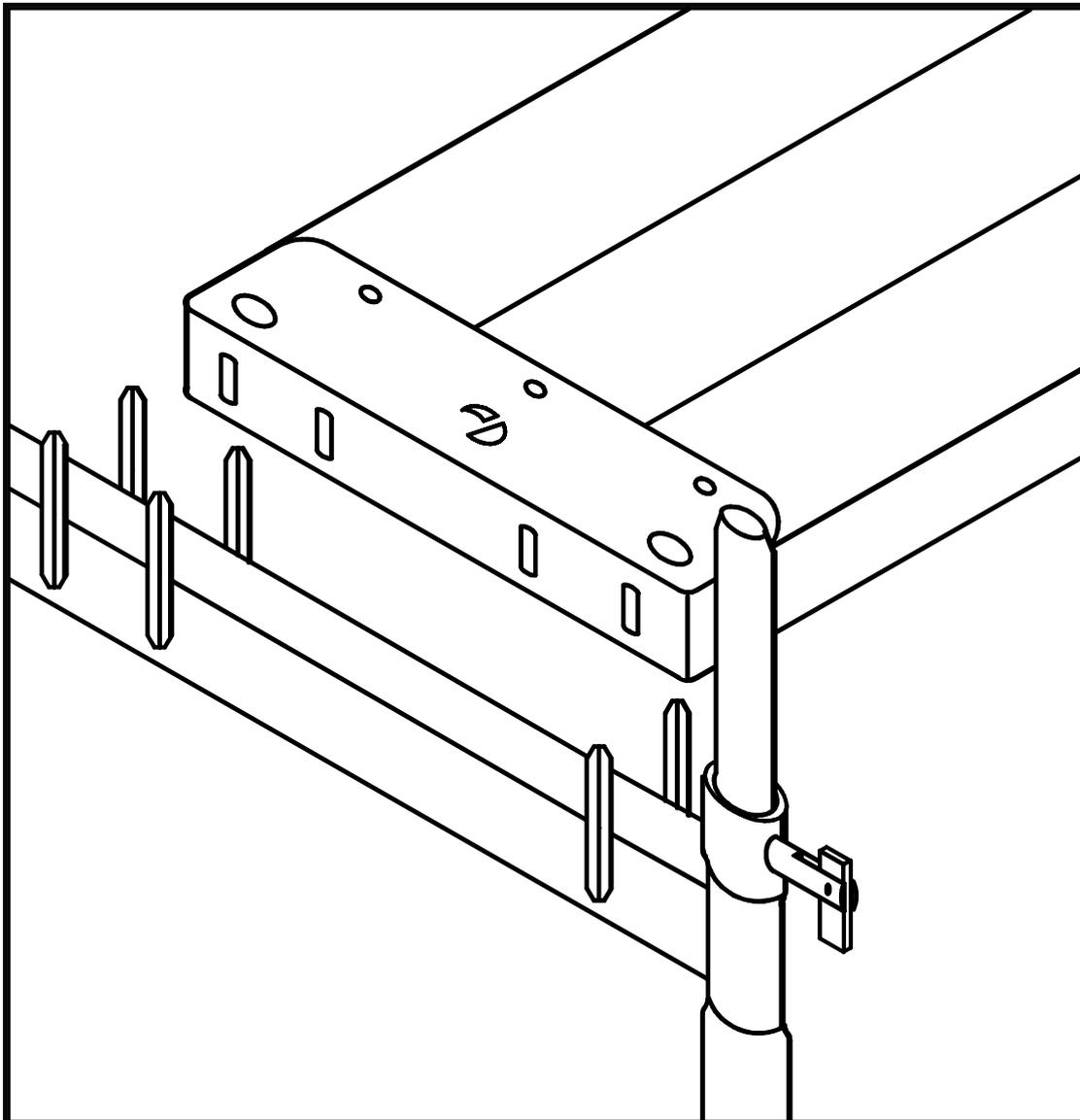

Facade Scaffolding

plettac SL70

Assembly Guide
- Basic setup -

Status: 27. October 2005



ALTRAD plettac assco GmbH
plettac Platz 1
58840 Plettenberg
Germany

Preface

The measures proposed in this explanation concerning the Assembly Guide for the safe assembly, conversion and dismantling of facade scaffold systems are to be understood as proposals for the scaffold installer, and are not specified as mandatory.

The proposed measures were developed in a working group of the Federal Association of Scaffold Construction / the German Federal Guild for the Scaffold Constructor Craft, consisting of scaffold construction contractors and leading German scaffold manufacturers, on the basis of a common risk analysis. The common objective of the manufacturers and installers represented in the German Federal Guild for the Scaffold Constructor Craft / Federal Association of Scaffold Construction is to improve safety and the health protection, in particular in the areas in which a focal point of danger is identifiable e.g. in case of the ascent to the uppermost location in each case, and the transportation of supplies carried out manually. The opinion is represented in this case unambiguously, which is not an excessively theoretical solution, but is rather a practical regulation which is in fact applicable will thus provide more success regarding safety.

For this reason, the considerations must involve both
Device and Product Safety Law
(GPSG, target group: Manufacturers)

as well as

Operational Safety Ordinance
(Health and Safety Guidelines, target group: Installers)

where they are included practice-relevant. Any separation would not involve normal practice and would not lead to the required success.

According to § 4 Sect. 1 Health and Safety Guidelines, the employer must apply only the required measures. The employer may now select those measures which cost the least from several equally suitable measures. He may not explicitly include the business and economical requirements of the company. The economical aspect is mentioned by the legislator at different points.



Only the variant is admissible, where the fitter moves in only maximum one bay without existing side protection at the uppermost location. In addition, it was recommended by the manufacturer work group to attach an additional rise protection in the access bay, in which the material vertical transport usually also takes place. The reason for this is a possible additional danger potential, which can exist in case of exit from the ladder walkway and when taking off scaffold parts during the vertical transport.

The decisive instrument of the professional scaffold building operation as a defense against one-sided, theoretical loading requirements in the scaffold construction routine, different than practice, is the "risk assessment".

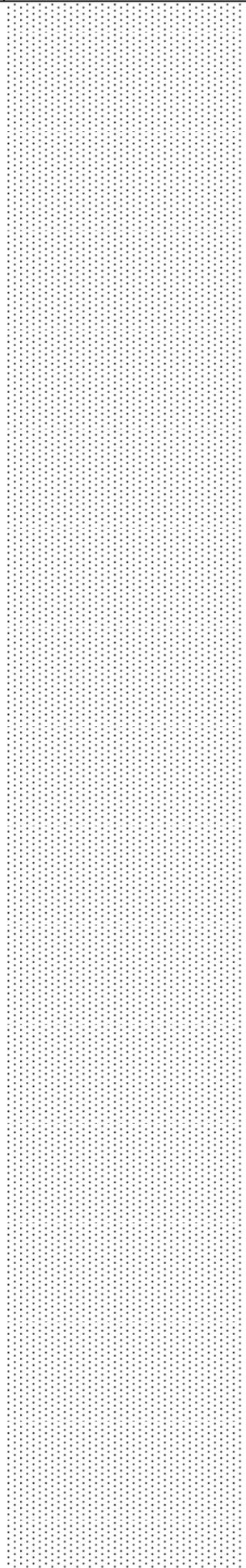


Table of contents

1.	General	
1.1	Preliminary notes	4
1.2	Scaffold system	5
1.3	Basic setup	5
1.4	Obligation to check and to provide documentation	6
1.5	Safety-technical notes for scaffold users	6
1.6	List of the decks	8
2.	Structure of the SL70 facade scaffolding	
2.1	General requirements	9
2.2	Structure of the first scaffolding bay	9
2.3	Structure of further scaffolding bays	12
2.4	Structure of further scaffolding levels	
2.4.1	General	14
2.4.2	Vertical transport of scaffold parts	14
2.4.3	Installation of setting frames and railings	
2.4.3.1	General	15
2.4.3.2	Installation of the advanced guardrail	15
2.4.3.3	Scaffold assembly	17
2.4.3.4	Anchor points	18
2.4.4	Decks	20
2.4.5	Scaffold ascent	20
2.4.6	Bracing	21
2.4.7	Completing the side protection	21
2.4.8	Anchoring (tie grids and anchoring forces)	22
2.4.9	Scaffold tie	23
2.4.10	Routing the anchoring forces to the anchoring base	25
2.4.11	Test loads of the anchoring points	26
2.5	Installation variants and Installation of extension parts	
2.5.1	General	27
2.5.2	Scaffold ascent	28
2.5.3	Scaffold widening	29
2.5.4	Safety fan	31
2.5.5	Fall arrest scaffold	32
2.5.6	Main installation variants	34
2.5.7	Scaffold with walk through frames	48
2.5.8	Scaffold with bridging beams	53
2.5.9	Protection of the scaffold parts against lifting out	57
2.5.10	Free-standing scaffold levels above the last anchoring	58
3.	Dismantling of the SL70 facade scaffolding	59
4.	Utilization of the SL70 facade scaffolding	59
Appendix 1:	List of the parts	60
Appendix 2:	Test report for work and protection scaffolds	69
Appendix 3:	Check list for the scaffold user	71

1. General

1.1 Preliminary notes

With regard to the following assembly guide for the implementation according to regulations of the plettac SL70 scaffold system, the fact is basically referred to that scaffolds may be assembled, converted and dismantled only under the supervision of an authorized person and by suitable specialist employees, who have received adequate instruction especially for such work. In this respect, and for the purpose of use, we refer to the prerequisites of the Operational Safety Ordinance (Health and Safety Guidelines). Within the framework of the following assembly guide, we give the installer and the user, on the basis of our danger analysis, the possibility of compliance with the requirements of Health and Safety Guidelines in the respective installation situation.

The technical details stated within the framework of the assembly guide, which are to serve for the installer and/or user in compliance with the requirements of Health and Safety Guidelines, do not mean that these specifications are mandatory. The installer and/or user has to take the required measures, according to dutiful discretion, in compliance with the conditions of the Health and Safety Guidelines risk assessment to be prepared. The special features of the individual case are to be considered here in each case.

A basic requirement is that the following assembly guide is always observed. It is pointed out that all specifications, in particular those concerning the stability of the installation variants, apply only in case of utilization of original plettac assco parts, which are marked in accordance with Certification Z-8.1-29. The installation of other manufacturing makes can have as consequence that safety deficiencies and insufficient stability result.

This assembly guide must be available to the supervisory personnel and the appropriate employees.



*SL70 structure only:
Under supervision of an authorized person
By specialist, suitable employees
On the basis of the risk assessment
Under observation of this assembly guide
With parts identified according to Certification Z-8.1-29*

1.2 Scaffold system

The plettac SL70 facade scaffolding is a steel frame scaffold made from preassembled parts, with a system width of 0.74 m. The bay lengths are 1.50 m, 2.00 m, 2.50 m and 3.00 m. Short lengths of 0.74 m and 1.065 m are possible as well. The frames are 2.00 m high and comply with the requirements of the Height Class H1 according to DIN EN 12811-1. They determine the distance of the working levels. The joint is implemented by tube connectors arranged at the top of the frame. The diagonals and guardrails are connected with the tubes of the frame using gravity pins. The decks are held horizontally on the transoms by star pins and thus stiffen the scaffold, both perpendiculars, as well as parallel to, the facade.

The manufacture and identification of the parts are controlled in the General Construction Supervision Certification Z-8.1-29.

1.3 Basic setup

The assembly and dismantling of the basic setup is described in the assembly guide. The plettac SL70 scaffold system may be employed in basic setup for work scaffoldings of the Load Classes 1 to 3, as a protective scaffold or roof-protective scaffold, as well as a safety fan.

The scaffold parts provided for basic setup are to be taken from the list in Appendix 1. The scaffold coverings usable as protective scaffoldings or fall arrest scaffoldings are listed in Table 1.

The maximum structure height of the Basic setup is 24 m, plus base jack extension height.

If the plettac SL70 scaffold system is employed for scaffoldings that deviate from Basic setup, and the deviations cannot be implemented with the specialist experience of the responsible scaffold installer, these must be assessed, and if necessary calculated, on the basis of building law, in accordance with the technical building stipulations and the stipulations of the General Construction Supervision Certification Z-8.1-29.



For the SL70 scaffold, the following applies:

Regulation in the Certification Approval Z-8.1-29 Load Class 3 Load-bearing capacity max = 2.00 kN/m² Standing height = 24 m max. as Basic setup In case of deviations from the Basic setup, additional verification is necessary

1.4 Obligation to check and to provide documentation

The SL70 scaffold must be inspected after every installation and before every operational commissioning by persons authorized to carry this out. The Inspection is to be documented. If certain areas of the scaffold are not ready for use, in particular during the installation, conversion and dismantling, these are to be clearly marked with the restrictive sign "No Admission". In addition, it must be clearly illustrated by close-offs that the SL70 scaffold is not finished and must not be entered.

After completion of the SL70 scaffold, it is appropriate to represent the verification of the inspection at the scaffold through a clearly legible identification for the duration of the use. The identification should include the following specifications:

- Work scaffolding according to EN 12811-1 and DIN 4420-1
- Width class: W06 and Load Class: 3
- Uniformly distributed load: max. 2.0 kN/m²
- Date of the inspection
- Responsible service company
- Address Phone.



The SL70 scaffold is to be checked before every operational startup.

The inspection is to be documented.

1.5 Safety-technical notes for scaffold users

- Every user has to check the SL70 scaffold for obvious defects before use (see Item 1.4).
- Every user is responsible for utilization according to specification and the maintenance of the operational safety of the SL70 scaffold. The H&S Information "Handling directions for the use of working and protection scaffolds" is recommended as a guideline here (BGI 663).
- Defects occurring in the utilization time through storms or due to building operations etc. are to be reported to the scaffold construction contractor immediately.
- The SL70 scaffold may be entered and exited only via a proper access or rise. It is forbidden to climb on or to jump off.



An increased accident hazard arises in case of climbing into the scaffold or jumping off!

- The scaffold user has to block access to unauthorized persons.
- The SL70 scaffold must not be entered under the influence of alcohol or drugs.
- It is forbidden to jump off scaffold decks or to throw anything off them.
- Hatches of access decks are to be kept closed during work on the scaffold level.
- The safety fan must not be entered.
- Working on several levels above each other is to be avoided. Increased accident hazard exists by falling-down subjects.
- It is forbidden to lean out over the side protection.
- The SL70 scaffold can be loaded in Basic setup maximum with a load-bearing capacity of 2.0 kN/m² at one level. In case of overload, the scaffold, or parts of it, may collapse.
- No material must be stored on the safety fan.
- In case of use as a protective scaffold or fall arrest scaffold, no materials may be stored or devices placed in the protective location. The danger of injury of falling persons can be increased by that.
- The scaffold user must not remove any side protection parts or scaffold ties, or change anything in the foundation situation. He should also ensure that this does not happen through the actions of other construction participants. Missing scaffold ties and an inadequate foundation of the scaffold basis, can lead to a collapse of the entire scaffold. Provided that changes are required on the scaffold due to the construction stage, these are to be carried out by the scaffold construction contractor.
- The scaffold user may not subsequently attach any elevators, debris chutes or front coverings such as nets and canvas. This applies also for advertising canvas.
- The scaffold may be changed by the scaffold construction contractor only.



Do not jump on scaffold decks. These can break!



In case of overload, the SL70 scaffold can collapse! After the removal of parts, the SL70 scaffold can collapse or persons can fall off! Only the scaffold construction contractor is authorized to make changes to the SL70 scaffold!

1.6 Table 1: List of the decking elements

Designation	Page in Enclosure A, Certification Z-8.1-29	Utilization in the head fans and roofers protection scaffolds	Bay length L(m)	Load class (max)
Timber deck d = 48 mm	12/13	admissible	1.50 2.00 2.50 3.00	6 5 4 3
Timber deck d = 44 mm	14	admissible	1.50 2.00 2.50	6 5 4
Timber Deck d = 45 mm (old design)	15	not admissible	1.50 2.00 2.50	6 4 3
Steel deck	16/17	admissible	≤2.00 2.50 3.00	6 5 4
Aluminum decks	18/19	admissible	≤2.00 2.50 3.00	6 5 4
Alum. decks 64	20	admissible	≤2.00 2.50 3.00	6 5 3
Alum frame deck w. alum surface	21	admissible	≤2.50 3.00	4 3
Alum. Frame deck with plywood surface	22/23	admissible	≤3.00	3
Alum. Access deck with alum. surface	54	admissible	2.50 3.00	4 3
Alum. Access deck with plywood covering	57/61	admissible	≤3.00	3
Horizontal Steel frame	62	admissible	≤2.00 2.50 3.00	5 4 3



*Check older timber decks and frame decks with plywood surface carefully concerning the condition of the wood prior to installation
Wood can rot and thus lose its load-bearing capacity.
This applies particularly in case of incorrect storage!
Always store timber construction parts so that air circulation is possible for drying.*

2. Assembly of the SL70 facade scaffolding

2.1 General requirements

2.1.1 This assembly guide applies only in connection with the utilization of originally SL70 parts, which are identified with the compliance label "Ü" and the Certification Number Z-8.1-29. All scaffold parts are to be checked before installation and before every use by a visual check for their general characteristics. Damaged scaffold parts must not be employed.

2.1.2 The structure of the SL70 facade scaffolding is to be assembled in the sequence indicated in the following sections. See 1.1

2.2 Assembly of the first scaffolding bay

2.2.1 Load-distributing sub-structure

The SL70 facade scaffolding may be set up on sufficiently load-bearing substrate only. In case of insufficient load-bearing substrate, load-distribution sub-structures are to be provided (see as a example Illustration 1). Where appropriate, base plates can also be arranged under every standard.

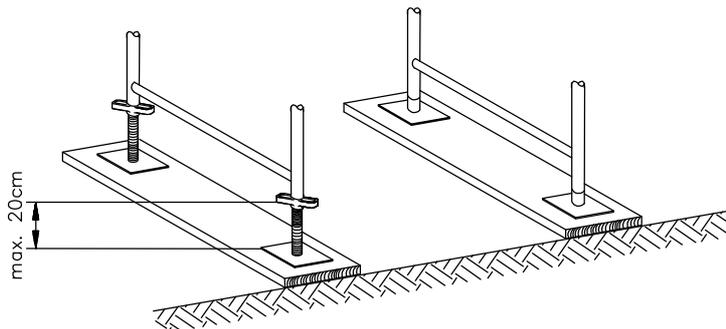


Illustration 1: Load-distributing sub-structure with scaffold planks

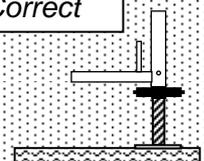
In case of sloping ground, the sub-structures are to be secured against slipping. If possible, the ground should be correspondingly leveled, so that a horizontal placement area is available.



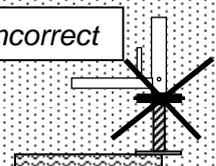
Base plates must stand on full area

Otherwise the base jacks can buckle!

Correct



Incorrect



2.2.2 Base plates, Base jacks

A base plate or base jack is to be installed (Illustration 1) under every scaffold standard. Base jacks may generally be extended up to 20 cm. Under certain circumstances, base jack-extending lengths are also permissible up to 50 cm (see also the specifications with the installation variants).

2.2.3 Adjusting frame

In case of sloping mounting surfaces, height jumps as well as adjusting frames (Illustration 2) are to be installed to reach determined location heights. The SL70 adjusting frames are 0.50 m, 1.00 m and 1.50 m high. The height difference up to 0.50 m can be compensated by corresponding base jacks (cf. 2.2.2). Where appropriate, base jacks with tilting base plates are to be employed (Enclosure A, Page 7 of the Certification).

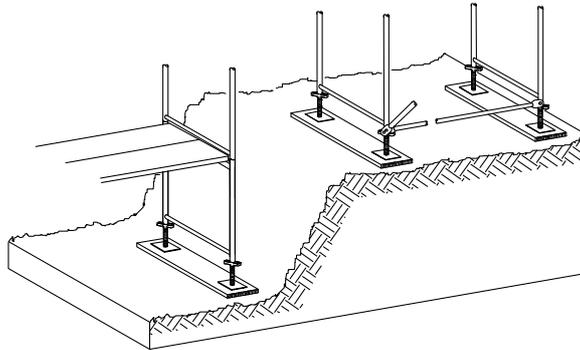


Illustration 2: Adjusting frame

2.2.4 Vertical frame, walk through frame

Vertical frames or walk through frames are to be set up vertically and with planned wall distance onto the base plates or base jacks, and secured against tipping over (Illustration 3).

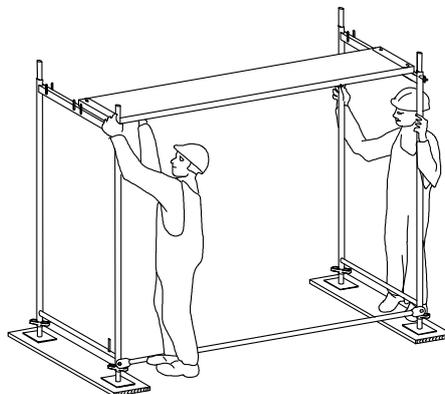


Illustration 3: Assembly of the first scaffolding bay

2.2.5 Bracings

A vertical diagonal is to be installed as longitudinal bracing on the outer side of the scaffolding bay. For this, the diagonal fixing bracket must be slid over the base jacks and/or base plates before inserting the frames. The diagonal is then placed into the outside gravity pins. The vertical separation distance of the gravity pins between the diagonal fixing bracket and the level at + 2 m is < 2.00 m. Therefore the inner hole is to be employed on the side with two holes. This side is to be arranged above (at + 2 m). When sliding on the diagonals, it is to be ensured that the platelet in the gravity pin is freely moveable and falls down automatically through its dead weight. Only in this way a trouble-free protection of the connection is guaranteed. For the distribution of the diagonal forces into two bases, a guardrail is to be assembled in the diagonal bay at the height of the diagonal fixing bracket (Illustration 4).

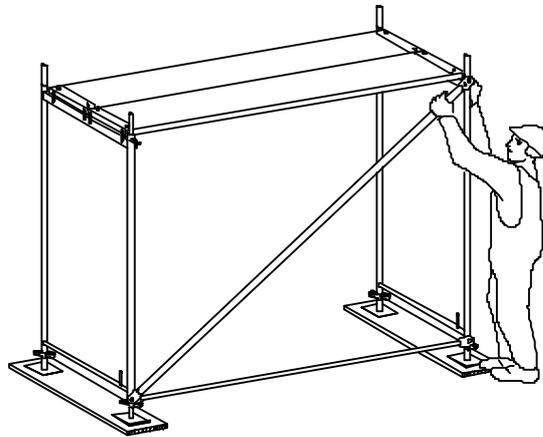


Illustration 4: Completion of the first scaffolding bay

2.2.6 Installation of the decks

Only SL system decks according to Table 1 may be employed. The holes existing at the headers are slid over the star pins of the transoms. In this way, the decks form a horizontally stiff board and stabilize the scaffold. For every bay, two 32 cm wide decks or one deck 64 cm wide is to be installed.

2.2.7 Aligning

The first scaffolding bay is to be aligned vertically and horizontally and the distance to the wall is to be checked.



*Do not forget diagonal fixing bracket!
Gravity pin plates must fall automatically down following the installation of the diagonal!*



All scaffold levels must be fully boarded with decks! Levels with only one 32 cm wide deck cannot reinforce the scaffold!

2.3 Assembly of further scaffolding bays

2.3.1 Normal bay

The assembly of further scaffolding bays is implemented as described in the preceding section. The vertical braces are to be installed according to the representation with the installation variants (Chapter 2.5 and/or Enclosure B of the certification approval), where this is generally one diagonal on five scaffolding bays (Illustration 5).

It is to be noted, however, that additional diagonals are necessary in some cases between the bases and the first anchor level. By installing the vertical diagonals, the SL70 facade scaffolding automatically aligns to the vertical.

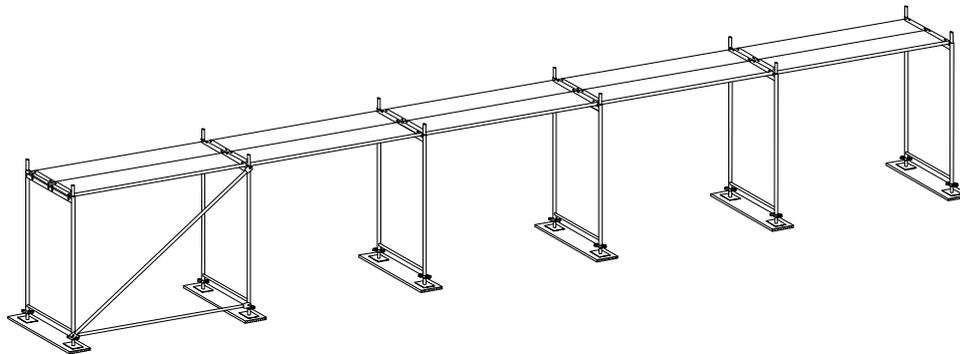


Illustration 5: Installation of the vertical braces



The number of diagonals depends on the selected installation variant (see representations in Chapter 2.5)!

