. The special features of the individual case are to be considered.

The supervisor and the employee must make available these instructions assembly and use on the construction site, as well as the above-designated authorisation, during the entire duration of the assembly, conversion and dismantling of the scaffold.

These instructions must be made available to the users for the entire duration of the utilization of the scaffold.

The assembly, conversion and dismantling of the scaffold may be implemented only under the supervision of an enabled person (monitoring supervisor), by suitable specialist employees, after special instruction as well as object-related instruction related to the results of the danger assessment for the individual case.

Working on and at the scaffolds may be implemented in the following cases only:

- The necessary personal protective equipment (PPE) has been provided by the scaffold construction contractor
- All participating persons use the necessary PPE and
- Its utilisation is ensured by corresponding instructions.

Included in the PPE, according to the activities to be implemented, are in particular:

- Safety shoes
- Protective gloves
- Safety helmet
- As appropriate, protective goggles
- As appropriate, ear protection

Unfinished scaffolds or scaffold areas must be identified with the prohibition sign „Admission prohibited for unauthorised persons“. Access to these danger zones is to be adequately fenced off.

Required measures for the protection of traffic routes in the public area and on the construction site, as well as access roads for the fire department, are to be stipulated by the scaffold constructor / scaffold generator in their own responsibility.

After completion, the respective scaffold constructor / scaffold generator must have the scaffold checked for proper installation and safe function. The check must be implemented by a person enabled for this. It can also involve the supervisor in this case.

The results of the check are to be documented in the form of a test report and kept for an adequate time period (generally 3 months beyond the service life of the scaffold).

After the completion and checking, the scaffold is to be provided with an identification. The identification (see Fig. 1) must include specifications about the scaffold constructor / scaffold generator, the scaffold construction type, as well as the load and width class, and should include general notes on safety. The identification is to be attached on the scaffold at a place where it can be easily seen. When the scaffold constructor / scaffold generator has made sure of the proper status of the scaffold, he may hand it over to the user. It is recommended to implement and document the handover jointly with the user.

The scaffold user must also determine its secure function before the operational start-up by a test of the scaffold. The test of the secure function includes:

- Test of suitability for the planned intended purpose as a work or protection scaffold
- Test of the load, width and height classes for the planned work
- Test for obvious defects, e.g. the mounting surface, decks, ascents or corner formation, the anchoring, the side guard, as well as the separation distance to the building.

If defects are determined during the test, the scaffold may not be used by the scaffold constructor / scaffold generator in the areas with defects until their removal.

If the scaffold is used by several companies simultaneously or one after each other, every company has to make sure of its secure usability in their own responsibility.

Scaffold creator (stamp)

Building site: _____

Customer: _____

Competent person: _____

Work scaffold (DIN EN 12811) as

☐ Facade scaffold ☐ Space scaffold ☐ Mobile scaffold

Protection scaffold (DIN 4420) as

☐ Catch scaffold ☐ Root scaffold ☐ Protective roof ☐ Stair tower

Special scaffold: _____

Load class

☐ **2** (1,5 kN/m²) ☐ **3** (2,0 kN/m²) ☐ **4** (3,0 kN/m²) ☐ (kN/m²)

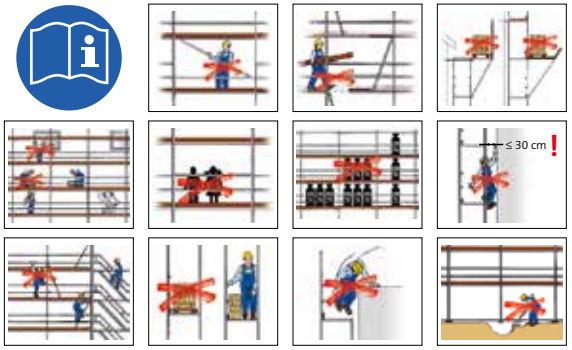
The sum of the traffic loads of all superposed scaffold levels in a scaffold field must not exceed the aforementioned value.

Wide class ☐ W06 ☐ W09 ☐

Use restriction: _____

Checked by competent person of the scaffolder	**Customer***
Date / Name/Signature	Date / Name/Signature

Warning notes:



	Check	in order yes	in order no	not applicable
Scaffold components	Visual inspection not damaged	☐	☐	☐
Stability	Load capacity of the mounting surface	☐	☐	☐
	Base jack - extension length	☐	☐	☐
	Struts/Diagonals	☐	☐	☐
	Longitudinal ledgers - in foot point heigth	☐	☐	☐
	Lattice beams - bracing	☐	☐	☐
	Anchors - acc. to installation instruction/ assembly and use instruction	☐	☐	☐
Decks	Scaffold levels - full designed	☐	☐	☐
	Systemdecks - including consoldecks	☐	☐	☐
	Corner formation - slided around in full width	☐	☐	☐
	scaffold planks - crosssection, support	☐	☐	☐
	Openings - between the decks	☐	☐	☐
Work- and operational safety	Side protection - included end side protection	☐	☐	☐
	Wall distance ≤ 30 cm	☐	☐	☐
	Internal side protection	☐	☐	☐
	Climp ups, accesses - distance	☐	☐	☐
	Stair tower, scaffold stairs	☐	☐	☐
	Applying ladder ≤ 5 m, ladder walkway	☐	☐	☐
	Protective wall	☐	☐	☐
	Protective roof	☐	☐	☐
	Traffic security - lighting	☐	☐	☐
Mobile scaffold	Driving roll	☐	☐	☐
	Ballast/Extensions	☐	☐	☐
Labeling	Scaffold labeling - at the entrances	☐	☐	☐
Blocking:	Unfinished areas dermacated and prohibition sign "access forbidden" attached.	☐	☐	☐

Remark/notes:

Only mark the scaffold if there are defects.

*Applies without signatur of the client as a test report

Fig. 1: Example of a test report related to the identification of a scaffold (Download: www.mj-geruest.de/service/download)

In case of questions related to these instructions assembly and use and/or the object-related assembly process flow, as well as related to the danger assessment for the individual case, please contact the manufacturer of the scaffold system:

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1.2 General installation information

The Authorisation Z-8.1- 872 defined in Enclosure B, and the scaffold implementations represented in Sect. 5 of these instructions assembly and use are designated as standard implementation of the scaffold system UNI-CONNECT 70 of the manufacturer MJ-Gerüst GmbH. The assembly of a scaffold in standard implementation is to be implemented in the sequence of the following sections. In this case, the following are to be considered:

- All scaffold component parts are to be checked for damage before installation by visual inspection. Damaged scaffold component parts may not be installed.
- Scaffolds may be set up only on sufficiently load-bearing undersoil. Spindle and base plates must be placed over the entire surface, and the forces which result from the scaffolds must be capable of being taken up in the set-up level and must be capable of being transferred into the building ground. In case of a undersoil which is not sufficiently load-bearing, load-distributing sub-structures are to be provided.
- In case of scaffolds of standard implementation, the uppermost scaffold level may not be higher than 24 m, plus spindle extension length, above the ground. The maximum admissible spindle extension length may not be exceeded at any point on the scaffold.
- The component parts authorised for the standard implementation are collated in Sect. 5.1. For the strengthening of the walk-through frames, the lowest vertical frames directly above the walk-through frame and the getting over supports, the uncoupling part of the getting over supports, the connection of the forward-placed ascent area with the vertical frames of the facade scaffolding and the corner, scaffold tubes and couplers, as well as connection by wall ties to the standard couplers stands, may furthermore is used (see Sect. 2.9). The utilisation of further component parts is not admissible within the framework of the standard implementation.
- In case of the installation of wedge and bolt couplers, Sect. 2.9.2 is to be considered.
- Work on the scaffold is always to be implemented from a location which has been mounted completely and secured with assembly security guard rail (MSG) deviations from this are only admissible when the utilisation of the MSG on an individual basis, due to local conditions, is not possible and a separated danger assessment for the work in this area with corresponding installation instruction exists (see also Sect. 1.3.3).
- With the installation, the stability of the scaffold must be always guaranteed, also in intermediate states.
- Scaffold anchoring points are to be installed continuously with the scaffold set-up.
- The completion of the edge protection on the longitudinal and front sides of the scaffold, consisting of guard rails, intermediate stringers and toe boards, is to be carried out directly level-related in the course of the set-up.
- All covering parts are to be secured in their location.
- The permanence of the implementation is to be guaranteed for the entire utilisation time of the scaffold.
- Vertical diagonals for the strengthening of the scaffold parallel to the facade are to be installed continuously with the scaffold set-up. The installation can be implemented either through-running or as a tower, where the slope direction of the diagonals can be freely selected within the framework of the standard implementation.
- The flaps of the access decks are to be kept closed. They may be opened only direct before ascending or descending and are then to be immediately closed again.

ATTENTION!
The gap between to the inner edge of the scaffold decks and the wall to be scaffolded is to be kept as small as possible depending on the work to be implemented and may be maximum 30 cm wide (see Fig. 18). If this gap dimension cannot be adhered to locally, a three-part side guard (guard rail, intermediate guard rail and toe board) is also to be attached on the inner side of the scaffold.

1.3 Safety

1.3.1 Safety against fall from a height

ATTENTION!
During installation of a scaffold, a danger of falling can exist.

The scaffold constructor / scaffold generator must stipulate, on the basis of his danger assessment for the individual case (see Sect. 1.3.3), suitable measures for protection against danger and instruct the executive persons correspondingly. Possible measures for protection against danger can be for example:

- The utilisation of the UNI-CONNECT 70 assembly security guard rail „MSG“ (see Sect. 7.2),
- The utilisation of suitable personal protective equipment against fall from a height „PSAgA“ (see Sect. 7.3) or
- A combination of the above-designated measures.

Measures for safety against fall from a height are not necessary when the work and access areas are at most 0.30 m distant from other load-bearing and sufficiently large surfaces.

1.3.2 Safety against tipping

ATTENTION!
With the assembly of the second level of a scaffold, tilt danger exists for the field in which the vertical transport is implemented.

Where appropriate, before the assembly of the second scaffold level, a temporary anchoring or support is to be attached at the height of the first deck level, e.g. through slanted supports at the height of the decks (see Fig. 2). It is to be ensured that the foot-points of the supports are secure in their location (no slipping away!).

ATTENTION!
In case of facade scaffold with inside brackets, tilt danger exists when stepping on the bracket decks on the first scaffold level.

In this case, before stepping on the bracket decks, measures are to be taken for realising safety against tilting, e.g. through suitable supports against the building construction.

Fig. 2: Example of a temporary tilt protection with installation of the second scaffold level

1.3.3 Risk assessment

The assembly work must be implemented so that any danger of falling is avoided as far as possible, and the residual danger is kept low.

The scaffold constructor / scaffold generator, on the basis of a danger assessment for the individual case and/or the respective activities, must stipulate suitable measures for protection against danger and instruct the executive persons accordingly. In this case, the regulations of the operational safety ordinance (BetrSichV), the explanatory technical regulations for operational security TRBS 2121 and the Specialist Regulation 1 for scaffold construction, as well as the handling directions BGI 663 „Handling of work and protection scaffolds“ and BGI 5101 „Scaffold building work“, are to be considered.

For safety against fall from a height during installation, the scaffold levels are to be protected against stepping on at all possible fall edges with assembly security guard rails (MSG) (see also Sect. 7.2). If the utilisation of the MSG is not possible on an individual case due to

local conditions, instead of this the protection may be implemented in the affected area through the utilisation of personal protective equipment against fall from a height (PSAgA) (see also Sect. 7.3).

In this case, a separate danger assessment is to be implemented by the scaffold constructor / scaffold generator for the work in this area and an installation instruction generated, as well as suitable measures stipulated for the rescue of persons secured with PSAgA who have fallen.

Within the framework of the danger assessment, the type of suitable access to the scaffold is also to be stipulated.

1.4 Vertical transport of scaffold component parts

Fig. 3: Example of vertical transport of scaffold component parts manually

For scaffolds with more than 8.00 m height (deck height above mounting surface), builder‘s hoists must be used in the assembly and dismantling.

Included in builder‘s hoists are also hand-operated rope-pulley hoists. Builder‘s hoists may be dispensed with when the scaffold height is not more than 14.00 m and the length development of the scaffold is not more than 10.00 m.

ATTENTION!
The instructions assembly and use of the builder‘s hoist used are to be considered.

Manual transport

In scaffold fields in which the vertical transport is implemented manually, railings and intermediate stringers must be existing in the lower levels. In the uppermost scaffold level in each case, the upper guard rail is sufficient. During manual transport, at least one person must stand on every scaffold level (see Fig. 3).

2 Assembly of a scaffold with standard implementation

2.1 Determining the planned installation points

Before beginning the actual assembly work, the planned installation points are to be stipulated.

ATTENTION!
With the determination of the planned installation points, the maximum admissible wall distance is to be considered (see Sect. 1.2).

2.2 Assembly of the first scaffold level

ATTENTION!
The assembly of the scaffold is to commenced with a scaffold level in which a diagonal is planned.

ATTENTION!
In the standard implementation described here, diagonals may be installed only in scaffold fields which are at least 2.07 m long.

2.2.1 Load-distributing substructure

The scaffold may be set up directly on the undersoil if it is ensured that the undersoil is sufficiently load-bearing, e.g. in case of a base slab of concrete. In case of insufficiently load-bearing substrate, load-distributing substructures are to be provided (see Fig. 4 and Fig. 5). These are to be positioned so that the load is distributed uniformly on the undersoil.

With sloping undersoil, the sub-structure must be implemented so that a path slide is securely prevented and a horizontal placement area results for the scaffold (e.g. through the utilization of wedges).

With slopes over 5°, the local load transfer is to be verified. Where appropriate, suitable measures for realising the required security are to be implemented.

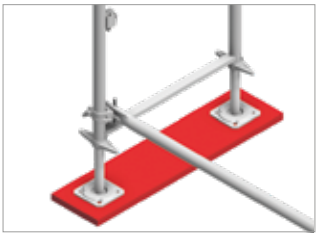


Fig. 4: Load-distributing sub-structure with scaffold planks

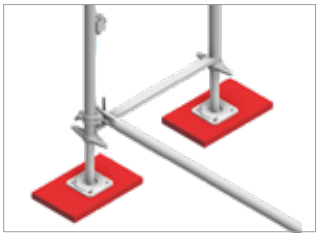


Fig. 5: Load-distributing sub-structure with plank pieces under every base plate

2.2.2 Base jacks, U-Start transom, system decks

At the planned positions of the assembly frames or walk-through frames, two base jacks are to be assembly in each case (see Fig. 4 and Fig. 5) and turned out to the planned pull-out length: Pull-out length of the base jacks = base plate lower edge to assembly frame lower edge.

In case of the standard implementation described here, the maximum admissible pull-out length of the base jack is 41 cm. In case of larger pull-out lengths, the stability of the scaffold is to be verified for the individual case.

> ATTENTION!
> With installation of the base jacks, the maximum admissible wall distance is to be considered (see Sect. 1.2).

In scaffolding fields in which a ladder walkway is planned, U-Start transoms are to be placed on the spindles and inserted into these system decks (see Fig. 6, as well as Sect. 2.2.7).

> ATTENTION!
> These system decks cannot be inserted any longer after the lowest assembly frames have been placed on.

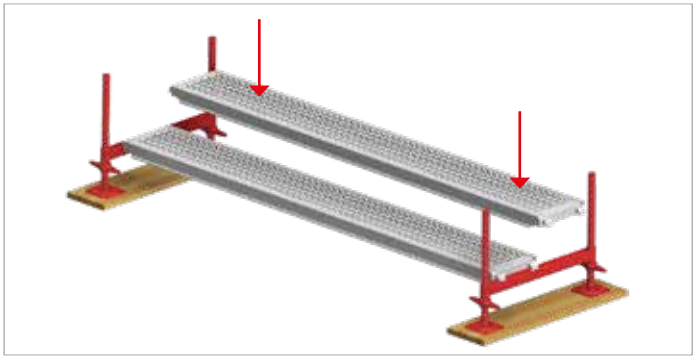


Fig. 6: Insertion of the system decks into the U-Start transoms (ladder walkway area)

2.2.3 Height adjustment

If the undersoil indicates different heights at the different installation points, or if certain heights of the scaffold levels should be reached, a height adjustment is to be provided (see Fig. 7). The height adjustment may only be implemented in the lowest scaffold level.

The compensation of smaller irregularities in the ground is implemented by turning out the base jacks. However, the maximum admissible spindle extension length for any spindle may not be exceeded in this case. The compensation of greater differences in levels can be implemented with the aid of adjustment frames (0.66 m, 1.0 m or 1.50 m). Adjustment frames may be installed directly over the base jacks exclusively. Scaffold

fields with adjustment frames are to be connected in longitudinal direction with horizontal braces directly above the base jacks and reinforced with diagonals or tubes and couplers (see Fig. 7 and Sect. 2.2.5 to 2.2.6, as well as Sect. 2.9.2).

ATTENTION!
With the stipulation of the anchor levels, scaffold levels with adjustment frames are to be considered as a full scaffold level (see also Sect. 2.6). With the employment of adjustment frames, the anchor raster is therefore to be displaced downwards by one scaffold level.

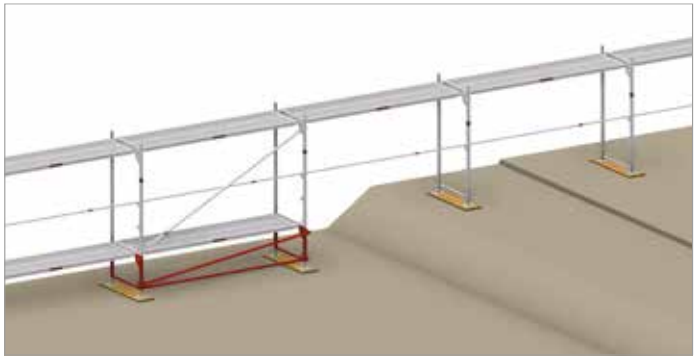


Fig. 7: Compensation of a ground jump with the aid of adjustment frames

2.2.4 Assembly frame or walk-through frame

The assembly frames or walk-through frames are to be placed vertically onto the spindles and secured against tipping over.

ATTENTION!
The spindle tubes must be inserted at least 150 mm deep into the stand tube.

ATTENTION!
The frames are to be structured so that the guard rail wedge housings are located at the facade-facing stand.

2.2.5 Guard rail, horizontal brace

Fig. 8: Assembly of the first scaffold field: Guard rail, horizontal brace

On the outer side of the scaffold field is to be mounted a guard rail or a double end guard rail in the middle of the assembly frames as follows:

- Release wedges and pull from the wedge housings
- Place hooks of the railing into the wedge housings from above (see Fig. 9),
- Turn out base jacks until the guard rail lies is horizontal,
- Align stands of the assembly frames vertically and drive in wedges of the railing securely (see Sect. 2.9.2).

Fig. 9: Hooking the guard rails into a wedge box

Then a horizontal brace is to be connected to the standtubes directly on the outer side of the scaffold field over the foot ledhers of the assembly frames, with the couplers attached to these (see Fig. 10, as well as Sect. 2.9.2).

Fig. 10: Connection of the horizontal brace

2.2.6 Vertical diagonal

Fig. 11: Assembly of the first scaffold field: Vertical diagonal

On the outer side of the scaffold field, a diagonal is to be installed as follows:

- Slide the upper end of the diagonal into the recess of the gusset plate on the assembly frame and engage (see Fig. 12)
- Connect the lower end of the diagonal with the coupler attached to this on the adjacent assembly frame (see Fig. 13, as well as Sect. 2.9.2).

ATTENTION!

In case of some configurations, diagonals are also necessary on the inner side of the scaffold (see Sect. 5).
The installation of these diagonals corresponds to the installation on the outer side of the scaffold. As an alternative, scaffold tubes with swivel couplers can be used as interior diagonals (see Sect. 2.9).

2.2.7 System decks

Decks are to be mounted on the assembly frame system in full system width. For this purpose, they are placed on the support claws existing at the end of the decks into the U-profile of the assembly frames.

Only the system decks designated in Sect. 5.1 may be used.

ATTENTION!

Steel decks and ALU decks with a deck width of W = 0.19 m only may be used as a compensation deck in connection with brackets.

Fig. 12: Hooking the vertical diagonals into the recess of the gusset plate

Fig. 13: Connection of the lower diagonal end

Fig. 14: Hooking in a system decks

Fig. 15: Hooked-in system deck, located inside near displacement protection

The number of decks which are to be installed in every scaffold field is indicated in the following tables.

Deck element	Page in Annex A of the Approval Z-8.1-872	Deck width (m)	Quantity of scaffold bay
Steel deck	85/86	0,32	2
Steel deck 4.14 m (the getting over field)	87	0,32	2
ALU deck	90	0,32	2
Rugged deck	92	0,61	1
Rugged deck	93	0,61	1
Rugged deck	94	0,32	2
ALU deck set for stack multi-purpose deck	97	0,61	1
ALU profile deck	101	0,61	1
ALU enclosure deck	104	0,32	2
ALU enclosure deck 4,14 m	105	0,32	2
Rugged deck	108	0,32	2
Solid-timber deck board	112	0,32	2
Combi deck	113a	0,61	1
Combi deck with wood panel	124	0,61	1
Steel deck (manually welded)	126a	0,32	2
Steel deck (manually welded)	155	0,32	2
Steel deck (manually welded)	156	0,32	2
Steel deck t=1,25 mm (machine welded)	182	0,32	2

ATTENTION!
With hooking in the system decks, a danger of crushing exists. At the moment of hooking in, the decks are to be held in suitable form.

The decks must be installed restraint-free. The displacement protection must be located on the scaffold outer side. The support claws of the decks may not be placed into the narrow area between displacement protection and standtube (see Fig. 14 and 15).

On the first level, access decks may be installed only if system decks on U-Start transoms are located below (see Sect. 2.2.2).

In scaffold fields in which a ladder walkway is provided, the following access decks are to be used:

Belagelement	Page in Annex A of the Approval Z-8.1-872	Deck width (m)	Quantity of scaffold bay
Walk-through frame steel	89	0,64	1
Robust walk-through	95	0,61	1
Robust walk-through with ladder	96	0,61	1
Alum. walk-through with ladder	116	0,60	1
Walk-through board with timber deck (Flap opening backwards)	136	0,61	1
ALU deck with steel caps	157	0,61	1

2.2.8 Cross diagonals

With some system configurations, cross diagonals are necessary in the lowest assemblyl frames (see Sect. 5.3).

If required, the cross diagonals with the couplers existing at their ends are to be connected in the corner areas of the assembly frames (see Fig. 16 and Sect. 2.9.2).

Fig. 16: Scaffold field with transverse diagonals

2.2.9 Alignment of the scaffold field

The first scaffold field is to be aligned so that,

- The assembly frames vertical,
- The system decks lie horizontally and
- The maximum admissible separation distance between wall and scaffold deck is adhered to (see Fig. 18 and Sect. 1.2).

Fig. 17: Finished-assembled first scaffold field

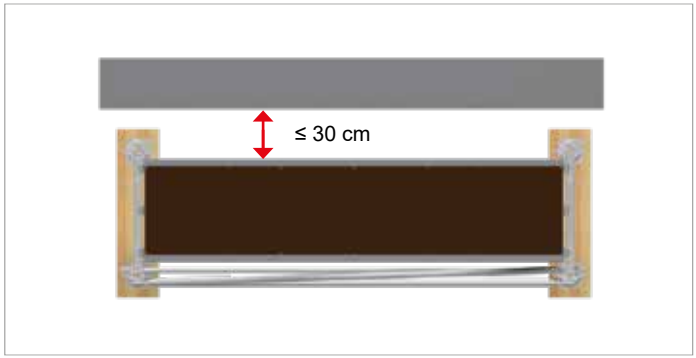


Fig. 18: Maximum admissible separation distance between deck inner edge and facade ≤ 30 cm

ATTENTION!
The maximum admissible separation distance of 30 cm between to the inner edge of the scaffold decks and the facade may not be exceeded at any level on the scaffold.