2.3.2 Corner formation

The corner can be implemented in two variants. With the first possibility, the front side of one direction is ending towards the longitudinal side of the others (Illustration 6). In this case, the two adjacently-located frame standards are to be connected with swivel couplers, and this is implemented with two items on the lower frames, further above at intervals of, at most, 4 m near the intersections. The base jacks and/or base plate of one standard may be omitted with in this case.

In case of larger separation distance of the adjacent-located standards, short tubes, with normal couplers, are to be provided for the connection. Base jacks and/or base plates must be existing in both standards. The joint in the decking level is to be closed by appropriate material.

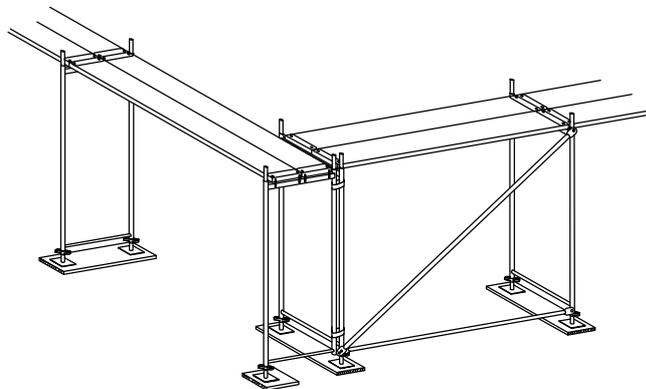


Illustration 6: Corner formation (Variant 1)

In case of the second possibility, a short bay of length 0.74 m, according to the SL70 width, is to be set up (Illustration 7). The decks of the transverse scaffold are placed on the intermediate transom to be installed (Enclosure A, Page 50 of the Certification). In order to achieve a uniform distance to both walls, it is expedient to begin with the structure at the building corner. This variant is particularly suitable for inside corners.

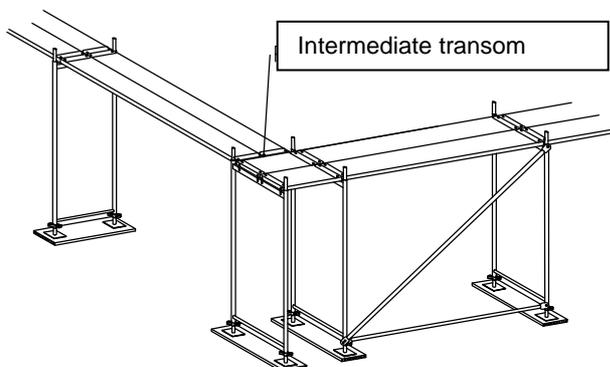


Illustration 7: Corner formation (Variant 2)

2.4 Assembly of further scaffold levels

2.4.1 General

Danger of falling can exist in case of the installation, conversion and dismantling of further any scaffold system. The scaffold building work must be carried out so that the danger of falling is avoided as far as possible, or the residual risk is to be maintained as low as possible. The contractor (scaffold installer) must stipulate suitable measures for protection against danger or for the minimization of the risk, on the basis of his risk assessment for the individual case and/or for the respective activities.

The measures are to be selected after weighing up the actually existing risk, the expediency and the practical possibilities, as well as the following boundary conditions:

- Qualification of the employees,
- Type and duration of the activity in the endangered area,
- Possible fall height,
- Characteristic quality of the surface onto which the employee can fall and
- Characteristic quality of the workplace and its access

For the assembly, conversion and dismantling of the plettac SL70 scaffold system, technical and personal measures can be applied. Possible measures can be, for example according to installation situation, the employment of qualified and specially instructed employees for the respective danger situation, the utilization of an advanced guardrail (MSG) as a climbing protection, or the utilization on an individual basis of suitable personal protective equipment (PPE). The assembly process flow is always to be structured so that the side protection (guardrail and/or guardrail and midrail) is installed immediately and thus work can be carried out mainly in the secured area.

2.4.2 Vertical transport of scaffold parts

For scaffolds with more than 8 m standing height above mounting surface, hoists must be employed in case of assembly and dismantling. Hand-operated, rope-pulley hoists are also included as hoists. Deviating from this, builder's hoists may be omitted when the standing height is not more than 14 m and the length of the scaffold is not more than 10 m. In scaffolding bays, in which vertical transport is carried out manually, midrails must be provided. During this manual transport at least one employee must be present at every scaffold level (Illustrations 11 and 12).



In case of the assembly, conversion and dismantling of scaffold, there exists danger of falling!



Measures reducing the danger of falling are to be stipulated on the basis of a risk assessment!

2.4.3 Installation of vertical frames and guardrails

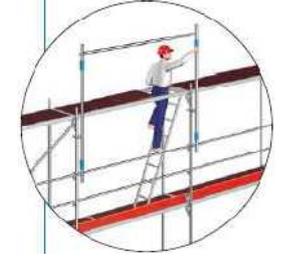
2.4.3.1 General

In case of climbing to the uppermost scaffold level in each case and with the subsequent installation of the vertical frames and guardrails, danger of falling can exist.

It is therefore recommended, as a measure for protection against danger with climbing to the uppermost scaffold level, to employ the advanced guardrail (MSG) as protection in the access bay. The worker can hold on to the post during climbing to the uppermost level, and the stringer offers a local side protection for receiving the first two frames and guardrails.

The advanced guardrail is assembled from the level below before entering the uppermost scaffold level. In order to reduce danger during the installation of the MSG, the complete 3-part side protection is to be installed in this bay beforehand.

Recommendation
Employ advanced guardrail (MSG) in the climbing area bay!



2.4.3.2 Installation of the advanced guardrail

The advanced guardrail consists of individual posts and telescopic guardrails with long slots at the ends. The posts are located outside in front of the tubes of the frame and are seated on the upper railing gravity pins of the vertical frames with the support pieces which receive the pipes. Two hooks are attached further above, which receive the tube of the frame, and create a connection with that. For dismantling (Illustration 8), the outer tube is pulled up and turned. Now the posts can be lifted (Illustration 9). As soon as the posts are located at the standing height level above the guardrails, they are to be pushed against the tube again and the outer tube is securing the connection by turning and lowering down over the securing pin.



During the installation of the MSG, increased danger of falling exists!

In this bay the complete 3-part side protection is therefore to be installed beforehand!

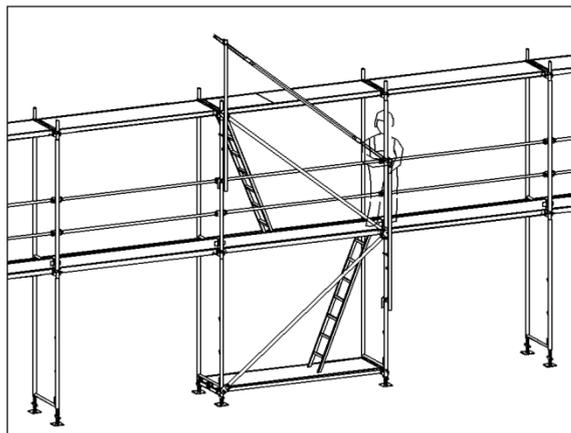


Illustration 8: Dissolution of the post

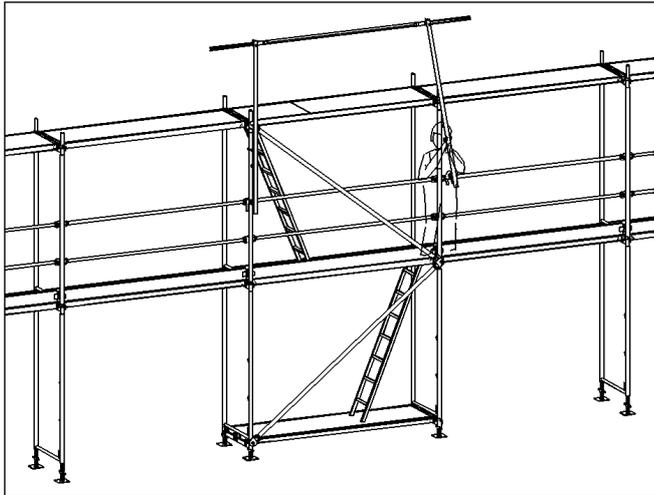


Illustration 9: Lifting the post

When fixed the MSG-Post is resting on top of the guardrails. (Illustration 10).

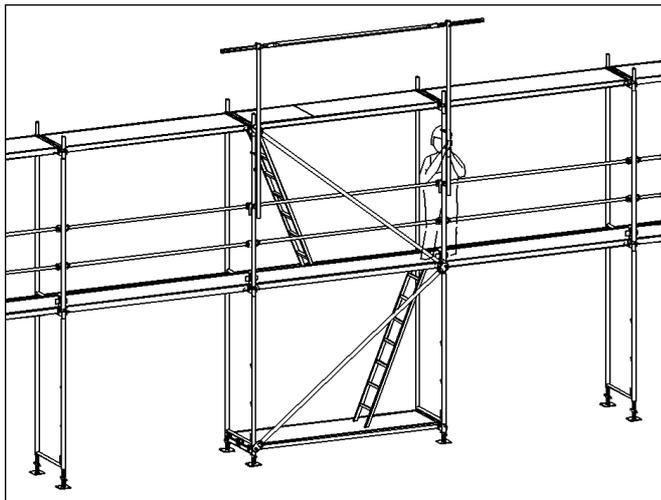


Illustration 10: Attaching the post

For the first installation level, the guardrail with its slots is slid over the hook at the upper end of the post and remains there up to the end of the MSG employment. They are lifted up from level to level with the posts. Both the horizontal and the diagonal length of the rise bay are covered by the telescopic design of the guardrail. (see Illustration 8).

2.4.3.3 Scaffold assembly

After entering the uppermost level and after closing the hatch of the access deck, the two vertical frames of the access bay, as well as guardrail and midrail, are first mounted in this bay. In case of vertical manual transport (Illustration 11), the next frame is now accepted here and placed on one bay further (Illustration 12). Immediately after that, the guardrail is to be installed in the still unprotected bay. Proceed in the same manner from bay to bay until the scaffold level is complete. The end guardrails are to be installed at the end areas. All other parts, such as diagonals, midrails, toeboards and decks of the level above can be installed following this.

Personnel entering unprotected areas should use personal protection equipment (see 2.4.3.4)

In case of utilization of a material elevator, elevator bay and rise bay are to be arranged near each other. The scaffold assemblies can then be implemented as previously described.

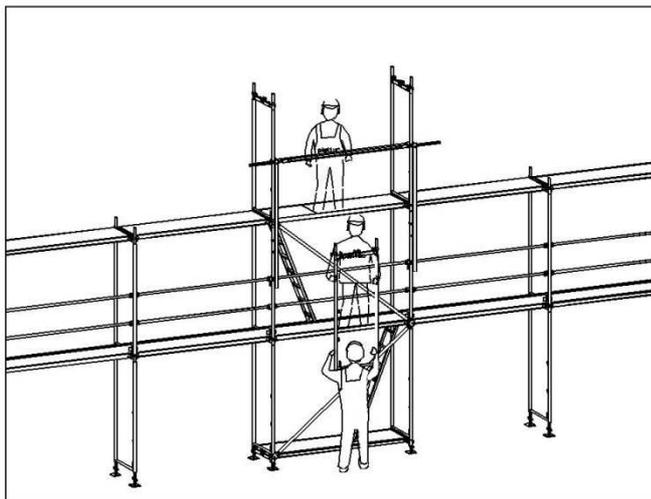
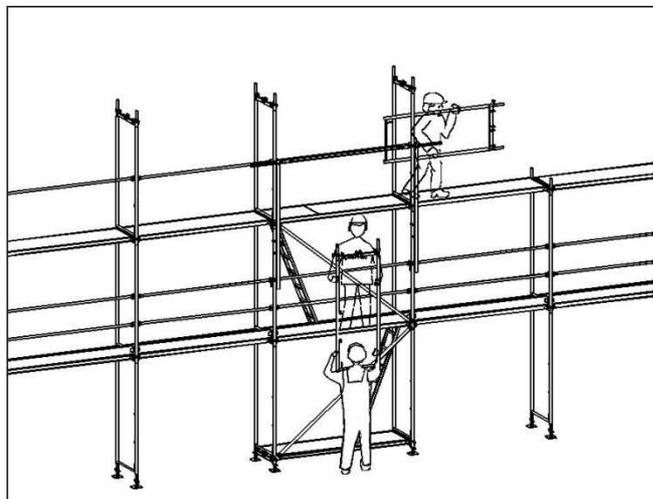


Illustration 11: Manual transport of the scaffold parts



When exiting the area protected by guardrails, there exists increased danger of falling!

Illustration 12: Installation of the vertical frames

2.4.3.4 Anchor points

If the employment of suitable personal protection equipment PPE is planned in special installation situations of the plettac SL70 scaffold system, the checked anchor points, shown in the Illustrations 13 to 15, are to be employed.

For the connection of the PPE to the scaffold, connecting elements according to DIN EN 362 are to be employed, e.g. safety spring snap with a mouth width of > 50 mm. The suitability of a PPE for protection against fall from a height is to be tested. Special attention is to be paid to the installation of the 2nd and 3rd scaffold level here.

The standing height is located at most at one level above the last anchoring. Basically, it is to be ensured, before installation of the first anchors, that fastening at only one point, located opposite the side where fall from a height is possible, is permissible. In the case of a fall from a height, the entire scaffold can otherwise fall over. Illustration 13 indicates the maximum possible fastening height on a still unanchored scaffold.

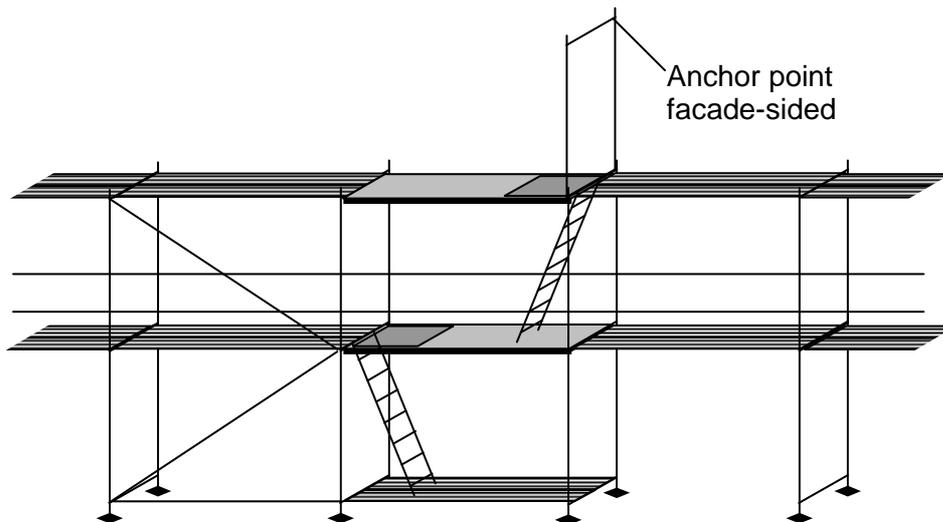


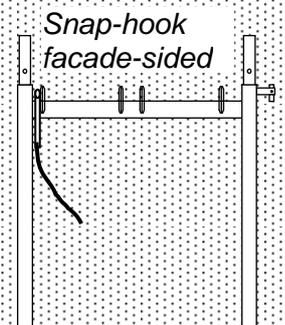
Illustration 13: Anchor point on a still unanchored scaffold



Employ suitable PPE only for protection against fall from a height in the scaffold



In case of fastening on the outer side, the scaffold can fall over



After fixing the first anchoring level, the fastening can be alternatively on the inside or outside frame corner (Illustration 14).

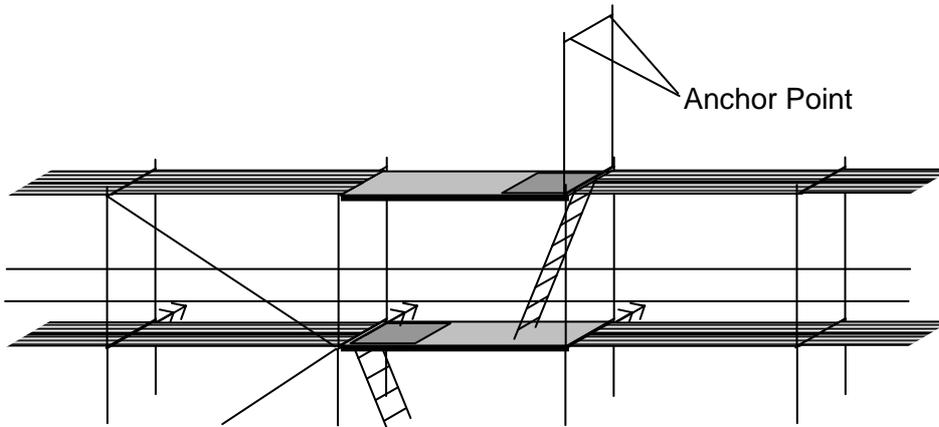


Illustration 14: Anchor points at the isolated frame

After the second frame is inserted and the first guardrail attached, there is also the possibility to fasten to the guardrail (Illustration 15). In this case, the snap hook should be slid over the guardrail and the cable routed inside past the tube of the frame

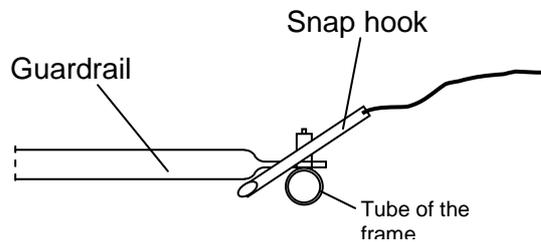
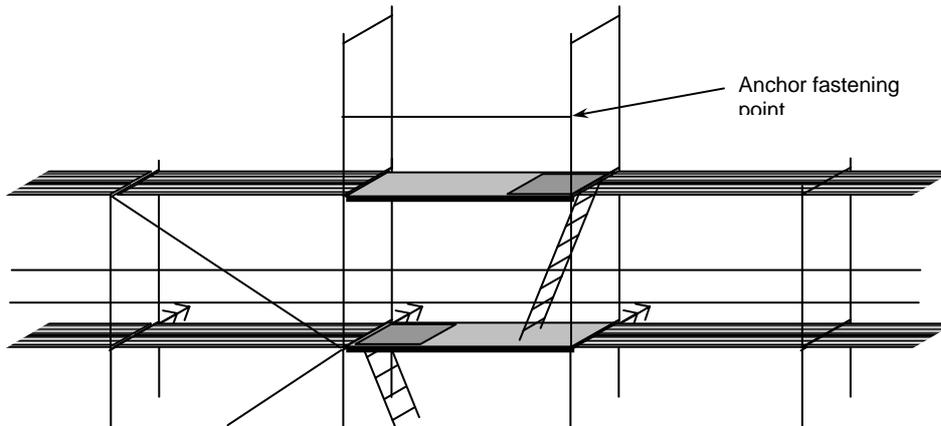
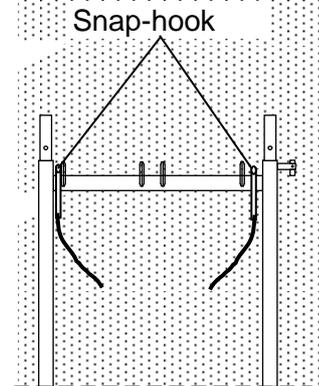


Illustration 15: Anchor point at the guardrail

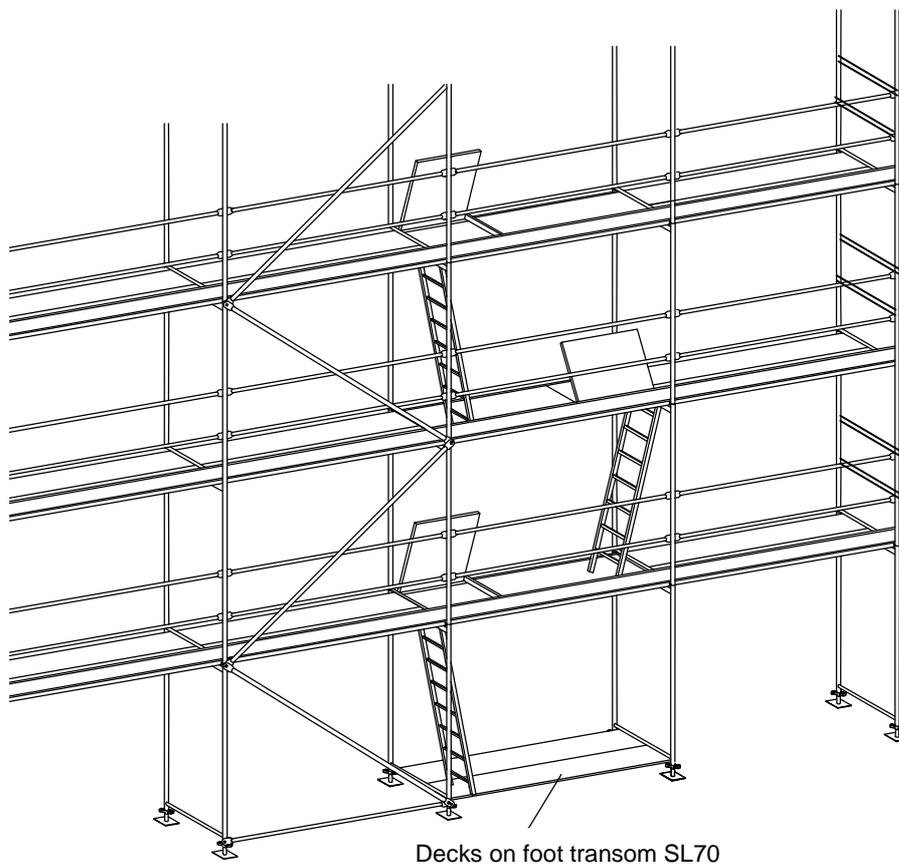


2.4.4 Decks

The decks are to be installed according to Section 2.2.6

2.4.4 Scaffold ascent

Prior to commencement of work on the first scaffold level, the scaffold ascent is to be installed. In case of the SL70 scaffold, this is an interior ladder walkway that is optionally formed from aluminum access decks with integrated ladder or from steel horizontal frames with timber access panels with hatch and separate steel ladder. The decks are to be installed so that the ladders face alternately to the left and to the right in the appropriate bay (Illustration 16).



*Closing the hatches
again after passing
through!*

Illustration 16: Ladder walkway located inside

2.4.6 Bracing

The vertical diagonals are to be installed continuously with the scaffold structure progress; in accordance with representation in case of the installation variants (see also Enclosure B of the Certification Approval). They are slid over the outside gravity pins. In case of the side with double holes, the external hole is to be employed.

2.4.7 Completing the side protection

Missing guardrails and double guardrails and toeboards, as well as the complete side protection on the end of the SL70 scaffold, are to be installed in all scaffold levels that are used not only for the structure of the scaffold. The guardrails and double guardrails are slid over the gravity pins located inside. In this case, it is to be ensured that the platelets in the gravity pins are freely moveable and fall down automatically through their dead weight. Only in this way can a trouble-free protection of the connection be guaranteed. The toeboards are embedded onto the toeboard pins with their fittings so that their top edges are at the same height right through.

The head end side protection consists of two single end guardrails or a double end guardrail, as well as an end toeboard. The end guardrail are to be slid over the gravity pin at the exterior standard with the open tube and connected to the inside standard with the welded half-coupler. The toeboard is embedded outside on the toeboard pin; the fitting contains the scaffold standard inside.

In the uppermost location the side protection consists of the guardrail support with transverse leg as a deck retainer and/or the guardrail post. In this case, the upper deck retainer is to be installed. At the head end sides, the top end guardrail frame with integrated midrail and toeboard is to be employed.

Generally it is to be ensured that the installation of parts with gravity pins, which are used for the installation of the side protection, may be implemented only so that the gravity pins always face toward the decking level



Gravity pin platelets must fall down automatically after installation of the side protection!



Gravity pins for side protection must always face in the direction of a decking level!

2.4.8 Anchors (tie grid and anchoring forces)

The anchoring forces are to be taken from Table 2 (F^{\perp} = right-angled to the facade, $F_{||}$ = parallel to the facade). The anchoring forces decisive for the normal scaffold area are indicated at +20 m height. At lower levels, these are at most 10% smaller, so that the specification of differentiated values is dispensed with.

Parallel to the facade the forces are assigned to the triangular connections exclusively per anchoring level. The indicated values apply for one triangular connection in each case (generally 1 support tie existing for every 5 bays, however, with net covering in front of open facade 2 support ties for every 5 bays).