2.3 Assembly of further scaffold fields of the first level

2.3.1 Normal fields

The assembly of the further scaffold fields is implemented as described in the preceding section for the first scaffold field:

- If required, lay out load-distributing sub-structures at the planned installation points (see Sect. 2.2.1) and then, at the planned positions of the assembly frames, set up two base jacks in each case
- In scaffold fields in which a ladder walkway is planned: Place U-Start transoms on the spindles and hang U-Start transoms into these system decks (see Fig. 6, as well as Sect. 2.2.7).

ATTENTION!
The system decks cannot be hung any longer if the lowest assembly frames have already been placed on in this field.

- Place assembly frames onto the spindle pairs and protect against tipping over
- Install guard rail (see Sect. 2.2.5).
- In scaffold fields in which diagonals are planned (see Sect. 5.3): Install horizontal braces and diagonals (see Sect. 2.2.5 to 2.2.6). In this case, the following is to be considered:
  - At most 5 scaffold fields may be assigned to one diagonal
  - The slope direction of the diagonal can be freely selected,
  - In every scaffold field with a vertical diagonal below the lowest scaffold level, a horizontal braces is also always to be installed directly above the base jacks.
- If required, install cross diagonals (see Sect. 2.2.8)
- Hang system decks into the U-profile of the assembly frames (see Sect.

2.2.7). In scaffold fields in which a ladder walkway is planned, Mount access decks instead of the scaffold decks.
- Align all fields vertical and parallel to the facade (see Sect. 2.2.9), consider maximum wall distance (see Sect. 1.2).
- If anchors are planned in this scaffold level: Install anchors (see Sect. 2.6).

ATTENTION!
The flaps of the access decks are to be kept closed (see Sect. 1.2).

2.3.2 Corner formation

At building corners, the assembly frames are to be connected with each other with two swivel couplers:

In the upper area of the assembly frames, a swivel coupler is fixed directly below the gusset plates of the assembly frames. The vertical frames are connected with each other with the other swivel coupler in the lower area directly above the base jacks (see Fig. 19 and Fig. 20, as well as Sect. 2.9.2).

The anchoring points of the scaffold in the area of a building corner are to be developed in every anchor level according to Page 73.

Fig. 19: Corner formation of the lowest scaffold level

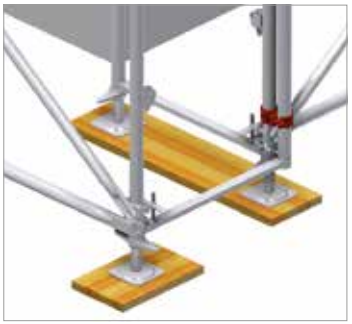


Fig. 20: Connection of the vertical frames in the foot area (detail)

2.3.3 Stair ascent

Prior to commencement of work on the first scaffold level, the access is to be installed. A stair ascent is provided for that (see Fig. 21), where this is to be mounted before the scaffold as follows:

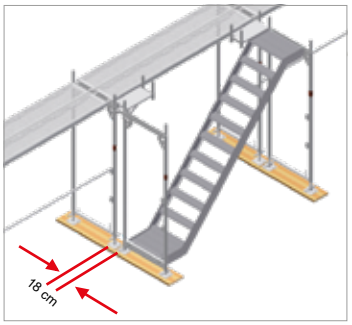


Fig. 21: Stair ascent, first scaffold level

- At the four installation points provided
  - If required, lay out load-distributing sub-structure in accordance with Sect. 2.2.1 and
  - assembly base jacks in accordance with Sect. 2.2.2.
- At the entry side, a U-Start transom to be placed onto the spindle pair (see Fig. 6)
- First place assembly frame onto the other spindle pair and secure against tipping over
- Hang landing-type stair below into the U-Start transom and above into the assembly frame

- Place second assembly frame onto the U-Start transom and secure against tipping over.
- Align stair ascent:
  - Position assembly frame of the stair ascent so that its top edges are at the same height as the top edges of the assembly frame of the scaffold
  - Align assembly frame so that the separation distance to the scaffold, necessary for the installation of the step access platform brackets, is adhered to (see Fig. 21)
- Mount step access platform brackets with the attached couplers into the head area of the assembly frame (see Sect. 2.9.2), so that its deck surfaces align with the scaffold deck (see Fig. 22).

Fig. 22: Step access platform bracket, mounted between scaffold deck and assembly frame of the stair ascent (detail)

2.3.4 Forward-placed ladder ascent

The forward-placed ladder ascent (see Fig. 23) is to be mounted as follows:

- At the four installation points provided
  - If required, lay out load-distributing sub-structure in accordance with Sect. 2.2.1 and
  - assembly base jacks in accordance with Sect. 2.2.2.
- Place U-Start transoms onto the spindle pairs
- Hang system decks into the U-Start transoms (see Fig. 6, as well as Sect. 2.2.7)
- Place assembly frame onto the spindle pairs and secure against tipping over,
- Install vertical-diagonal (see Sect. 2.2.6)
- Place access deck onto the assembly frame (see Sect. 2.2.7)
- Align ladder ascent:
  - Align assembly frames so that they are vertical and the access deck is horizontal
  - Position assembly frames of the ladder ascent in the levels of the assembly frames of the scaffold, so that the top tilting of the assembly frames are at the same height as the top tilting of the assembly frames of the scaffold
  - Align setting frames so that the separation distance from the scaffold, necessary for the installation of the gap cover (see Fig. 23), is adhered to
- Install alum. intermediate deck between scaffold deck and access deck as a gap covering.

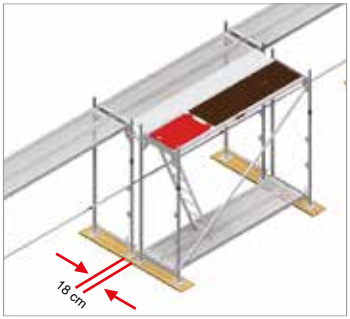


Fig. 23: Forward-placed ladder ascent, first scaffold level

ATTENTION!
The flaps of the access decks are to be kept closed (see Sect. 1.2).

2.3.5 Interior ladder walkway

For the interior ladder walkway (see Fig. 24), access decks are used.

Under the access deck of the first scaffold level, the scaffold field for the U-Start transoms is to be laid with decks (see Sect. 2.2.2 and 2.2.7).

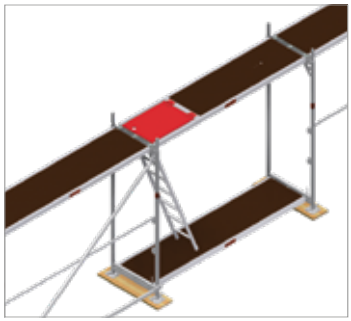


Fig. 24: Interior ladder walkway, first scaffold level

2.4 Assembly of the further scaffold levels

2.4.1 Vertical transport of scaffold component parts

The vertical transport of scaffold component parts for the assembly of the further levels can be implemented with builder's hoists or implemented manually. For notes on the vertical transport, see Sect. 1.4.

2.4.2 Safety against tilting

ATTENTION!
With the assembly of the first level, a tilt danger exists.

Before the assembly of the second scaffold level, measures are possibly to be taken for safety against tilting and temporary supports and/or anchors are to be attached at the height of the first deck level (see Sect. 1.3).

2.4.3 Safety against fall from a height

ATTENTION!
With the installation of the further scaffold levels, danger of falling can exist. For information on measures for safety against fall from a height, see Sect. 1.3, as well as Sect. 7.

2.4.4 Assembly of the scaffold under cover of the assembly security guard rail (MSG)

Fig. 25: First scaffold level with surrounding assembly security guard rail (MSG)

The further levels are to be mounted as follows:

- Before the entering of the next level in each case, attach the assembly security guard rail (MSG) on all sides of the scaffold where danger of falling exists (see Fig. 25 and Sect. 7.2).
- Entering the next scaffold level over the ascent provided. In case of ascent through a access deck, close the flap of the access deck again immediately after the ascent
- Mount scaffold level:
  - Place assembly frames onto the lower assembly frames (see Fig. 26)
  - Hang in guard rails (see Sect. 2.2.5)

- In fields in which a vertical diagonal is planned: Install diagonal (see Sect. 2.2.6).

  In this case, the following are to be considered:

  - At most 5 scaffold fields may be assigned to one diagonal
  - The slope direction of the diagonal can be freely selected (see also Sect. 1.2).

- If provided, the stand joints are to be formed resistant against pull-out (see Sect. 5.3): Insert security pin (see Fig. 27)
- Mount front side rail
- Hang system decks into the assembly frames (see Sect. 2.2.7)
- If brackets are provided at this scaffold level:

  - Install brackets (see Sect. 2.7)
  - Place system decks onto the brackets and secure against lifting (see Sect. 2.2.7 and Sect. 2.7).

- If anchors are provided at this scaffold level: Install anchors (see Sect. 2.6)
- If a forward-placed ascent is provided: Mount ascent (see Sect. 2.4.8 and Sect. 2.4.9),
- Complete edge protection, as appropriate, mount still missing intermediate guard rails and toe boards for this purpose. The toe boards are to be placed with their end reinforcements on the toe board brackets, so that their top edges are at one height right through
- Montagesicherungsgeländer um eine Lage hochsetzen (siehe Bild 29).

Fig. 27: Inserted security pin

ATTENTION!
The flaps of the access decks are to be kept closed (see Sect. 1.2).

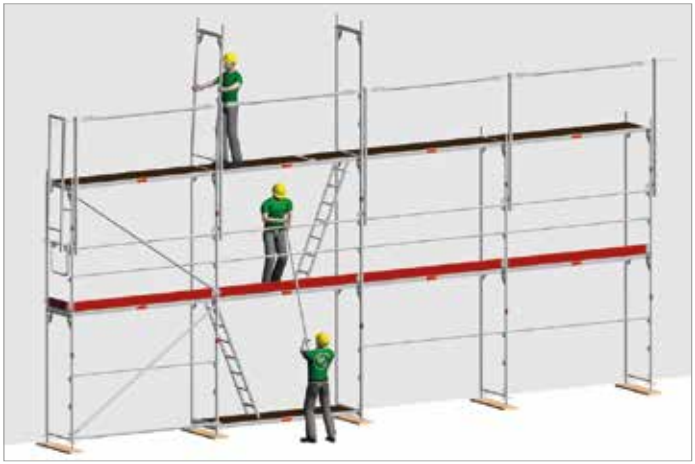


Fig. 26: Installation of further scaffold levels under cover of the MSG

Fig. 28: MSG set up

Fig. 29: Setting up the MSG front rail

2.4.5 Assembly of a scaffold area with the aid of the personal protective equipment against fall from a height (PSAgA)

ATTENTION!
This assembly process may be employed in exceptional cases only, e.g. if protection with surrounding assembly security guard rail, in accordance with Sect. 2.4.4, is not possible due to local conditions in individual scaffold areas.

ATTENTION!
The minimum heights for the anchor point and for the platform are to be considered (see Sect. 7.3).

ATTENTION!
Before the installation of a scaffold area with the aid of the PSAgA, a special danger assessment is to be implemented by the scaffold constructor / scaffold generator and a separate installation instruction generated for the work in this area, as well as suitable measures stipulated for the rescue of persons secured with PSAgA who have fallen.

The assembly of a scaffold area with the aid of the PSAgA is implemented as follows:

- Before entering the next level in each case, attach the assembly security guard rail (MSG) to the ascent field (see Fig. 30 and Sect. 7.2)
- Enter uppermost level via the access deck of the ascent field. Close the flap of the access deck again directly after the ascent.
- Mount ascent field:
  - Place the assembly frame of the ascent field on the lower assembly frame (see Fig. 31)
  - Insert guard rail into the ascent field (see Sect. 2.2.5)
  - If provided, the stand joints are to be developed pull-out resistant (see Sect. 5.3): Insert security pin (see Fig. 27).

Fig. 30: Installation of the MSG in the ascent field

Fig. 31: Ascent field assembly under cover of the MSG

Then mount the planned scaffold area with the aid of the PSAgA as follows:

- Before leaving the area that is already secured by assembly frames and guard rails, attach the PSAgA with the tubular hook to an anchor point provided for that (see Sect. 7.3), where the highest possible anchor point in each case is preferred
- Place the next assembly frame in each case (see Fig. 32)
- Install the next upper guard rail in each case (see Sect. 2.2.7)
- If provided, the stand joints are to be developed pull-out resistant (see Sect. 5.3): Insert security pin (see Fig. 27)
- When a scaffold end is reached: Mount front side rails
- In the entire scaffold area, insert system decks into the assembly frames (see Section 2.2.7)
- If brackets are provided in this scaffold area:
  - Install brackets (see Sect. 2.7)
  - Place system decks on the brackets and secure against lifting (see Sect. 2.2.7 and Sect. 2.7).
- Complete side guard, for this purpose mount possibly still missing intermediate guard rails and toe boards. The toe boards are to be placed with their end reinforcements on the toe board brackets, so that their top edges are at one height right through.
- If anchors are provided on this scaffold level: Install anchors (see Sect. 2.6)
- If a forward-placed ascent is provided: Mount ascent (see Sect. 2.4.8 and Sect. 2.4.9).

ATTENTION!
The flaps of the access decks are to be kept closed (see Sect. 1.2).

2.4.6 Corner formation

At building corners the assembly frames are to be connected with swivel couplers at every level directly below the head ledgers (see Fig. 33, as well as Sect. 2.9.2). The anchors of the scaffold in the area of a building corner are to be developed at every anchor level according to Page 73.

Fig. 32: Installation of a scaffold area with the aid of the PSAgA

Fig. 33: Corner formation in further scaffold levels

2.4.7 Anchors

The anchors are to be installed continuously with the scaffold assembly (see Sect. 2.6). The anchoring grid, the anchors possibly necessary in addition, as well as the corresponding anchoring forces for the corresponding system configuration, are to be taken from Sect. 5.

2.4.8 Stair ascent

Prior to commencement of work on the next scaffold level, the access is to be installed in each case. If a stair ascent is provided for this, it is to be mounted before the scaffold as follows:

- Place assembly frame onto the assembly frame of the exit side and secure against tipping over
- Mount step access platform bracket with the attached couplers in the head area between the assembly frame of the stair ascent and the scaffold (see Sect. 2.9.2), so that their deck surfaces are on one level (see Fig. 22)
- Mount external stair rails and front side rail (see Fig. 34),
- Next mount step access platform bracket between the assembly frame of the stair ascent and the main frame
- Place baluster stairs on the facade-sided joint bolts of the step access platform brackets and connect by means of back guard rail (see Fig. 35 and Fig. 36). On the uppermost exit is mounted the back guard rail with only the exit area free between the step access platform bracket of the exit side and the adjacent assembly frame.
- Nächste Gerüsttreppe einhängen,
- Next hook in scaffold stairs - Next place assembly frame onto the assembly frame of the entry side and secure against tipping over
- Mount step access platform bracket with the attached couplers from stair ascent and scaffold in the head area between the assembly frames (see Sect. 2.9.2), so that their deck surfaces are on one level (see Fig. 22)
- As appropriate, manufacture connections to the main frame through scaffold tubes and couplers (see Fig. 37, as well as Sect. 5.3)
- Possibly extend anchoring of the scaffold in the area of the stair ascent.

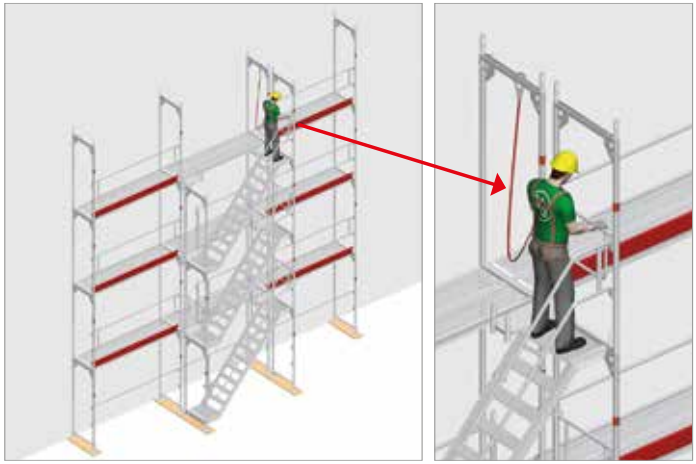


Fig. 34: Front side rail installation on the assembly frame of the stair ascent

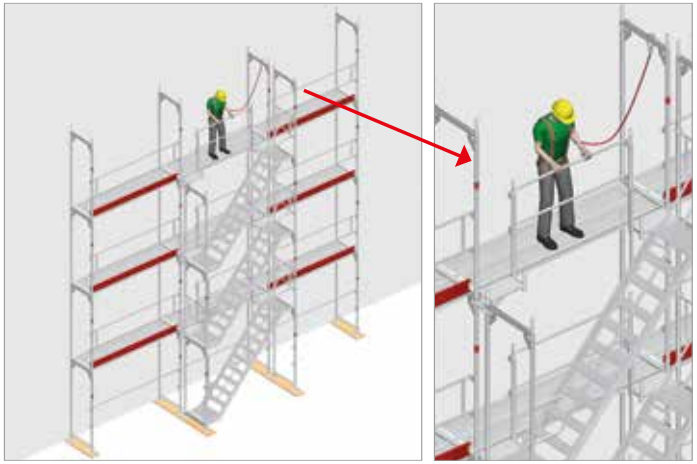


Fig. 35: Back guard rail installation on step access platform brackets

Fig. 36: Side guard protection 3-part on step access platform brackets

Fig. 37: Connection to the main frame through scaffold tubes and couplers

ATTENTION!
On both sides of the stair ascent, the scaffold is to be anchored to the construction work, according to Page 72, on every second level at least. The stair ascent is to be connected on both sides, on every second level at least, with scaffold tubes and couplers on the anchor levels with the scaffold (see Fig. 37).

ATTENTION!
With the installation of the stair ascent, increased danger of falling can exist. The scaffold building work must be implemented so that any danger of falling is excluded or kept as low as possible. The notes on safety designated in Sect. 7 in case of the assembly, conversion and dismantling of the scaffold are to be considered as mandatory.

2.4.9 Forward-placed ladder ascent

The forward-placed ladder ascent (see Fig. 38) is available as an alternative to the stair ascent (see Sect. 2.4.8).

Prior to commencement of work on the next scaffold level in each case, the access is to be installed. If a forward-placed ladder ascent is provided for that, this is to be mounted before the scaffold as follows:

- Place on assembly frame and secure against tipping over
- Install guard rails (see Sect. 2.2.5) and mount front side rails
- Insert access deck into the U-profile of the assembly frames (see Sect. 2.2.7).

ATTENTION!
The flaps of the access decks are arranged offset. They may only be opened short-term for ascending, otherwise the flaps are to be kept closed (see also Sect. 1.2).

- Install vertical-diagonal (see Sect. 2.2.6)
- Install gap cover between scaffold deck and access deck (see Fig. 39)
- As appropriate, manufacture connections to the main frame using scaffold tubes and couplers (see Fig. 37) as well as
- Possibly extend anchors of the scaffold in the area of the forward-placed ladder ascent

Fig. 38: Forward-placed ladder ascent, further scaffold levels

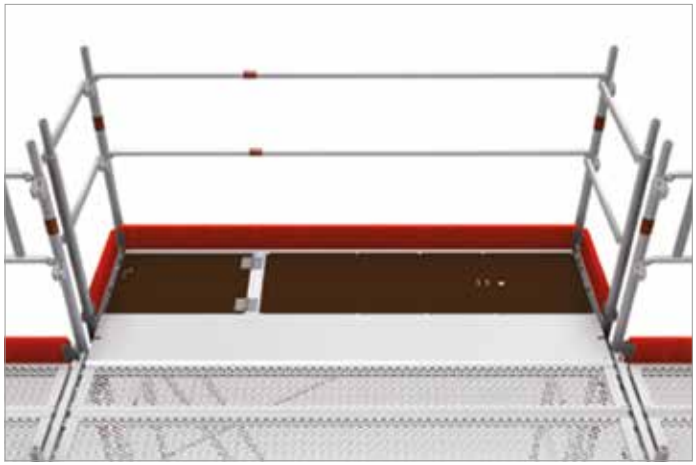


Fig. 39: Gap cover between ascent field and scaffold

ATTENTION!
On both sides of the forward-placed ladder ascent, the scaffold is to be anchored to the construction work, according to Page 71, on every second level at least, even if no anchors are provided for the scaffold itself at these points, in accordance with Sect. 5.3. The forward-placed ladder ascent is to be connected with the scaffold (see Fig. 37) on both sides, on every second level at least, with scaffold tubes and couplers on the anchor levels.

ATTENTION!
With the installation of the forward-placed ladder ascent, increased danger of falling can exist. The scaffold building work must be implemented so that the danger of falling is excluded or is kept as low as possible. The notes on safety designated in Sect. 7 with the assembly, conversion and dismantling of the scaffold are to be considered as mandatory.

2.4.10 Interior ladder walkway

For the interior ladder walkway (see Fig. 40), access decks are used (see Sect. 2.2.7).

ATTENTION!
The flaps of the access decks are arranged offset. They may only be opened for ascending through short-term, otherwise the flaps are to be kept closed (see also Sect. 1.2).

ATTENTION!
Access decks may be laid on assembly frames only.

Fig. 40: Further scaffold levels with interior ladder walkway

2.5 Upper close-off of the scaffold

Above the uppermost scaffold level, L-shaped guard rail posts or front side rail frames are to be mounted (see Fig. 41 and Fig. 42), where the guard rails and toe boards of the uppermost level are fixed.

ATTENTION!
As a result of the installation of the L-shaped guard rail posts and the front side rail frames, it is guaranteed that the system decks in the uppermost level are secured against lifting.

The installation is implemented analogous to Sect. 2.4.

Fig. 41: Upper close-off of the scaffold with L-shaped guard rail posts, guard rails and toe boards

Fig. 42: Upper close-off of the scaffold with front side rail frames, guard rails and toe boards

ATTENTION!
With the installation of the upper scaffold close-off, increased danger of falling can exist. The scaffold building work must be implemented so that any danger of falling is excluded, or is kept as low as possible. The notes on safety designated in Sect. 7 with the assembly, conversion and dismantling of the scaffold are to be considered as mandatory.

2.6 Anchoring of the scaffold to the construction work

Anchors are to be installed continuously with the scaffold assembly.

Bolts of at least 12 mm diameter or an equivalent design are to be used as fastening agents (see Sect. 2.6.8).

The wall ties are to be attached below the decks in direct proximity to the node points formed by the standtubes and system decks.

ATTENTION!
Insufficiently load-bearing or missing anchors endanger the stability of the scaffold construction, and can lead to the collapse of the scaffold.

ATTENTION!
Anchors may only be installed or removed by the scaffold constructor / scaffold generator. If anchors must be prematurely loosened, an equivalent replacement is to be provided for beforehand.

2.6.1 Anchoring grids and anchoring forces

The anchoring grid, the possibly required additional anchors, as well as the corresponding anchoring forces for the corresponding system configuration, are to be taken from the configuration drawings (see Sect. 5). The anchoring forces indicated in this are usage loads and do not include any increased factors of safety.

ATTENTION!
With the stipulation of the anchor levels, it is to be considered that possibly installed scaffold levels with H < 2.0 m, for the compensation of large differences in levels in the ground with adjustment frames, are to be considered as a full scaffold level here (see also Sect. 2.2.3).

2.6.2 Wall tie

A wall tie is to be fastened directly below the scaffold decks with standard couplers on the inner and the outer stands (see Fig. 43).

Installation of a wall tie:

- Insert the hook of the wall tie into the fastening agent attached to the facade (e.g. eye-bolt)
- Connect the pipe of the wall tie with the first standard coupler on the facade-side standtube and

- Connect with the second standard coupler to the facade-facing standtube (see Sect. 2.9.2).

Fig. 43: Wall tie (basic configuration)

2.6.3 Wall tie with plate

A swall tie is to be fastened directly below the scaffold decks with standard couplers on the inner stand, so the anchor flag fits around the U-ledger of the assembly frame (see Fig. 44 and Fig. 45).

Installation of a wall tie with plate:

- Insert the hook of the wall tie into the fastening agent attached to the facade (e.g. eye-bolt)
- Position the plate of the wall tie over the U-profile of the assembly frame from below, so that it fits around it and is located in this position
- Connect the tube of the wall tie with the standard coupler on the facade-side standtube (see Sect. 2.9.2).