Table 2: Anchoring forces perpendicular to the façade (service load)

Front covering	Tie grid	bay length	Closed facade		Open facade	
			F^{\perp}	$F_{ }$	F^{\perp}	$F_{ }$
Without	8 m offset	2.50 m	1.1 kN	5.0 kN	3.5 kN	5.0 kN
		3.00 m	1.5 kN	5.0 kN	4.0 kN	5.0 kN!
	4 m	2.50 m	0.6 kN	5.0 kN	1.8 kN	5.0 kN
		3.00 m	0.7 kN	5.0 kN	2.0 kN	5.0 kN!
Net	8 m offset	2.50 m	2.3 kN	3.4 kN	/	/
		3.00 m	2.7 kN	4.0 kN	/	/
	4 m	2.50 m	1.2 kN	3.4 kN	3.5 kN	3.8 kN ;
		3.00 m	1.4 kN	4.0 kN	4.2 kN	4.2 kN!
Canvas	4 m offset	2.50 m	2.6 kN	4.0 kN	/	/
		3.00 m	3.1 kN	4.4 kN	/	/
	2m	2.50 m	1.3 kN	4.0 kN	4.4 kN	4.0 kN
		3.00 m	1.5 kN	4.4 kN	5.2 kN	4.4 kN ;

The additional anchoring measures and the forces to be taken up in the levels of safety fan and fall arrest are indicated in the corresponding representations in Section 2.5.

Anchors are to be installed continuously with the scaffold structure. Bolts of at least 12 mm diameter or equivalent construction are to be employed as fastening elements.

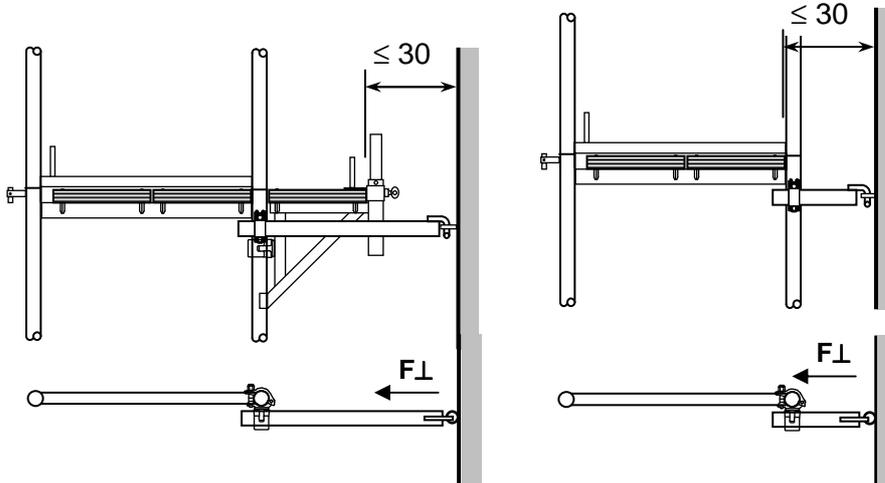


The specifications of the forces parallel to the facade ($F_{||}$) apply for a triangular connection in each case.

They are added over the corresponding number of scaffolding bays!

2.4.9 Scaffold tie

Short scaffold ties (Illustration 17) are attached to the SL70 frame only at the inner tube of the frame. They transfer anchoring forces perpendicular to the facade.

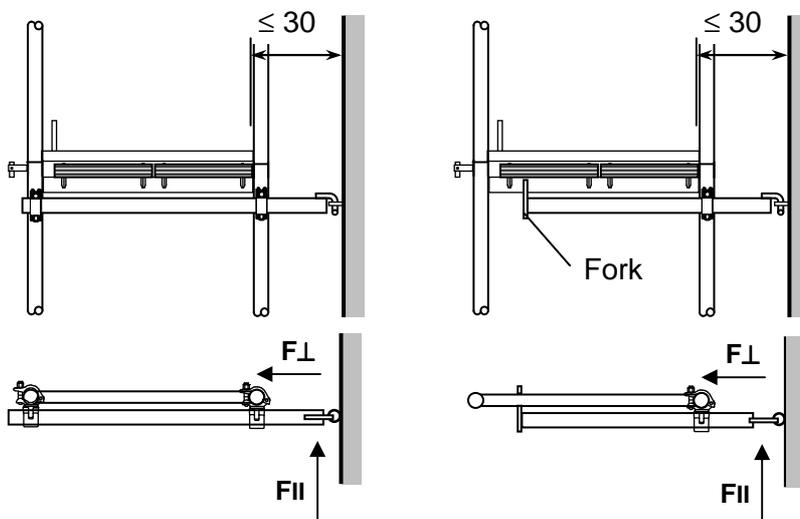


Basic setup for the take-up of forces perpendicular to the facade.

Illustration 17: Short scaffold ties

Long scaffold ties (Illustration 18) are attached at the inner and outer tube of the frame of the SL70 frame. They take up anchoring forces perpendicular and parallel to the facade. Alternatively, clearance ties can be installed, which include the supporting fork under the transom in addition.

This anchoring type is possible only in case of a scaffold without inside brackets. It is not a genuine replacement for triangular connections (Illustration 19). Two long scaffold ties are therefore to be installed to replace a triangular connection.

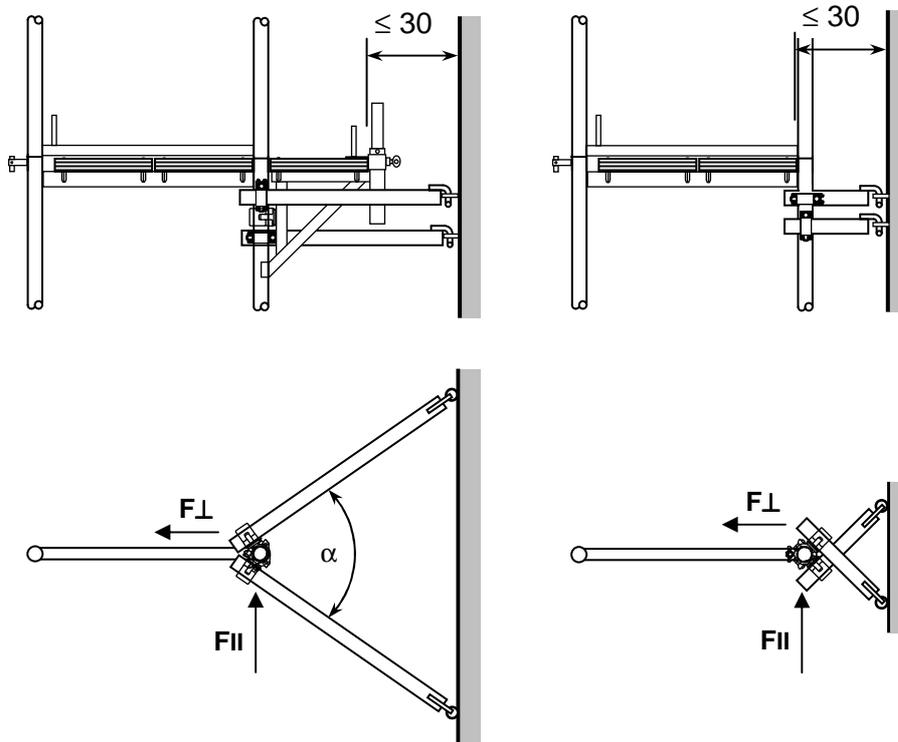


Long scaffold ties are to be recommended at the head end frames

Illustration 18: Long scaffold ties

Triangular connections (Illustration 19) are likewise attached only to the inner tube of the SL70 frames. They take up the anchoring forces perpendicular and parallel to the facade. In the case of the SL70 scaffold, they represent the normal fixing parallel to the axis (parallel to the facade), both with, as well as without, inside brackets.

On the eye-bolts there result diagonal tensile and oblique compression forces from F_{\perp} and F_{\parallel} as a function of the selected angle α .



Triangular connections are the basic setup for taking up forces parallel to the facade.

Illustration 19: Triangular connection

The scaffold ties are to be connected in node proximity (stand covering intersection).

The normal coupling 48 with test mark or according to DIN EN 74 serves as connection resource.

2.4.10 Routing the anchoring forces into the anchoring base

2.4.10.1 The anchoring forces according to Table 2 and Section 2.5 must be routed via scaffold ties (Section 2.4.9) and fastening element into a sufficiently-strong, load-bearing anchoring base (e.g. brickwork).

Suitable fastening element is e.g. the anchoring equipment in facades, in accordance with DIN 4426 "Safety systems for the maintenance of structural systems, protections against fall from a height".

Unsuitable fixing is e.g. binding wires and ropes.
Sufficient load-bearing anchoring bases are, for example.

- Reinforced concrete ceilings, walls and pillars
- Supporting brickwork in accordance with DIN 1053 "Brickwork"

Insufficiently load-bearing anchoring bases are e.g. snow guards, lightning conductors, downspouts, window frame

2.4.10.2 The load-bearing capacity of the fastening elements between scaffold tie and anchoring base must be verified for the anchoring forces.

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

- The design type approval by the German Institute for Structural Engineering, Berlin
- Static calculation or
- Test loads according to Section 2.4.11.

2.4.10.3 If fastening elements with design type approval are employed for the anchoring, the conditions included therein must be complied with.

Included in the conditions are e.g.

- Verification of the anchoring base
- Necessary component-part dimensions and edge spacing
- Special installation instruction



Consider these specifications in the evaluation of the anchoring base!

2.4.11 Test loads of the anchoring points

2.4.11.1 If test loads are necessary according to Section 2.4.11.2, these must be carried out at the place of use.

2.4.11.2 Suitable test equipment must be employed for the implementation of the test loadings.

Suitable test equipment is such which has been tested by the technical committee "construction" of the central department for accident prevention and industrial medicine (ZefU) of the Union of Commercial Trades Social Insurance against Occupational Accidents e.V.

2.4.11.3 Anchorage points at which test loads are to be carried out must be determined by a professional expert assessor with regard to number and location.

An **expert assessor** is someone who, based on his specialist training and experience, has sufficient knowledge in the bay of scaffold construction and the relevant governmental occupational safety and health specifications, accident prevention specifications, directives and generally recognized regulations of the technology (e.g. DIN Standards), such that he can assess the safety of scaffold anchorings.

2.4.11.4 The test loads are to be carried out according to the following criteria:

- The test load must be 1.2x the required anchoring forces F_{\perp} according to Table 2 and Section 2.5
- The test scope, in case of the anchoring base from
 - concrete at least 20%
 - other building materials at least 40%

must include all employed anchors, however, include at least 5 test loads.

2.4.11.5 If individual or several fastening elements do not take up the test load, the expert assessor has to

- determine the causes for that
- procure a replacement fixing

and

- increase the test scope, where necessary.

2.4.11.6 The test results are to be recorded in writing and to be kept for the duration of the scaffold being used.



Implementation of test loads and evaluation of the results only under the direction of a skilled worker!

2.5 Installation variants and Installation of extension parts

2.5.1 General

In this section, as well as the installation of the extension parts, such as brackets, safety fan, fall arrest scaffold, walk through frames and bridging beams, the calculated installation variants of the SL70 facade scaffolding are described. The maximum standing height is 24 m plus the base jack-extending length of the base jacks. The Basic setups are verified **for operation on one scaffold level only**.

The necessary anchor distances are dependent on the wind permeability of the facade, as well as the type of any possible front covering. They are represented as regular grids. The face frames are always to be anchored at a vertical separation distance of, at most, 4 m.

Basically a "closed" and an "in-part open" facade (designated as an "open" facade in this Assembly Guide) are distinguished between. For the represented equipment options, the following applies:

A "closed" facade does not indicate any openings, while the "open" facade may consist of openings over up to 60% of the viewing area. In case of a greater open content, the anchoring must be verified on an individual basis. For the usual renovation works (the windows are maintained) a "closed" facade can be assumed. In case of large-scale alteration works (the windows are renewed), as well as in case of new buildings, an "open" facade is to be assumed.

The coefficients of force $C_{fx} = 0.6$ and $C_{fy} = 0.2$ were considered in case of variants with net covering for the wind loads. These include the usually employed nets. Nets with higher coefficients of force are to be treated as canvas. Provided that a verification should be carried out with more favorable values, an aerodynamic expert appraisal is necessary for the net.

In case of canvas-covered scaffolds in front of a closed facade, the tarpaulins are to be extended at the face ends as far as the facade.

The scaffold may be covered in nets or canvas from the setting level up to the uppermost scaffold level. No networks or canvas may be attached on the side protection or fall arrest elements which are located above the uppermost scaffold position.



Before scaffold installation, please become informed about whether an open facade can become a closed facade as the construction stages progresses. In the case of an open facade, the wind loads are 3x higher!!

The decks are reinforcing elements of the SL70 facade scaffolding. Therefore the vertical frames must basically be fully laid out in all levels (see 2.2.6).

For the tubes of the frame, the standard loads result dependent on the equipment and the installation height for the load case "operation", according to Table 3. The weight of the timber decks was applied unfavorably.

Table 3: Standard loads (service load)

	Standard Furnishings	Bay length	h = 24 m	h = 16 m	h = 8 m
Inside	without	2.50 m	6.7 kN	5.3 kN	3.8 kN
		3.00 m	7.7 kN	6.1 kN	4.5 kN
	bracket 32 in every level	2.50 m	12.4 kN	9.7 kN	7.3 kN
		3.00 m	14.5 kN	11.6kN	8.7 kN
Outside	without (fall arrest on vertical frames)	2.50 m	9.4 kN	7.2 kN	5.1 kN
		3.00 m	10.5 kN	8.4 kN	6.0 kN
	Safety fan	2.50 m	10.1 kN	8.0 kN	5.8 kN
		3.00 m	11.8 kN	9.3 kN	6.9 kN
	Fall arrest on bracket 74	2.50 m	14.3 kN	12.1 kN	10.0 kN
		3.00 m	16.7 kN	14.3 kN	11.8 kN

2.5.2 Scaffold ascent

The scaffold ascent is constructed in accordance with 2.4.5. The SL70 frames are to be anchored at intervals of 4 m in this case. For setting up the lowest ladders, foot tie bars (Enclosure A, Page 53 of the Certification Z-8.1-29) are to be installed in the corresponding bay on both sides and covered with timber, steel or Alu-decks or an Alu frame deck.

2.5.3 Scaffold widening

Bracket 32

The Bracket 32 may be installed with the bracket variants facade-sided in **every** level. It supports a scaffold decks 32 cm wide and has an integrated deck retainer. The bracket is to be aligned so that the top edge of the covering crossbar is aligned with that of the vertical frame. The deck is to be installed from the level under that. Provided that no bracket widening is existing here, the danger of falling can exist in this case.

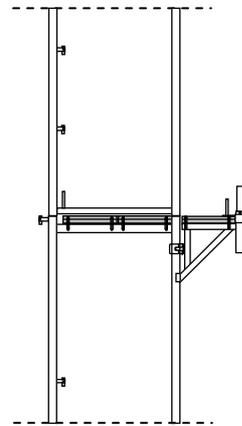


Illustration 20: Bracket 32

Bracket 64

The bracket 64 may be arranged facade-sided in **any arbitrary level**. In this level, every frame is to be anchored, where every second anchor is to be implemented as a triangular connection (Illustration 19). Since the load case "maximum wind load" is decisive, the anchoring forces can be taken from Table 2. The bracket supports two 32 cm wide decks or a deck 64 cm wide. As a deck retainer, the component part provided for that is to be installed in accordance with Enclosure A Page 42 of the Certification Z-8.1-29. The bracket is to be aligned so that the top edge of the transom aligns with that of the vertical frame.

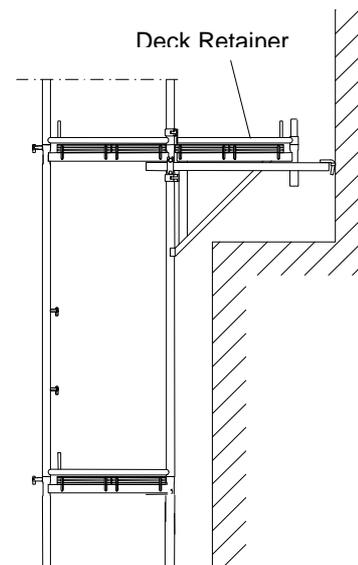


Illustration 21: Bracket 64

The first deck (internal) is to be installed from the level below. Since no bracket widening is existing here, danger of falling can be present in this case. The guardrails to be applied are dependent on gap distance and the form of the facade construction. The second deck is to be installed from the scaffold deck of the bracket level, where appropriate, with a PPE in accordance with Illustration 14, with anchoring at the external frame corner.

The bracket 64 is provided with a connection spigot, onto which a guardrail post can be placed, if necessary, with side protection located inside.



The couplers to the brackets are to be checked before installation for trouble-free characteristics. The bolts may indicate no damage of the screw thread or any signs of corrosion. They are to be kept clean and easily movable, e.g. through an oil-grease mixture.

The shoulder nut of the couplers is to be tightened with a torque of 50 Nm \pm 10%.



The brackets are attached with 1 coupler only. This connection is not replaced in case of failure by any other supporting element!

The careful implementation of the coupler connection in accordance with upper "information-box" is therefore important for survival!!!

Bracket 74

Bracket 74 is distinguished from Bracket 64 through its having two connection spigots, whose separation distance is identical with that of the SL70 frame. It is provided as a bracket for the outer side of the scaffold, and constructed so that the decks are placed in front of the diagonal gravity pin. The joint resulting from that between scaffold deck and bracket deck is to be covered by the steel filler deck (Enclosure A, Page 45 of the Certification Z-8.1-29) (see detail "X" in Illustration 23).

The bracket is available in two implementations: Connection with one coupler or alternatively with two couplers (see Illustration 22). This has no influence with respect to static stress. On principle, they can be arranged on one level internally or externally. For anchoring, the specifications apply correspondingly as in the case of bracket 64. However, scaffolds with bay length 3.00 m are also to be anchored continuously in the level below that. In case of arrangement of the bracket supports in accordance with Illustration 24, the additional anchoring can be dispensed with.

The deck retainer is implemented as in case of the frames in the uppermost scaffold level. The decks are to be inserted, as described in case of bracket 64. Since a person leans out over the side protection in this case, the complete 3-part side protection must be installed beforehand.

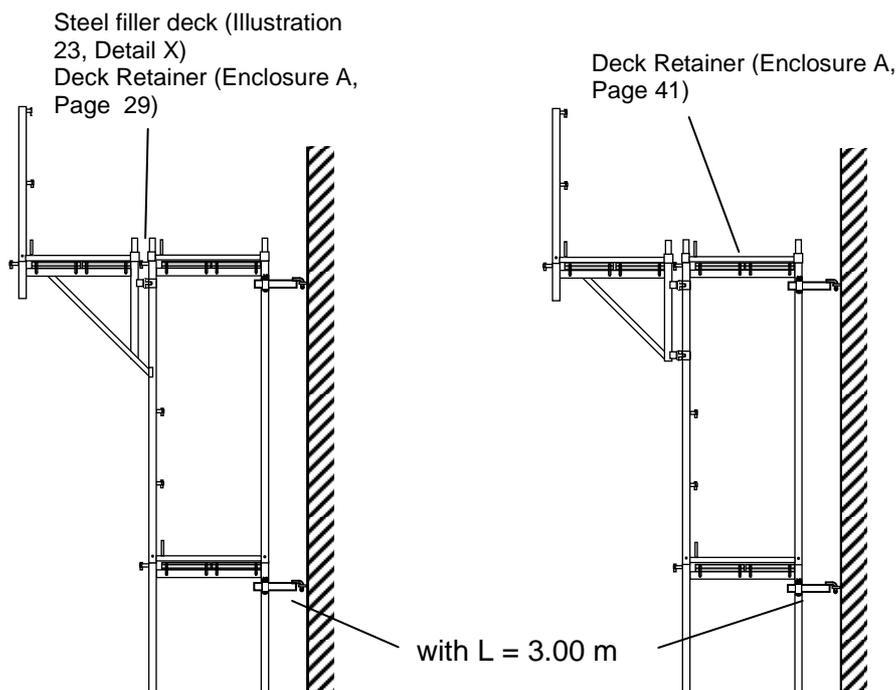


*Do not forget the steel filler deck for covering the joint between scaffold deck and bracket deck!
For to the coupling connection, see references on the preceding page!*

Illustration 22: Bracket 74

Implementation with 1 coupler

Implementation with 2 couplers



*In case of the installation of the bracket decks and the side protection, danger of falling can exist!
Carry out risk assessment considering the local situation!
Secure with PPE where appropriate!*

2.5.4 Safety fan

The safety fan consists of a bracket 74 with safety fan bracket (Enclosure A, Page 47 of the Certification Z-8.1-29). This is used for adjusting two inclined decks which are held by the correspondingly shaped deck retainer. The joint between scaffold deck and bracket deck is to be covered with the steel filler deck (Enclosure A, Page 45 of the Certification Z-8.1-29). No material must be stored on the safety fan. It is therefore to be separated through a guardrail from the scaffold decks.

The safety fan can be attached outside on the SL70 scaffold at any arbitrary height. In case of employment at + 4 m height, however, the lowest vertical frames are to be reinforced with a cross brace. The necessary anchoring can be taken from the installation variants.

Anchoring forces:

Right-angled: $F_{\perp} = 1.8 \text{ kN}$ (before closed facade)

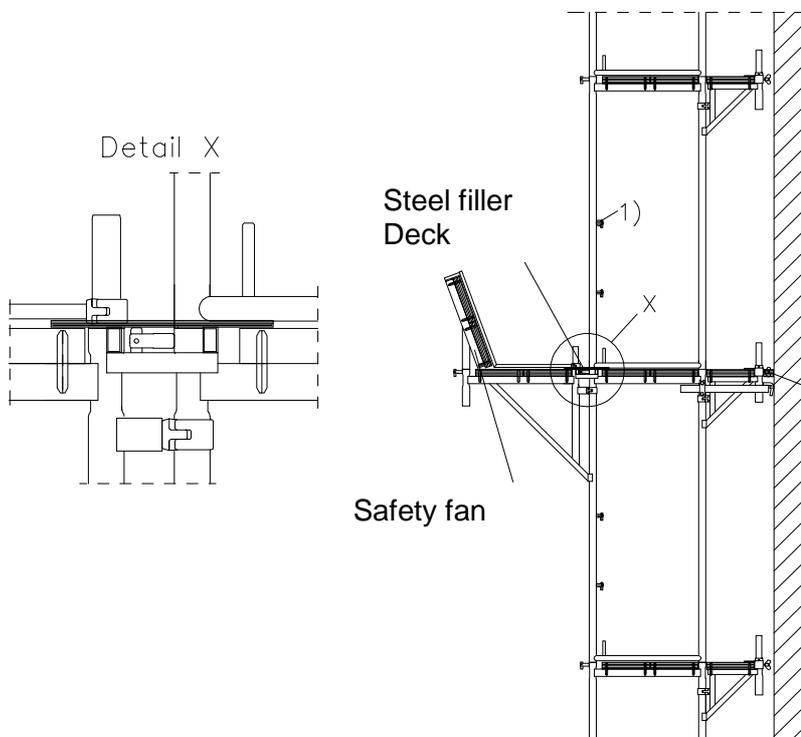
$F_{\perp} = 5.0 \text{ kN}$ (before open facade)

Parallel: $F_{\parallel} = 5.5 \text{ kN}$ (per triangular connection)



For the installation of the safety fan, see notes on safety regarding Bracket 74!

Illustration 23: Safety fan



No material may be stored safety fan

2.5.5 Fall arrest scaffold

The fall arrest scaffold consists of fall arrest support and fall arrest mesh. The fall arrest support is arranged as an upper scaffold close-off, depending on the size of the eaves protrusion, either on the SL70 vertical frame, on the fall arrest frame or on bracket 74 (Illustration 24). On the vertical frame and the bracket, the fall arrest support is to be employed with SL70 width, and on the fall arrest frame with SL100 width. Bracket 74 is to be additionally provided with the bracket support (Enclosure A, Page 44 of the Certification Z-8.1-29). Alternatively, a scaffold tube with swivel coupler connection can be installed.

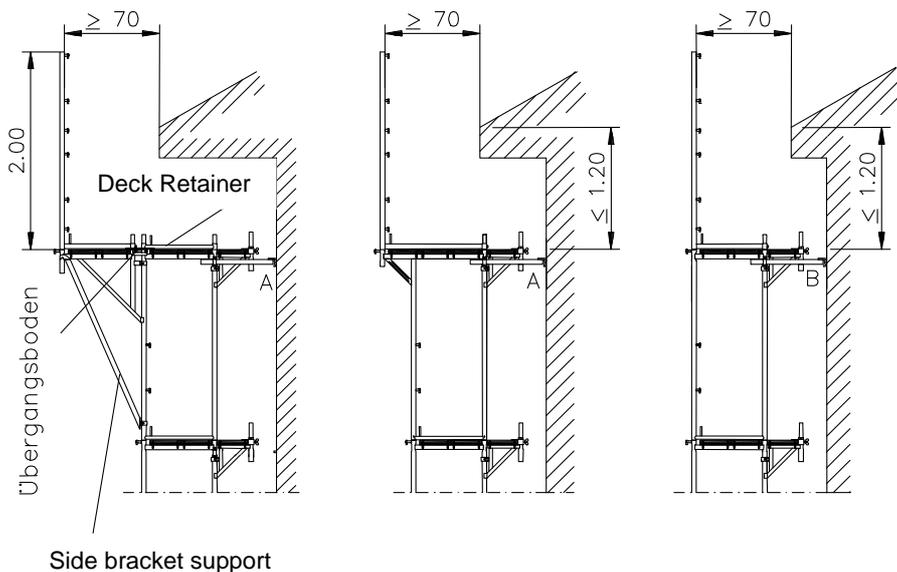
In case of the fall arrest frame, the upper connection of the vertical diagonal is implemented with a swivel coupler 48.