Fig. 44: Wall tie with plate (basic configuration)

Fig. 45: Plate / Anchor flag (detail)

2.6.4 Wall tie with anchor coupler

A wall tie with anchor coupler is to be fastened into the recess of the gusset plate directly below the scaffold decks on the outer stand with a standard coupler, and in the area of the inner stand with an anchor coupler (see Fig. 46 and Fig. 47).

The anchor coupler is to be installed so that the hook fits around the U-profile of the assembly frames (see Fig. 48).

Installation of a scaffold bracket with anchor coupling:

- Insert the hook of the wall tie into the fastening agent attached to the facade (e.g. eye-bolt)
- Thread the plate of the anchor coupler into the recess of the gusset plate directly near the facade-sided standtube and position the plate of the anchor coupler over the U-profile of the assembly frame from below, so that it fits around. In this position
- Connect the tube of the wall tie to the anchor coupler (see Fig. 48) as well as
- Connect with the standard coupler on the facade-facing standtube (see Sect. 2.9.2).

Fig. 46: Wall tie with anchor coupler (basic configuration)

Fig. 47: Wall tie with anchor coupler (basic configuration with inside bracket)

Fig. 48: Anchor coupler (detail)

2.6.5 Wall tie with gusset plate coupler

A wall tie is to be fastened directly below the scaffold decks with two gusset plate couplers to suitable gusset plates of the assembly frame or with a gusset plate coupler to the facade-side gusset plate and a standard coupler to the facade-facing standtube of the assembly frames (see Fig. 49 and Fig. 50).

The gusset plate couplers with their hammer heads are shifted in this case into the matching elongated holes of the gusset plates suitable for that, twisted and then connected to the wall tie.

Installation of a wall tie with a gusset plate and a standard coupler:

- Insert the hook of the wall tie into the fastening agent attached to the facade (e.g. eye-bolt)
- Insert the hammer head of the gusset plate coupler into the small elongated hole of the facade-side gusset plate vertically and twist by 90°. In this position
- Connect the pipe of the wall tie to the gusset plate coupler as well as
- Connect with the standard coupler on the facade-facing standtube (see Fig. 49 and Fig. 50, as well as Sect. 2.9.2).

2.6.6 V-bracket

A V-bracket consists of two wall ties arranged V-shaped, which are fixed directly below the scaffold decks with standard couplers on the inside stand. The arrangement of the wall ties is implemented at an angle of 90° to each other and approx. 45° to the surface of the anchor ground (see Fig. 51 and Fig. 52).

V-brackets take up both forces normal to, as well as forces parallel to, the facade.

Installation of a V-bracket:

- Insert the hook of the first wall tie into the first fastening agent attached to the facade (e.g. eye-bolt) and
- Connect the tube of the first wall tie with a standard coupler directly below the scaffold deck to the facade-sided standtube. Following this
- Insert the hook of the second wall tie into the second fastening agent attached to the facade (e.g. eye-bolt) and
- Connect the tube of the second wall tie to the first wall tie with a standard coupler directly near the stand.

As an alternative, both wall tie can also be connected directly with each other on the facade-side standtube.

Fig. 49: Wall tie with gusset plate and standard coupler (basic configuration)

Fig. 50: Wall tie with gusset plate and standard coupler (configuration with inside brackets)

Fig. 51: V-bracket (basic configuration)

Fig. 52: V-bracket (configuration with inside brackets)

2.6.7 Deviation from the provided position of the wall ties

If there is no load-bearing anchoring floor existing at the planned anchoring height, then the wall ties may be arranged on an anchor level with a vertical separation distance from the node point (intersection stand axis - deck level) of maximum of 30 cm below the scaffolding joint. In this case, supplementary measures are possibly necessary in case of some configurations (see Sect. 5.3).

If the wall ties deviate from the planned position on the node on more than one anchor level (see Fig. 43 to Fig. 52), or if the maximum admissible deviation is exceeded, the stability of the separate scaffold implementation is to be verified.

2.6.8 Transferring the anchoring forces into the anchoring ground

The anchoring forces according to Sect. 5.3 must be transferred over wall ties and suitable fastening agents into a sufficiently load-bearing anchoring ground (for example the scaffolded construction work).

A suitable fastening agent is e.g. the anchoring equipment in facades, in accordance with DIN 4426 „Safety systems for the upkeep of structural systems, fall protections“.

Unsuitable fastenings are e.g. binding wires and ropes. The utilisation of such fastening agents is not admissible.

Sufficiently load-bearing anchoring grounds are e.g. reinforced concrete ceilings, walls, supports or supporting brickwork, in accordance with DIN 1053 „Brickwork“.

Insufficiently load-bearing anchoring grounds are e.g. snow guards, lightning conductors, downspouts or window frames. The connection of the fastening to such elements is not admissible.

The load-bearing capacity of the fastening agents between wall tie and anchoring ground must be verified for the anchoring forces according to Sect. 5.3.

The verification of the load-bearing capacity of the fastening agents can be provided e.g. through

- The design type approval through the Institute for Structural ..... Engineering, Berlin
- Static calculation or
- Test loads according to Sect. 2.6.9.

„If fastening agents with design type approval are used for the anchoring, the conditions included in this must be adhered to.“

Included here are e.g.:

- Verification of the anchoring ground
- Required component part dimensions and edge spacing margins
- Special installation instruction.

2.6.9 Test loads

If test loads are necessary as proof of the load-bearing capacity of the fastening agents, in accordance with Sect. 2.6.8, these must be implemented at the place of use.

Suitable devices must be used for the implementation of the test loads for the verification of the load-bearing capacity of scaffold anchors. You can obtain further information from the scaffold manufacturer MJ-Gerüst GmbH.

Anchorage points at which test loads are to be implemented must be determined by an enabled person, according to number and location.

The test loads are to be implemented according to the following criteria:

- The test load must be 1.2x the maximum anchoring forces in accordance with Sect. 5.3.
- In case of anchoring ground of concrete, the test scope must be at least 10% of all test loads used, otherwise at least 30%, however at least 5 test loads.

If individual or several fastening agents did not withstand the test load, the enabled person has to

- Determine the causes for that
- Create a replacement fastening and - Increase the test scope.
- increase the scope of testing.

The test results are to be recorded in writing and kept for at least the duration of the service life of the scaffold.

2.7 Installation of extension component parts

2.7.1 General

ATTENTION!
With the installation of extension component parts increased danger of falling can exist. The scaffold building work must be implemented so, that the danger of falling is excluded or kept as low as possible (see Sect. 1.3).

2.7.2 Deck widening with 0.36 m brackets

The 0.36 m brackets are used for the widening of the deck surface on the scaffold inner side (see Fig. 53). They may be arranged on all scaffold levels.

Before entering the next level in each case, the brackets are to be connected to the vertical frame from below with the coupler directly below the deck level (see Sect. 2.9.2), so that the top edge of the ledger of the bracket and assembly frame are on one level (see Fig. 54).

Decks with W = 0.32 m (see Sect. 2.2.7) are to be placed on the brackets so that these are secured against unintentional lifting by the deck fastening integrated into the bracket (see Fig. 55).

ATTENTION!
Before entering the next level, the bracket decks are to be installed from the level secured located below.

Fig. 53: Scaffold with inside brackets in 0.36 m on every level

Fig. 54: Level of the inside brackets

Fig. 55: Protection of the ground through deck fastening on the bracket

2.7.3 Deck widening with 0.73 m brackets

For the widening of the deck surface on the scaffold outer side (see Fig. 56), the 0.73 m brackets may be arranged on the uppermost scaffold level exclusively.

Before entering the next level, the 0.73 m brackets are to be connected to the assembly frame in each case from below with the coupler directly below the deck level (see Sect. 2.9.2), so that the top edge of the ledgers of bracket and assembly frame are on one level (see Fig. 57).

For the support of the 0.73 m brackets, bracket struts are to be connected to the brackets and to the underlying assembly frames (see Fig. 56 and Fig. 57, as well as Sect. 2.9.2).

Two 32 cm wide decks or one 61 cm wide deck according to Sect.

2.2.7 are to be placed on the brackets in each case and secured against unintentional raising by a deck fastening.

ATTENTION!
The utilisation of access decks on widening brackets is inadmissible.

The gap between the decks on the assembly frames and the 0.73 m brackets is to be closed with the alum. intermediate decks provided as a gap cover for brackets (see Fig. 58).

Fig. 56: Scaffold with outside 0.73 m brackets and bracket struts in uppermost level

Fig. 57: Connection of the exterior brackets and bracket struts

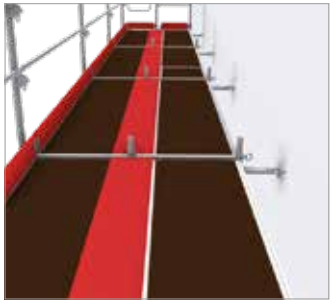


Fig. 58: Uppermost scaffold level with 0.73 m exterior bracket and gap covering between main covering and bracket covering

2.7.4 Protective roof

The protective roof may be mounted only on the outer side of a scaffold at the height of the second scaffold level (H = 4 m).

On the scaffold level on which the protective roof is provided, as well as on the layer below, additional anchors are to be installed in accordance with the corresponding system configuration (see Sect. 5.3).

ATTENTION!
The installation of the protective roof may be begun only when all anchors represented in Sect. 5.3 have been installed in the area of the protective roof.

Installation of a protective roof:

- In the provided area of the protective roof, from the level below, connect 0.73 m brackets with the couplers in every stand axes on the external standtube of the scaffold (see Sect. 2.9.2), so that the top edge of the ledgers of bracket and assembly frame are on one level (see Fig. 59)
- Insert system decks into the 0.73 m brackets in accordance with Sect. 2.2.7 (see Fig. 60) and
- Mount alum. intermediate decks as a gap cover between main and protective roof decks (see Fig. 60)
- Place protective roof cantilever on the joint bolts of the 0.73 m brackets and secure against lifting with eye-bolts (see Fig. 61 and Fig. 62)
- Insert system decks according to Sect. 2.2.7 into the protective roof cantilevers (see Fig. 63) and secure with deck fastening for protective roof cantilevers (see Fig. 64 and Fig. 65).

ATTENTION!
To avoid the danger of falling, the installation of the protective roof cantilevers and their system decks is to be implemented from an auxiliary scaffold from.

ATTENTION!
The entire deck surface on this level (protective roof and work surface) is to be implemented gap-free and must extend to the construction work. Guard rails and toe boards are to be arranged between the protective roof and the working area on the scaffold (see Fig. 66 and Fig. 67).

The precise implementation of a scaffold with roof guard is to be taken from the corresponding configuration drawing (see Sect. 5.3).

Fig. 63: System decks on roof guard extension

Fig. 59: 0.73 m bracket as a protective roof bracket at the outer side of the scaffold

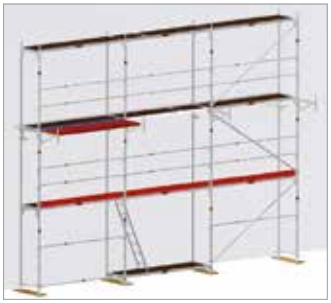


Fig. 60: Insertion of the system decks into the 0.73 m brackets, alum. intermediate deck as a gap cover

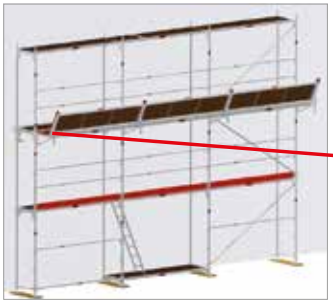


Fig. 64: Installation of the deck fastening for roof guard extension

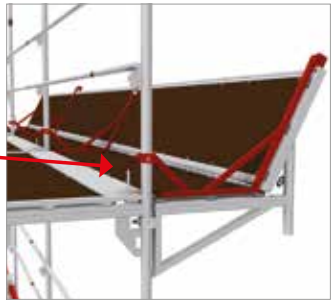


Fig. 65: Deck fastening for roof guard extensions (detail)

Fig. 61: Installed system decks and gap covers

Fig. 62: Installation of the roof guard extension

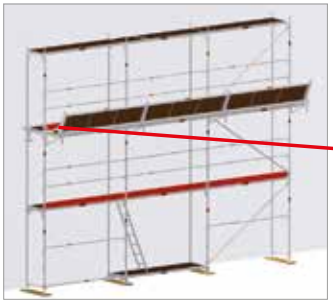


Fig. 66: Scaffold with 3-part side guard in the area of the roof guard

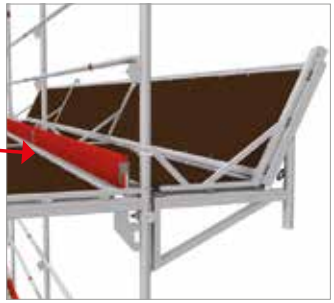


Fig. 67: Roof guard after completion

2.7.5 Protective wall

Protective walls are used for protection against fall from a height, in accordance with specification, in case of work on sloping roof surfaces with a slope > 20°. DIN 4420-1: 2004-03 is to be considered.

The protective wall consists of nets according to DIN EN 1263-1, with 10 cm mesh width at most.

1. Protective wall on assembly frames:

The protective net posts are placed onto the assembly frames and secured with security pins (see Fig. 68 and Fig. 69).

The protective netting is to be installed on the inner side of the protective wall. It is to be fastened below to a scaffold tube on scaffold deck level, at a height = 1.0 m above that on the guard rail and 2.0 m above that on the upper back guard rail, as well as on the posts of the protective net posts with belt quick-release lock / fixing clip at intervals of 50 cm each.

All belt quick-release locks are to be closed.

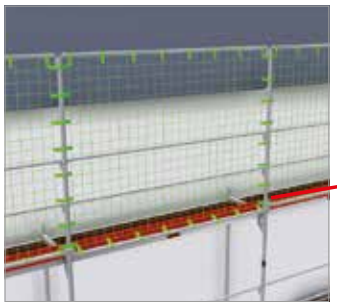


Fig. 68: Protective wall on assembly frame

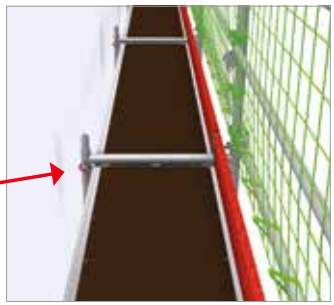


Fig. 69: Protective wall on assembly frame (detail)

2. Protective wall on brackets 0.73 m

When mounting a protective wall on brackets 0.73 m are the guard rail posts outside on the brackets 0.73 m and inside on the brackets External stem of the frames to stick and with secirity pins or bolts secure (see Figure 70).

The mounting of the brackets 0.73 m with support brackets is described in Sect. 2.7.3.

For mounting the protective net see point 1.

ATTENTION!
Before the installation of the protective wall, it is to be ensured that all necessary scaffold anchors are installed on the uppermost level (see configuration drawings in Sect. 5.3).

ATTENTION!
Site protection networks must be checked regularly. In older Page protection nets must be proven by examination be that the maximum traction of net yarn is still at least 2 kN. The quick buckles must be for use be suitable in a protective wall of a roof scaffold.

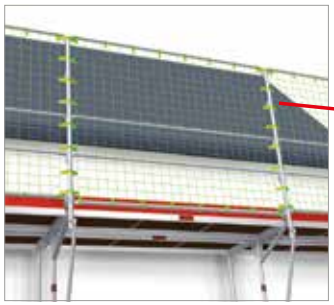


Fig. 70: Protective wall on 0.73 m bracket

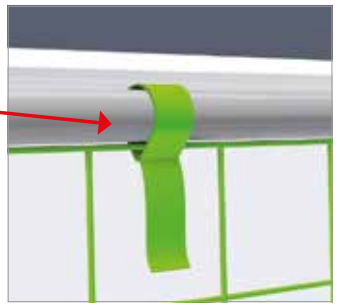


Bild 71: Fixing clip (detail)

2.8 Implementation variants

2.8.1 Walk-through frame

In order to ensure traffic routes and/or to enable walkway passages, walk-through frames are used instead of the lowest assembly frames.

The ascent to the second scaffold level is implemented through a access deck or via a simple scaffold ladder.

Analogous to the assembly frames, the walk-through frames are mounted on the first scaffold level (see Sect. 2.1 to 2.3), where the installation of the scaffold level directly above the walk-through frame is implemented as described in Sect. 2.4.

The anchors and stabilisation required in the area of the walk-through frames are to be taken from the authorisation and/or the representations of the corresponding system configuration (see Sect. 5.3).

In the following, the assembly of a scaffold section with walk-through frames for a basic variant is represented as an example.

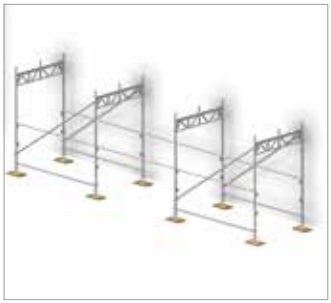


Fig. 72: Example of a scaffold section with walk-through frame (DGR) and braces on the lowest level

Fig. 73: Scaffold section with walk-through frames and deck elements installed on full width

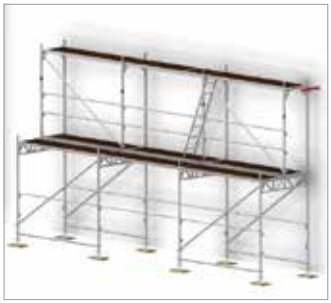


Fig. 74: Scaffold section with walk-through frames and braces, as well as anchors at height H = 4 m, installation of the second level

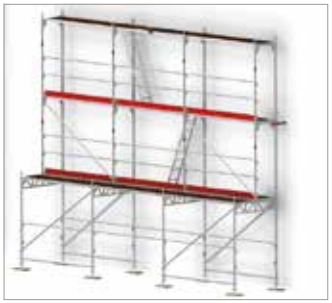


Fig. 75: Scaffold section with DGR and side guard; installation of the further level

ATTENTION!
Alle Belagelemente sind in ihrer Lage zu sichern.

2.8.2 Getting over support

Getting over is necessary if, for example, passages must be kept free. The getting over supports can be mounted either directly below the first scaffold level or directly below the second scaffold level.

The installation of the first and second scaffold level is implemented as described in Sect. 2.1 to 2.4. On the front sides of the second scaffold level in the area of the getting over, a three-part side guard is to be installed in this case.

In case of utilisation of free lattice beams, these are then to be connected to the standtubes of the assembly frames directly below the first or second scaffold level, with two standard couplers in each case.

For the reception of the system decks, a assembly frame with H = 0.66 m is to be installed centrally between the assembly frames of the scaffold (see Fig. 76) and connected to the lattice beam belts with two standard couplers in each case, so that the tube connectors are on one height with those of the assembly frames of the scaffold. The top booms of the getting over supports are to be reinforced with a tube-coupler-connection.

That anchors, intercepts and stabilisation necessary in the area of the getting over are to be taken from the authorisation and/or the representation of the corresponding system configuration (see Sect. 5.3).

ATTENTION!
For a reduction of the danger of falling, the work on the installed getting over supports, as well as on the scaffold level situated directly above, is to be implemented from an auxiliary scaffold.

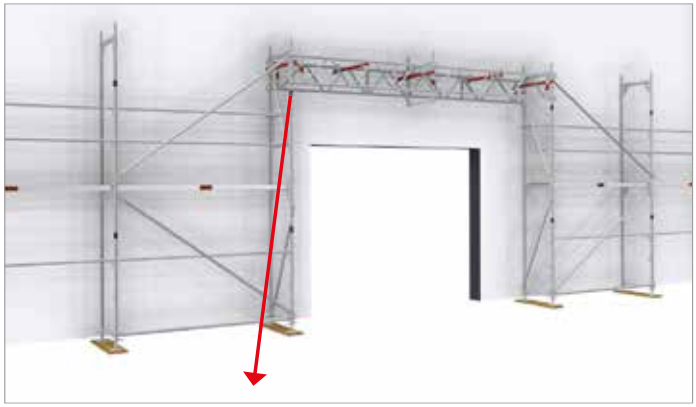


Fig. 76: Installation of a scaffold section with lattice beam getting over

Fig. 77: Connection of the getting over supports (detail)

2.8.3 Uppermost level unanchored

In intermediate states during erection of buildings, the uppermost working level may extend beyond the uppermost anchored level by 2 m. In this case, all stand joints at the height of the last anchoring level and on the level situated above are to be secured by security pins.

On the uppermost working level, the scaffold is to be anchored at every node. For the anchor levels below, the anchor raster is to be formed in accordance with the corresponding system configuration (see Sect. 5.3).

A possibly necessary lining of the scaffold with nets or tarpaulins is admissible below the uppermost anchoring level. Above the uppermost anchor level no lining or similar (e.g. advertising material or tarpaulin) may be attached.

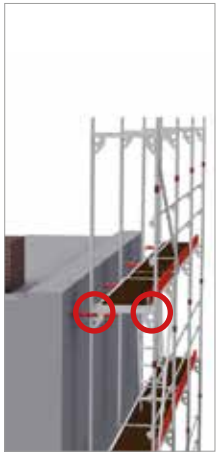


Fig. 78: Initial state

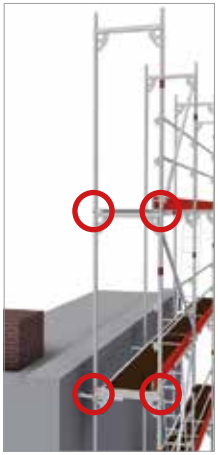


Fig. 79: Securing of all stand joints through security pins from the level of the last anchoring

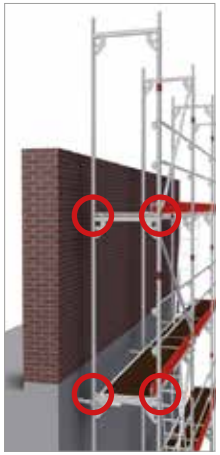


Fig. 80: Assembly intermediate state with secured stand joints

○ = Securing of the stand joints through security pin

2.8.4 Protection against wind forces

To secure against uplifting wind forces, the following are required for structures with roof pitches ≤ 20° (see Fig. 81) and for structures with internal corners (see Fig. 82), the uppermost scaffold levels must be anchored to the anchored level below the topmost anchored level, e.g. by be connected in a tension-proof manner, e.g. by means of security pins.

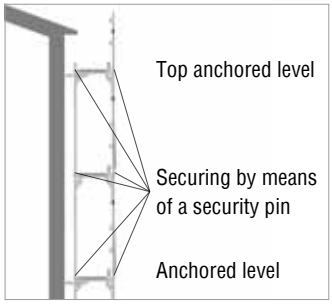


Fig. 81: Example of the tension-proof connection of the scaffold levels for lifting wind forces for roof pitches ≤ 20°

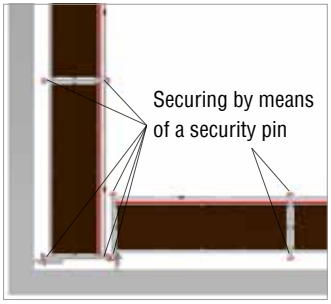


Fig. 82: Example of the tension-proof connection of the scaffold levels for lifting wind forces for inside corners

2.8.5 Lining with nets and tarpaulins

System-independent nets or tarpaulins may be used for the lining of scaffolds. Nets and tarpaulins are to be fixed with one-way ties to the exterior stands of the assembly frames.

For lining with nets, nets may be used where the aerodynamic form coefficient of the scaffold construction lined with nets

Fig. 83: Scaffold cover with one-way ties

Fig. 84: Fixing of a tarpaulin to the stand

- with inflow at right-angles to the scaffolded facade maximum is cf = 0.6 in total and
- with inflow parallel to the scaffolded facade is cf II = 0.2 maximum in total.

With the utilisation of other nets, the stability of the scaffold is to be verified on an individual basis. In case of lining with tarpaulins, the maximum admissible separation distance of the fixing is 20 cm.

2.9 Free scaffold component parts

2.9.1 System-independent scaffold tubes

Tubes are to be used as system-independent scaffold tubes, which correspond to the requirements of DIN EN 12811-1.