The separation distance from the fall arrest mesh to the eaves must be at least 0.70 m. In case of fall arrest height of 2.00 m, then the decks in the fall arrest level may not be deeper than 1.20 m below the eaves (Illustration 24).



For the installation of the fall arrest scaffold, see notes on safety for the brackets

Illustration 24: Fall arrest scaffold



In the uppermost level, every SL70 frame is to be anchored. The anchoring forces are to be taken from Table 4

All decks admissible according to Table 1 may be installed.

Table 4: Anchoring forces in the fall arrest level

bay length	Front covering	right-angled		Parallel A _{II} /B _{II} (per triangular connection) :
		A [⊥]	B [⊥]	
2.50 m	Without	2.6 kN	2.0 kN	5.4 kN
3.00 m		3.3 kN	2.3 kN	5.4 kN
2.50 m	Net	3.5 kN	2.8 kN	6.2 kN
3.00 m		3.9 kN	3.4 kN	6.5 kN
2.50 m	Canvas	3.9 kN	3.3 kN	5.0 kN
3.00 m		5.4 kN	4.0 kN	5.0 kN

The fall arrests consists of two fall arrest meshes, alternatively placed above each other (Illustration 26, Enclosure A, Page 38 of the Certification Z-8.1-29) or of nets according to DIN EN1263-1 with, at most, 10 cm mesh width. The nets are either to be interwoven mesh for mesh onto the guardrails that are slid onto the lowest and uppermost gravity pin of the fall arrest supports, or are to be attached to these with snap buckles (Illustration 25). For the snap buckles, the manufacturer must have provided verification that these have sufficient load-bearing capacity for utilization in the fall arrest of the fall arrest scaffold.

Illustration 25: Fall arrest with nets

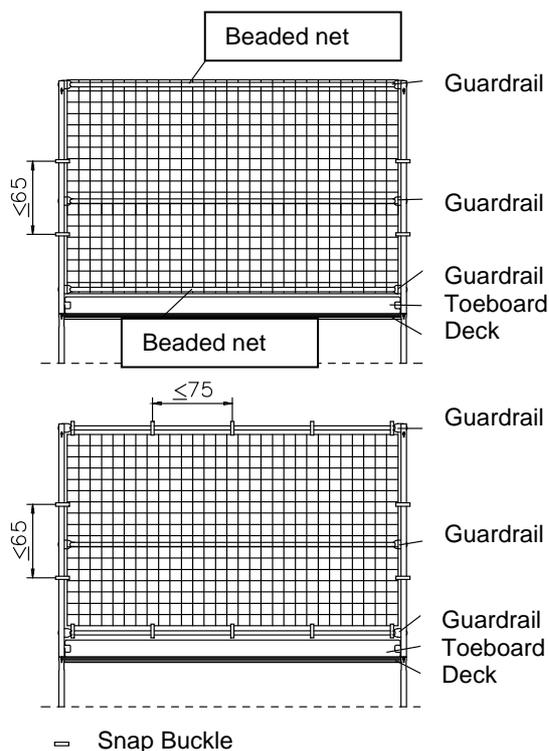
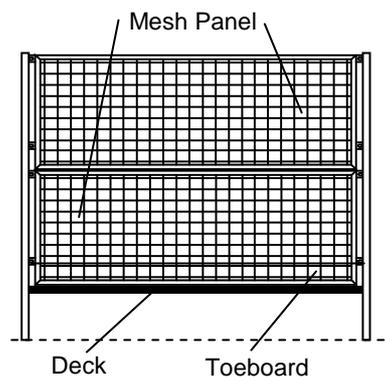


Illustration 26: Fall arrest with fall arrest mesh panels



2.5.6 Main installation variants

The following upgrade stages represent the main installation variants:

Basic variant (GV)

Vertical frame 2.00 m with 24 m standing height (+ 20 cm base jack extension)

+ fall arrest on the vertical frame (fall arrest scaffold)

Bracket Variant 1 (KV1)

As base variant

+ Brackets 32 inside in every level

+ safety fan

Bracket Variant 2 (KV2)

As Bracket Variant 1

+ Fall arrest on the side bracket 74

(alternative: Fall arrest frame)

The main installation variants are represented in the following illustrations:

Base variants: Illustrations 27 and 28

Bracket variants 1: Illustrations 29 and 30

Bracket variants 2: Illustrations 31 to 34

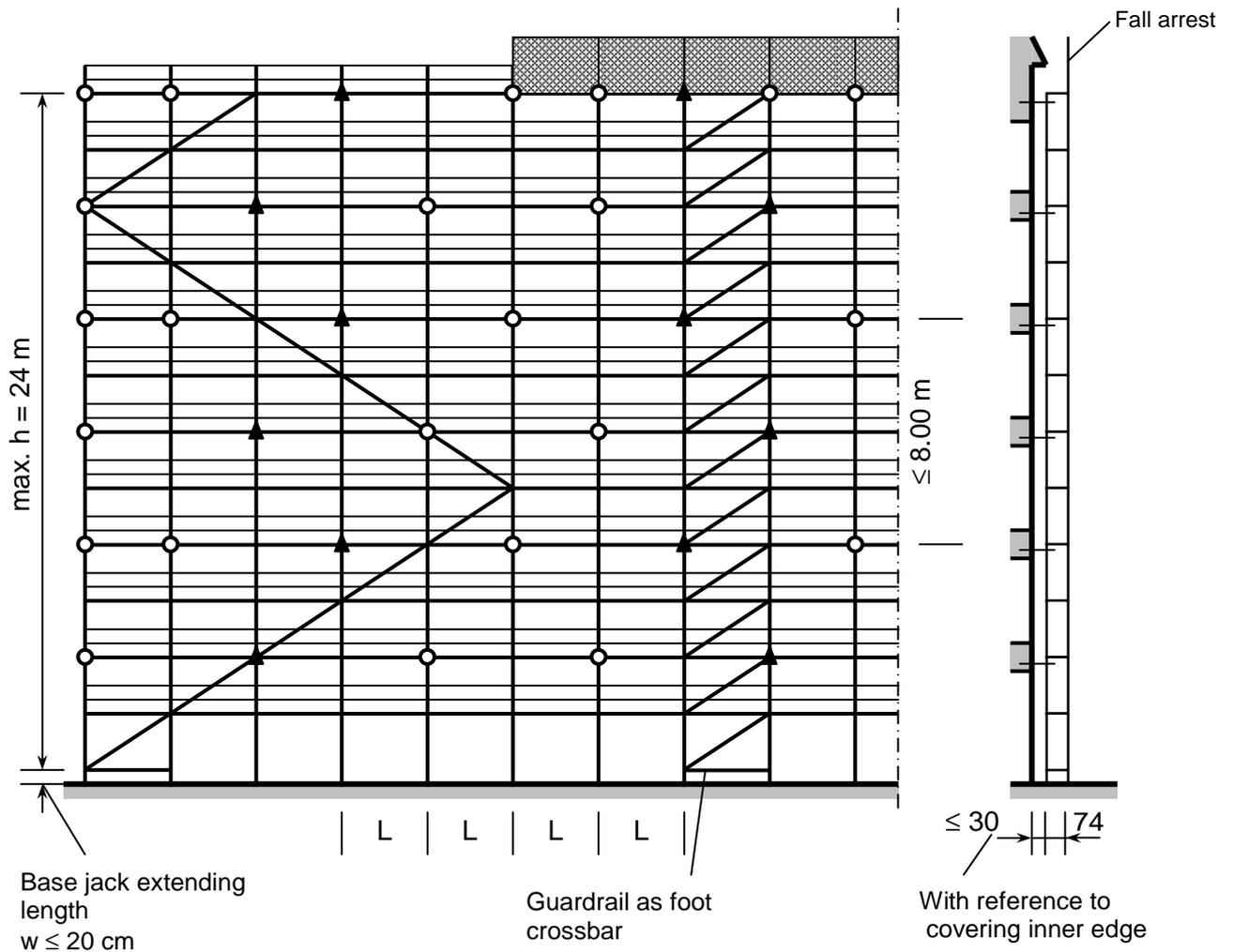
Net covering in front of closed facade: Illustrations 27.29, 31 to 34 and 37 to 39

Net covering in front of open facade: Illustration 35

Tarpaulin covering: Illustration 36

Variants with longer base jacks: Illustrations 37 to 39

Illustration 27: Base variant with wood or steel decks



Bay length:

L = 3.00 m / 2.50 m / 2.00 m / 1.50 m

Decks:

Timber decks
Steel decks

Permissible equipment:

Fall arrest on the vertical frame.

Bracing:

Arrangement of the diagonals over max. 5 bays continuously, or as tower-shape in every 5th bay.

Anchoring:

-  Anchoring with short scaffold ties attached only on the inside stand (Illustration 17)
-  Anchoring with triangular connections attached to the inside stand (Illustration 19).

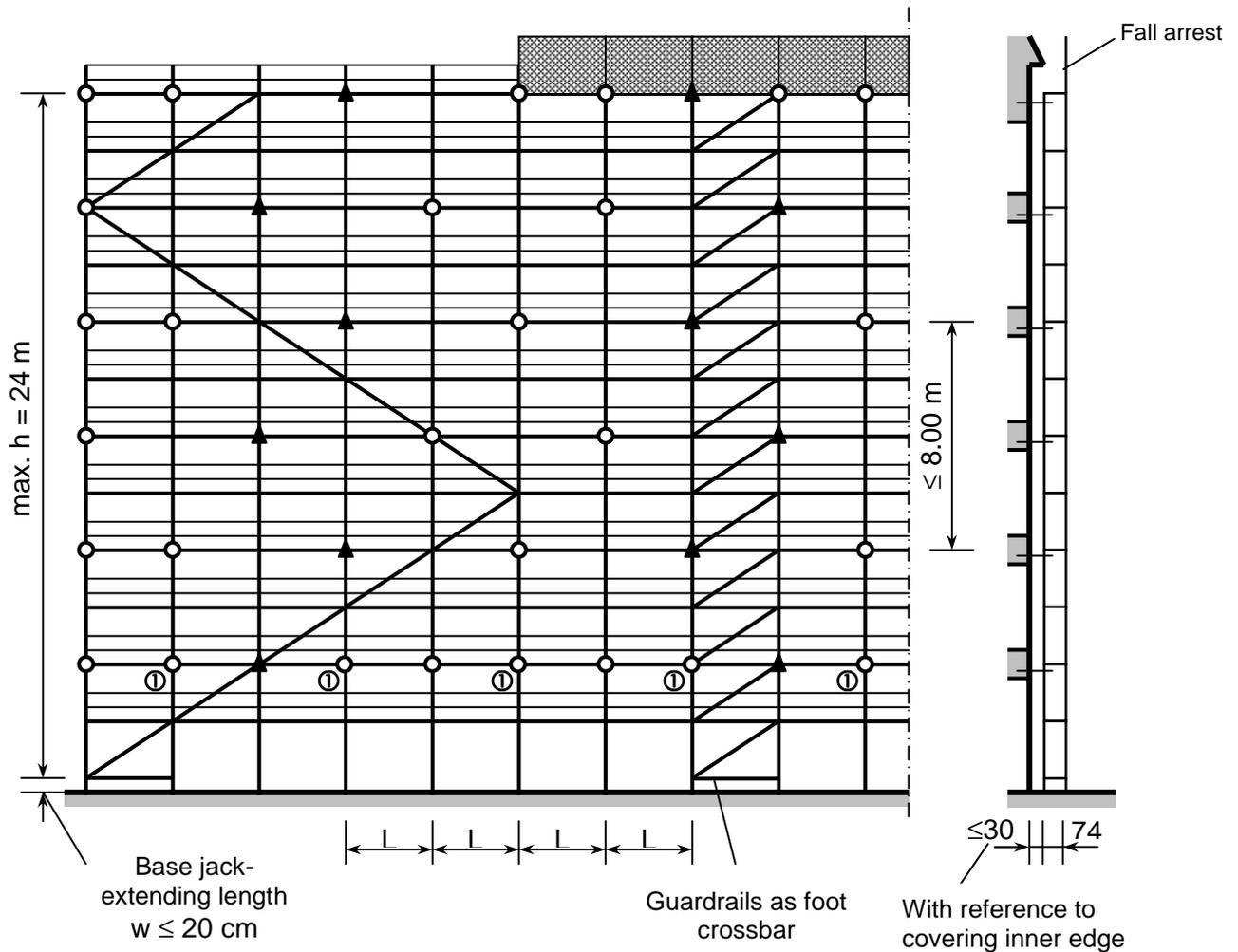
In the fall arrest level, every frame is to be anchored

Application:

As a scaffold without covering in front of open or closed facade.

With net covering in front of closed facade.

Illustration 28: Base variant with Alu-Decks 32 decks



Bay length:

L = 3.00 m / 2.50 m / 2.00 m / 1.50 m

Decks:

Alu-Deck 32

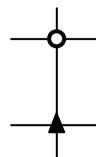
Permissible equipment:

Fall arrest on the vertical frame.

Bracing:

Arrangement of the diagonals over max. 5 bays continuously, or as tower-shape in every 5th bay.

Anchoring:



Anchoring with short scaffold ties, attached only to the inside stand (Illustration 17)

Anchoring with triangular connections, attached to the inside stand (Illustration 19).

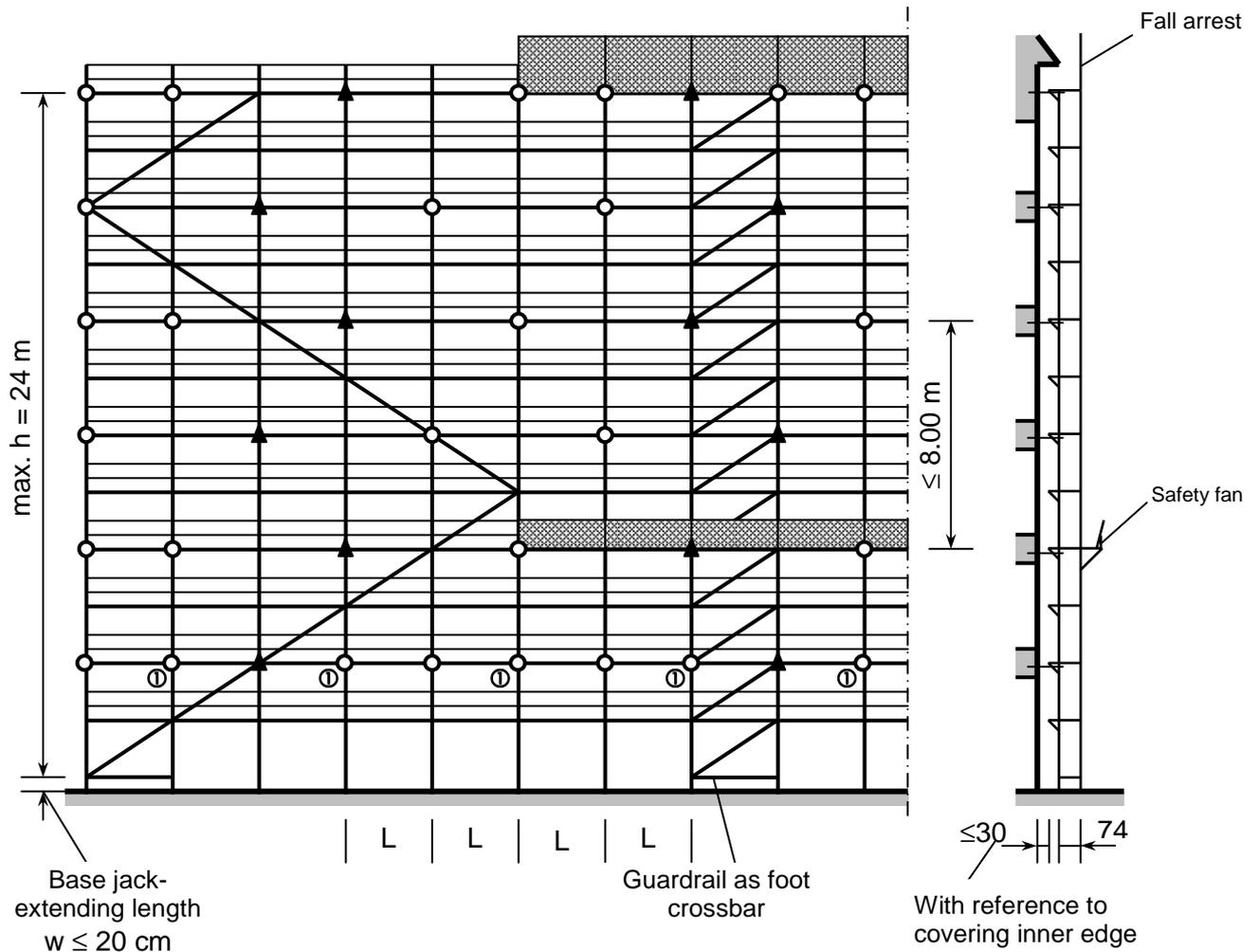
In the fall arrest level, every frame is to be anchored.

Application:

As a scaffolding without covering in front of open or closed facade.

Ⓛ Before closed facade these anchorings can be dispensed with

Illustration 29: Bracket Variant 1 with timber or steel decks



Bay length:

L = 3.00 m / 2.50 m / 2.00 m / 1.50 m

Decks:

Timber decks
Steel decks

Permissible equipment:

Inside Brackets 32 at every level,
safety fan + 8 m or higher
(however always in an anchored level),
fall arrest on the vertical frame.

Bracing:

Arrangement of the diagonals over max.
5 bays continuously, or as tower-shape
in every 5th bay.

Anchoring:

-  Anchoring with short scaffold ties attached only at the inside stand (Illustration 17).
-  Anchoring with triangular connections attached to the inside stand (Illustration 19).

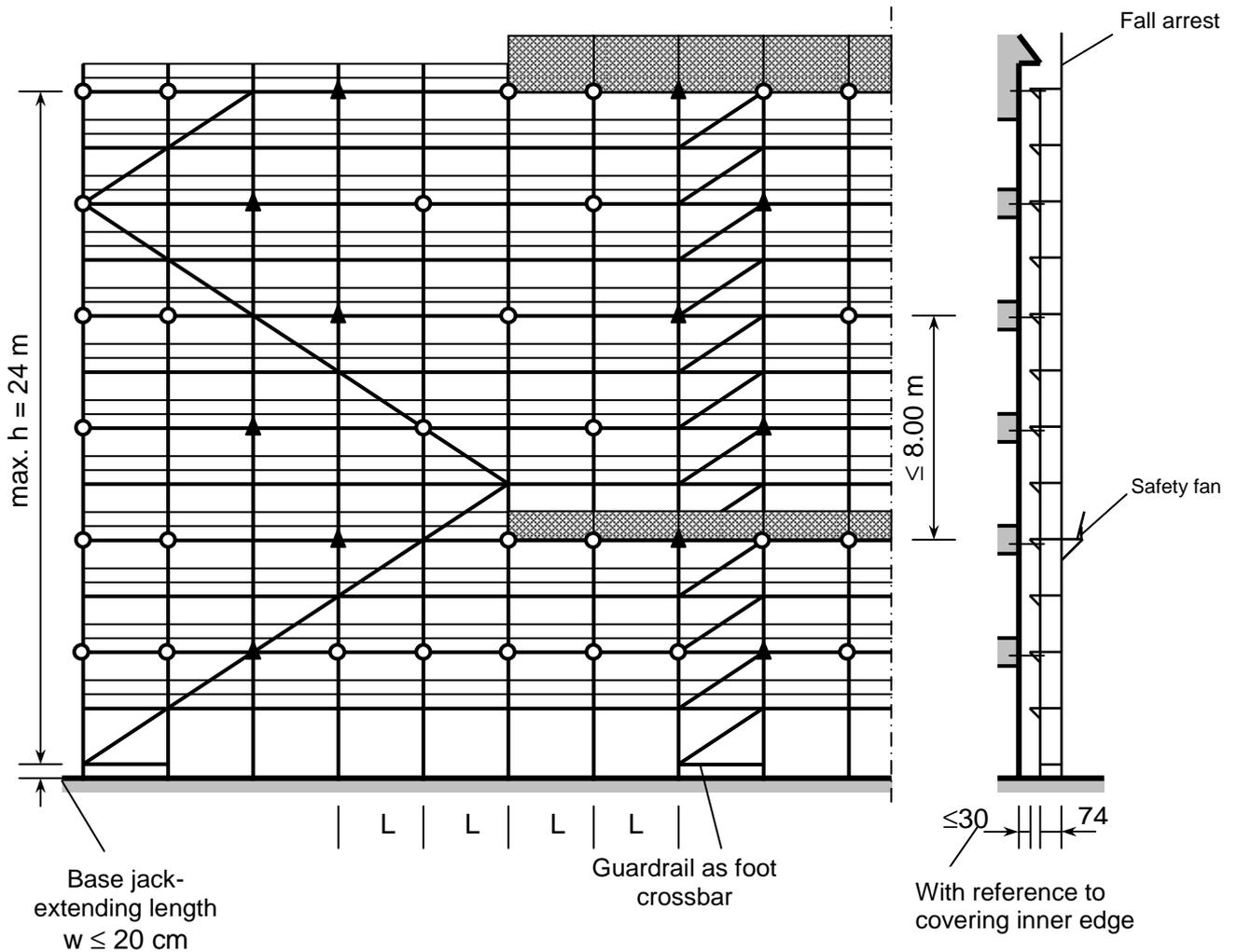
In the fall arrest level, every frame is to be anchored.

Application:

As a scaffold without covering in front of open or closed facade.
With net covering in front of closed facade.

In the case of scaffold without covering in front of closed facade, these anchorings can be dispensed with: ①

Illustration 30: Bracket variant 1 with Alu-Decks 32 decks



Bay length:

L = 3.00 m / 2.50 m / 2.00 m / 1.50 m

Decks:

Alu-Decks 32

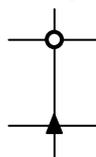
Permissible equipment:

Inside Brackets 32 at every level, safety fan + 8 m or higher (however always in an anchored level), fall arrest on the vertical frame.

Bracing:

Arrangement of the diagonals over max. 5 bays continuously, or as tower-shape in every 5th bay.

Anchoring:



Anchoring with short scaffold ties attached only at the inside stand (Illustration 17).

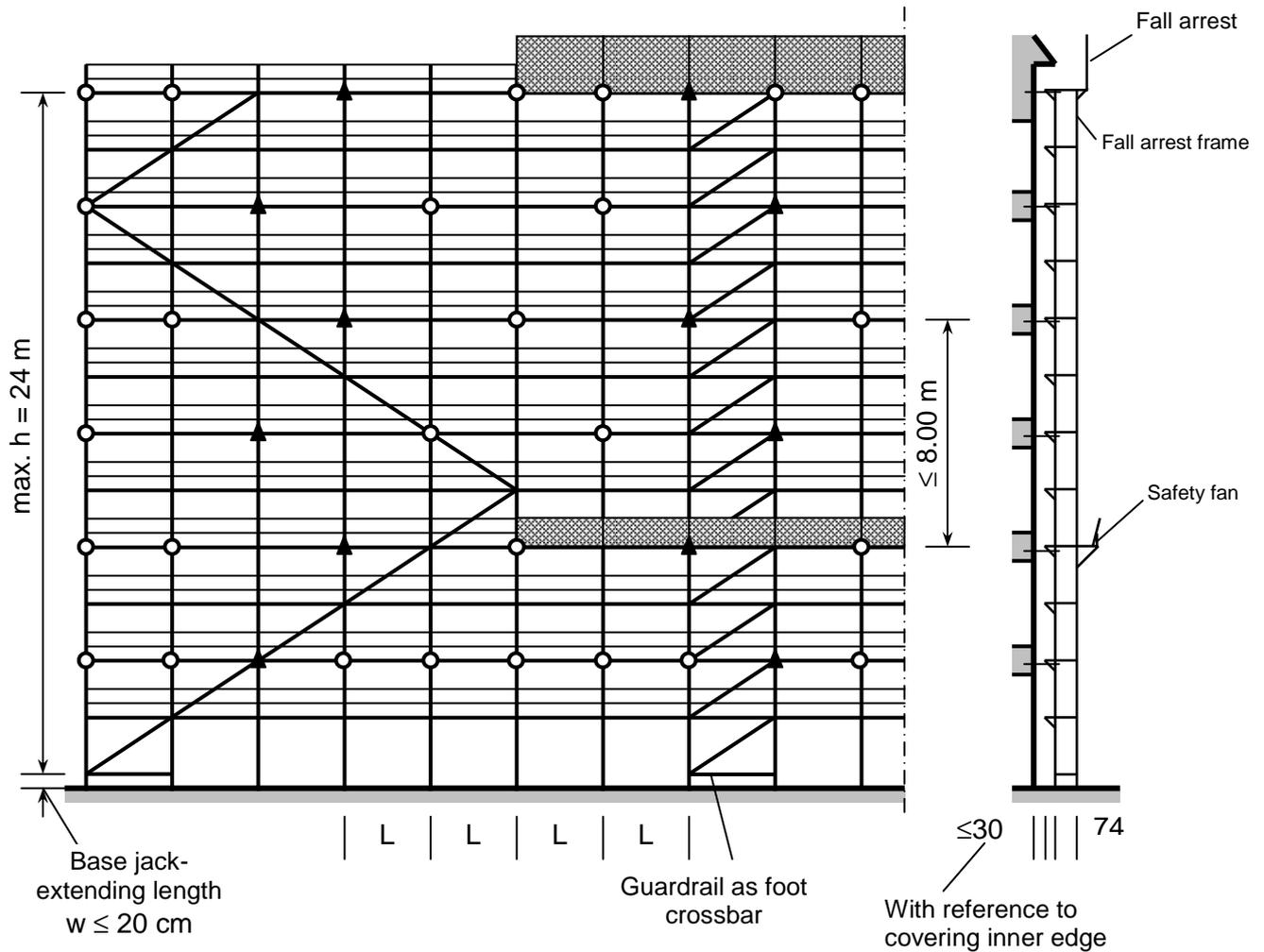
Anchoring with triangular connections attached to the inside stand (Illustration 19).