2.9.2 Couplers and wedge connections

ATTENTION!
In case of utilisation of couplers, the installation instructions of the coupler manufacturer are to be considered.

Only identified couplers may be used which were produced corresponding to DIN EN 74-1:2005 or DIN EN 74-2:2009, or for which there are a test mark or a general construction-supervision-related authorisation of the German Institute for Structural Engineering (DIBt).

Couplers with screw plug, which are fixed connected with a component part, to be tightened with a tightening moment of 50 Nm with connection; Deviations of ± 10% are admissible. The bolts are to be kept easily accessible.

Other couplers with screw plug are to be installed according to the specifications of the coupler manufacturer.

In case of the connection of component parts with wedge close-off, the wedges are to be struck with a 500 g hammer until bounce impact.

In case of connection of a coupler at the end of a tube, the free tube protrusion must be at least 4 cm.

For the connection of stands with ledgers or diagonals, standard couplers of Class B or BB are to be used.

If this is not possible, swivel couplers of Class B may be used.

ATTENTION!
At locations for which standard couplers are prescribed in Section 5.3, no swivel couplers may be used.

ATTENTION!
Couplers may be connected exclusively to Ø 48.3 mm tubes.

3 Utilization

The scaffold may be used in standard implementation according to the load classes indicated in the following table.

Load class	Admissible working load
1	75 kg/m²
2	150 kg/m²
3	200 kg/m²

The indicated working loads are admissible on one scaffold level maximum.

Every scaffold user is responsible for utilisation according to specification and the conservation of the operational security of the scaffolds. The scaffold constructor / scaffold generator is to be immediately informed of defects in the scaffold, in the mounting surface or in the anchoring which become apparent during use of the scaffold.

The scaffold may not be used further until the removal of the defect and this is to be correspondingly identified without delay by the scaffold user and access shut off.

Jumping onto scaffold decks or throwing anything onto them is not admissible.

It is prohibited to lean out over the guard rails.

The flaps of the access decks are to be kept closed (see Sect. 1.2).

Scaffold surfaces which serve as a roof guard may not be stepped on by the scaffold user.

On the following surfaces, the setting down and storage of materials and devices are inadmissible:

- Flaps of access decks
- Forward-placed ascents (stair or ladder ascent) and
- Surfaces which serve as a catch level or roof guard.

Before the operational start-up, the scaffold user must determine its safe function by a test of the scaffold. The test for safe function includes:

- Test of suitability for the planned intended purpose as a work or protection scaffold
- Test of the load, width and height classes for the planned work
- Test for obvious defects, e.g. of the mounting surface, decks, ascent or corner formation, the anchoring, the side guard as well as the separation distance to the facade.

If defects are determined in the test, the scaffold may not be used by the scaffold constructor / scaffold generator in the areas with defects until their removal. If the scaffold is used by several companies simultaneously or one after each other, every company has to make sure of its secure usability standalone.

The scaffold user has to ensure that the scaffold is not entered by unauthorised persons during its effective life.

The valid legal regulations of the operational safety ordinance (BetrSichV) and the accident prevention specification „Building Work“ (BGV C22), are to be considered during use of the scaffold.

Further notes on the utilisation can be taken from BGI 663 - Handling directions for dealing with work and protection scaffolds, Issue June 2011.

The notes on safety represented in Sect. 4 are to be considered.

MJ-GERÜST
Scaffolding Systems

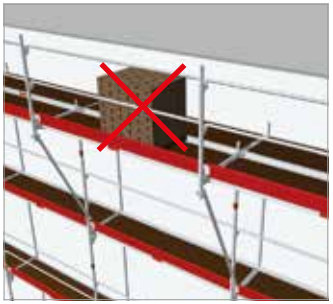
4 Notes on safety

Have changes to the scaffold implemented by the scaffold generator only!

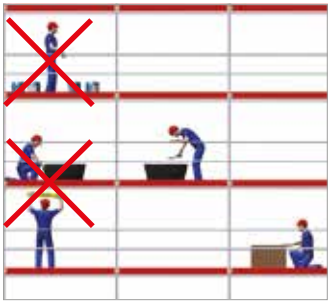
Keep flaps in the access decks closed!

Pay attention to possible danger of falling between scaffold and building!

For ascending and descending, use only existing ladders or stairs!

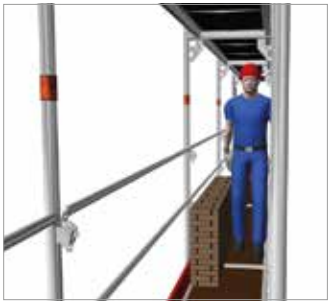


Do not store any material on fall arrester scaffolds and roof guards!



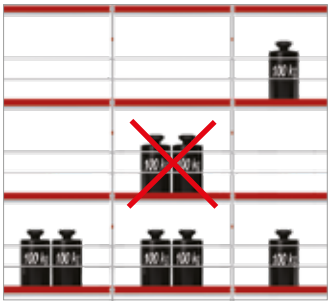
Workplaces may not be located above each other at the same time!

Keep a sufficiently wide transition space free in case of material storage on the deck!



In case of material storage, the passage width should be at least 20 cm!

Children may not enter scaffolds!



Do not overload scaffold decks!

Do not jump onto scaffold decks!

Do not endanger stability of the scaffold through excavations!

5 Representation in standard implementation

5.1 Component parts in standard implementation

Only those component parts listed in the following may be used for scaffolds with standard implementation.

Designation	Approval Z-8.1-872, Annex A. Page
Foot plate normal	1
Spindle normal 0,40 m	2
Spindle normal 0,60 m	3
Load spindle 0,80 m	4
Load spindle 0,60 m swivelling	5
Base jack 1,50 m	6
Spindle normal 0,60 m	7
Base jack	8
Wedge spindle coupler	9
Security pin	9
Euro St-Frame	10
Euro St-Frame	11
Euro St-Frame with railing box	12
Gusset plate coupler	13
ST-Frame	14
ST-Frame	15
St-Frame with railing box	16
Vertical frame and compensating vertical frame	21
Walk-Through frames	24
Railing coupler	26
Horizontal brace	27
Guard rail	28

Designation	Approval Z-8.1-872, Annex A. Page
St-Double railing	29
St-Double railing with middle rung	30
St-Double railing	31
Railing rails single and double	32 and 33
Aluminum Double railing	34
Aluminum railing (double)	35
End railing	36
St-Double end railing	37
End railings single and double	38
Diagonal	39
Diagonal	40
diagonal for bracket and for cross-diagonal	41
Scaffold holder	43
Flash anchor	44
Scaffold holder	45
Scaffold holder	46
Anchor coupler	47
Console	48 and 49
Console	50
Console reinforced	51
Deck protection	52
Cross-diagonal	53
Railing support / End railing support	54
Railing support single	55
Railing post single, double and end railing	56
Protective roof console	57
Protective roof beam	58

MJ-GERÜST
Scaffolding Systems

Designation	Approval Z-8.1-872, Annex A. Page
Canopy extension	59
Protection lattice support	60
Protection lattice support	61
Side protection grid	62
Side protection grid	63
Toe board	64 and 65
Toe board	64 and 66
End toe board	67
Toe board and end toe board	68
Half coupler with toe board bolt	69
Tube connector with U-profile	70
Lattice beam	71
Lattice beam	72
Lattice beam coupler	73
Lattice beam transom	74
U-Crossbar	75
U-initial cross bar	76
Aluminum platform stairs	77
Stair railing	79
Interior stair railing	80
Railing rotatable	81
Niche start piece/niche stem start	82
Niche cross tube	83
Niche deck securing	84

Designation	Approval Z-8.1-872, Annex A. Page
Steel deck	85 and 86
Steel deck	87
Steel deck	88
Access deck steel	89
Aluminum deck	90
Aluminum deck	91
Robust deck	92
Robust deck	93
Robust deck	94
Access deck robust	95
Access deck robust with ladder	96
Aluminium deck set for stacking combi-deck	97
Gap cover	98
Gap cover	99
Gap cover for platform stairs	100
Aluminum profile deck unperforated/perforated	101
Aluminum box deck	104
Aluminum box deck	105
Connecting clip for aluminium box deck	107
Robust deck	108
Vertical frame	109
Solid wood panel	112

Designation	Approval Z-8.1-872, Annex A. Page
Frame board	113a
Aluminum Access with ladder	116a
Frame	119
Framed panel with plywood deck	124
Steel deck (hand-welded)	126a
Double end railing	127
Platform stairs	128
Base jack	130
Walk-through frame	132
Railing coupler	133
Double back rail	134
Double back rail aluminum	135
Access panel, flap to the rear with plywood panel	136
spacer tube - scaffold bracket	137
Bracket	138
Bracket	139
Single guard rail post with short deck protection and tube connector	140
Guard rail post	141
End guard rail post	142
Protection lattice support	143
Protection lattice support	144
End toe board	145
Toe board	146

Designation	Approval Z-8.1-872, Annex A. Page
Crossbar	147
Initial cross bar	148
Exterior stair railing for P-staircase	149
Exterior stair railing for P-staircase	150
interior stair railing	151
Steel deck (machine welded)	155 and 156
ALU deck with steel cap	157
Security pin	169
Horizontal brace	170
Guard rail	171
Toe board	173
Scaffold holder with plate	174
Deck protection	175
Steel deck wall machine welded	182
Double end railing	187
Console 0,36 m without tube connector	189
Console	190
Console	191
Single guard rail post 1 m with RV without deck protection	194
Single guard rail post with short deck protection and without tube connector	195
Guard rail post with deck protection	196
End guard rail post steel	197
Cross diagonal	202

Designation	Approval Z-8.1-872, Annex A. Page
Guard rail post with short deck protection	203
Protective roof extension	204
Deck securing for protective roof extension	205
Head profile for frame and access panels	206
Access panel, flap to the rear with aluminum panel	207
Aluminum intermediate deck gap cover for brackets	208
Ladder steel	209
Ladder aluminum	210
Double back guard rail steel version	211
Gap-free console	213
Special end railing simple	216
Frame panel Aluminum panel	217
Access panel, flap to the side with aluminum panel	218
Frame panel plywood panel	219
Access panel, flap to the rear with aluminum panel	220

Furthermore, in the exceptional cases designated in Sect. 1.2, system-independent scaffold tubes (see Sect. 2.9.1) and couplers (see Sect. 2.9.2) may be used. The utilisation of further component parts is not admissible within the framework of the standard implementation.

5.2 Anchoring forces and foundation loads

The anchoring forces and foundation loads are indicated in the representations of the configurations in standard implementation (see Sect. 5.3).

5.3 Configuration in standard implementation

The scaffold implementations defined in Enclosure B of Authorisation Z-8.1-872 and as listed in the following compilation may be designated as standard implementations of the UNI-CONNECT 70 scaffold system of the manufacturer MJ-Gerüst GmbH.

Equipment	Rule execution					
	Base variant (BV)		Bracket variant 1 (BV1)		Bracket variant 2 (BV2)	
	l ≤ 2.57 m	l ≤ 3.07 m	l ≤ 2.57 m	l ≤ 3.07 m	l ≤ 2.57 m	l ≤ 3.07 m
	Partially open/Closed facade, Not lined					
With and without guzards	p. 44 (L)	p. 48	p. 44 (R)	p. 49	p. 45 (L)	p. 50
With roof guard	p. 45 (R)	p. 51	p. 45 (R)	p. 51	p. 45 (R)	p. 51
Strengthening and double guard rail	p. 62	---	p. 62	---	p. 62	
	Partially open/Closed facade, Lined					
Net covering	p. 46 (L)	p. 52	p. 46 (R)	p. 52	p. 46 (R)	p. 52
Tarpaulin covering	p. 53					
	Closed facade, Not lined					
with and without protective lattice	p. 54 (L)	p. 60	p. 54 (R)	p. 56	p. 55 (L)	p. 57
with protective roof	p. 55 (R)	p. 58	p. 55 (R)	p. 58	p. 55 (R)	p. 58
Bracing and double railing	p. 62	---	p. 62	---	p. 62	---
	Closed facade, Lined					
Mesh clothing	p. 47 (L)	p. 59	p. 47 (R)	p. 61	p. 47 (R)	p. 61
Tarpaulin clothing	p. 53					

Equipment	Rule design with additional elements - Partially open/Closed facade								
	Base variant (BV)			Bracket variant 1 (BV1)			Bracket variant 2 (BV2)		
	l ≤ 2.07 m	l ≤ 2.57 m	l ≤ 3.07 m	l ≤ 2.07 m	l ≤ 2.57 m	l ≤ 3.07 m	l ≤ 2.07 m	l ≤ 2.57 m	l ≤ 3.07 m
	Not lined								
With walk-through frames	p. 63	p. 63	p. 64	p. 63	p. 63	p. 64	p. 63	p. 63	p. 64
With getting over field 4.14 m	p. 65								
With getting over support 5.14 m	---	p. 66	---	---	p. 67	---	---	p. 67	---
With getting over support 6.14 m	---	---	p. 68	---	---	p. 69	---	---	p. 69
With getting over support 7.71 m	---	p. 70	---	---	p. 70	---	---	p. 70	---
	Net covering or Tarpaulin covering								
With getting over support 5.14 m	---	p. 66	---	---	p. 67	---	---	p. 67	---
With getting over support 6.14 m	---	---	p. 68	---	---	p. 69	---	---	p. 69
With getting over support 7.71 m	---	p. 70	---	---	p. 70	---	---	p. 70	---

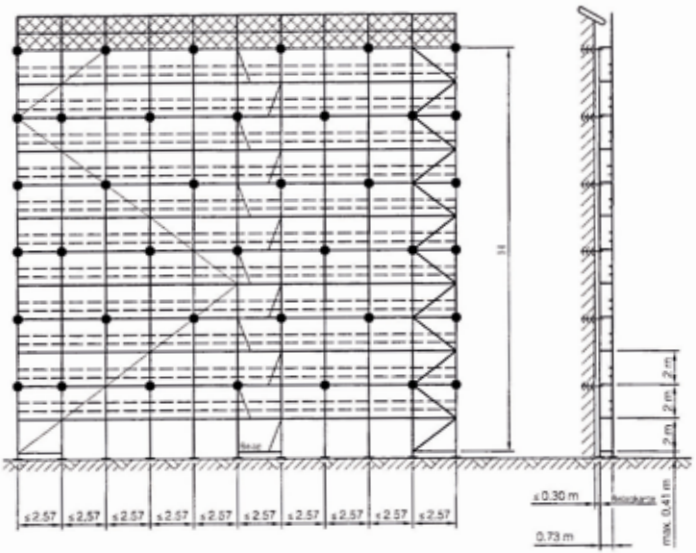
MJ-GERÜST
Scaffolding Systems

Teilweise offene Fassade

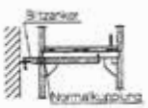
$L_{Feld} \leq 2{,}57$ m

Unbekleidetes Gerüst :
Grundvariante

- mit oder ohne Schutzgitter



Detail Verankerung



● --› Blitzanker / Gerüsthalter

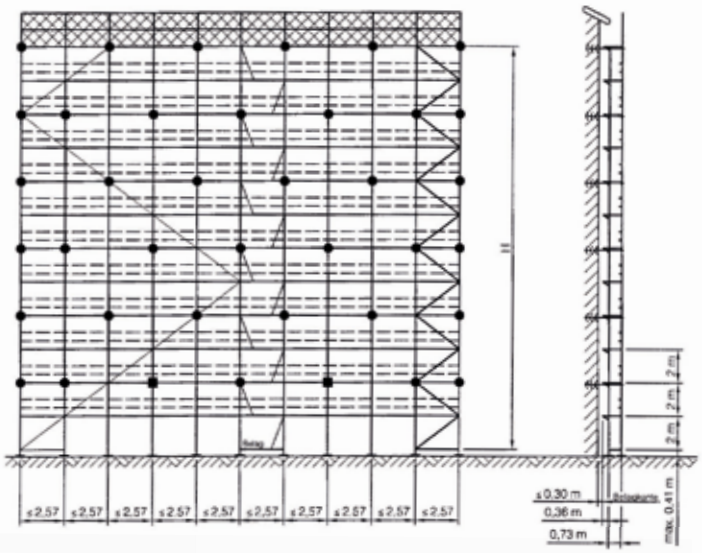
Tabelle Ankerkräfte [kN]				
Höhe			24m	16m	8m
Blitzanker / Gerüsthalter	rechtwinklig zur Fassade	$A_\perp$	4,3	4,3	4,3
	parallel zur Fassade	$A_\parallel$ Normalkupplung	1,8	1,8	1,8
		$A_\parallel$ Eckkupplung	3,9	3,9	3,9
	V - Anker (Schräglast je Rohr)		-	-	-

Teilweise offene Fassade

$L_{Feld} \leq 2{,}57$ m

Unbekleidetes Gerüst :
Konsolvariante 1

- mit oder ohne Schutzgitter



■ --› V-Anker
(1 x je 5 Felder in der 2. Etage)

● --› Gerüsthalter

Detail Verankerung

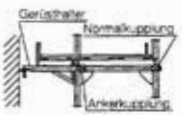


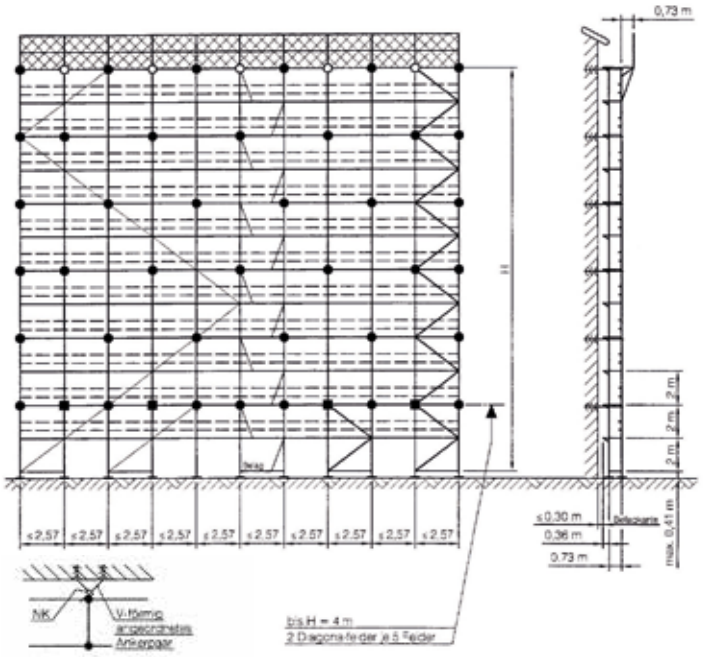
Tabelle Ankerkräfte [kN]				
Höhe			24m	16m	8m
Gerüsthalter	rechtwinklig zur Fassade	$A_\perp$	4,3	4,3	4,3
	parallel zur Fassade	$A_\parallel$ Normalkupplung	1,7	1,7	1,7
		$A_\parallel$ Eckkupplung	3,9	3,9	3,9
	V - Anker (Schräglast je Rohr)		4,6	4,6	4,6

Teilweise offene Fassade

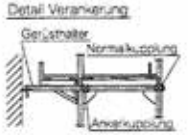
$L_{Feld} \leq 2{,}57$ m

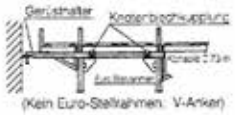
Unbekleidetes Gerüst :
Konsolvariante 2

- mit oder ohne Schutzgitter



Detail Verankerung





(Kein Euro-Stahlrahmen: V-Anker)

- o --> Zusatz-Anker nur bei Konsole 0,73 m verstärkt
- ■ --> V-Anker (2x je 5 Felder in der 2. Etage)
- ● --> Gerüsthalter

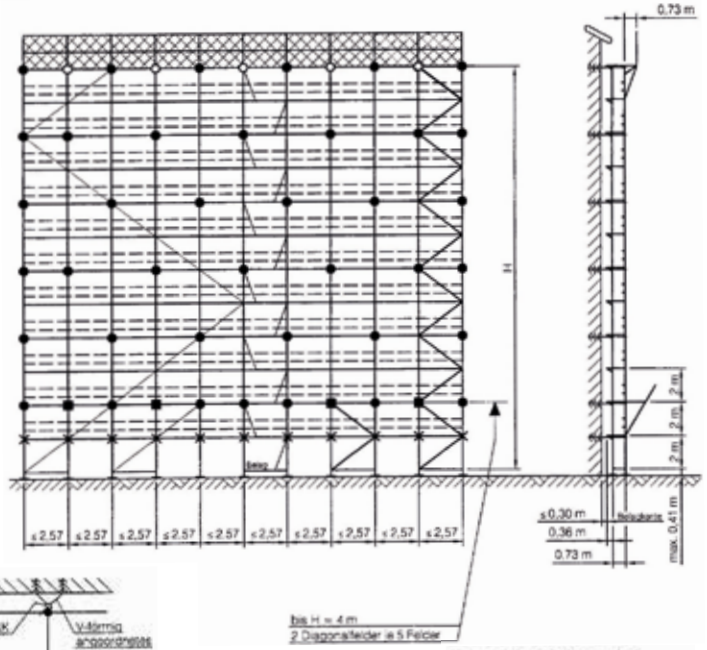
Tabelle Ankerkräfte [kN]				
Höhe		24m	16m	8m
Gerüstanker	rechtwinklig zur Fassade $A_\perp$	4,3	4,3	4,3
	parallel zur Fassade $A_\parallel$ Normalkraft	1,7	1,7	1,7
	parallel zur Fassade $A_\parallel$ Eckkraft	3,9	3,9	3,9
	V - Anker (Schräglast je Rohr)	3,3	3,3	3,3

Teilweise offene Fassade

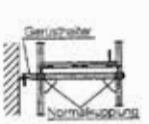
$L_{Feld} \leq 2{,}57$ m

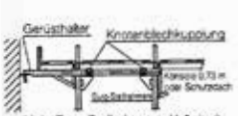
Unbekleidetes Gerüst :
Grundvariante / Konsolvariante 1 / Konsolvariante 2

- mit oder ohne Schutzgitter
- **mit** Schutzdach



Detail Verankerung





(Kein Euro-Stahlrahmen: V-Anker)

- o --> Zusatz-Anker nur bei Konsole 0,73 m verstärkt
- × --> Zusatz-Anker bei Schutzdachträger 2,10 m
- ■ --> V-Anker (2x je 5 Felder in der 2. Etage)
- ● --> Blitzanker / Gerüsthalter

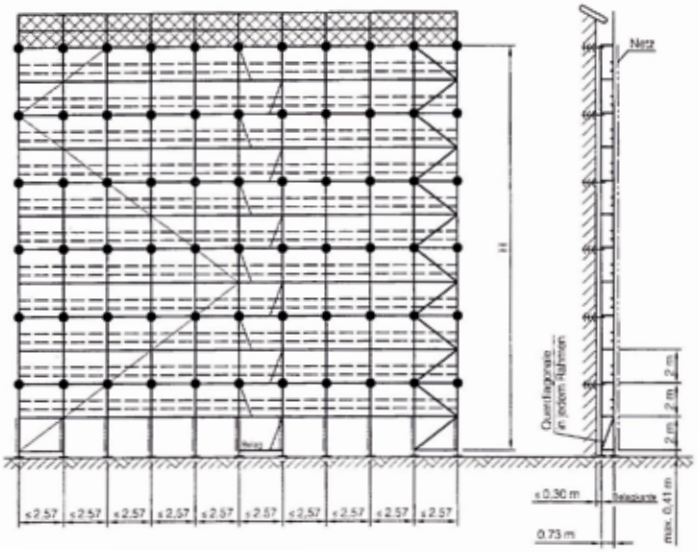
Tabelle Ankerkräfte [kN]				
Höhe		24m	16m	8m
Gerüstanker	rechtwinklig zur Fassade $A_\perp$	4,3	4,1	4,1
	parallel zur Fassade $A_\parallel$ Normalkraft	1,7	1,7	1,7
	parallel zur Fassade $A_\parallel$ Eckkraft	3,9	3,9	3,9
	V - Anker (Schräglast je Rohr)	3,3	3,3	3,3