In the fall arrest and safety fan level, as well as + 4 m, every frame is to be anchored.

Application:

As a scaffold without covering in front of open or closed facade.

Illustration 31: Bracket Variant 2 with fall arrest frames



Bay length:

L = 3.00 m / 2.50 m / 2.00 m / 1.50 m

Decks:

Timber decks,
Steel decks.

Permissible equipment:

Inside Brackets 32 at every level, safety fan + 8 m or (however always in an anchored level), fall arrest on the fall arrest frame.

Bracing:

Arrangement of the diagonals over max. 5 bays continuously, or as tower-shape in every 5th bay.

Anchoring:

-  Anchoring with short scaffold ties attached only at the inside stand (Illustration 17).
-  Anchoring with triangular connections attached to the inside stand (Illustration 19).

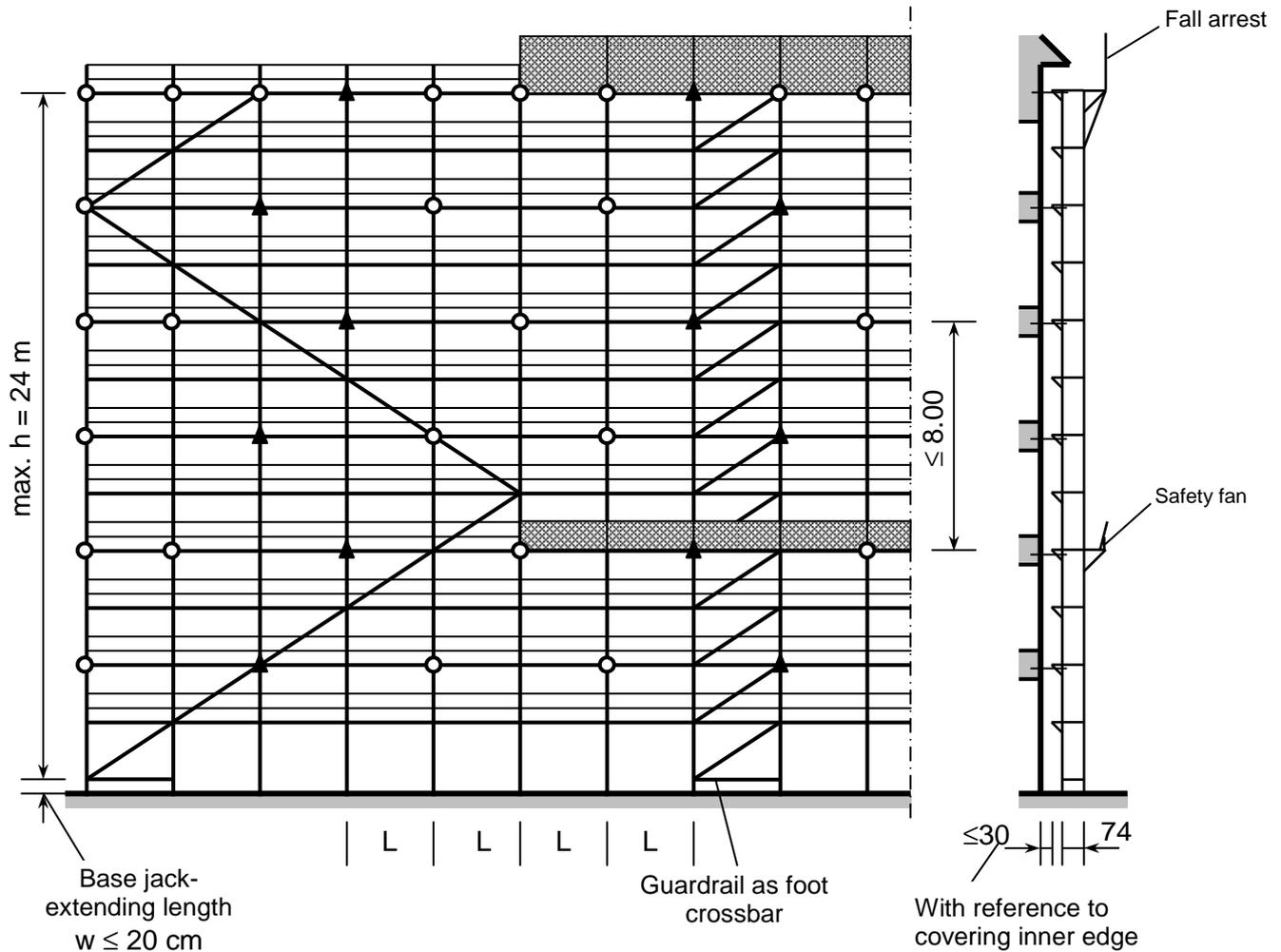
In the fall arrest level, as well as on + 4 m, every frame is to be anchored.

Application:

As a scaffold without covering in front of open or closed facade.

With net covering in front of closed facade.

Illustration 32: Bracket Variant 2 for bay length $L \leq 2.50$ m



Bay length:

$L = 2.50 \text{ m} / 2.00 \text{ m} / 1.50 \text{ m}$

Decks:

Timber decks,
Steel decks.

Permissible equipment:

Inside Brackets 32 at every level, safety fan + 8 m or higher (however always in an anchored level), fall arrest on Bracket 74.

Bracing:

Arrangement of the diagonals over max. 5 bays continuously, or as tower-shape in every 5th bay.

Anchoring:

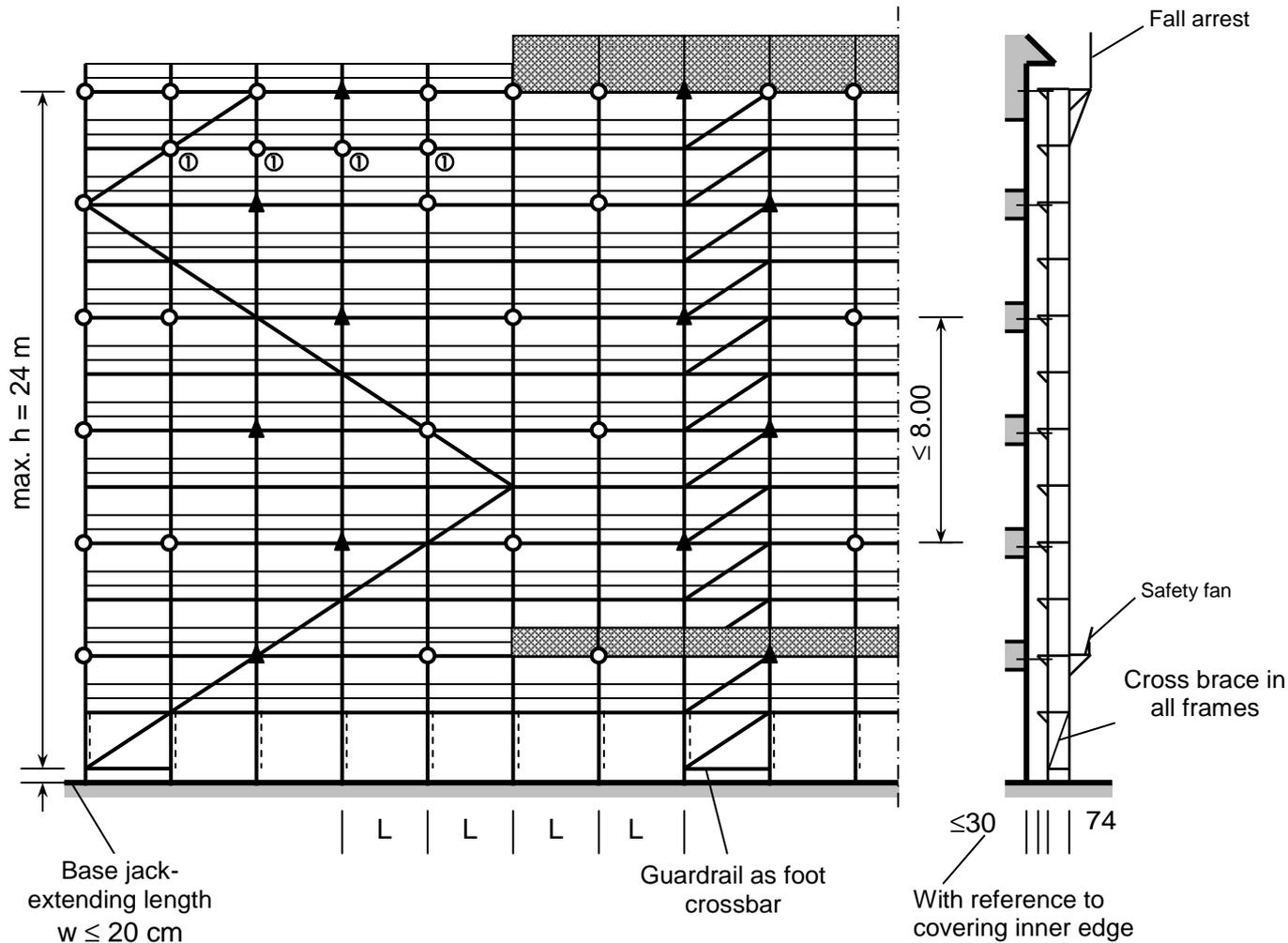
-  Anchoring with short scaffold ties attached only at the inside stand (Illustration 17).
-  Anchoring with triangular connection attached to the inside stand (Illustration 19).

In the uppermost level with Bracket 74, every frame is to be anchored (with and without fall arrest).

Application:

As a scaffold without covering in front of open or closed facade.
With net covering in front of closed facade.

Illustration 33: Bracket Variant 2 for bay length L = 3.00 m



Bay length:
L = 3.00 m

Decks:
Timber decks,
Steel decks.

Permissible equipment:
Inside Brackets 32 at every level, safety fan + 4 m (however always in an anchored level), fall arrest on Bracket 74.

Bracing:
Arrangement of the diagonals over max. 5 bays continuously, or as tower-shape in every 5th bay.

Anchoring:

- Anchoring with short scaffold ties attached only at the inside stand (Illustration 17).
- ▲ Anchoring with triangular connections attached to the inside stand (Illustration 19).

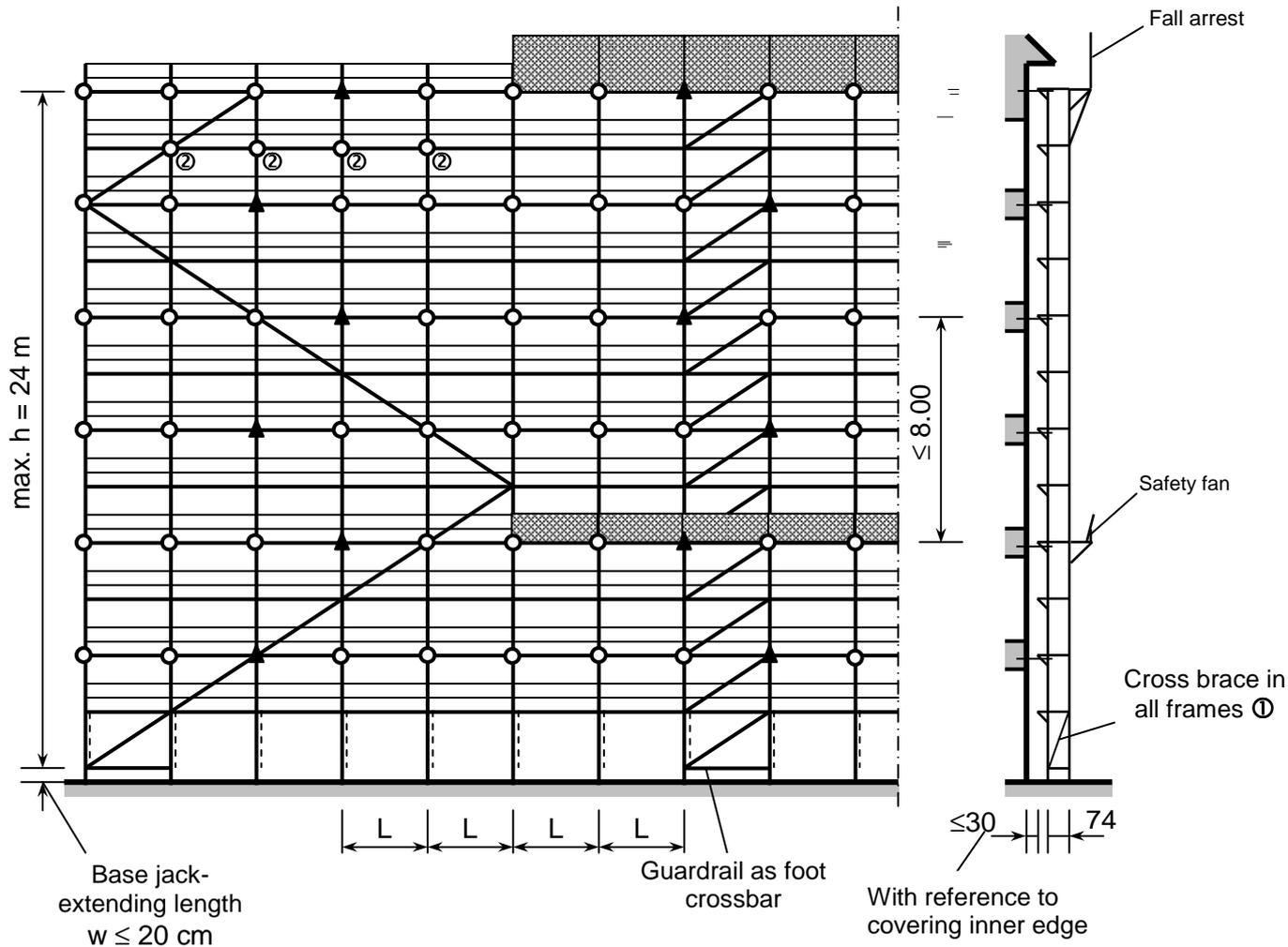
① These scaffold ties are necessary in case of Bracket 74 without fall arrest and without side bracket support.

Application:

As a scaffold without covering in front of open or closed facade.

With net covering in front of closed facade.

Illustration 34: Bracket Variant 2 with tie grid "4 m"



Bay length:

L = 3.00 m / 2.50 m / 2.00 m / 1.50 m

Decks:

Timber decks,
Steel decks,
Alu-Deck 32
alum. Frame decks w. alum or plywood surface

Permissible equipment:

Inside Brackets 32 at every level, safety fan + 8 m or higher (however always in an anchored level), fall arrest on Bracket 74.

Bracing:

Arrangement of the diagonals over max. 5 bays continuously, or as tower-shape in every 5th bay.

Anchoring:

- Anchoring with short scaffold ties attached only at the inside stand (Illustration 17).
- ▲ Anchoring with triangular connections attached to the inside stand (Illustration 19).

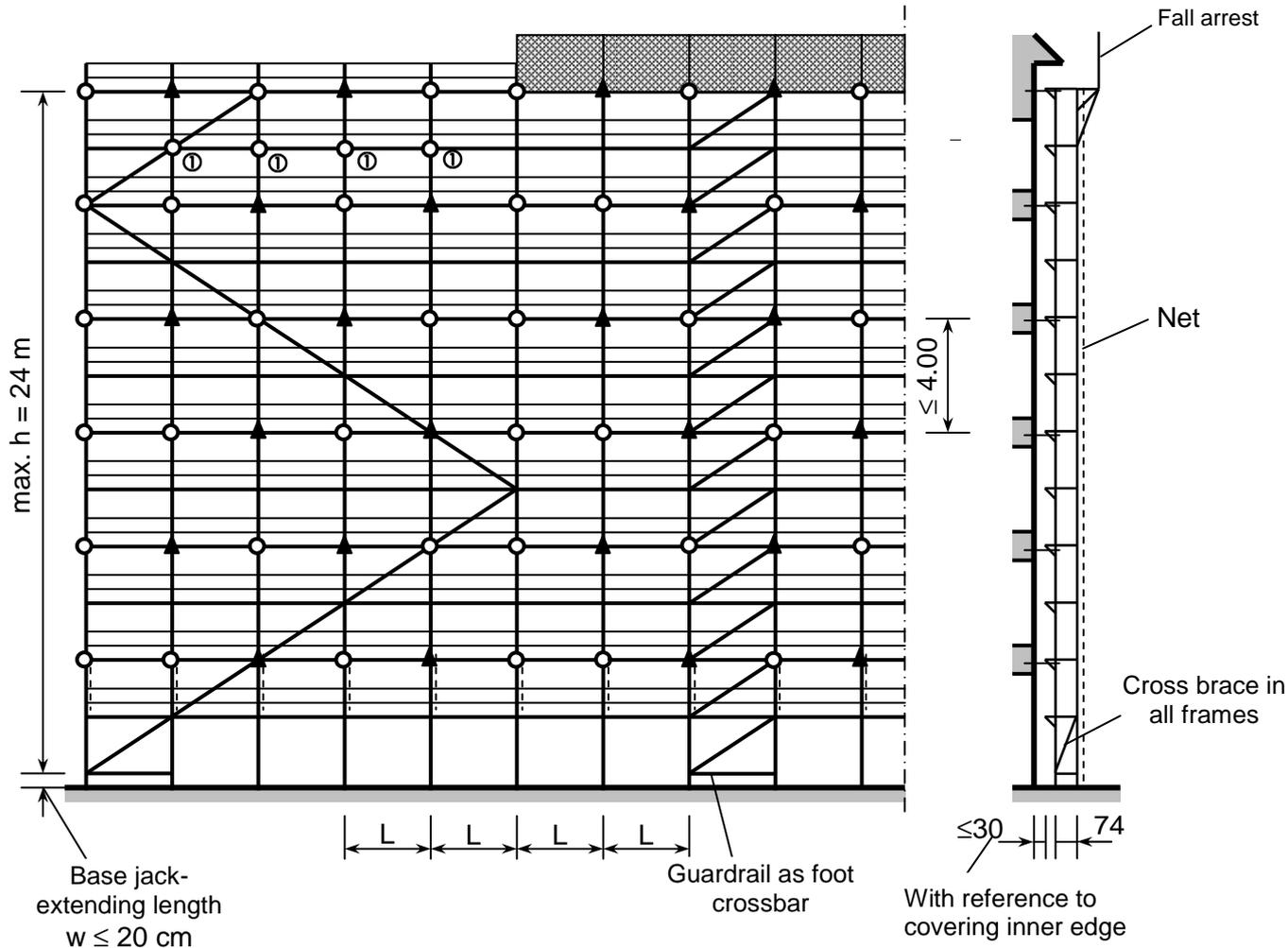
① The cross braces are required only with L = 3.00 m.

② These scaffold ties are necessary in case of Bracket 74 without fall arrest and without side bracket supports (only with L = 3.00 m).

Application:

As a scaffold without covering in front of open or closed facade.
With net covering in front of closed facade.

Illustration 35: Scaffold with net covering in front of open façade



Bay length:

L = 3.00 m / 2.50 m / 2.00 m / 1.50 m

Decks:

Timber decks,
Steel decks.

Permissible equipment:

Inside Brackets 32 at every level,
Alternatively fall arrest on the vertical frame,
the fall arrest Bracket 74.

Bracing:

Arrangement of the diagonals over max. 5 bays
continuously, or as tower-shape in every 5th bay.

Anchoring:

-  Anchoring with short scaffold ties attached only at the inside stand (Illustration 17).
-  Anchoring with triangular connections attached to the inside stand (Illustration 19).

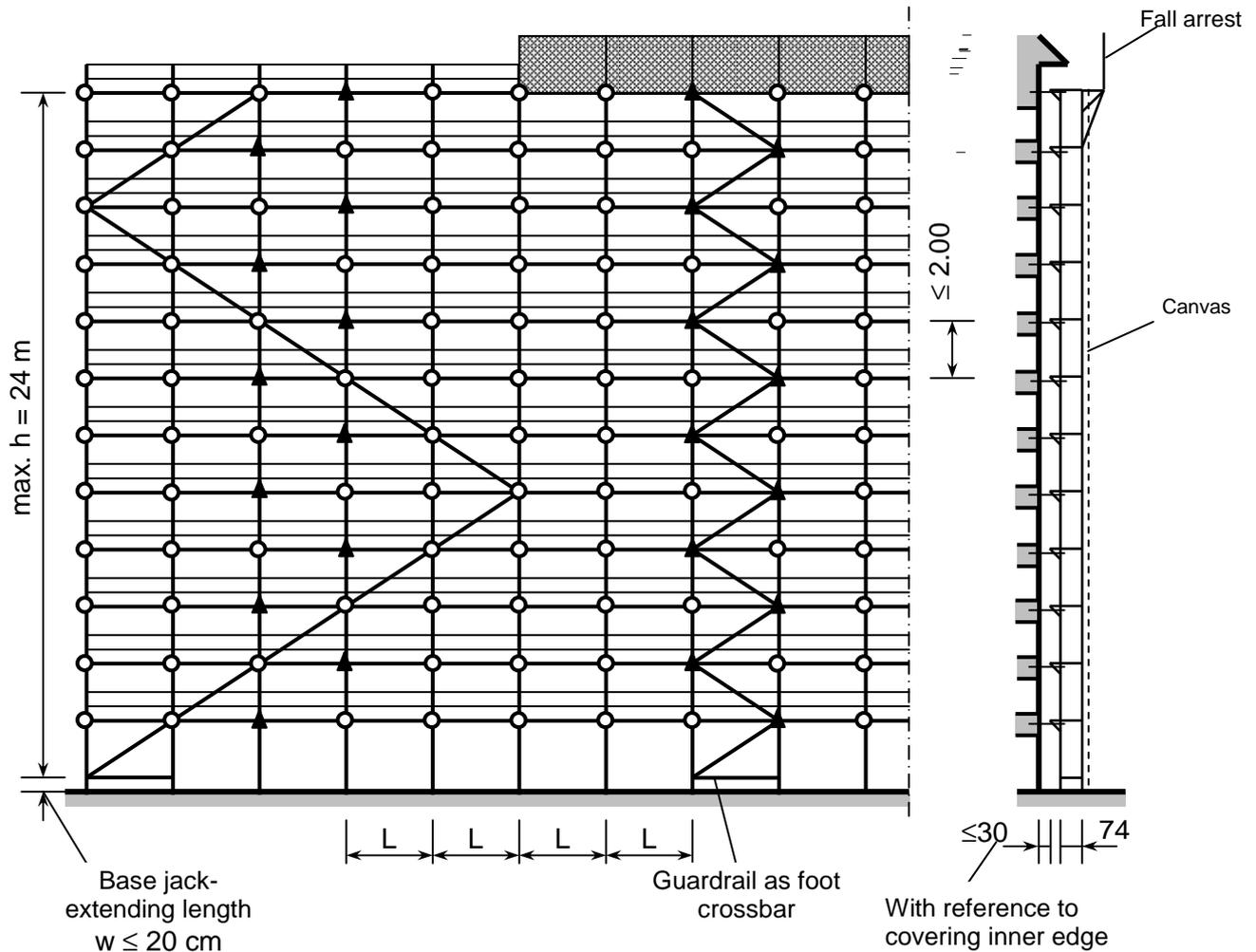
In every anchoring level, 2 triangular connections are to be provided per 5 bays.

- ① These scaffold ties are necessary with Bracket 74 without fall arrest and without side bracket support (only with L = 3.00 m).

Application:

With net covering in front of open facade.

Illustration 36: Scaffold with fabric covering



Bay length:

L = 3.00 m / 2.50 m / 2.00 m / 1.50 m

Decks:

Timber decks,
Steel decks,
Alu-Decks 32
alum. Frame deck with alum. or plywood surface

Permissible equipment:

Inside Brackets 32 at every level,
Alternatively fall arrest on the vertical frame,
the fall arrest frame or side Bracket 74.

Bracing:

Arrangement of the diagonals over max. 5 bays
continuously, or as tower-shape in every 5th bay.

Anchoring:

-  Anchoring with short scaffold ties attached only at the inside stand (Illustration 17)
-  Anchoring with triangular connections attached to the inside stand (Illustration 19).

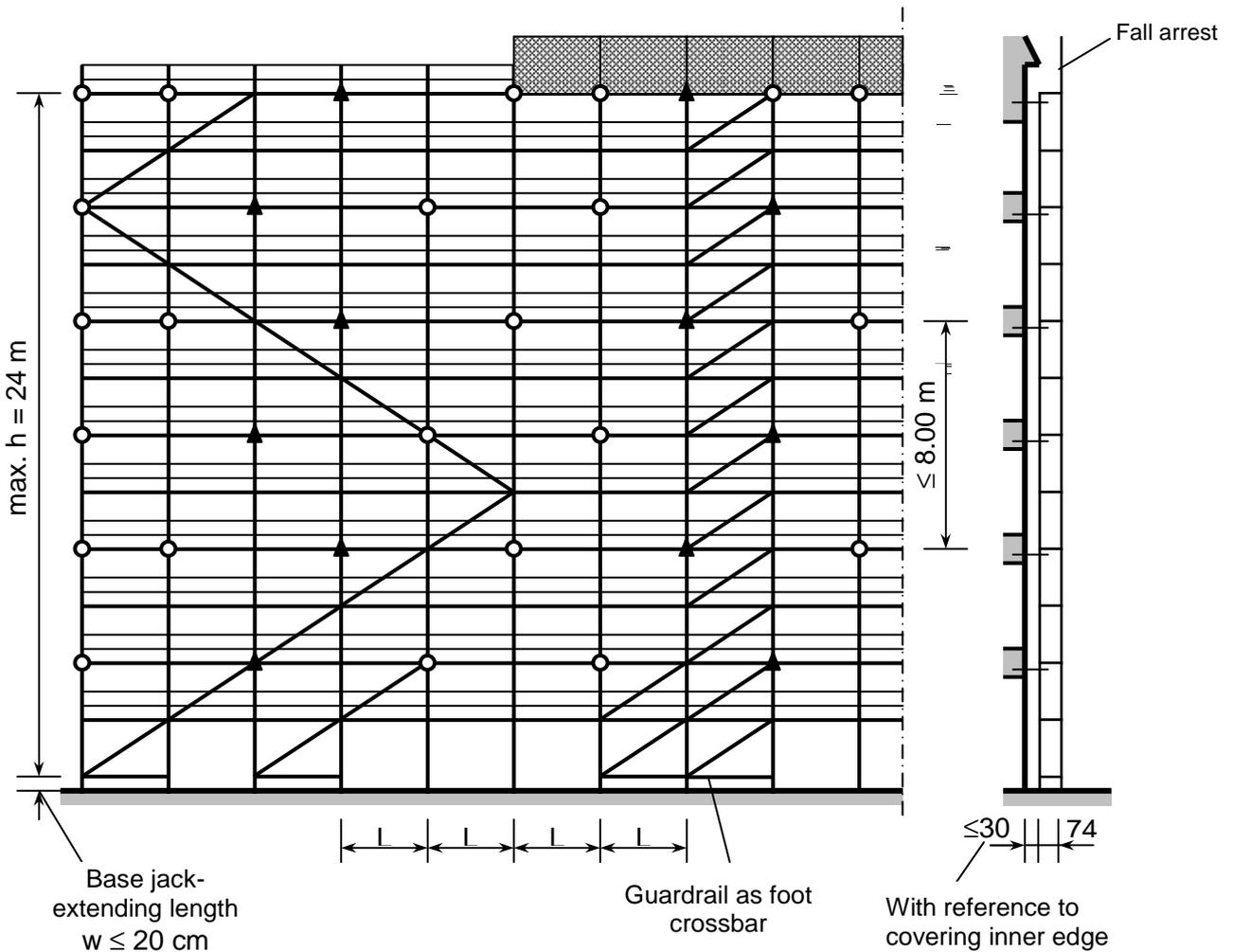
Application:

With canvas covering in front of open or closed facade.

In front of closed facade, every 2nd anchor point needs to be developed only pressure-proof:

- Base variant: a = "4 m"
- Bracket variant: a = "4 m offset"

Illustration 37: Base variant with longer foot base jacks



Bay length:

L = 3.00 m / 2.50 m / 2.00 m / 1.50 m

Decks:

Timber decks,
Steel decks.

Permissible equipment:

Fall arrest on the vertical frame.

Bracing:

Arrangement of the diagonals over max. 5 bays continuously, or as tower-shape in every 5th bay. From ±0 to +4m, 2 diagonals are necessary for every

Anchoring:

-  Anchoring with short scaffold ties attached only at the inside stand (Illustration 17).
-  Anchoring with triangular connections attached to the inside stand (Illustration 19).

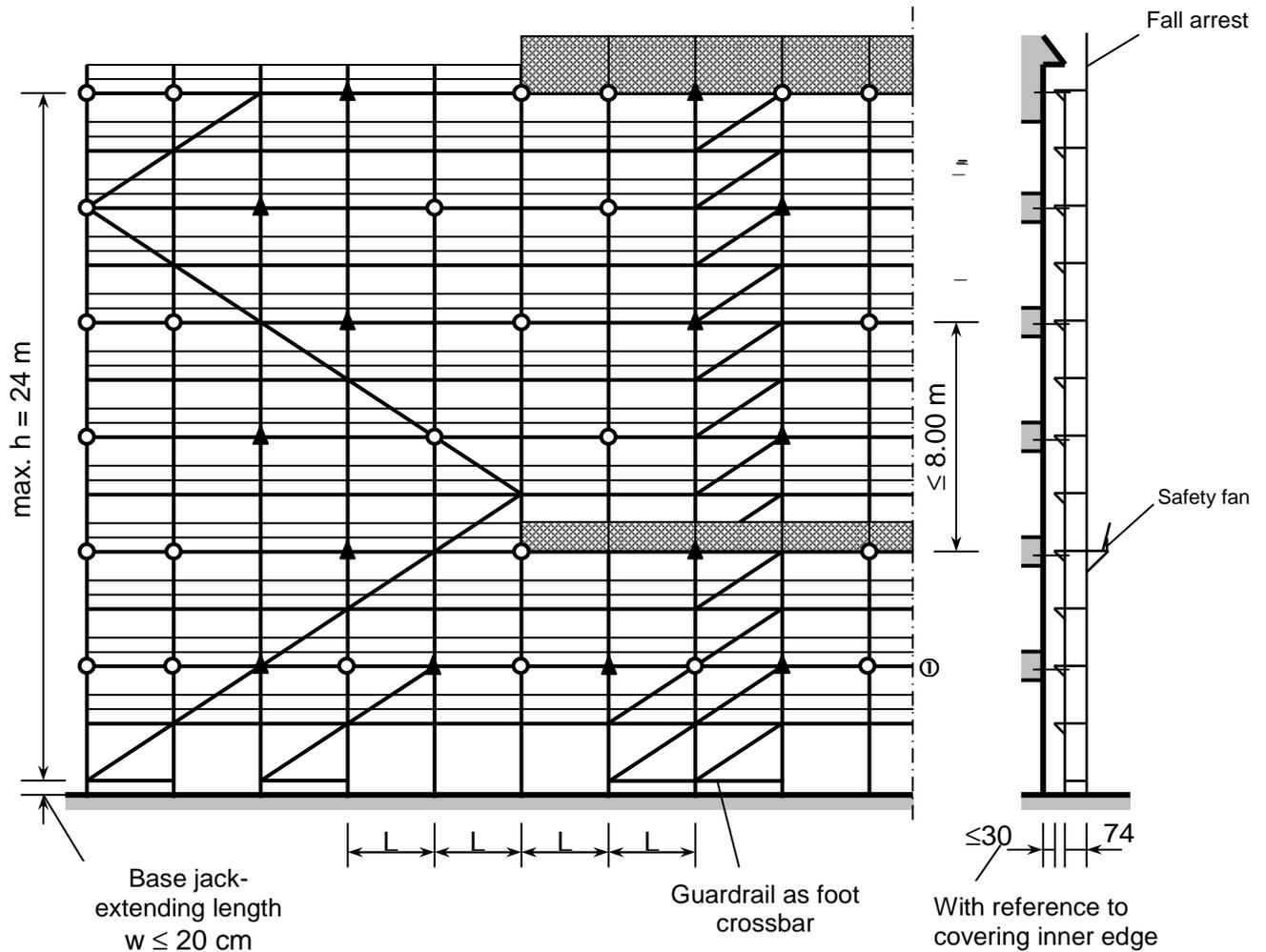
In the fall arrest level, every frame is to be anchored.

Application:

As a scaffolding without covering in front of open or closed facade.

With net covering in front of closed facade.

Illustration 38: Bracket Variant 1 with longer base jacks



Bay length:

L = 3.00 m / 2.50 m / 2.00 m / 1.50 m

Decks:

Timber Decks
Steel deck

Permissible equipment:

Inside Brackets 32 at every level, head fan + 8 m or higher (however always in an anchored level), fall arrest on the vertical frame.

Bracing:

Arrangement of the diagonals over max. 5 bays continuously, or as tower-shape in every 5th bay. From ±0 to +4m, 2 diagonals are necessary for every 5 bays.

Anchoring:

- Anchoring with short scaffold ties attached only at the inside stand (Illustration 17).
- Anchoring with triangular connections attached to the inside stand (Illustration 19).

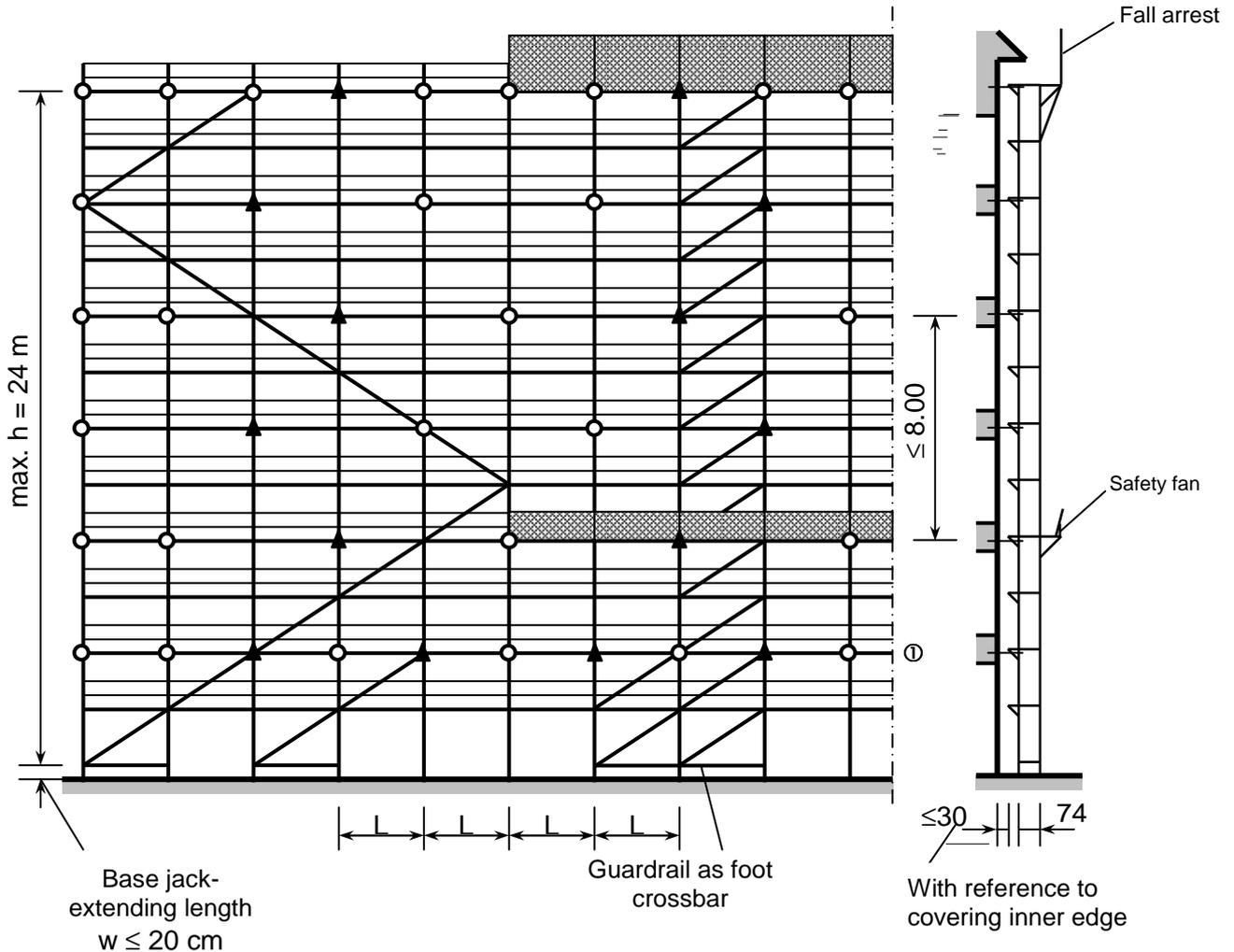
In the fall arrest level, every frame is to be anchored.

⊙ At + 4 m, every frame train is to be anchored. 2 triangular connections are to be provided for every 5 bays in this case.

Application:

As a scaffold without covering in front of open or closed facade.
With net covering in front of closed facade.

Illustration 39: Bracket Variant 2 with longer base jacks



Bay length:

$L = 2.50 \text{ m} / 2.00 \text{ m} / 1.50 \text{ m}$

Decks:

Timber decks,
Steel decks.

Permissible equipment:

Inside Brackets 32 at every level,
safety fan + 8 m or higher
(however always in an anchored level),
alternatively fall arrest on the fall arrest
frame or on the side Bracket 74.

Bracing:

Arrangement of the diagonals over max. 5 bays
continuously, or as tower-shape in every 5th bay.
From ±0 to +4m, 2 diagonals are necessary for
every 5 bays.

Anchoring:

-  Anchoring with short scaffold ties attached only at the inside stand (Illustration 17).
-  Anchoring with triangular connections attached to the inside stand (Illustration 19).

In the fall arrest level, every frame is to be anchored.

① At + 4 m, every frame is to be anchored. 2 triangular connections are to be provided for every 5 bays in this case.

Application:

As a scaffold without covering in front of open or closed facade.

With net covering in front of closed facade.

2.5.7 Scaffold with walk through frames (Illustrations 41 to 44)

In the case of the walk through frames, the one-piece frame (Enclosure A, Page 65 of the Certification Z-8.1-29), as well as the construction composed of parts of the plettac contur modular system (Enclosure A, Page 66 to 70), are to be distinguished between. The corresponding node connection is authorized according to general construction supervision and controlled in the Certification Approval Z-8.22-843.

The arrangement of the one-piece frame is permissible only without inside brackets (Illustration 41).

The frame composed of modular scaffold parts is permissible both in the base variant and in the bracket variant. The necessary stiffness is achieved by installation of the corresponding horizontal crossbars and vertical diagonals. The ledgers are to be attached continuously right through on the highly loaded inside standards, in the basic variant only above and in the bracket variant above and in part below (see Illustrations 42 and 43).

The connecting heads of the pedestrian beams, ledgers, diagonals and brackets are slid over the dividing plates of the vertical standards and connected by striking the wedges with a 500 g hammer until the sound changes so that the wedge is fixed properly. (see Illustration 40).

Under the building-sided standards, the support forces result in the load case "operation" according to Table 5.

Table 5: Support forces under the inside standards

Bay length	Inside bracket	h = 24 m	h = 16 m	h = 8 m
2.50 m	without	15.3 kN	12.6 kN	10.0 kN
2.50 m	with	21.0 kN	17.2 kN	13.4 kN
3.00 m	without	14.3 kN	11.3 kN	8.3 kN
3.00 m	with	21.1 kN	16.8 kN	12.4 kN

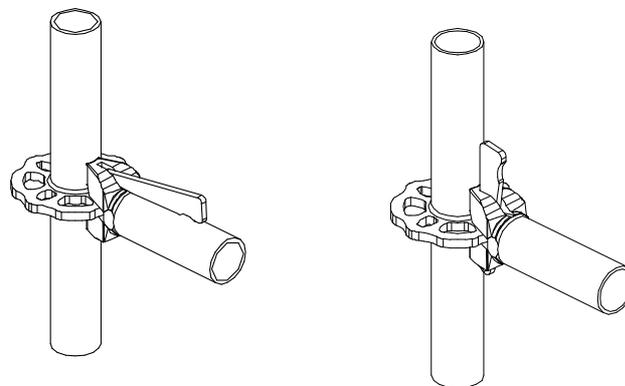
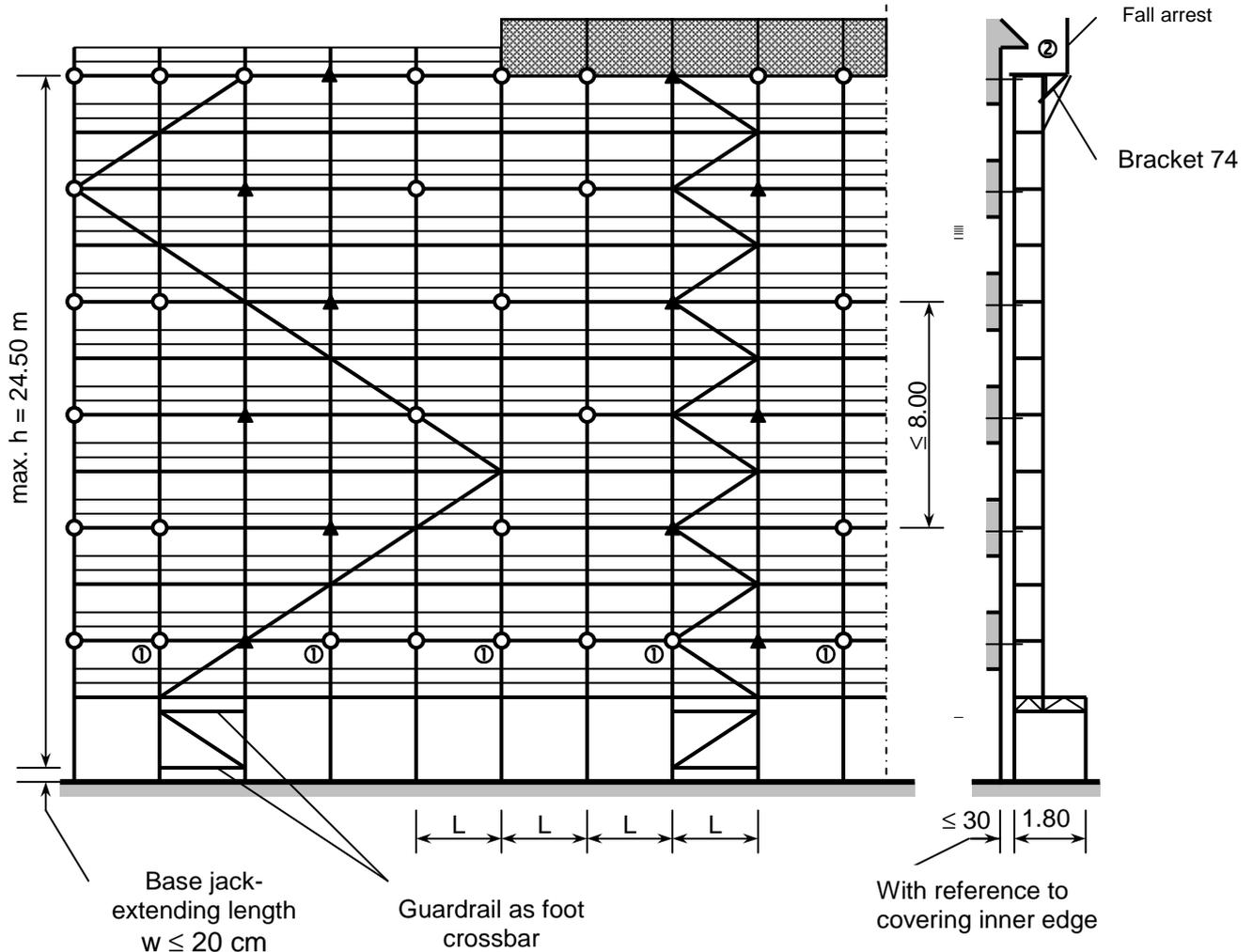


Illustration 40: wedge-disc connection

Insertion of the connection head

wedge fixed

Illustration 41: Variant with walk through frames
(One-piece implementation in accordance with Enclosure A, Page 65 of the Certification Z-8.1-29)



Bay length:

$L = 3.00 \text{ m} / 2.50 \text{ m} / 2.00 \text{ m} / 1.50 \text{ m}$

Decks:

Timber decks,
Steel decks,
Alum. decks and boards are admissible only
in case of a tie grid "4 m" (Illustration 33).

Permissible equipment:

Alternatively fall arrest on the vertical frame,
the fall arrest frame or Side Bracket 74.

Bracing:

Arrangement of the diagonals over max. 5 bays
continuously, or as tower-shape in every 5th bay.

Anchoring:

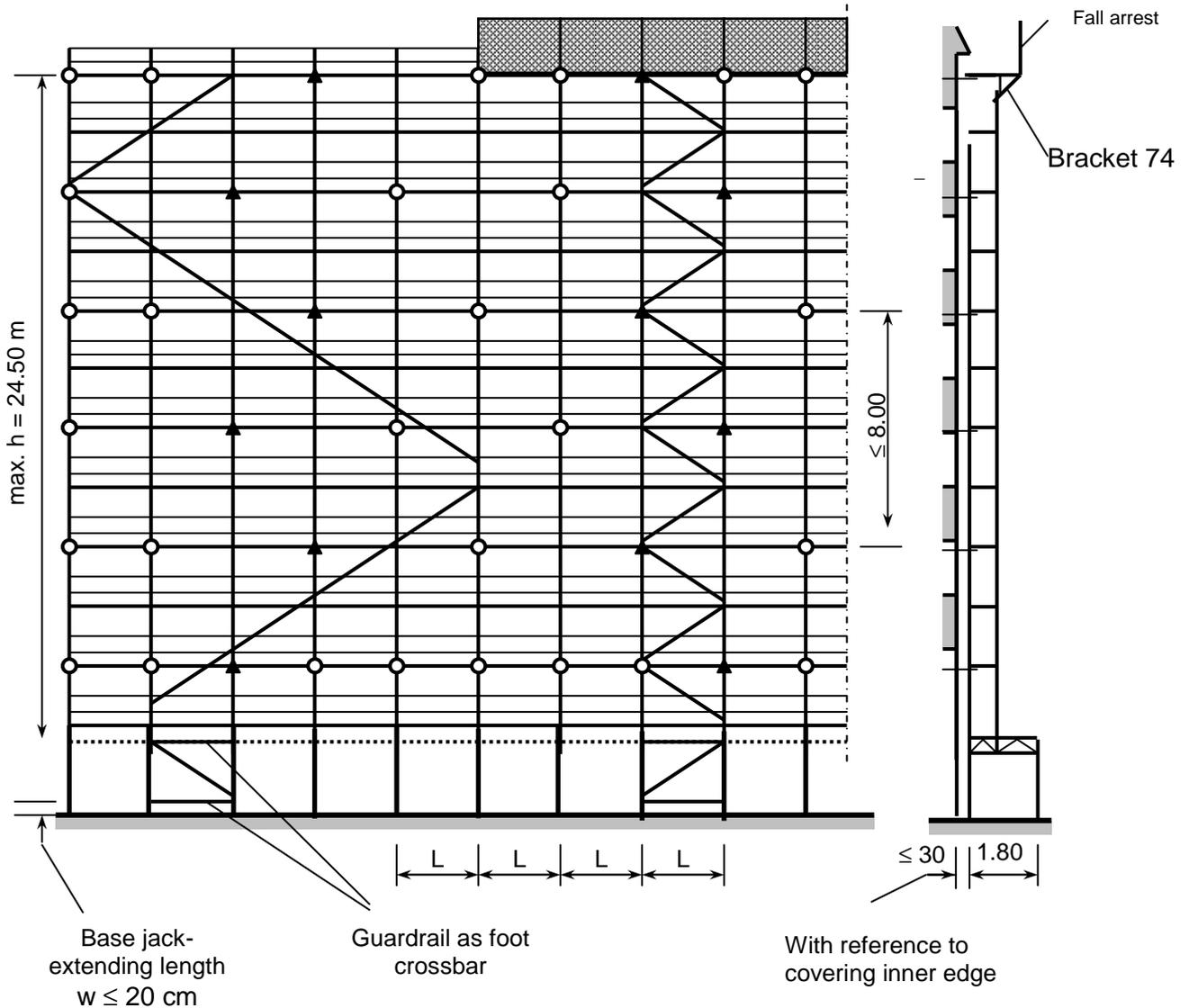
-  Anchoring with short scaffold ties attached only at the inside stand (Illustration 17).
-  Anchoring with triangular connections attached to the inside stand (Illustration 19).