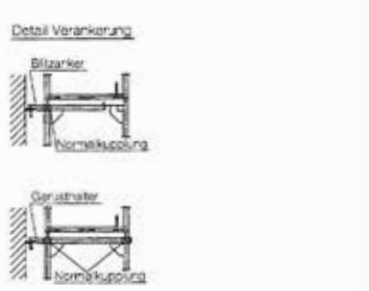
MJ-GERÜST
Scaffolding Systems

Teilweise offene Fassade — $L_{Feld} \leq 2{,}57$ m

Bekleidetes Gerüst :
Grundvariante

- mit oder ohne Schutzgitter
- mit Netzbekleidung





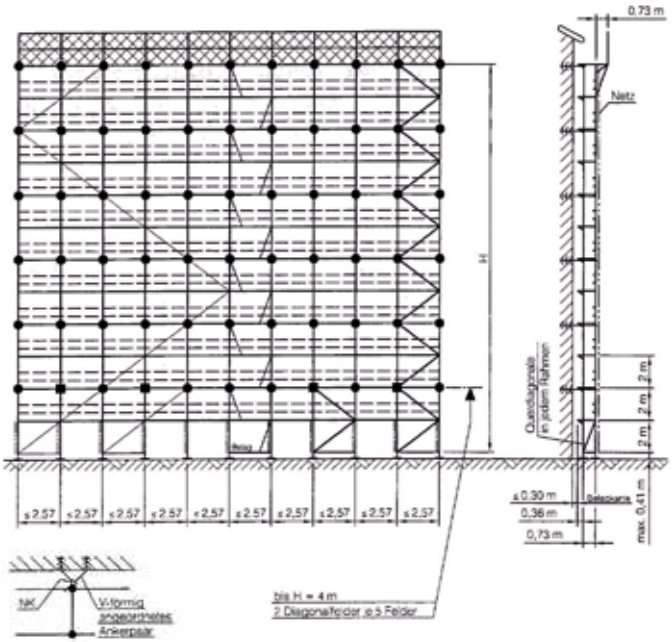
● ⟶ Blitzanker / Gerüsthalter

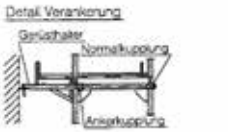
Tabelle Ankerkräfte [kN]			24m	16m	8m
Höhe					
Blitzanker Gerüsthalter	rechtwinklig zur Fassade	$A_{\perp}$	3,7	3,5	3,5
	parallel zur Fassade	$A_{\parallel}$ Normalzug	1,4	1,4	1,4
		$A_{\parallel}$ Zugzug	5,4	5,4	5,4
	V - Anker (Schräglast je Rohr)		-	-	-

Teilweise offene Fassade — $L_{Feld} \leq 2{,}57$ m

Bekleidetes Gerüst :
Konsolvariante 1 / Konsolvariante 2

- mit oder ohne Schutzgitter
- mit Netzbekleidung





(Kein Euro-Stellrahmen: V-Anker)

■ ⟶ V-Anker
(2x je 5 Felder in der 2. Etage)

● ⟶ Gerüsthalter

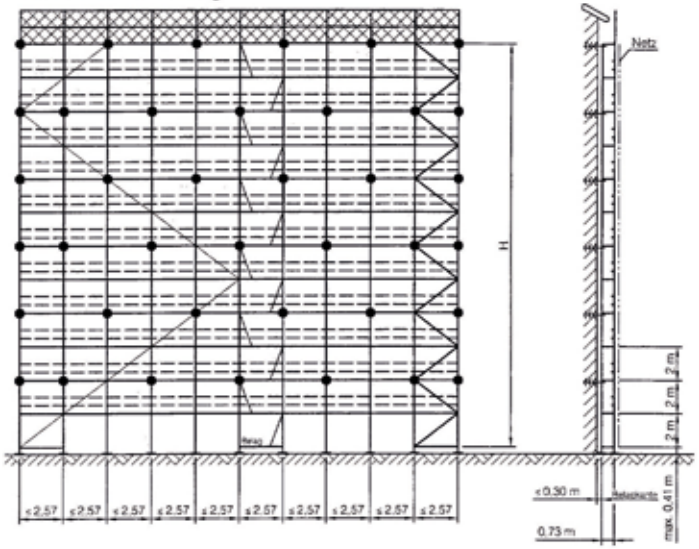
Tabelle Ankerkräfte [kN]			24m	16m	8m
Höhe					
Gerüsthalter	rechtwinklig zur Fassade	$A_{\perp}$	3,7	3,5	3,5
	parallel zur Fassade	$A_{\parallel}$ Normalzug	1,3	1,3	1,3
		$A_{\parallel}$ Zugzug	5,4	5,4	5,4
	V - Anker (Schräglast je Rohr)		3,5	3,5	3,5

Geschlossene Fassade

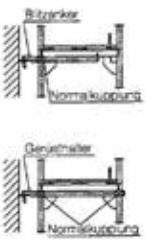
$L_{Feld} \leq 2{,}57$ m

Bekleidetes Gerüst :
Grundvariante

- mit oder ohne Schutzgitter
- mit Netzbekleidung



Detail Verankerung



● —› Blitzanker / Gerüsthalter

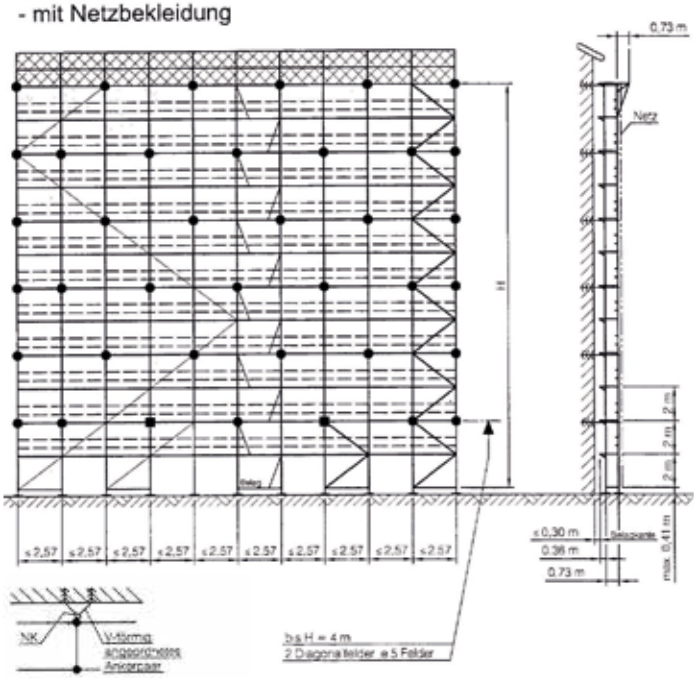
Tabelle Ankerkräfte [kN]					
Höhe			24m	16m	8m
Blitzanker / Gerüsthalter	rechtwinkelig zur Fassade	$A_{\perp}$	3,0	3,0	3,0
	parallel zur Fassade	$A_{\parallel}$ Normalaut	1,7	1,7	1,7
		$A_{\parallel}$ Eckaut	4,2	4,2	4,2
	V - Anker (Schräglast je Rohr)		-	-	-

Geschlossene Fassade

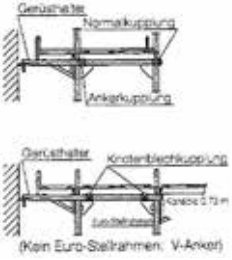
$L_{Feld} \leq 2{,}57$ m

Bekleidetes Gerüst :
Konsolvariante 1 / Konsolvariante 2

- mit oder ohne Schutzgitter
- mit Netzbekleidung



Detail Verankerung



(Kein Euro-Stellrahmen: V-Anker)

■ —› V-Anker
(1x je 5 Felder in der 2. Etage)

● —› Gerüsthalter

Tabelle Ankerkräfte [kN]					
Höhe			24m	16m	8m
Gerüsthalter	rechtwinklig zur Fassade	$A_{\perp}$	3,0 (4.5)	3,0	3,0
	parallel zur Fassade	$A_{\parallel}$ Normalaut	1,3	1,3	1,3
		$A_{\parallel}$ Eckaut	4,2	4,2	4,2
	V - Anker (Schräglast je Rohr)		3,7	3,7	3,7

( ) - Wert gilt nur bei Außenkonsole ohne Strebe

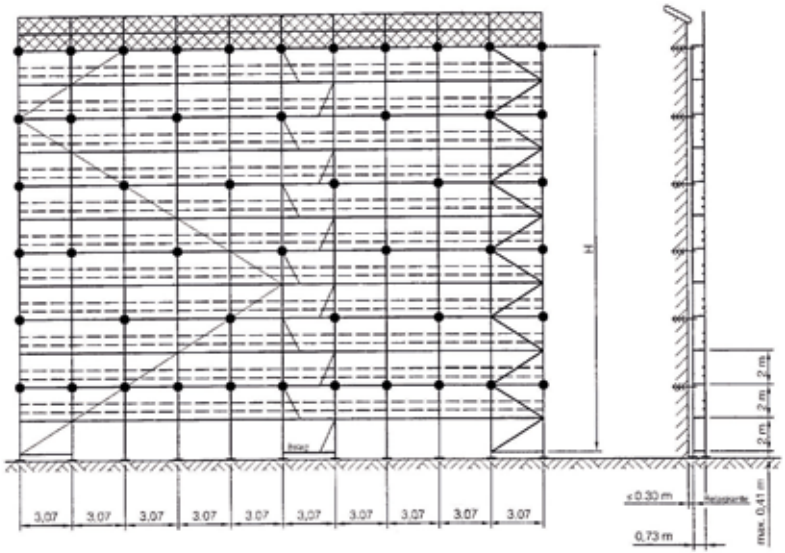
MJ-GERÜST
Scaffolding Systems

Teilweise offene Fassade

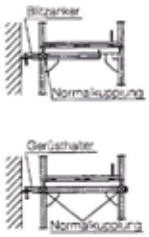
L_{Feld} = 3,07 m

Unbekleidetes Gerüst :
Grundvariante

- mit oder ohne Schutzgitter



Detail Verankerung



● --> Blitzanker / Gerüsthalter

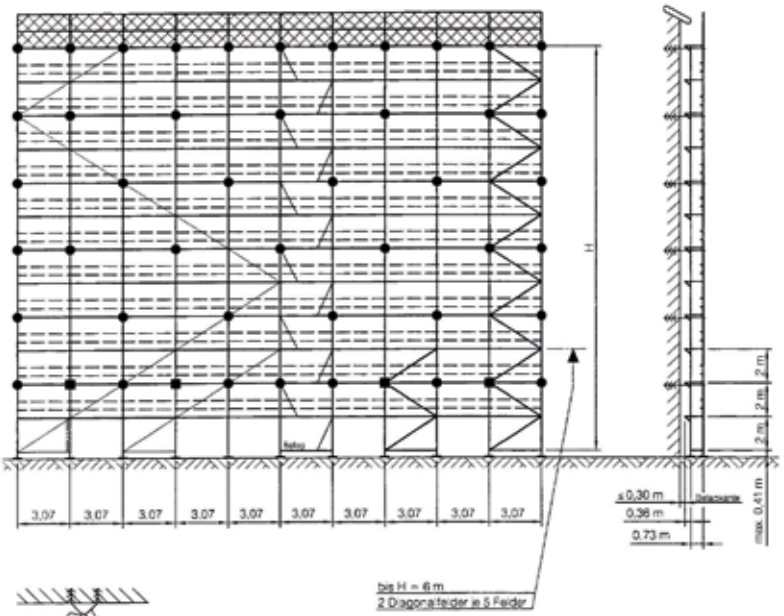
	Tabelle Ankerkräfte [kN]			
	Höhe		24m	16m	8m
Blitzanker Gerüsthalter	rechtwinklig zur Fassade $A_\perp$		4,2	3,1	2,2
	parallel zur Fassade $A_\parallel$	Normalkupl.	1,8	1,8	1,8
		Eckkupl.	4,2	4,2	4,2
	V - Anker (Schräglast je Rohr)		-	-	-

Teilweise offene Fassade

L_{Feld} = 3,07 m

Unbekleidetes Gerüst :
Konsolvariante 1

- mit oder ohne Schutzgitter



■ --> V-Anker
(2x je 5 Felder in der 2. Etage)

● --> Gerüsthalter

Detail Verankerung

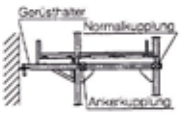


	Tabelle Ankerkräfte [kN]			
	Höhe		24m	16m	8m
Gerüsthalter	rechtwinklig zur Fassade	$A_{\perp}$	4,2	3,1	2,2
	parallel zur Fassade	$A_{\parallel}$ Normalausf.	1,7	1,7	1,7
		Schausf.	4,2	4,2	4,2
	V - Anker (Schräglast je Rohr)		2,6	2,6	2,6

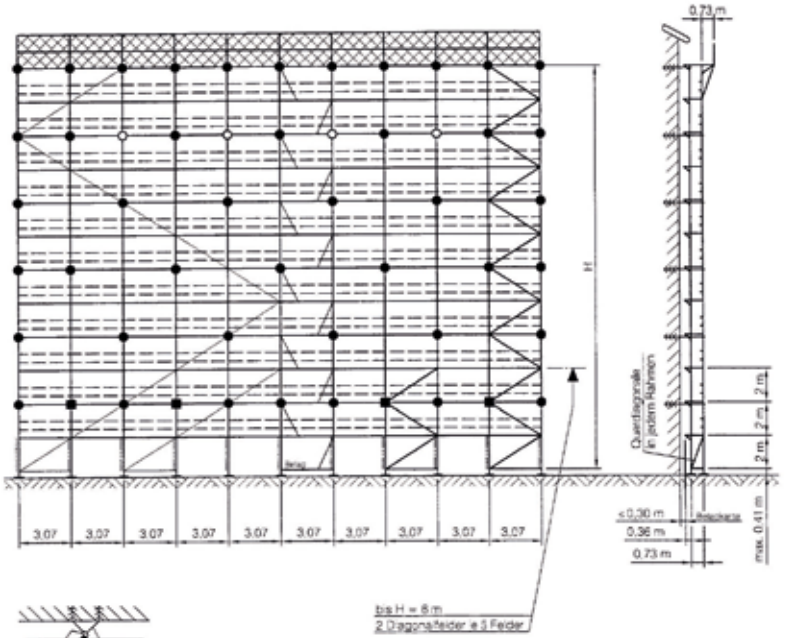
MJ-GERÜST
Scaffolding Systems

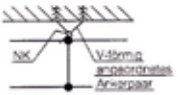
Teilweise offene Fassade

L_{Feld} = 3,07 m

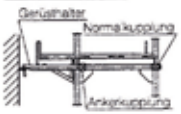
Unbekleidetes Gerüst :
Konsolvariante 2

- mit oder ohne Schutzgitter





Detail Verankerung



(Kein Euro-Stellrahmen: V-Anker)

- o --> Zusätz-Anker nur bei Konsole 0,73 m verstärkt
- ■ --> V-Anker (2 x je 5 Felder in der 2. Etage)
- ● --> Gerüsthalter

Tabelle Ankerkräfte [kN]					
Höhe			24m	16m	8m
Gerüsthalter	rechtwinklig zur Fassade	$A_\perp$	4,2	3,1	2,2
	parallel zur Fassade	$A_\parallel$ Normalkraft	1,7	1,7	1,7
		$A_\parallel$ Exkraft	4,2	4,2	4,2
V - Anker (Schräglast je Rohr)			2,9	2,9	2,9

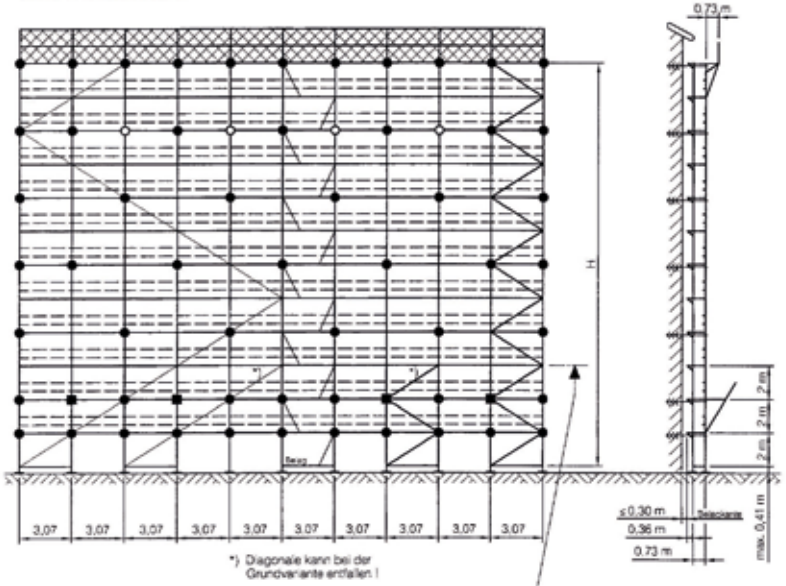
Teilweise offene Fassade

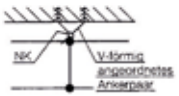
L_{Feld} = 3,07 m

Unbekleidetes Gerüst :

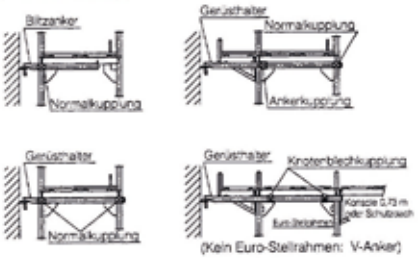
Grundvariante / Konsolvariante 1 / Konsolvariante 2

- mit oder ohne Schutzgitter
- **mit** Schutzdach





Detail Verankerung



○ --> Zusatz-Anker nur bei Konsole 0,73 m verstärkt

■ --> V-Anker (2x je 5 Felder in der 2. Etage)

● --> Blitzanker / Gerüsthalter

Tabelle Ankerkräfte [kN]				
Höhe			24m	16m	8m
Blitzanker Gerüsthalter	rechtwinklig zur Fassade	$A_{\perp}$	4,2	3,7	2,9
	parallel zur Fassade	$A_{\parallel}$ Normalkupplung	1,7	1,7	1,7
		$A_{\parallel}$ Ankerkupplung	4,2	4,2	4,2
	V - Anker (Schrägast je Rohr)		2,9	2,9	2,9

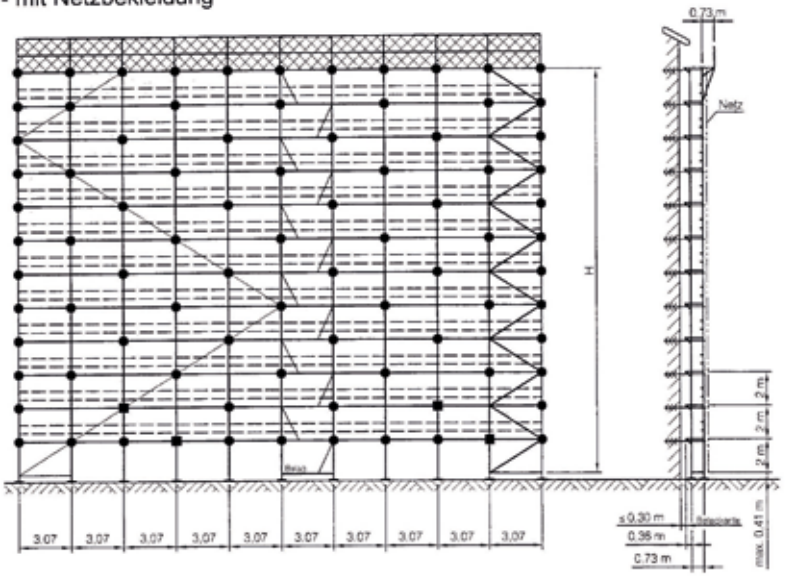
Teilweise offene Fassade

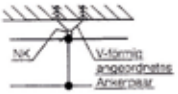
L_{Feld} = 3,07 m

Bekleidetes Gerüst :

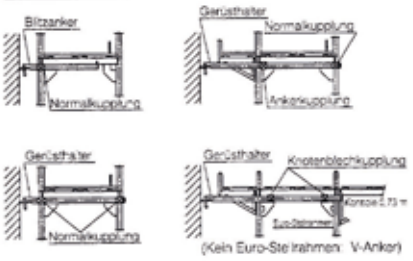
Grundvariante / Konsolvariante 1 / Konsolvariante 2

- mit oder ohne Schutzgitter
- mit Netzbekleidung





Detail Verankerung



(Kein Euro-Stahlrahmen: V-Anker)

■ --> V-Anker
(1x je 5 Felder in der 1. u. 2. Etage)

● --> Bitzanker / Gerüsthalter

	Tabelle Ankerkräfte [kN]			
	Höhe		24m	16m	8m
Rüstrohr Gerüsthalter	rechtwinklig zur Fassade	$A_{\perp}$	4,3	4,3	4,3
	parallel zur Fassade	$A_{\parallel}$ Normalast	1,6	1,6	1,6
		$A_{\parallel}$ Exzenter	5,4	5,4	5,4
	V - Anker (Schräglast je Rohr)		4,2	4,2	4,2

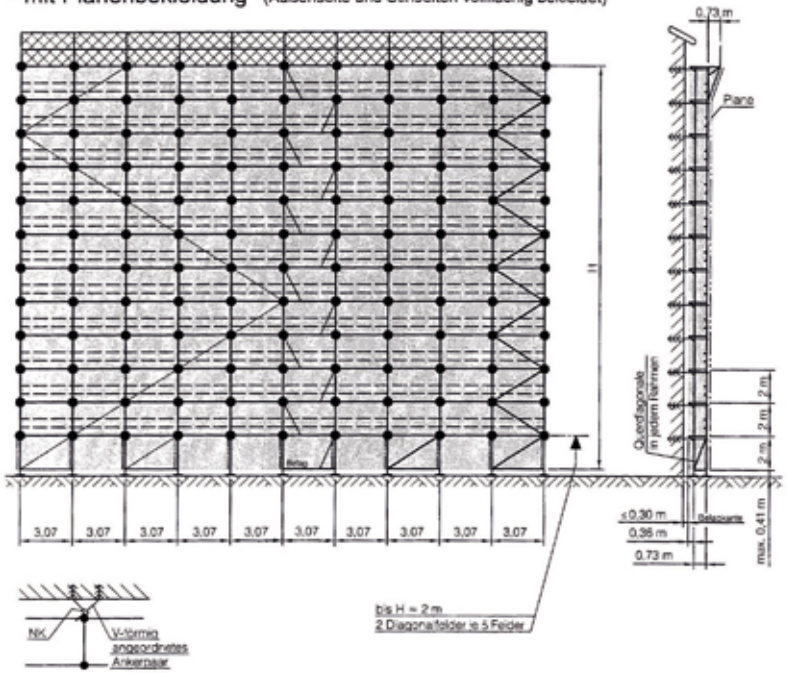
Teilweise offene Fassade
Geschlossene Fassade

$L_{Feld} \leq 3{,}07$ m

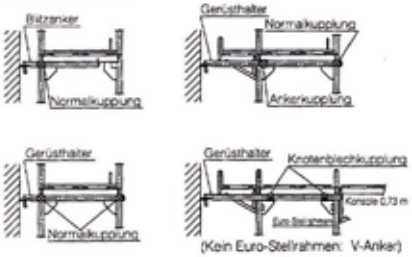
Bekleidetes Gerüst :

Grundvariante / Konsolvariante 1 / Konsolvariante 2

- mit oder ohne Schutzgitter
- mit Planenbekleidung (Außenseite und Stinseiten vollflächig bekleidet)



Detail Verankerung



(Kein Euro-Stellrahmen: V-Anker)

● —› Blitzanker / Gerüsthalter

Tabelle Ankerkräfte [kN]

			Geschlossene Fassade		Teilweise offene Fassade	
			L_{Feld} 2,57 m	L_{Feld} 3,07 m	L_{Feld} 2,57 m	L_{Feld} 3,07 m
	Höhe		≤ 24m		≤ 24m	
Blitzanker Gerüsthalter	rechtwinklig zur Fassade	$A_\perp$	4,2	5,6	6,1	7,3
	parallel zur Fassade	$A_\parallel$ Normalkraft	0,8	0,9	0,8	0,9
		$A_\parallel$ Exzentr.	2,7	3,2	2,7	3,2
	V - Anker (Schräglast je Rohr)		-	-	-	-