With bay length 3.00 m, the following are to be considered:

- ① Every frame is to be anchored at + 4 m.
- ② The fall arrest is permissible only on the vertical frame.

Only admissible in front of closed facade.

Illustration 42: Base variant with walk through frames
(Contur design implementation in accordance with Enclosure A, Pages 66 to 69 of the Certification Z-8.1-29)



Bay length:

$L = 3.00$ m / 2.50 m / 2.00 m / 1.50 m

Decks:

Timber decks,
Steel decks,
Alum. decks and boards are admissible at only one tie grid "4 m" (Illustration 34).

Permissible equipment:

Fall arrest on the vertical frame.

Anchoring:

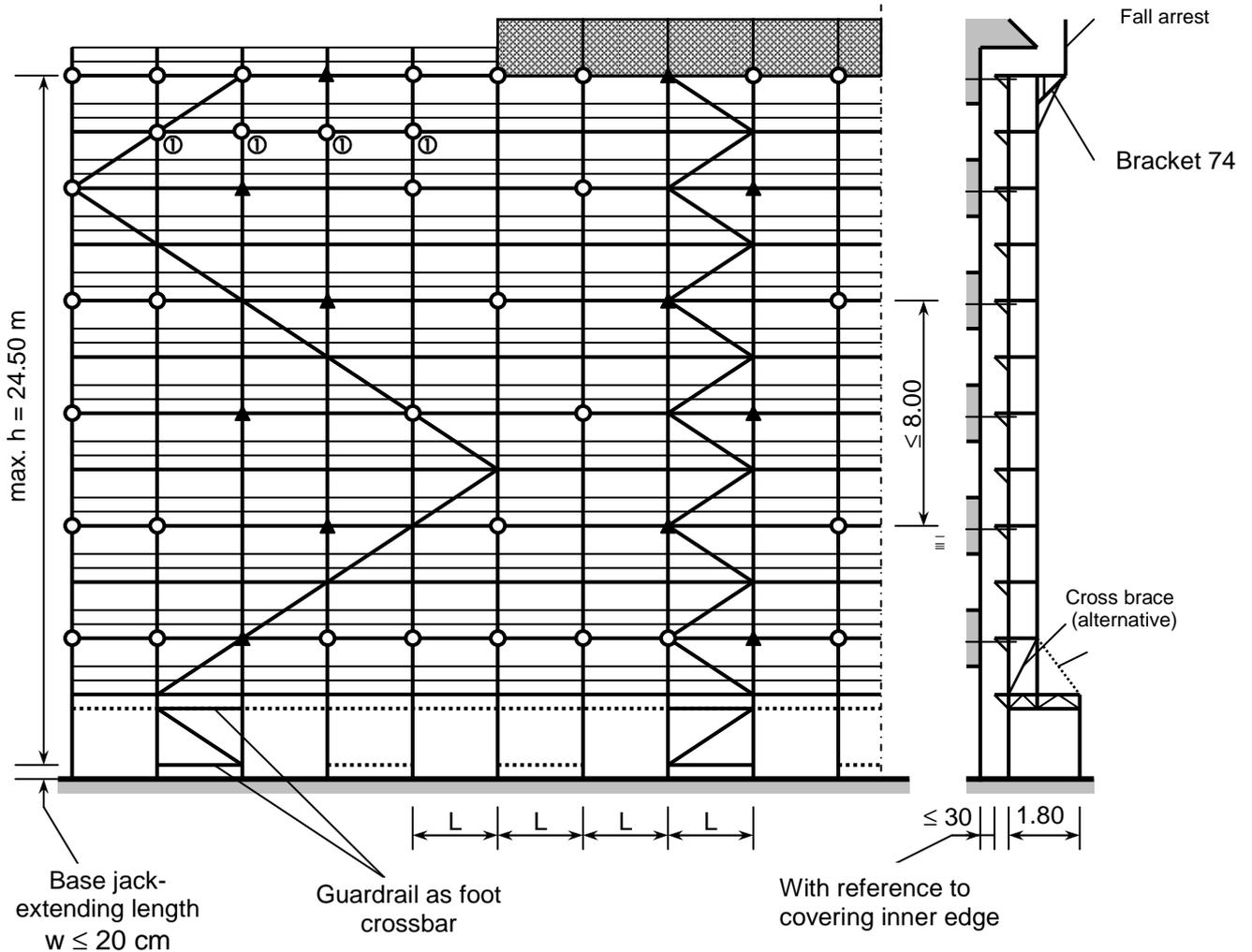
-  Anchoring with short scaffold ties attached only at the inside stand (Illustration 17).
-  Anchoring with triangular connections attached to the inside stand (Illustration 19).

Every frame is to be anchored at +4 m, as well as in the fall arrest level.

Bracing:

Arrangement of the diagonals over max. 5 bays continuously, or as tower-shape in every 5th bay. In the area of the walkthrough frames, one diagonal and two ledgers are to be installed in every 5th bay inside and outside in each case, made from modular material (plettac contur). The ledgers are to be arranged running through continuously above inside (.....)

Illustration 43: Bracket variant with walk through frames
(Contur design implementation in accordance with Enclosure A, Pages 66 to 70 of the Certification Z-8.1-29)



Bay length:

$L = 3.00 \text{ m} / 2.50 \text{ m} / 2.00 \text{ m} / 1.50 \text{ m}$

Decks:

Timber decks,
Steel decks,
Alum. decks and boards are admissible at only one tie grid "4 m" (Illustration 34).

Permissible equipment:

Inside brackets at every level, fall arrest on the Side Bracket 74 and/or on the fall arrest

Bracing:

Arrangement of the diagonals over max. 5 bays continuously, or as tower-shape in every 5th bay. In the area of the walk through frames, one diagonal and two ledgers are to be installed in every 5th bay inside and outside in each case, made from modular material (plettac contur). The ledgers are to be arranged running through continuously below inside in every 2nd bay at least (.....)

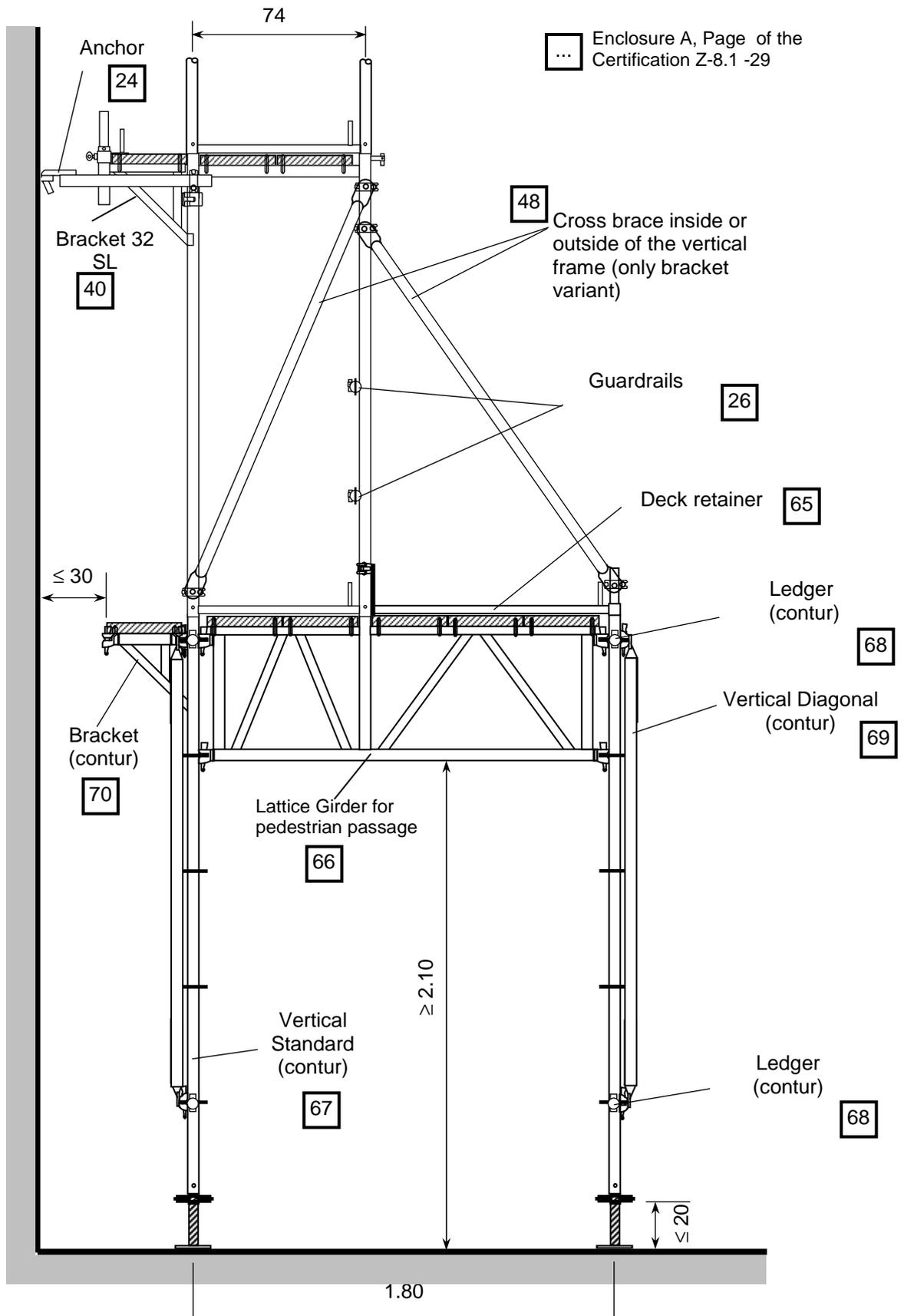
Anchoring:

- Anchoring with short scaffold ties attached only at the inside stand (Illustration 17).
- Anchoring with triangular connections attached to the inside stand (Illustration 19).

Every frame is to be anchored at +4 m, as well as in the fall arrest level.

① These scaffold ties are necessary in case of Bracket 74 without fall arrest and without side bracket supports (only with $L = 3.00 \text{ m}$).

Illustration 44: Through-passage frame in contur design implementation



2.5.8 Scaffold with bridging beams (Illustrations 45 to 48)

The bridging beams are used to support a SL70 frame. They are generally installed at +4 m. They are thus in the plain of the tubes of the frame and are connected so that the centrally-located tube connectors are at the same height with the frames. For the reception of the decks, a transom is to be arranged in the middle at the tube connectors for intermediate standing heights (Enclosure A, Page 50 of the Certification Z-8.1-29).

The bridging beams are to be anchored at the support frames and at the medium frame at least, with short scaffold ties according to Illustration 17. In the quarter points, anchoring is necessary in accordance with representation in Illustration 47. Alternatively, horizontal bracing can be installed according to Illustration 48.

The lower support frames are to be reinforced with cross braces (Enclosure A, Page 48 of the Certification Z-8.1-29). Alternatively, a tube with swivel couplers can be installed.

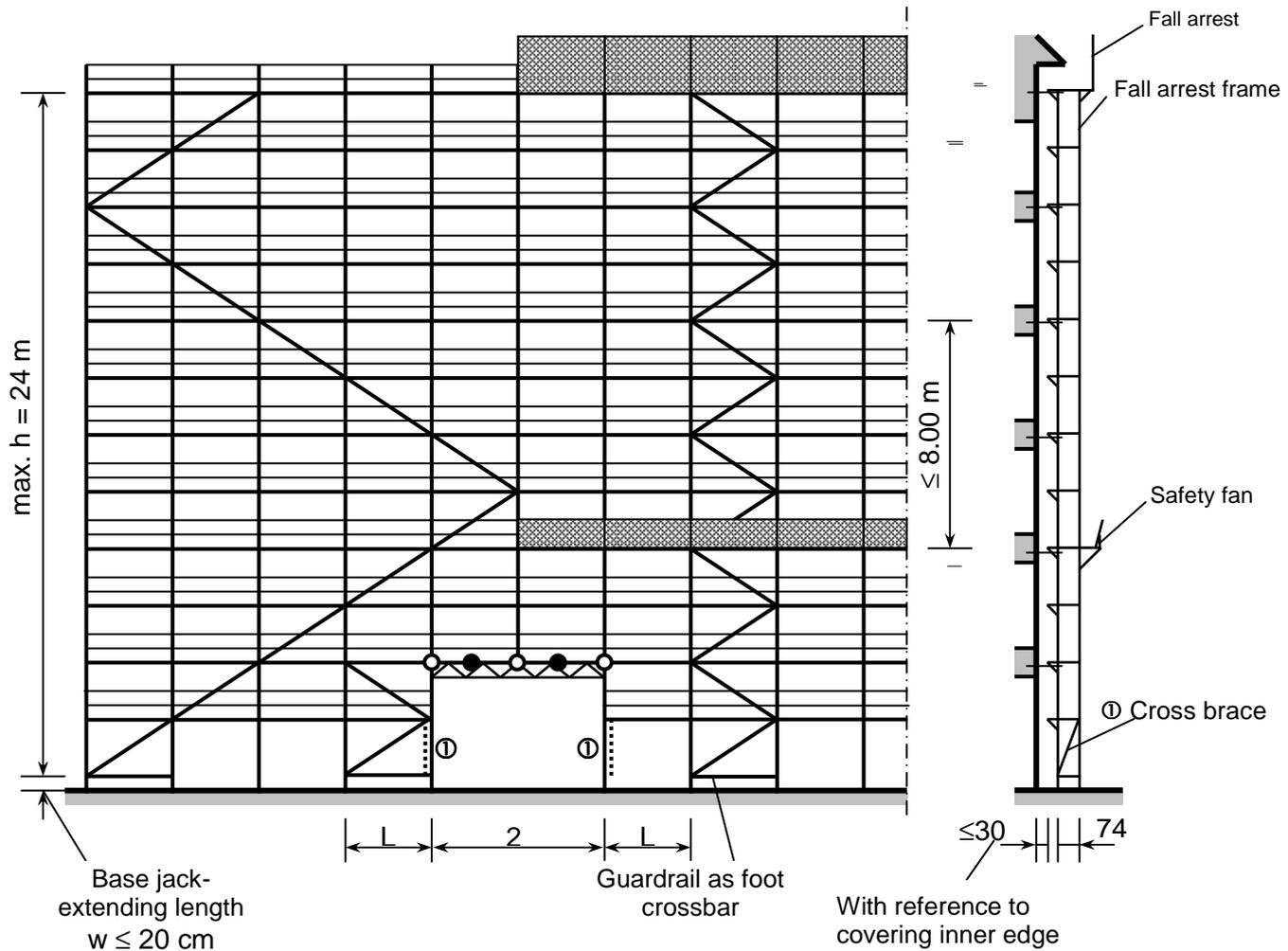
For the arrangement of the scaffold anchoring and the vertical diagonals, the installation variants are decisive (Illustrations 27 to 36). Up to the height of the bridging support, an additional diagonal is required per level.

Under the support frames of the bridging beams, the standard loads result depending on the structure height and the equipment permissible for the selected bay length in the load case "Operation", according to Table 6. The dead weight of the wood flooring is to be considered.

Table 6: Support forces under the bridging beams

Bay length	Standard	h = 24 m	h = 16 m	h = 8 m
2.50 m	inside	18.3 kN	14.5 kN	10.7 kN
2.50 m	outside	23.1 kN	19.9 kN	16.7 kN
3.00 m	inside	21.4 kN	17.0 kN	12.6 kN
3.00 m	outside	21.8 kN	18.6 kN	15.4 kN

Illustration 45: Variant with bridging beams 6.00 m



Bay length:

$L = 3.00$ m

Permissible equipment:

Inside Brackets 32 at every level, safety fan at arbitrary height (however always on an anchored level), alternatively fall arrest on the vertical frame or fall arrest frame.

Bracing:

Arrangement of the diagonals over max. 5 bays continuously, or as tower-shape in every 5th bay. From ± 0 to +4 m, additional diagonals are necessary as well as the bridging.

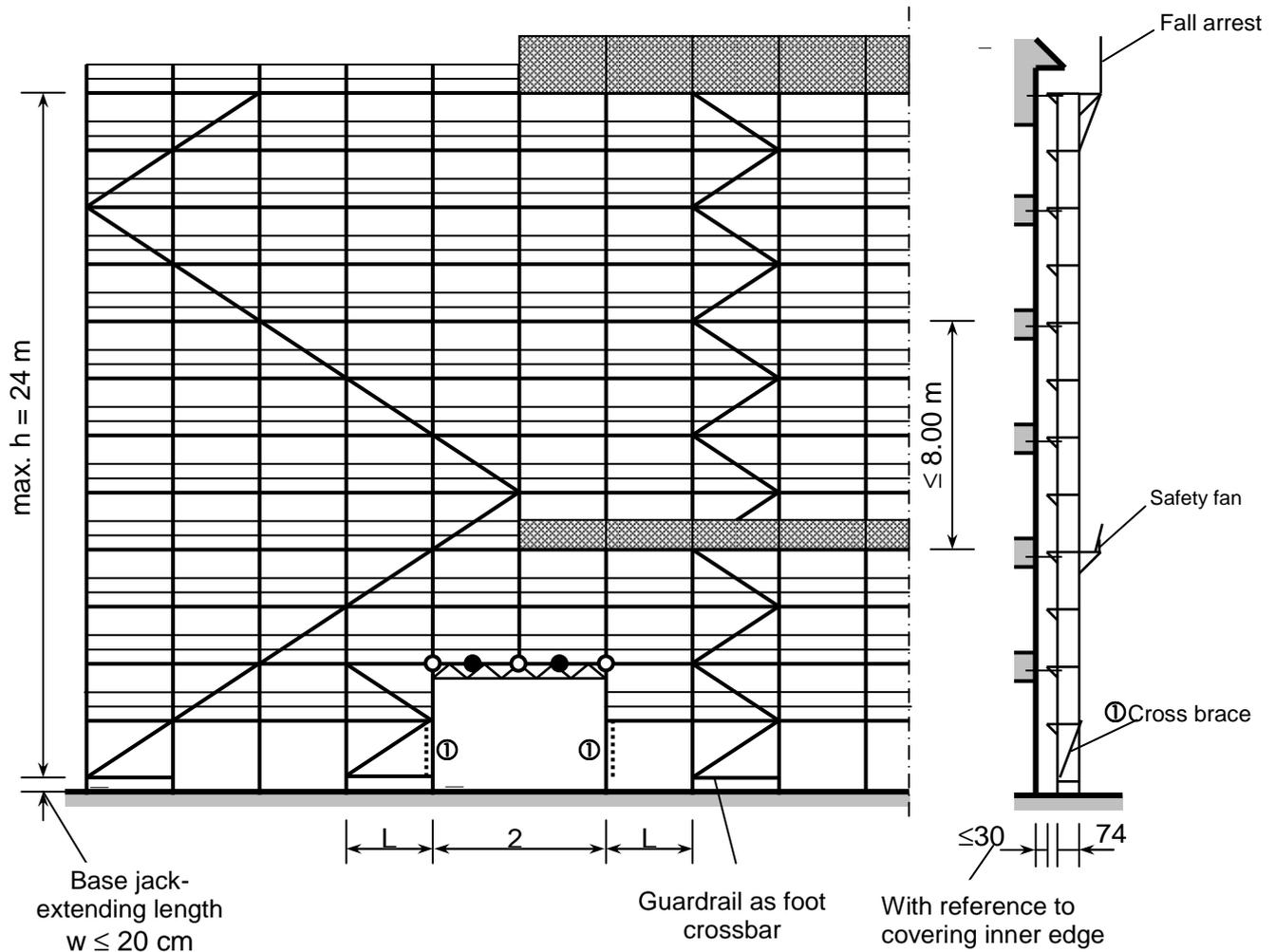
Anchoring of the scaffold:

See design variants Illustrations 27 to 36.

Anchoring of the bridging supports:

Frame area: Similar to scaffolding joints (O)
bridging support: see Illustration 47 (•)

Illustration 46: Variant with bridging beam 5.00 m (4.00 m)



Bay length:

$L = 2.50 \text{ m} / 2.00 \text{ m}$

Permissible equipment:

Inside Brackets 32 at every level,
safety fan at arbitrary height
(however always on an anchored level),
alternatively fall arrest on the vertical frame
or fall arrest frame or on Side Bracket 74.

Bracing:

Arrangement of the diagonals over max. 5 bays
continuously, or as tower-shape in every 5th bay.
From ± 0 to +4 m, additional diagonals are
necessary as well as the bridging.

Anchoring of the scaffold:

See design variants Illustrations 27 to 36.

Anchoring of the bridging supports:

Frame area: Similar to scaffolding joints (O)
bridging support: see Illustration 47 (•)

Illustration 47: Anchoring of the bridging beams

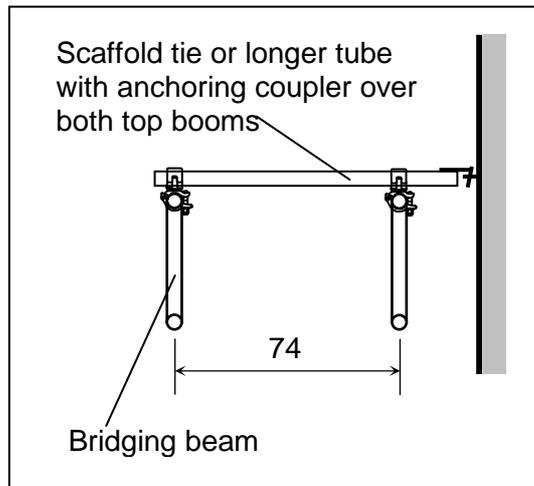
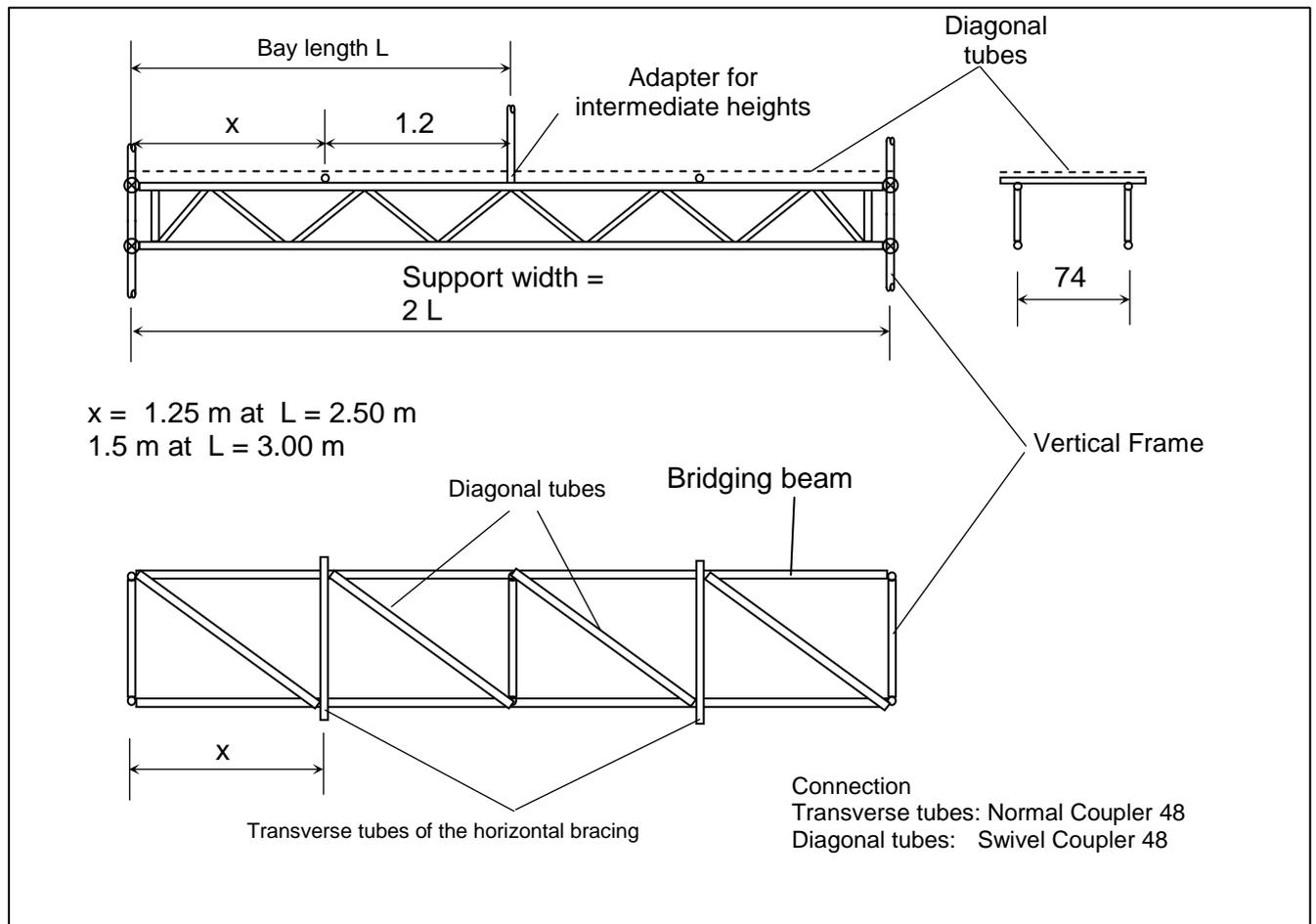


Illustration 48: Strengthening of the bridging supports with horizontal bracing

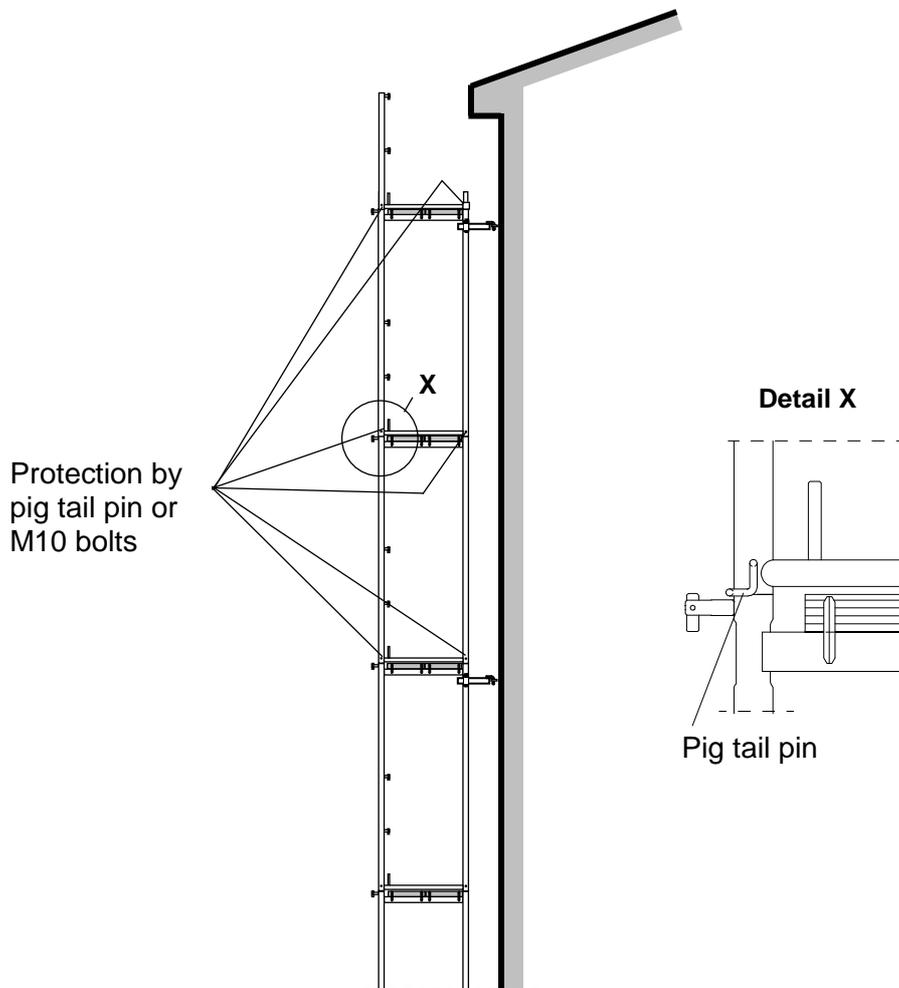


2.5.9 Protection of the scaffold parts against lifting out

The decks are secured against lifting up by the lower transom of the frame above. On the uppermost deck, this is taken over by the deck retainer of the guardrail support or the fall arrest support. With employment of the guardrail post, the upper deck retainer is to be installed additionally. Side bracket, walk through frame and safety fan are provided with special deck retainers.