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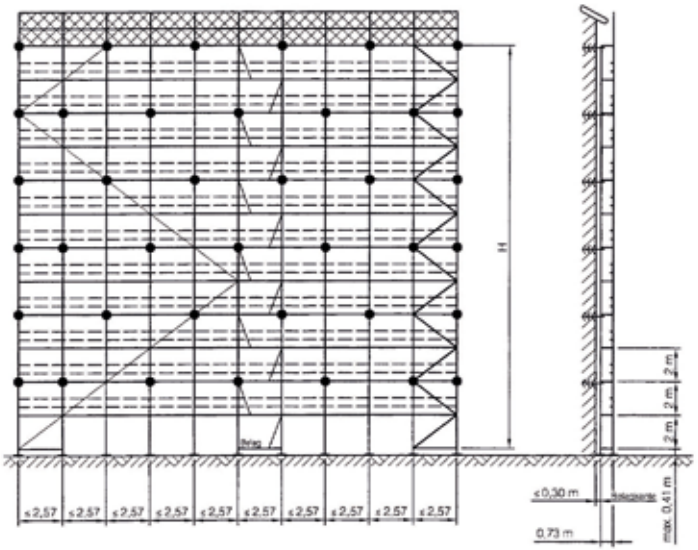
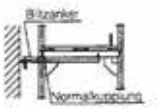
Geschlossene Fassade $L_{Feld} \leq 2{,}57$ m

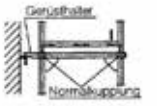
Unbekleidetes Gerüst :
Grundvariante

- mit oder ohne Schutzgitter



Detail Verankerung





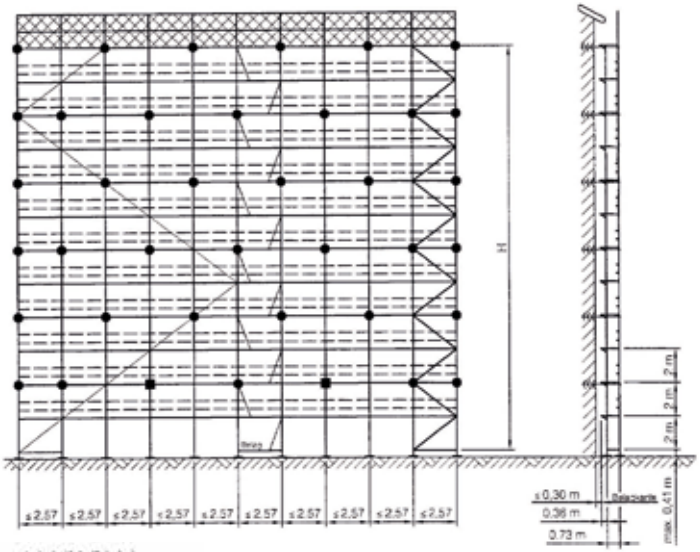
● ⟶ Bilzanker / Gerüsthalter

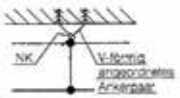
Tabelle Ankerkräfte [kN]					
Höhe			24m	16m	8m
Bilzanker / Gerüsthalter	rechtwinklig zur Fassade	$A_\perp$	1,7	1,6	1,6
	parallel zur Fassade	$A_\parallel$ Normalauf	1,8	1,8	1,8
		$A_\parallel$ Exhaust	3,3	3,3	3,3
	V - Anker (Schräglast je Rohr)		-	-	-

Geschlossene Fassade $L_{Feld} \leq 2{,}57$ m

Unbekleidetes Gerüst :
Konsolvariante 1

- mit oder ohne Schutzgitter





■ ⟶ V-Anker
(1x je 5 Felder in der 2. Etage)

● ⟶ Gerüsthalter

Detail Verankerung

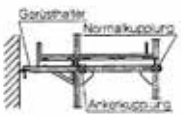


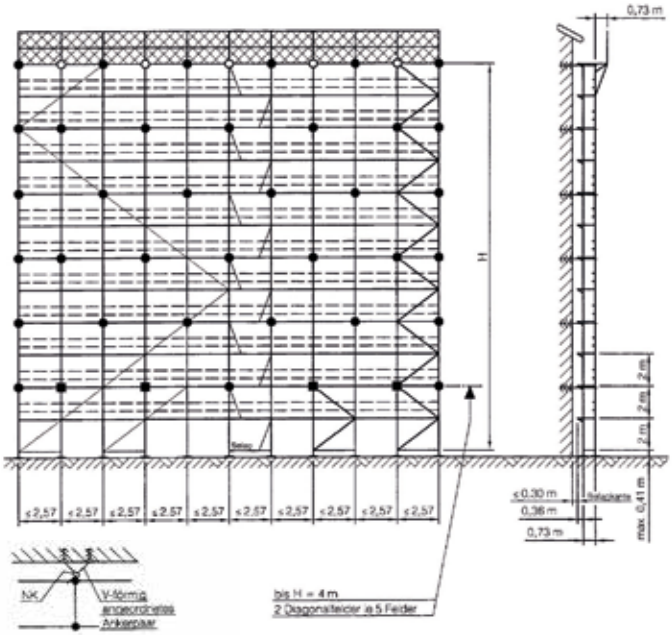
Tabelle Ankerkräfte [kN]					
Höhe			24m	16m	8m
Gerüsthalter	rechtwinklig zur Fassade	$A_\perp$	1,7	1,6	1,6
	parallel zur Fassade	$A_\parallel$ Normalauf	1,7	1,7	1,7
		$A_\parallel$ Exhaust	3,3	3,3	3,3
	V - Anker (Schräglast je Rohr)		4,6	4,6	4,6

Geschlossene Fassade

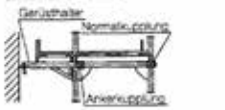
$L_{Feld} \leq 2{,}57$ m

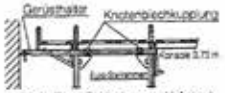
Unbekleidetes Gerüst :
Konsolvariante 2

- mit oder ohne Schutzgitter



Detail Verankerung





(Kein Euro-Stellrahmen: V-Anker)

- o ⟶ Zusatz-Anker nur bei Konsole 0,73 m verstärkt
- ■ ⟶ V-Anker (2x je 5 Felder in der 2. Etage)
- ● ⟶ Gerüsthalter

Tabelle Ankerkräfte [kN]				
Höhe			24m	16m	8m
Gerüsthalter	rechtwinklig zur Fassade	$A_{\perp}$	1,7 (2,1)	1,6	1,6
	parallel zur Fassade	$A_{\parallel}$ Normalrohr	1,7	1,7	1,7
		$A_{\parallel}$ Eckrohr	3,3	3,3	3,3
	V - Anker (Schräglast je Rohr)		2,9	2,9	2,9

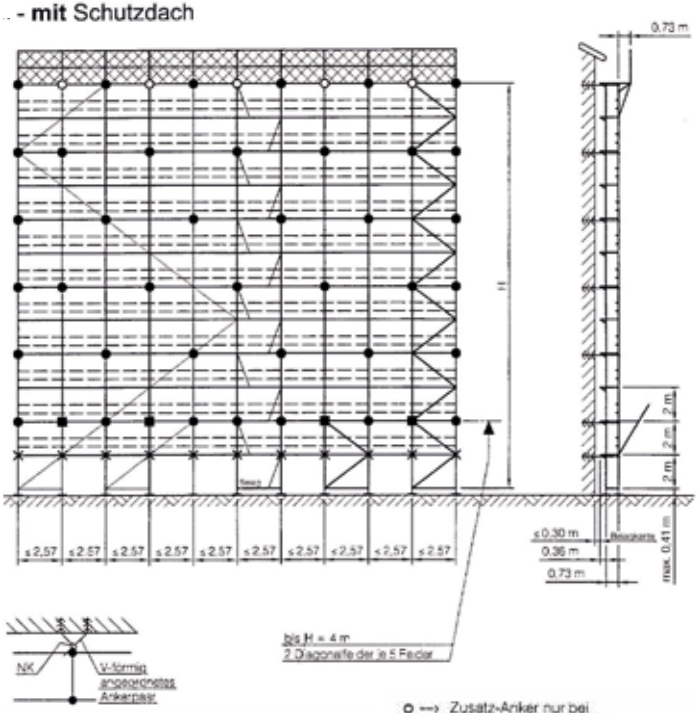
( ) - Wert gilt nur bei Außenkonsole ohne Strebe

Geschlossene Fassade

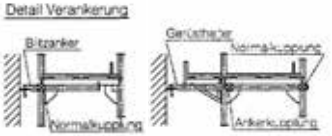
$L_{Feld} \leq 2{,}57$ m

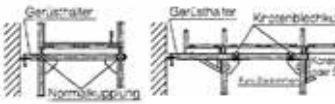
Unbekleidetes Gerüst :
Grundvariante / Konsolvariante 1 / Konsolvariante 2

- mit oder ohne Schutzgitter
- **mit** Schutzdach



Detail Verankerung





(Kein Euro-Stellrahmen: V-Anker)

( ) - Wert gilt nur bei Außenkonsole ohne Strebe

- o ⟶ Zusatz-Anker nur bei Konsole 0,73 m verstärkt
- × ⟶ Zusatz-Anker bei Schutzdachträger 2,10 m
- ■ ⟶ V-Anker (2x je 5 Felder in der 2. Etage)
- ● ⟶ Blitzanker / Gerüsthalter

Tabelle Ankerkräfte [kN]				
Höhe			24m	16m	8m
Blitzanker / Gerüsthalter	rechtwinklig zur Fassade	$A_{\perp}$	1,7 (2,1)	1,7	1,7
	parallel zur Fassade	$A_{\parallel}$ Normalrohr	1,7	1,7	1,7
		$A_{\parallel}$ Eckrohr	3,3	3,3	3,3
	V - Anker (Schräglast je Rohr)		2,9	2,9	2,9

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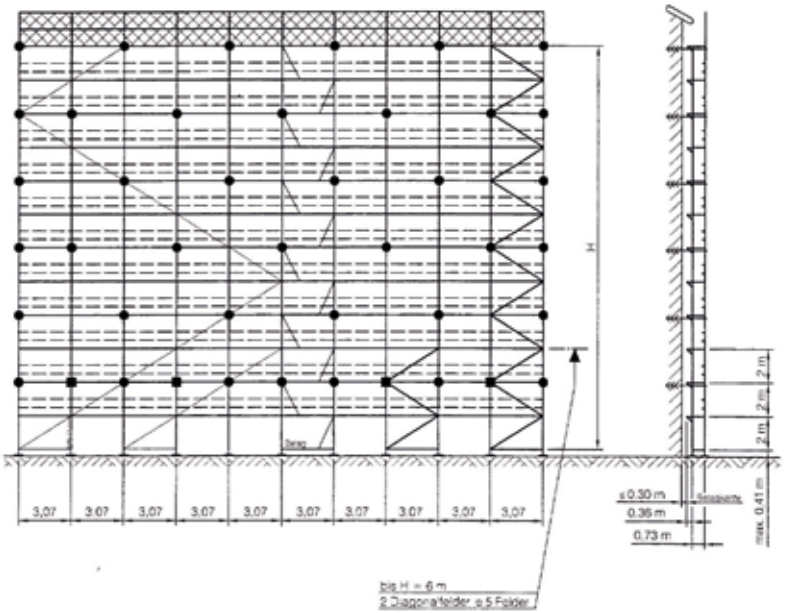
Scaffolding Systems

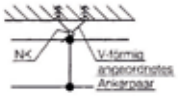
Geschlossene Fassade

L_{Feld} = 3,07 m

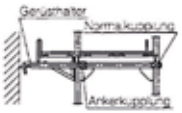
Unbekleidetes Gerüst :
Konsolvariante 1

- mit oder ohne Schutzgitter





Detail Verankerung



■ --› V-Anker
(2x je 5 Felder in der 2. Etage)

● --› Gerüsthalter

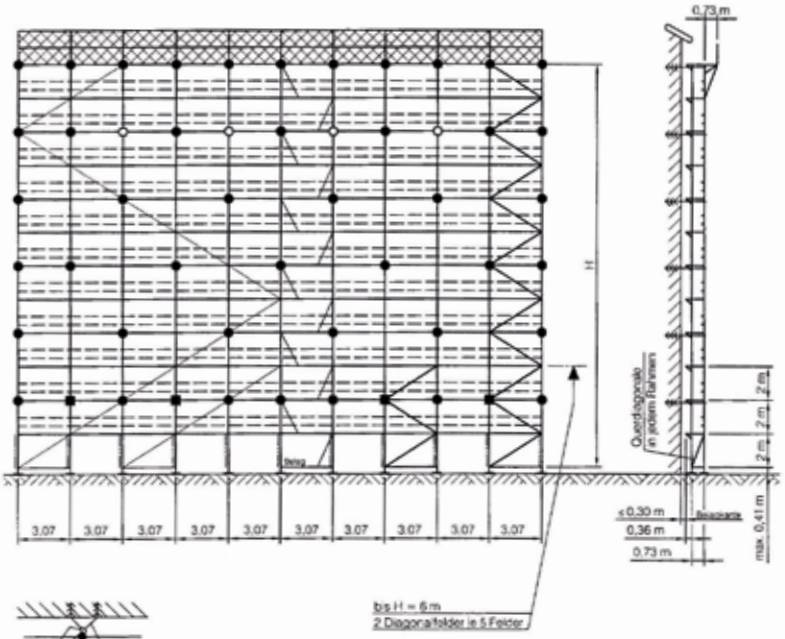
Tabelle Ankerkräfte [kN]				
Höhe			24m	16m	8m
Gerüstachse	rechtwinklig zur Fassade	$A_{\perp}$	2,2	1,8	1,7
	parallel zur Fassade	$A_{\parallel}$ Normalauf.	1,7	1,7	1,7
		$A_{\parallel}$ Sonderl.	3,5	3,5	3,5
	V - Anker (Schräglast je Rohr)		2,6	2,6	2,6

Geschlossene Fassade

L_{Feld} = 3,07 m

Unbekleidetes Gerüst :
Konsolvariante 2

- mit oder ohne Schutzgitter



Detail Verankerung

(Kein Euro-Stellrahmen: V-Anker)

( ) - Wert gilt nur bei Außenkonsole ohne Strebe

○ ⟶ Zusatz-Anker nur bei Konsole 0,73 m verstärkt

■ ⟶ V-Anker (2x je 5 Felder in der 2. Etage)

● ⟶ Gerüsthalter

Tabelle Ankerkräfte [kN]				
Höhe			24m	16m	8m
Gerüsthalter	rechtwinklig zur Fassade	$A_{\perp}$	1,5 (2,4)	1,2	0,9
	parallel zur Fassade	$A_{\parallel}$ Normalaust	1,7	1,7	1,7
		$A_{\parallel}$ Eckaust	3,5	3,5	3,5
V - Anker (Schräglast je Rohr)			2,9	2,9	2,9

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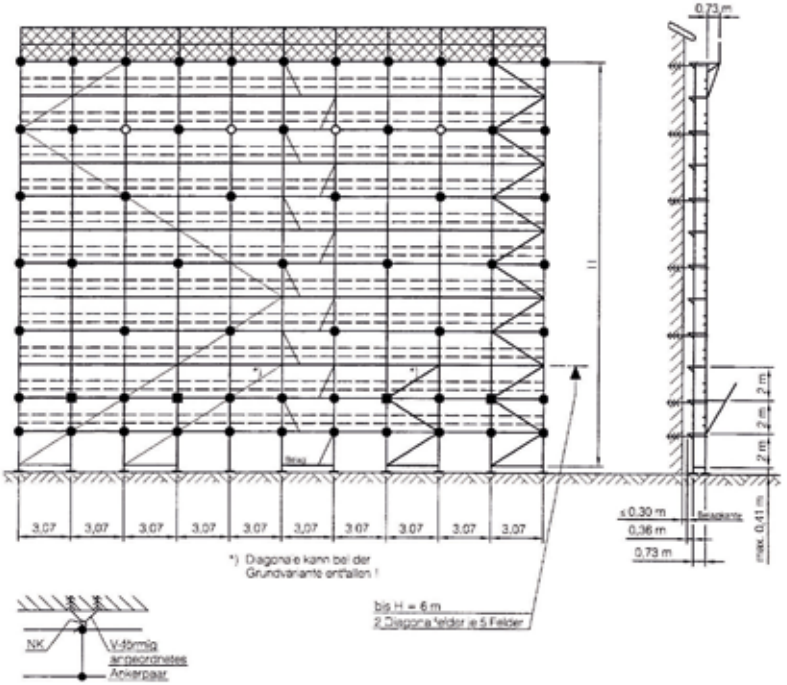
Geschlossene Fassade

L_{Feld} = 3,07 m

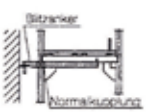
Unbekleidetes Gerüst :

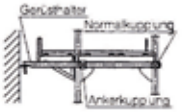
Grundvariante / Konsolvariante 1 / Konsolvariante 2

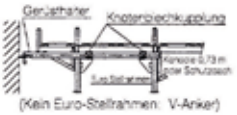
- mit oder ohne Schutzgitter
- **mit** Schutzdach



Detail Verankerung







(Kein Euro-Stellrahmen: V-Anker)

( ) - Wert gilt nur bei Außenkonsole ohne Strebe

○ --> Zusatz-Anker nur bei Konsole 0,73 m verstärkt

■ --> V-Anker (2x je 5 Felder in der 2. Etage)

● --> Blitzanker / Gerüsthalter

Tabelle Ankerkräfte [kN]				
Höhe			24m	16m	8m
Blitzanker Gerüsthalter	rechtwinklig zur Fassade	$A_{\perp}$	1,5 (2,4)	1,5	1,4
	parallel zur Fassade	$A_{\parallel}$ Normalast	1,7	1,7	1,7
		$A_{\parallel}$ Exzenter	3,5	3,5	3,5
V - Anker (Schräglast je Rohr)			2,9	2,9	2,9

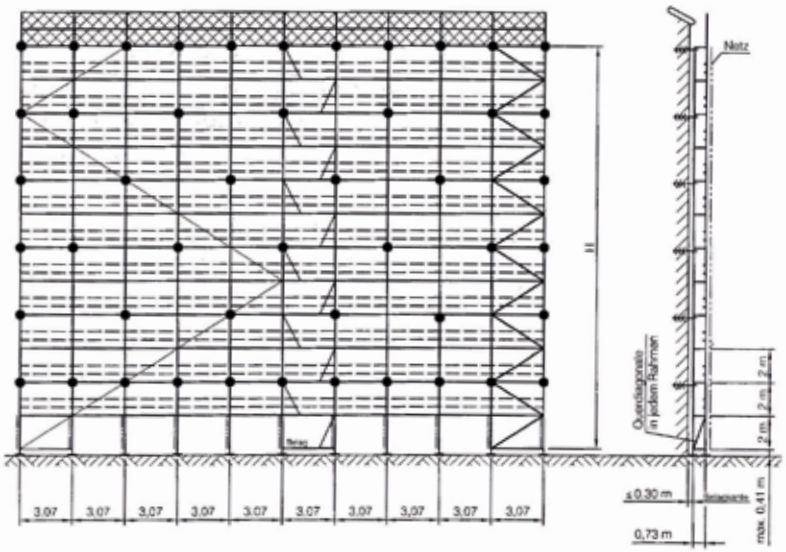
Geschlossene Fassade

L_{Feld} = 3,07 m

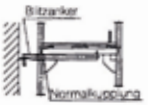
Bekleidetes Gerüst :

Grundvariante

- mit oder ohne Schutzgitter
- mit Netzbekleidung



Detail Verankerung



● --> Blitzanker / Gerüsthalter

Tabelle Ankerkräfte [kN]				
Höhe			24m	16m	8m
Blitzanker Gerüsthalter	rechtwinklig zur Fassade	$A_{\perp}$	2,9	2,3	1,6
	parallel zur Fassade	$A_{\parallel}$ Normalzug	1,7	1,7	1,7
		$A_{\parallel}$ Einzug	5,1	5,1	5,1
	V - Anker (Schräglast je Rohr)		-	-	-

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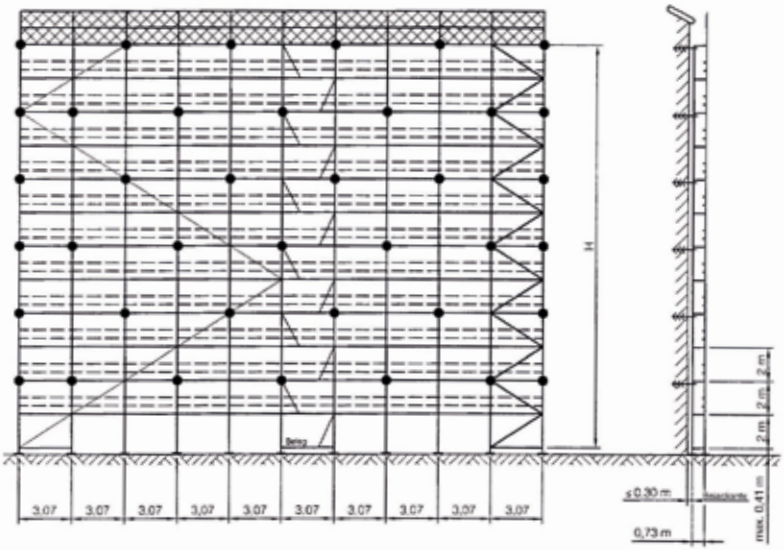
Geschlossene Fassade

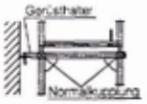
L_{Feld} = 3,07 m

Unbekleidetes Gerüst :
Grundvariante

- mit oder ohne Schutzgitter



Detail Verankerung



● ⟶ Blitzanker / Gerüsthalter

Tabelle Ankerkräfte [kN]				
Höhe			24m	16m	8m
Blitzanker / Gerüsthalter	rechtwinklig zur Fassade	$A_{\perp}$	2,2	1,8	1,7
	parallel zur Fassade	$A_{\parallel}$ Normalkupplung	1,8	1,8	1,8
		$A_{\parallel}$ Eckkupplung	3,5	3,5	3,5
	V - Anker (Schrägast je Rohr)		-	-	-

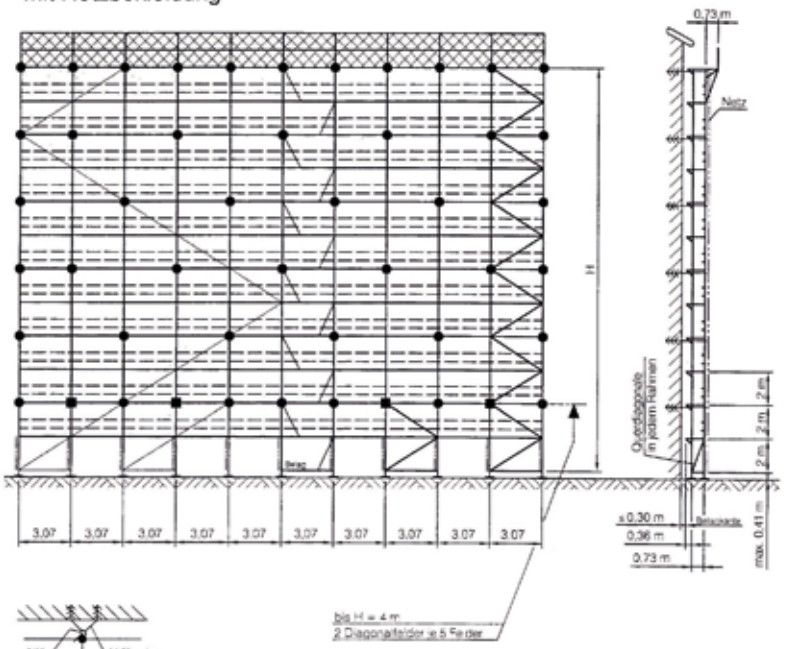
Geschlossene Fassade

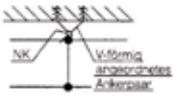
L_{Feld} = 3,07 m

Bekleidetes Gerüst :

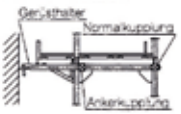
Konsolvariante 1 / Konsolvariante 2

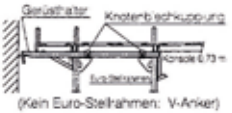
- mit oder ohne Schutzgitter
- mit Netzbekleidung





Detail Verankerung





(Kein Euro-Stellrahmen: V-Anker)

■ ⟶ V-Anker
(2x je 5 Felder in der 2. Etage)

● ⟶ Gerüsthalter

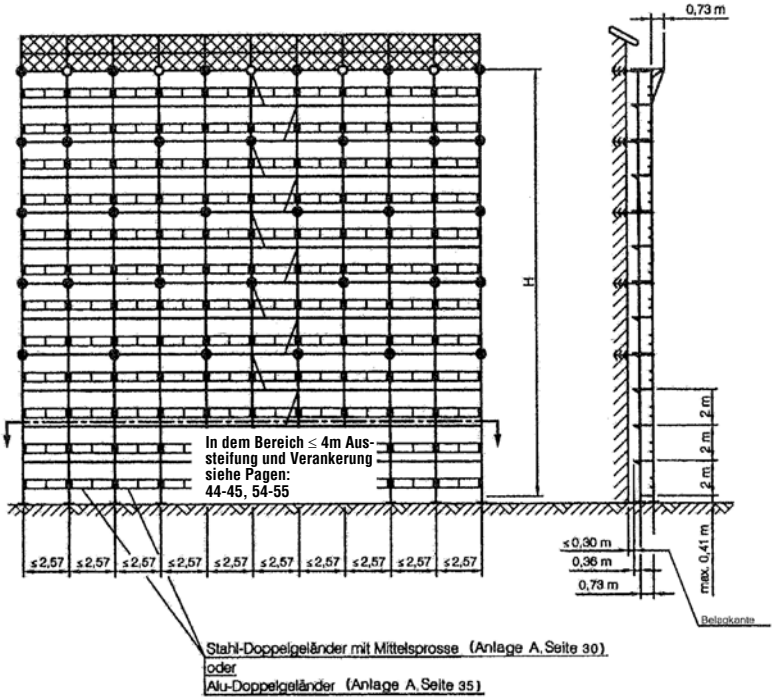
Tabelle Ankerkräfte [kN]				
Höhe			24m	16m	8m
Gerüsthalter	rechtwinklig zur Fassade	$A_\perp$	2,9	2,3	1,6
	parallel zur Fassade	$A_\parallel$ Normalauf	1,5	1,5	1,5
		$A_\parallel$ Lotauf	5,1	5,1	5,1
	V - Anker (Schräglast je Rohr)		2,4	2,4	2,4

Teilweise offene Fassade
Geschlossene Fassade

$L_{Feld} \leq 2{,}57$ m

Unbekleidetes Gerüst :
Grundvariante / Konsolvariante 1 / Konsolvariante 2

- mit oder ohne Schutzgitter
- Aussteifung mit Stahl- oder Alu-Doppelgeländer



○ ⟶ Zusatz-Anker nur bei Konsole 0,73 m verstärkt

● ⟶ Blitzanker / Gerüsthalter

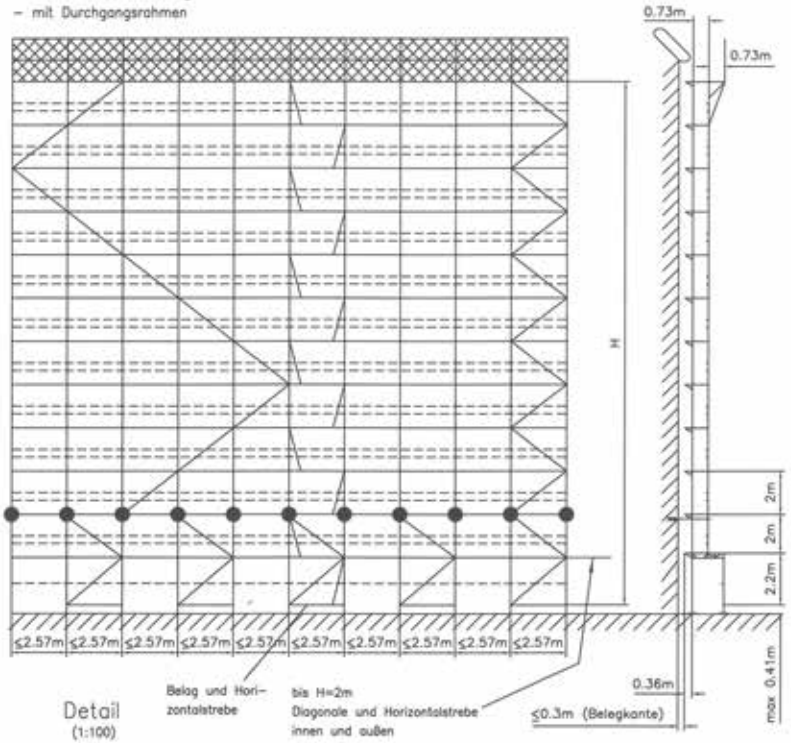
Ankerkräfte siehe Pagen: 44-45, 54-55

Anlage B, Seite 55 zum Bescheid vom 19. April 2010 über die Änderung und Ergänzung der allgemeinen bauaufsichtlichen Zulassung Z-8.1-872 vom 3. August 2006 Deutsches Institut für Bautechnik

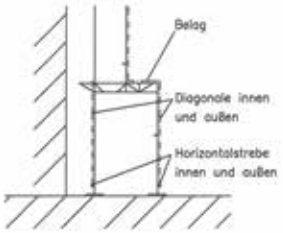
Teilweise offene Fassade / Geschlossene Fassade

Unbekleidetes Gerüst:
Grundvariante / Konsolvariante 1 / Konsolvariante 2
– mit oder ohne Schutzgitter
– mit Durchgangsrahmen

$L_{Feld} \leq 2{,}57m$



Detail
(1:100)



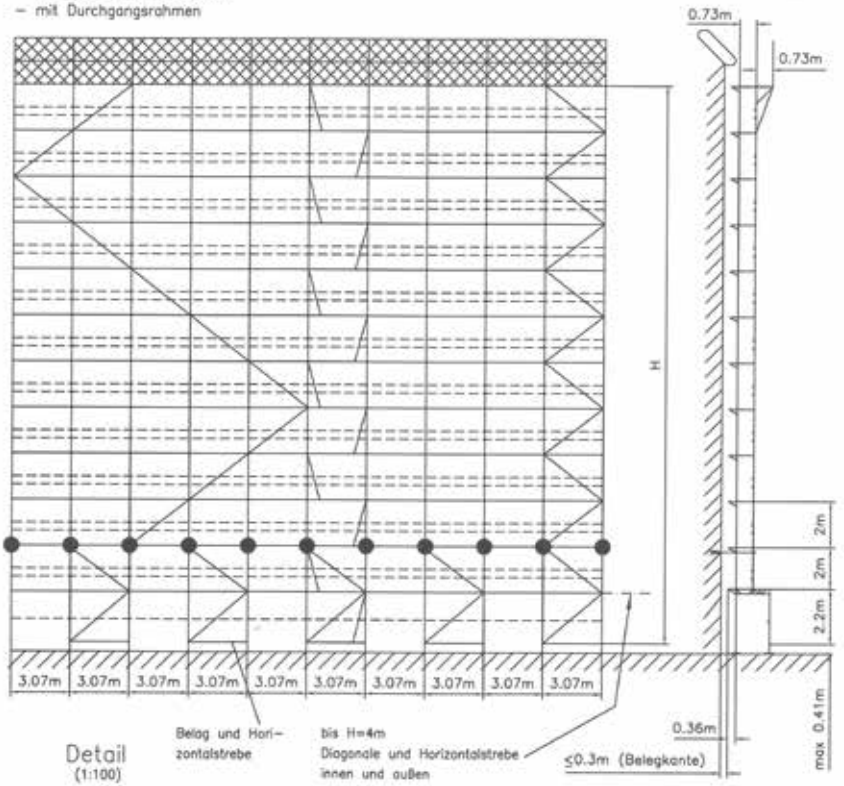
● --> Blitzanker / Gerüsthalter

Die gezeichneten Anker + Aussteifungselemente sind zusätzlich einzubauen, sofern sie nicht schon in den entsprechenden Aufbauvarianten enthalten sind.
V-Anker bei H=4m beachten !
Ankerkräfte gemäß Aufbauvariante.

Teilweise offene Fassade / Geschlossene Fassade

$L_{Feld} \leq 3{,}07m$

Unbekleidetes Gerüst:
Grundvariante / Konsolvariante 1 / Konsolvariante 2
– mit oder ohne Schutzgitter
– mit Durchgangsrahmen



Detail
(1:100)

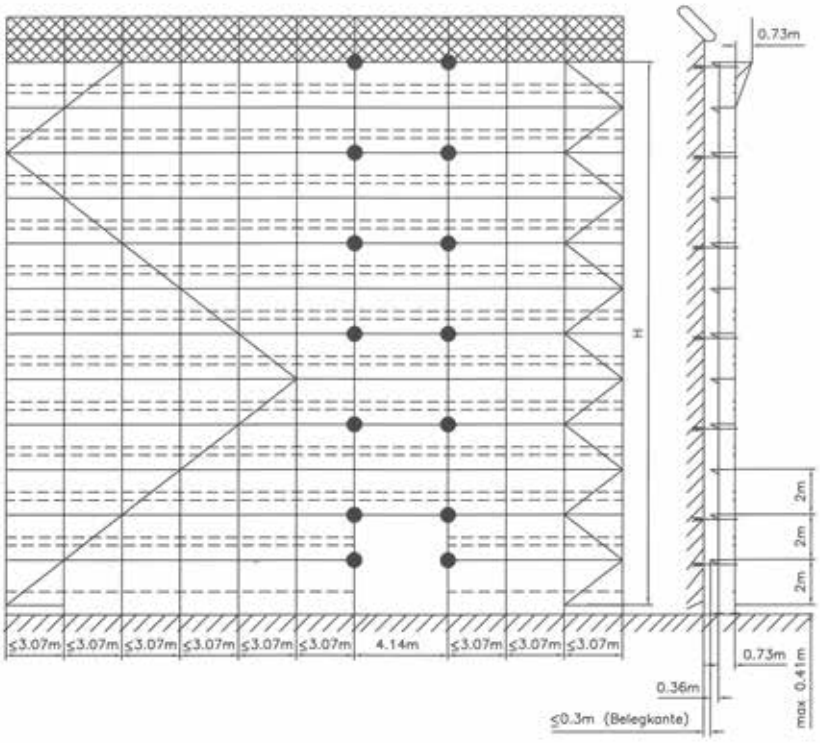
● --> Blitzanker / Gerüsthalter

Die gezeichneten Anker + Aussteifungs-elemente sind zusätzlich einzubauen, sofern sie nicht schon in den ent-sprechenden Aufbauvarianten enthalten sind.
V-Anker bei H=4m beachten !
Ankerkräfte gemäß Aufbauvariante.

Teilweise offene Fassade / Geschlossene Fassade

$L_{Feld} \leq 3{,}07m$

Unbekleidetes Gerüst:
Grundvariante / Konsolvariante 1 / Konsolvariante 2
- mit oder ohne Schutzgitter
- mit Überbrückungsfeld 4,14 m

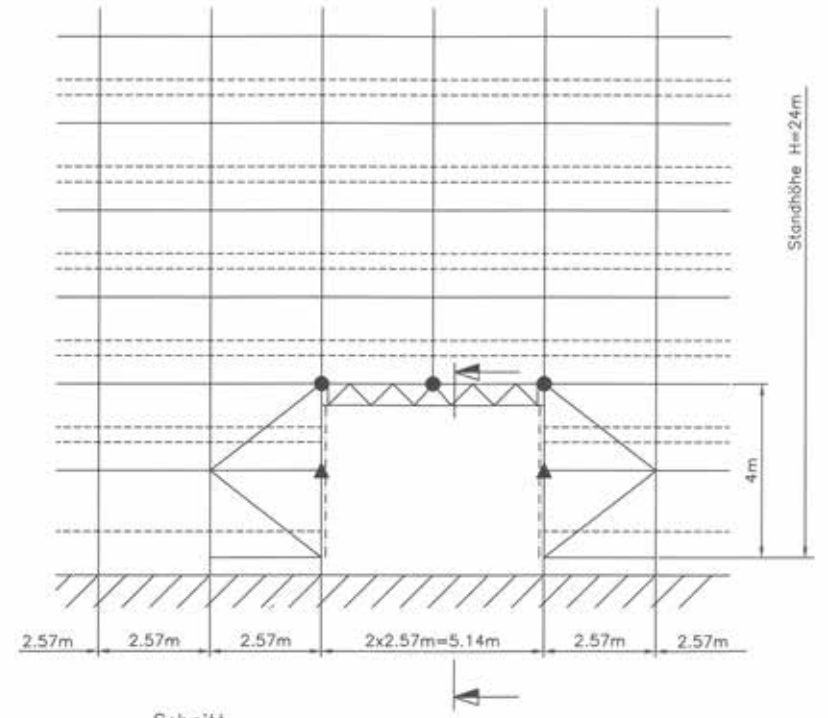


● --> Blitzanker / Gerüsthalter

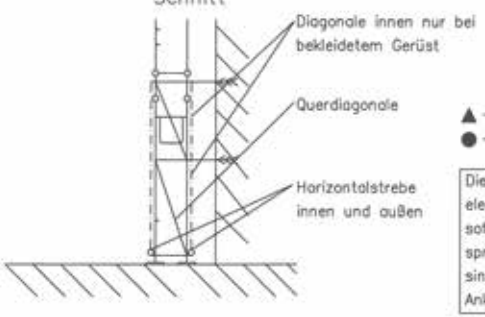
Die gezeichneten Anker
sind zusätzlich einzubauen,
sofern sie nicht schon in den entsprechenden Aufbauvarianten enthalten sind.
Ankerkräfte gemäß Aufbauvariante.

Teilweise offene Fassade/ Geschlossene Fassade

Unbekleidetes / Netzbekleidetes / Planenbekleidetes Gerüst:
Grundvariante



Schnitt

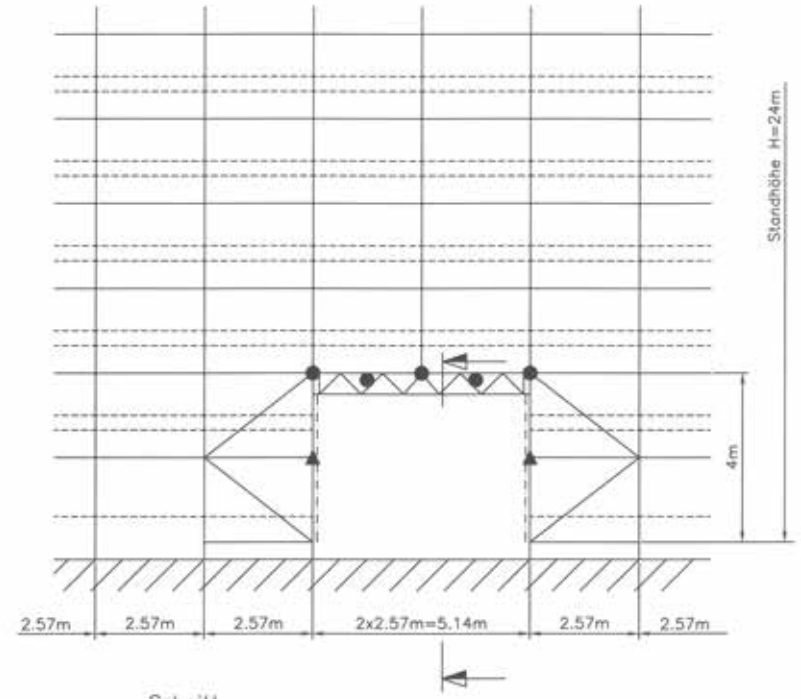


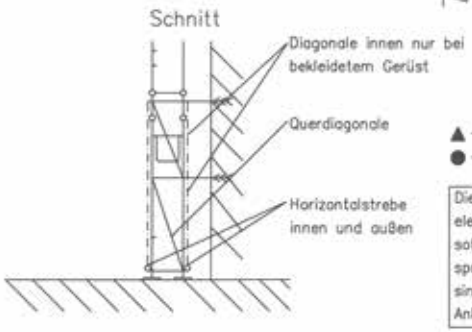
▲ → Zusatzanker (bei Planenbekleidung)
● → Blitzanker / Gerüsthalter

Die gezeichneten Anker + Aussteifungs-elemente sind zusätzlich einzubauen, sofern sie nicht schon in den ent-sprechenden Aufbauvarianten enthalten sind.
Ankerkräfte gemäß Grundvariante.

Teilweise offene Fassade/ Geschlossene Fassade

Unbekleidetes / Netzbekleidetes / Planenbekleidetes Gerüst:
Konsolvariante 1 / Konsolvariante 2



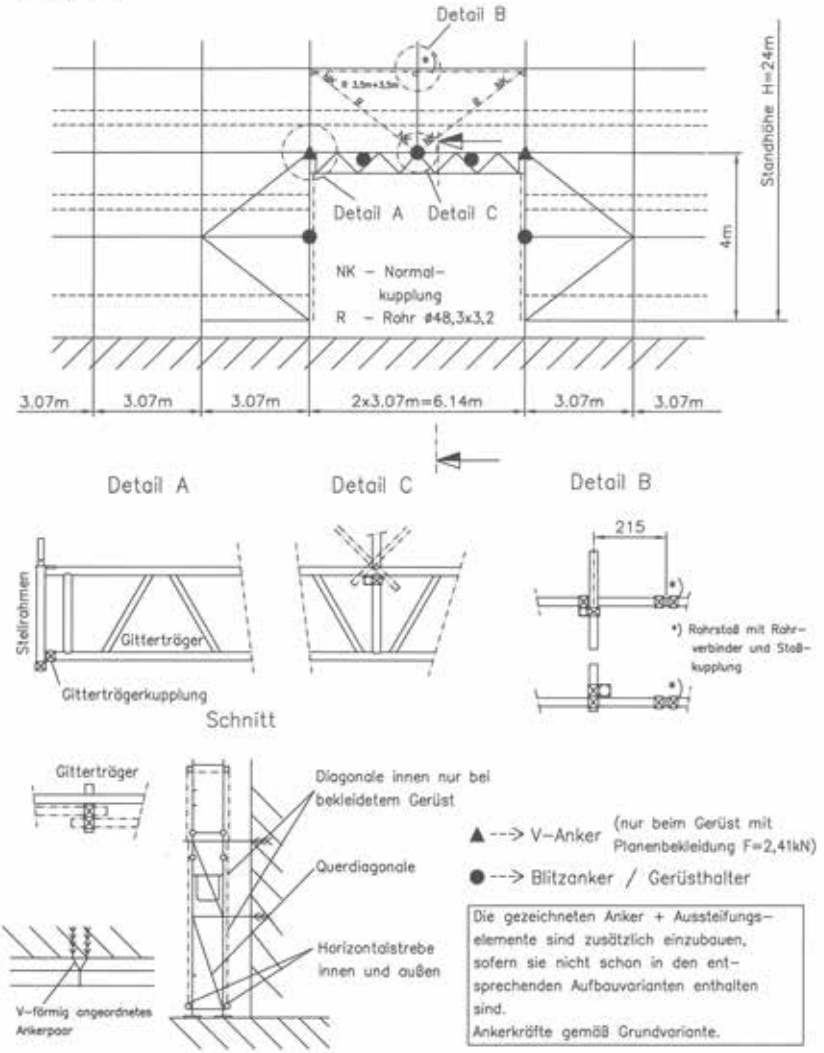


▲ → Zusatzanker (bei Planenbekleidung)
● → Blitzanker / Gerüsthalter

Die gezeichneten Anker + Aussteifungs-elemente sind zusätzlich einzubauen, sofern sie nicht schon in den entsprechenden Aufbauvarianten enthalten sind.
Ankerkräfte gemäß Aufbauvariante.

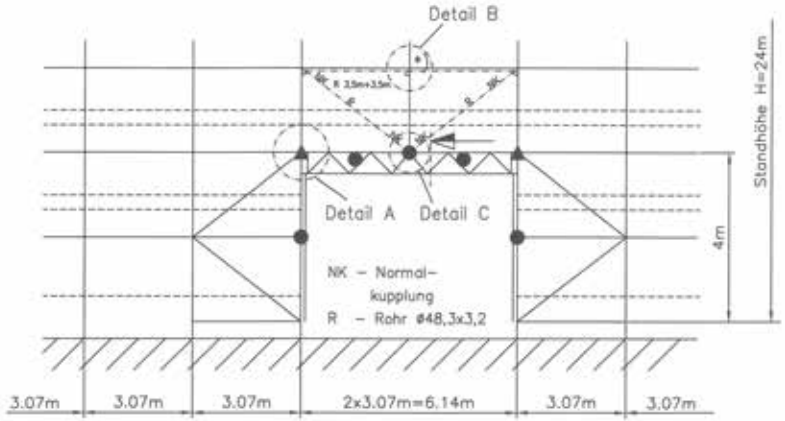
Teilweise offene Fassade/ Geschlossene Fassade

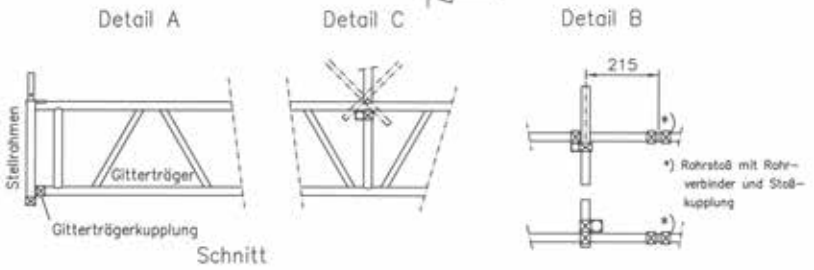
Unbekleidetes / Netzbekleidetes / Planenbekleidetes Gerüst:
Grundvariante



Teilweise offene Fassade/ Geschlossene Fassade

Unbekleidetes / Netzbekleidetes / Planenbekleidetes Gerüst:
Konsolvariante 1 / Konsolvariante 2