A tension-proof connection of the SL70 frames to each other is not necessary for the take-up of wind loads acting exclusively horizontally. In case of wind loads acting upwards, a connection must be implemented in the upper area, however, by means of pig tail pins or hexagonal bolt M10 at the joints, in accordance with Illustration 49. Lifting wind loads occur e.g. in front of construction works with roof pitches $< 20^\circ$.

Illustration 49: Tension-proof connection of the scaffold



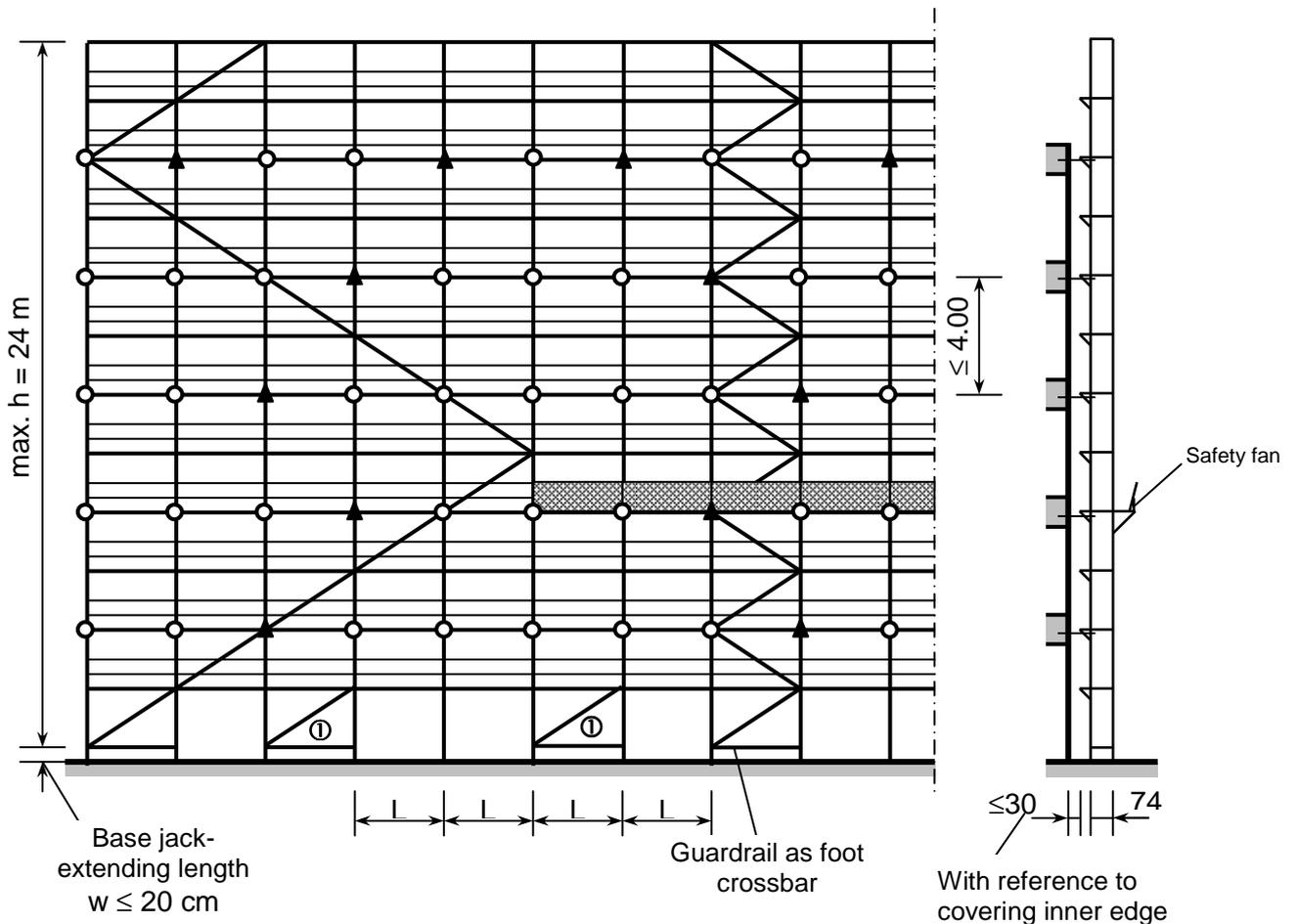
2.5.10 Free-standing scaffold levels above the last anchoring (Illustration 50)

A tension-proof connection of the frame located above is not necessary in case of the SL70 scaffold. Independently of the degree of opening of the facade, the following anchoring forces occur in the uppermost anchor level:

Right-angled: $F_{\perp} = 3.1\text{kN}$

Parallel: $F_{\parallel} = 3.5\text{ kN}$ (per triangular connection)

Illustration 50: Anchoring schematic



Bay length:

$L = 3.00\text{ m} / 2.50\text{ m} / 2.00\text{ m} / 1.50\text{ m}$

Decks:

Timber Decks,
Steel decks, alum. decks,
alum. decks 64,
alum. frame deck with alum. or plywood surface.

Permissible equipment:

Inside Brackets 32 at every level,
Safety fan at arbitrary height
(however always at an anchored level).

Anchoring:

-  Anchoring with short scaffold ties attached only at the inside stand (Illustration 17)
-  Anchoring with attached to the inside stand (Triangular connections (Illustration 19).

① With bay length 3.00 m, an additional diagonal from ± 0 to $+2\text{ m}$ is to be installed for every 5 bays.

Bracing:

Arrangement of the diagonals over max. 5 bays continuously, or as tower-shape in every 5th bay.

3. Dismantling of the SL70 facade scaffolding

For the dismantling of the SL70 scaffold, the sequence of operation steps, as described in Section 2.1 to 2.5, is to be applied in reverse.

The anchoring may be removed only if the complete scaffold situation above it has been dismantled. Parts whose joints and fastenings have been loosened are to be removed immediately.

Removed scaffold parts may not be placed on the traffic route to avoid danger of tripping

Removed scaffold parts must not be thrown off the scaffold.

4. Utilization of the SL70 facade scaffolding

The SL70 scaffold may be employed according to the Load Class 3, subject to observation of this assembly guide, as well as in accordance with the stipulations of Health and Safety Guidelines, as work and protection scaffold.

The scaffold user must check the suitability of the selected installation variant of the SL70 scaffold for the work to be implemented and for secure function. He has to ensure that the scaffold is checked for obvious defects before use. If defects are determined during the check, the scaffold must not be used in the areas with defects until repair by the scaffold construction contractor. Subsequent changes to the scaffold are valid as assembly, conversion or dismantling work and may be carried out only by specialist employees. They are to be checked and approved by the scaffold construction contractor.

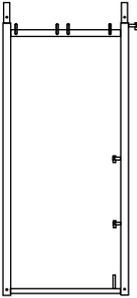
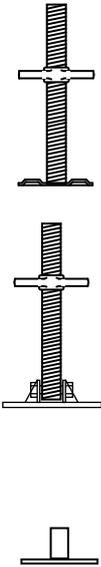
The inspections are to be repeated after extraordinary events, e.g. longer time of non-use, accidents or natural events acting on the scaffold.

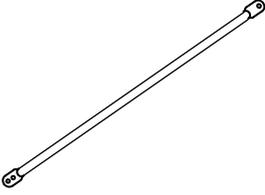
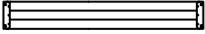
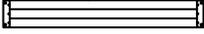
It is recommended to document the results of the inspections in the form of an inspection report (see Appendix 2) and to keep this at least three months after the duration of the scaffold life.

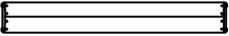
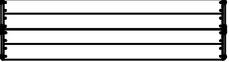
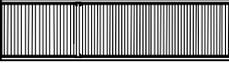
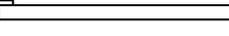
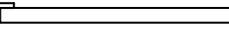
Appendix 1

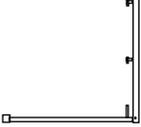
List of the parts

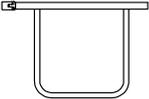
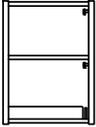
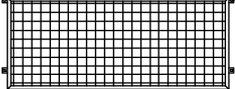
The component weights listed in Appendix 1 apply for the generation of static calculations and can deviate from the specifications in other documents (e.g. price lists).

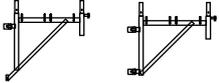
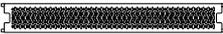
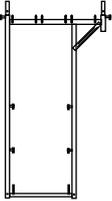
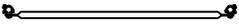
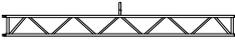
Foundation parts				
Item	Description	G (kg)	Enclosure A Page (of Certification Z-8.1-29)	Illustration
1	Vertical frames T = 3.2 mm H = 2.00 m H = 1.50 m H = 1.00 m H = 0.50 m	20.0 16.4 12.4 8.8	1.2	
2	Vertical frames T = 2,7mm H = 2.00 m H = 1.50 m H = 1.00 m H = 0.50 m	18.3 15.2 11.7 8.5	3.4	
3	Vertical frame (old implementation)		5	
4	Base jack 0.40 m 0.60 m 0.80 m	2.5 3.1 3.8	6	
5	Base jack, tilting	5.8	7	
6	Base jack (old implementation)		8	
7	Base plate	1.6	9	

Foundation parts					
Item	Description	G (kg)	Enclosure A Page (of Certification Z-8.1-29)	Illustration	
8	Vertical diagonal	1.50 * 2.00 m	7.6	10	
		2.00 * 2.00 m	8.6		
		2.50 * 2.00 m	9.7		
		3.00 * 2.00 m	10.9		
		1.50 * 1.50 m	6.5		
		2.50 * 1.50 m	8.9		
		3.00 * 1.50 m	10.2		
		1.50 * 1.00 m	5.5		
		2.00 * 1.00 m	6.8		
		2.50 * 1.00 m	8.2		
3.00 * 1.00 m	9.6				
9	Vertical diagonal (old implementation)		11		
10	Diagonal fixing bracket		10		
11	Timber Deck d = 48 mm	L = 0.74 m	6.8	12,13	
		L = 1.06 m	9.8		
		L = 1.50 m	13.8		
		L = 2.00 m	18.4		
		L = 2.50 m	23.0		
		L = 3.00 m	27.7		
12	Timber Deck d = 44 mm	L = 0.74 m	6.2	14	
		L = 1.06 m	8.9		
		L = 1.50 m	12.6		
		L = 2.00 m	16.9		
		L = 2.50 m	21.1		
13	Timber Deck (old implementations)		15		
14	Steel Deck	L = 0.74 m	6.1	16	
		L = 1.06 m	8.1		
		L = 1.50 m	11.2		
		L = 2.00 m	14.3		
		L = 2.50 m	17.4		
		L = 3.00 m	20.9		
15	Steel Deck (old implementation)		17		

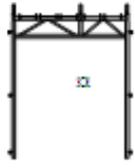
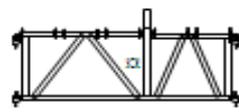
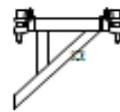
Foundation parts					
Item	Description	G (kg)	Enclosure A Page (of Certification Z-8.1-29)	Illustration	
16	Alum. Deck 32 with polyamide head connector	L = 1.50 m	6.8	18	
		L = 2.00 m	8.9		
		L = 2.50 m	11.0		
		L = 3.00 m	13.1		
17	Alum. Deck 32 (old implementation)		19		
18	Alum. Deck 64 with polyamide head hardware	L = 1.50 m	11.9	20	
		L = 2.00 m	15.7		
		L = 2.50 m	19.5		
		L = 3.00 m	23.3		
19	Alum. frame deck with aluminum surface	L = 1.50 m	11.3	21	
		L = 2.00 m	15.0		
		L = 2.50 m	18.8		
		L = 3.00 m	22.5		
20	Alum. deck with plywood surface	L = 2.50 m	20.0	22	
		L = 3.00 m	23.9		
21	Alum. deck with plywood surface (old implementation)		23		
22	Scaffold tie	L = 0.40 m	1.7	24	
		L = 0.50 m	2.1		
		L = 1.10 m	4.3		
		L = 1.30 m	5.0		
		L = 1.50 m	5.7		
23	Clearance tie	3.7	24		
24	Scaffold tie (old implementation)		25		

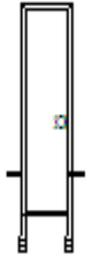
Side protection parts				
Item	Description	G (kg)	Enclosure A Page (of Certification Z-8.1-29)	Illustration
25	Guardrail L = 0.74 m L = 1.06 m L = 1.50 m L = 2.00 m L = 2.50 m L = 3.00 m	1.3 1.8 2.6 3.4 4.2 6.4	26	
26	Guardrail (old implementation)		11	
27	Double Guardrail (Double railing) L = 1.50 m L = 2.00 m L = 2.50 m L = 3.00 m	6.6 8.2 10.6 15.7	27	
28	Double Guardrail (old implementation)		28	
29	Guardrail Post	4,9	29	
30	Guardrail Support SL70 SL100		30	
31	Deck Retainer SL70 SL100	2.1 2.7	29	

Side protection parts				
Item	Description	G (kg)	Enclosure A Page (of Certification Z-8.1-29)	Illustration
32	End Guardrail	2.2	31	
33	Double End Guardrail	3.9	31	
34	End Guardrail (old implementations)		32	
35	Top End Guardrail Frame SL70 SL100	14.4 16.8	33	
36	Top End Guardrail Frame (old are implemented.)		34	
37	Toeboard L = 0.74 m L = 1.06 m L = 1.50 m L = 2.00 m L = 2.50 m L = 3.00 m	2.1 2.9 4.1 5.5 6.8 8.2	35	
38	End Toeboard	1.4	35	
39	Toeboard (old implementations)		36,37	
40	Fall arrest Mesh L = 1.50 m L = 2.00 m L = 2.50 m L = 3.00 m	14.5 18.0 21.5 25.0	38	 
41	Fall Arrest Support SL70 SL100	10.6 11.5	39	

Extension parts				
Item	Description	G (kg)	Enclosure A Page (of Certification Z-8.1-29)	Illustration
42	Side Bracket 32	5.5	40	
43	Side Bracket 32 (old implementation)		41	
44	Side Bracket 64	8.0	42	
45	Deck Retainer for Bracket 64	2.7	42	
46	Side Bracket 74	13.1	43	
47	Bracket Support for Widening Bracket 74	8.3	44	
48	Steel Filler for Side Bracket 74 L = 1.50 m L = 2.00 m L = 2.50 m L = 3.00 m	8.0 10.8 13.3 16.0	45	
49	Fall arrest frame	24.3	46	
50	Safety fan bracket with deck retainer	6.7	47	
51	Cross Brace For Vertical Frames	7.6	48	
52	Bridging Beam L = 4.00 m L = 5.00 m L = 6.00 m	42.2 50.8 59.9	49	

Extension parts				
Item	Description	G (kg)	Enclosure A Page (of Certification Z-8.1-29)	Illustration
53	Adapter for Intermediate Heights	4.4	50	
54	Intermediate Transom	4.6	50	
55	Intermediate Transoms (old implementation)		51	
56	Deck Retainers for Intermediate Transoms	3.3	52	
57	Alu Staircase Transom	3.3	53	
58	Alum. Access Deck With Alum. Surface L = 2.50 m L = 3.00 m	24.5 28.1	54, 55 56, 60	
59	Alum. Access Deck With Plywood Surface L = 2.50 m L = 3.00 m	24.3 28.0	57, 58 59, 60	
60	Alum Access Deck With Plywood Surface (old)		61	
61	Horizontal Steel Frame L = 1.50 m L = 2.00 m L = 2.50 m L = 3.00 m	14.5 17.3 22.0 24.6	62	
62	Timber Access Panel w. Hatch L = 1.50 m L = 2.00 m L = 2.50 m L = 3.00 m	16.9 22.1 27.2 32.4	63	
63	Internal Steel Ladder	11.7	64	

Extension parts				
Item	Description	G (kg)	Enclosure A Page (of Certification Z-8.1-29)	Illustration
64	Walk Through frame 70/110 (one-piece)	38.0	65	
65	Deck Retainer 110	3.4	65	
66	Lattice Girder SL For Pedestrian Passage	21.2	66	
67	Vertical Standard for pedestrian passage L = 2.50 m	11.5	67	
68	Ledger for pedestrian passage L = 1.50 m 5.8 L = 2.00 m 7.5 L = 2.50 m 9.2 L = 3.00 m 10.9		68	
69	Vertical diagonal for transition 70/110 1.50 * 2.00 m 9.2 2.00 * 2.00 m 10.2 2.50 * 2.00 m 11.3 3.00 * 2.00 m 12.5		69	
70	Bracket 40 for pedestrian passage 70/110	3.3	70	

Extension parts				
Item	Description	G (kg)	Enclosure A Page (of Certification n Z-8.1-29)	Illustration
71	Coupler with gravity pin	0.6	71	
72	Pig Tail Pin	0.1	72	
73	Post For Advanced Guardrail	5.8	73	
74	Advanced Guardrail Stringers L = 1.50 m 3.4 L = 2.00 m 3.7 L = 2.50 m 4.0 L = 3.00 m 4.3		74	
75	Front side frame railing Advance Guardrail	6.0	75	



Appendix 2

Inspection report for work and protection scaffolds

Here: Facade scaffolding plettac SL70

(acc. to § 10 and 11 Health and Safety Guidelines)

Contractor:
Scaffold installer:
Project:

Date:

Scaffolding type:

Work scaffolding	<input type="radio"/>	Safety fan	<input type="radio"/>
Protective scaffold	<input type="radio"/>	Fall arrest scaffold	<input type="radio"/>

Scaffolding class: Load class Width class

Front covering: Nets Canvas none

Scaffold parts: Intended purpose: Obviously undamaged *

Stability:

Load-bearing capacity of the placement area (Item 2.2.1 of this doc) *

Base jack extension length (Item 2.2.2 of this doc) *

Height equalization (Item 2.2.3 of this doc) *

Foot crossbar in the diagonal bays (Item 2.2.5 of this doc) *

Vertical diagonals (Items 2.2.5 and 2.4.6 of this doc) *

Walk Through frame (Item 2.5.7 of this doc) *

Bridging Beams (Item 2.5.8 of this doc) *

Anchoring (Items 2.4.8 to 2.4.11 of this doc) *

Anchoring forces, see Table 2 of this doc

* Cross off when checked and functional



Decks:

System decks (according to Table 1 of this doc)

*

Inspection
Report
Page 2

Work and operation safety:

Side protection (Item 2.4.7 of this doc)

*

Wall distance

*

Ascent, accesses (Item 2.4.5 of this doc)

*

Corner formation (Item 2.3.2 of this doc)

*

Brackets (Item 2.5.3 of this doc)

*

Fall arrest in the fall arrest scaffold (Item 2.5.5 of this doc)

*

Traffic safety, lighting

*

Transfer plan to contractor for use

*

* Cross off when checked and functional

Inspection of the SL70 scaffold concluded, the identification label is attached as represented.

Work scaffolding according to
EN 12811-
Width class W06
Load class 3
Uniformly distributed max. load
2.00 kN/m²
Date of the inspection

Scaffold Building Operation•
12345 Anyplace
Tel. 1234-123 456

Remarks

Date

Signature (authorized person)

Date

Signature (Contractor)

Changes to the
SL70 scaffold
may be
implemented only
by the scaffold
installer

Appendix 3

Check list for the scaffold user for the verification of work and protection scaffold

Here: plettac SL70 facade scaffolding

Scaffold user:

Date:

Scaffold installer:

Project:

Verification	Without defect	Defect (which one)
Intended purpose (suitable e.g. for brick work, plaster work and painting work)		
Is the scaffold identified by label at visible location (e.g. ascent)? <ul style="list-style-type: none"> • Work scaffolding and/or protective scaffolding according to DIN EN 12811-1/DIN 4420-1 • Load class and load-bearing capacity, width class • Scaffold installer 		
Were inspection and approval documented? (e.g. by inspection report or identification acc. to Appendix 2)		
Standing and support safety		
Is the standing and support safety confirmed by the contractor at the time of the respective operational startup?		
Work and operational safety		
Are secure accesses or ascents existing, such as e.g. ladder walkways located inside or stair towers?		
Is every used scaffold level laid with system decks over entire surface? (Two 32 cm wide decks or one board 64 cm wide)		
Are the decks there secured against lifting where this does not come about automatically? (uppermost level, brackets)		
Is the gap between scaffold deck and Bracket 74 decking(safety fan, fall arrest scaffold) closed?		

Verification	Without defect	Defect (which one)
Are the decks with the surrounding of a construction works corner surrounding in full width?		
Are the decks undamaged, e.g. not split, notched, rotted?		
Are all scaffold levels at more than 2.00 m fall height provided with a 3-part side protection? (Guardrail, Midrail, Toeboard)		
Is the 3-part side protection also attached at face sides and openings?		
Is a maximum distance of the covering edges to the wall of 30 cm kept? (otherwise, side protection is also necessary here)		
Requirements on enclosure and fall arrest scaffold		
Is the covering surface fully covered in case of the fall arrest scaffold?		
Is the covering of the fall arrest scaffold not more than 1.50 m under the eaves edge?		
Is the separation distance between fall arrest and eaves edge at least 0.70 m?		
Does the fall arrest consist of approved nets or braided fabrics?		
With employment as a protective scaffold, is the covering surface laid with at least with three 32 cm wide coverings?		
Is the decking level of the protective scaffold not more than 2.00 m under the fall edge?		
Other requirements		
Are live lines and/or devices in the scaffold area switched off, covered or access-restricted?		
Is the lighting for the protection of public traffic guaranteed?		
Does a safety fan exist for the scaffold with employment in the public area?		

Date

Signature (authorized person)

Check list for the scaffold user Page 2