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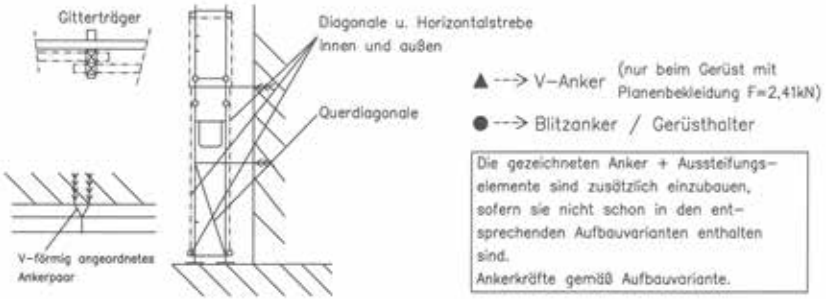
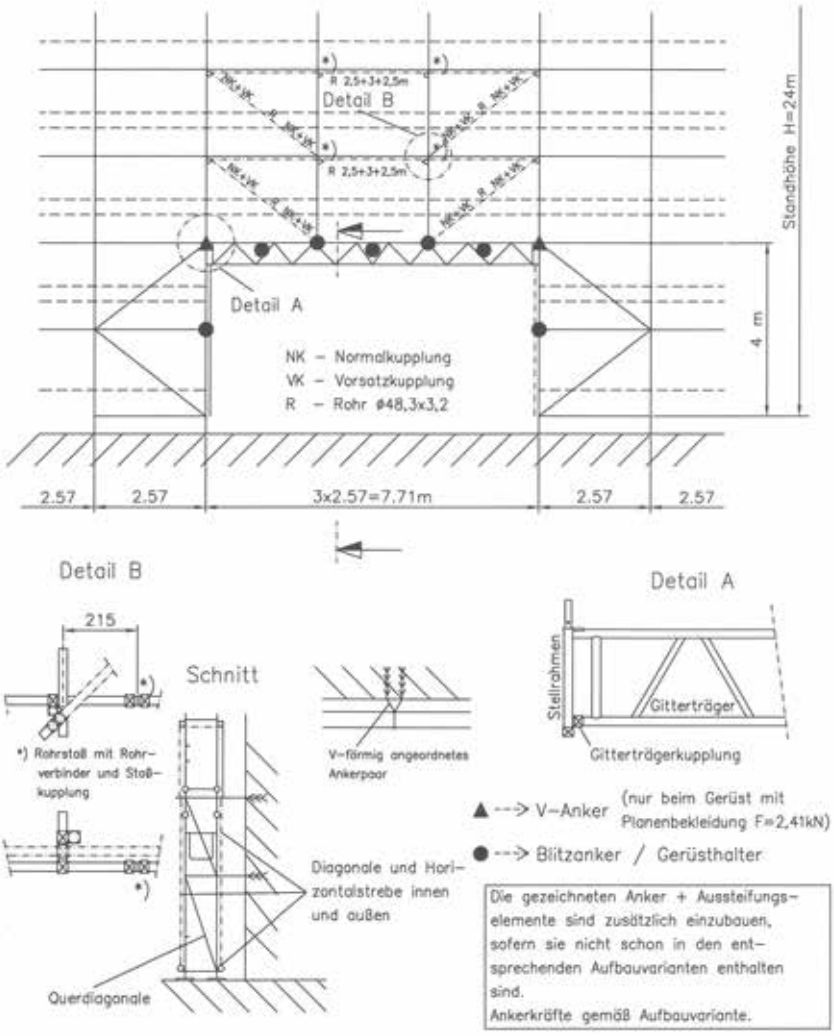
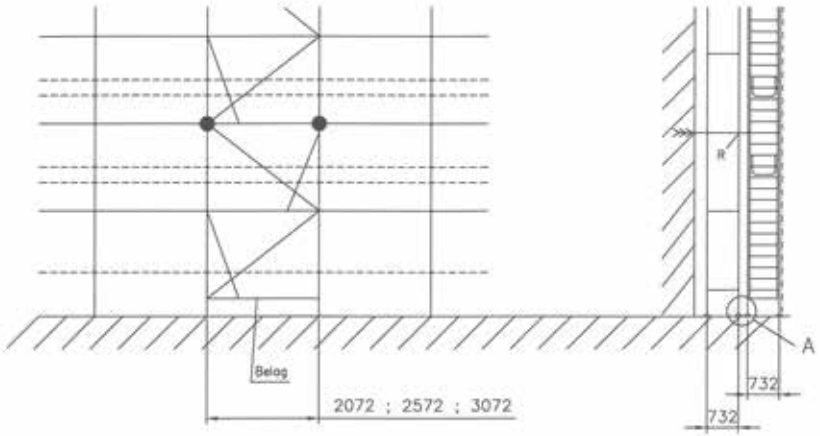


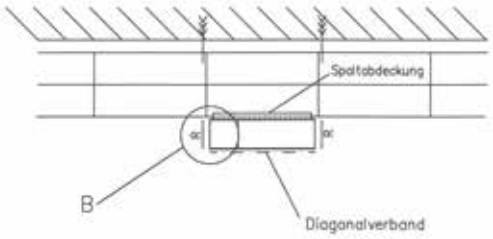
Teilweise offene Fassade/ Geschlossene Fassade

Unbekleidetes / Netzbekleidetes / Planenbekleidetes Gerüst:
Grundvariante / Konsolvariante 1 / Konsolvariante 2

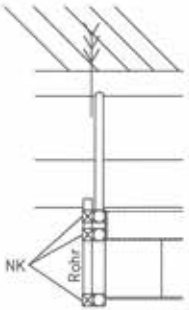


Vorgesetztes Aufstiegsfeld

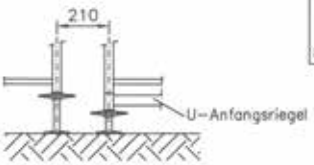




Detail B



Detail A



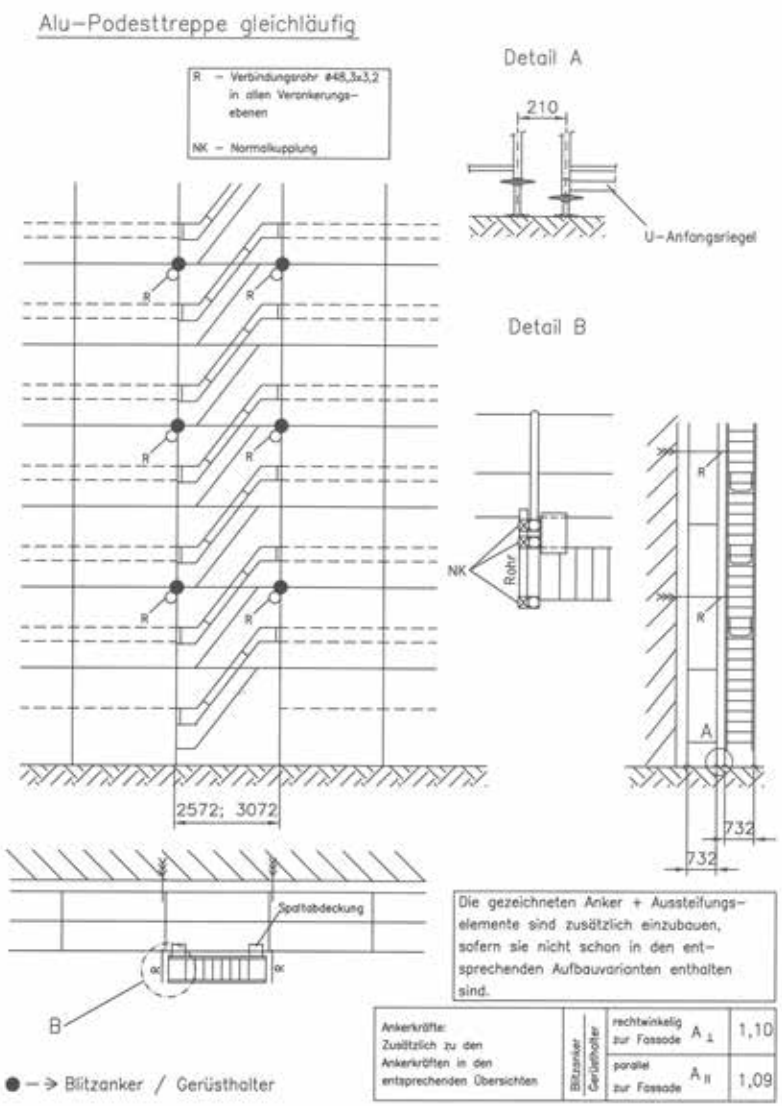
R – Verbindungsrohr ⌀48,3x3,2 in allen Verankerungsebenen (alle 4m)

NK – Normalkupplung

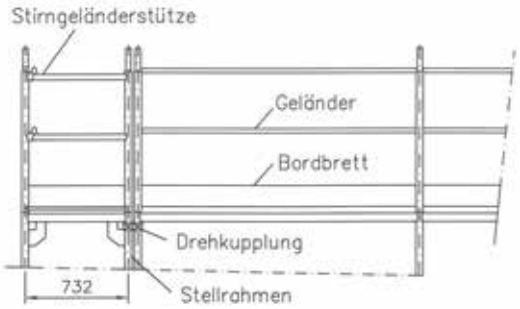
● --> Blitzanker / Gerüsthalter (alle 4m)

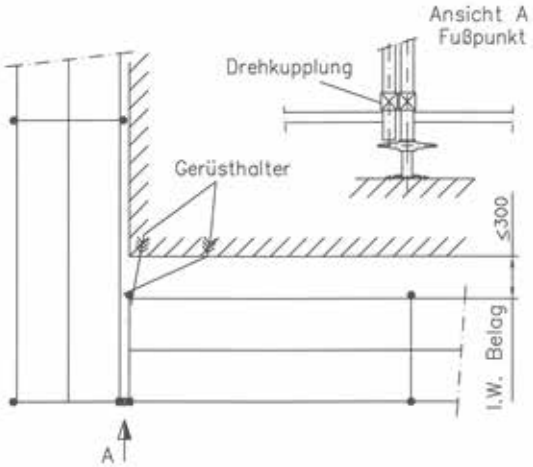
Ankerkräfte: Zusätzlich zu den Ankerkräften in den entsprechenden Übersichten	Blitzanker / Gerüsthalter	rechtwinkelig zur Fassade $A_{\perp}$	1,10
		parallel zur Fassade $A_{\parallel}$	1,09

Die gezeichneten Anker & Aussteifungs-elemente sind zusätzlich einzubauen, sofern sie nicht schon in den entsprechenden Aufbauvarianten enthalten sind.

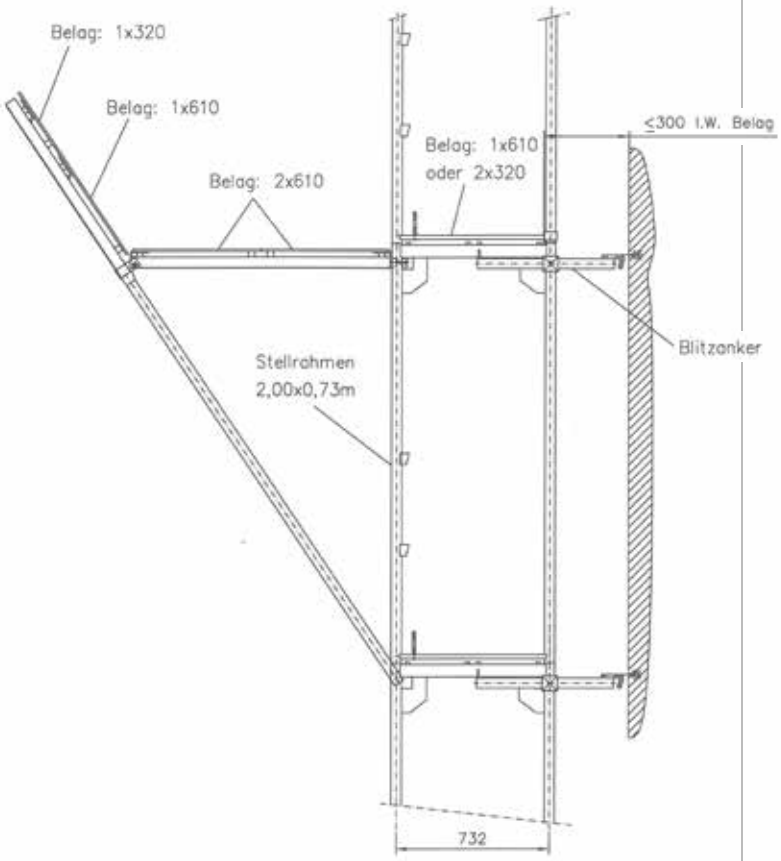

Alu–Podesttreppe gleichläufig
R – Verbindungsrohr ø48,3x3,2 in allen Verankerungs–ebenen
NK – Normalkupplung
Detail A
210
U–Anfangsriegel
Detail B
NK
Rohr
R
A
2572; 3072
732
732
Spaltabdeckung
B
Die gezeichneten Anker + Aussteifungs–elemente sind zusätzlich einzubauen, sofern sie nicht schon in den ent–sprechenden Aufbauvarianten enthalten sind.
Ankerkräfte: Zusätzlich zu den Ankerkräften in den entsprechenden Übersichten
Blitzanker / Gerüsthalter
rechtwinkelig zur Fassade $A_{\perp}$ 1,10
parallel zur Fassade $A_{\parallel}$ 1,09
● –→ Blitzanker / Gerüsthalter

Eckausbildung

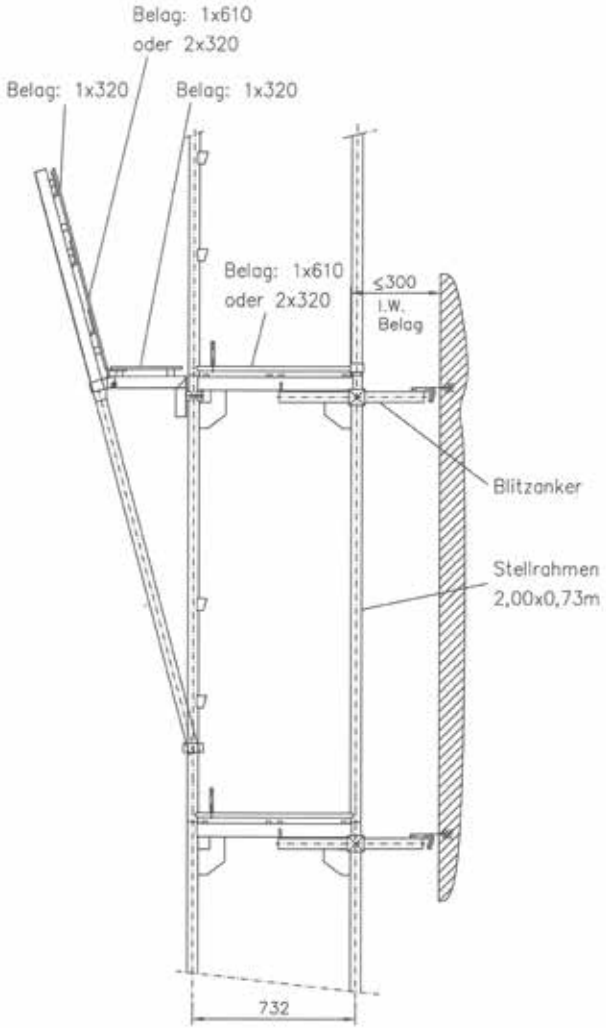




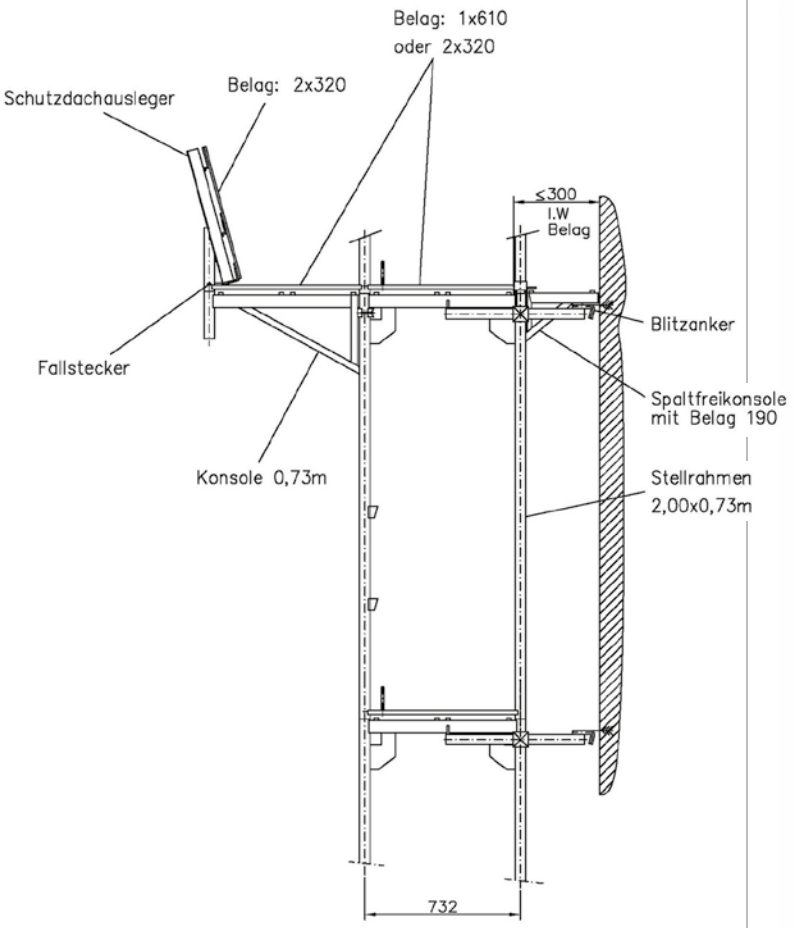
Schutzdachträger 2,10m



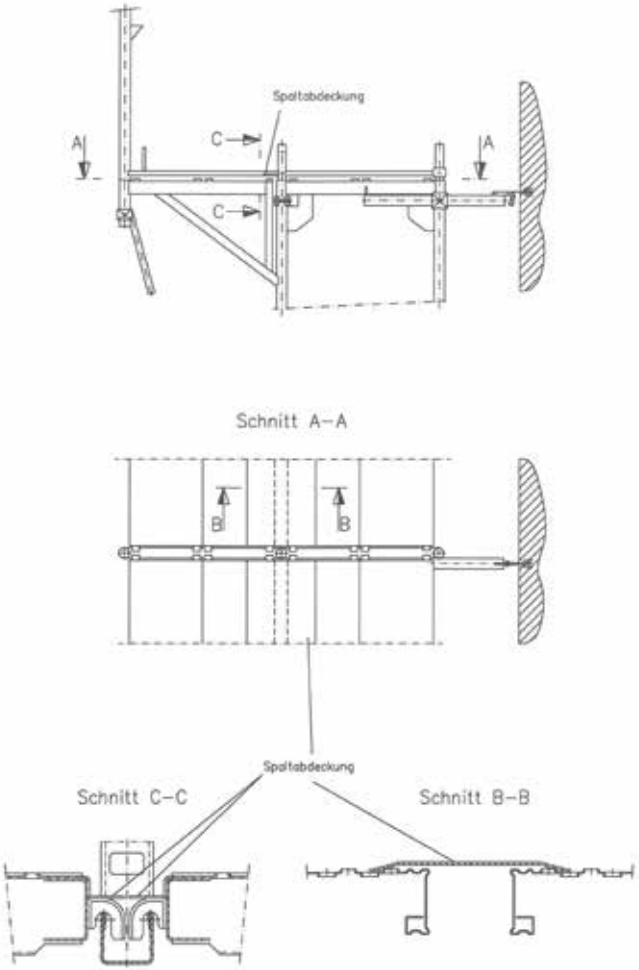
Schutzdachkonsole 1,30m



Aufbau Schutzdachausleger



Spaltabdeckung



6 Dismantling the scaffold

For the scaffold dismantling, the sequence of the operation steps described is to be reversed.

The anchors may be removed only when scaffold levels situated above have been dismantled completely.

Component parts whose anchoring has been loosened are to be removed immediately.

For the avoidance of stumbling traps, removed scaffold component parts are not to be stored on walkway routes.

Removed scaffold component parts may not be thrown off the scaffold. The scaffold component parts are to be stored properly.

7 Safety against fall from a height

7.1 General

ATTENTION!
With the installation of the scaffold, a danger of falling can exist. For measure for safety against fall from a height, see Sect. 1.3.

For safety against fall from a height, the scaffold levels are to be protected against stepping on at all possible fall edges with the assembly security guard rail (MSG). If the utilisation of the MSG is not possible on an individual basis due to local conditions, the protection in the affected area may be implemented instead of this by the utilisation of personal protective equipment against fall from a height (PSAgA) (see Sect. 1.3.3., as well as Sect. 7.3).

The necessary measures for safety against falls from a height must in any case be The necessary measures to ensure safety against falls from a height must always be taken current form.

7.2 Assembly security guard rail (MSG)

Only component parts which are authorised for that, in accordance with the authorisation Z-8.1-872, may be used for the assembly security guard rail.

The assembly security guard rail is mounted before the entering of the uppermost scaffold level in each case from the level being below. In order to exclude any danger during installation of the MSG, the complete 3-part side guard is to be installed in this field beforehand.
The installation of the assembly security guard rail (MSG) is implemented in the following steps:

- Position the first MSG post over the stand and place onto the upper railing stringer or the upper guard rail wedge housing (see Fig. 85)
- Slide the connection lug of the MSG guard rail over the safety catches of the already assembled MSG post (see Fig. 86)
- Insert the other connection lug into the safety catch of the second MSG post (see Fig. 87) and
- Position the second MSG post with inserted guard rail over the stand of the adjacent assembly frame and, as with the installation of the first post, place onto the upper guard rail or the upper guard rail wedge housing (see Fig. 88).

The installation of the assembly security guard rail in further scaffold fields is implemented analogously.

Fig. 85: Installation of the first MSG post

Fig. 86 Insertion of the MSG guard rail at the first MSG pos

Fig. 87: Insertion of the MSG guard rail stringer at the second MSG post

Fig. 88 Installation of the second MSG post

7.3 Personal protective equipment against fall from a height (PSAgA)

If the utilisation of the assembly security guard rail (MSG) is not possible on an individual basis due to local conditions, instead of this the protection in the affected area may be implemented by the utilisation of personal protective equipment against fall from a height (PSAgA) (see Sect. 1.3.3).

Only CE-identified equipment and EC Design Type equipment may be used as personal protective equipment against fall from a height, whose suitability for scaffold building work has been verified. The supervisor has to stipulate the anchor points and ensure that the PSAgA, consisting of full body harness (see Fig. 87) and connecting agent with flex stop shock and tubular hook (see Fig. 88), is used.

Fig. 89: Safety harness including back eyelet extension

Fig. 90: Connecting agent with flex stop shock and tubular hook

ATTENTION!
The fall arrest system (PSAgA) may be used only if the necessary open space between stand surface and impact surface is min. 6.0 m and the anchor point is min. 1.00 m above the platform (scaffold deck).

ATTENTION!
The directions for use of the PSAgA used are to be considered. For further notes on the utilisation of PSAgA, see BGI 5101.

The tubular hooks of the PSAgA may be inserted only at the anchor points authorised for that as described in the following (see Fig. 89 to Fig. 98), where the highest possible anchor point on the scaffold is preferred in each case.

For the limit stop at the upper ledger or at the gusset plate of the assembly frame (overhead), at least two assembly frames and one guard rail for the connection of the assembly frame must be assembled.

The wedges of the rail fixing are to be hammered in securely (see Sect. 2.9.2).

Fig. 94: Limit stop at the upper guard rail (detail)

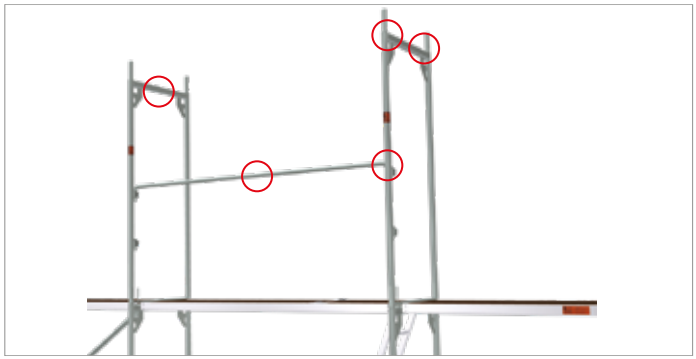


Fig. 91: Admissible anchor points for the PSAgA on the assembly frame and upper gurad rail above a stand height ≥ 6 m

Fig. 95: Admissible anchor points for the PSAgA at the front railing above a stand height ≥ 6 m

Fig. 92: Limit stop at the gusset plate of the assembly frame (detail)

Fig. 93: Limit stop at the stand above the upper guard rail

Fig. 96: Limit stop at the upper stringer of the front side railing

Fig. 97: Limit stop at the stand above the front railing connection (railing enclosure-sided)

Fig. 98: Limit stop at the stand above the front railing connection (coupling-sided)

Fig. 99: Admissible anchor point for the PSAgA at the guard rail wedge housing above a stand height ≥ 6 m

Fig. 100: Limit stop at the guard rail wedge housing

According to implementation of the double front railing, the hook on the stringer of the front side railing is to be set into the guard rail wedge housing and the wedge of the rail fixing hammered in securely, the half-coupler is to be connected securely to the opposite stand (see Sect. 2.9.2).

Within the framework of the assembly of a scaffold of standard implementation, in accordance with Sect. 5, the stability of the scaffold is also verified for the case of an interception action, with the use of the previously designated anchor points for the utilisation of the PSAgA.

ATTENTION!

Before the use of the listed anchor points for the installation of other scaffolds, the stability of the design is also to be verified by the scaffold constructor / scaffold generator in addition to the proof of structural stability of the scaffold in the case of an interception action.

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