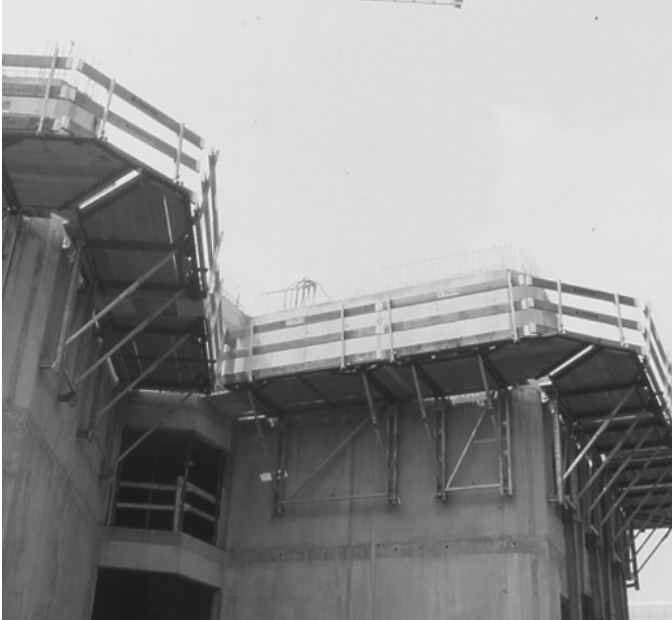




Working platform KAB 190

Technical Instruction Manual



Product features

The working platform KAB is a working and safety scaffold that can be used for all kinds of buildings. It enhances the work safety and ensures a safe walking and working area for the inside and outside of buildings.

The KAB consists of prefabricated fold-up brackets, planking and fold-up guard-railing. These components can be used together or separately as a working or safety scaffold according to DIN 4420, part 1.

When used alone, the working platform supports a load of 600 kg/m² (scaffolding group 6 according to DIN). However, if formwork is placed on and supported by the working platform, its admissible load is reduced to 300 kg/m² (scaffolding group 4).

The working and safety scaffold can be attached

- at normal position
- up to 100 cm above normal position (in increments of 5 cm)
- exactly 100 cm below normal position

By attaching the scaffold below normal position, it can be used as a safety scaffold beneath eaves. In this case the extension for guard-railing KAB is attached to extend the guard-railing to a height of 2,00 m.

Wall openings at the bottom of the brackets can be bridged with wood or steel girders up to a width of 3.80 m. Formwork may be placed onto and braced on the platform.

The working platform is easy to transport. The steel parts are galvanized and have a long lifespan.

Abbreviations, measurements, figures and tables

The abbreviation KAB is used for the working platform KAB 190.

DIN means Deutsche Industrie-Norm (German Industrial Standard).

E DIN (E = Entwurf / draft) means that the DIN is in draft status and not yet approved of. Any further abbreviations are explained where they are used the first time.

Measurements: This manual uses the metric system and thus m (for metre), cm (for centrimetre) and mm (for millimetre). Dimensions without a measure are in cm.

Decimal numbers: Note that the comma is used in a decimal numbers, e.g. 1,5 means 1 and a half.

The page numbers in this manual starts with the product abbreviation KAB. The figures and tables are numbered per page. Depending on its product abbreviation, a cross reference in the text refers to a page, table or figure in this or in another manual.



Please note

This Technical Instruction Manual contains information, instructions and hints describing how to use the MEVA equipment on the construction site in a proper, quick and economic way. Most examples shown are standard applications that will occur in practice most often. For more complicated or special applications not covered in this manual, please contact the MEVA experts for advice.

When using our products the federal, state and local codes and regulations must be observed.

Please observe the assembly instructions that your local contractor or employer has created for the site on which the MEVA equipment is used. Such instructions are intended to minimise site-specific risks and must contain the following details:

- The order in which all working steps including assembly and disassembly must be carried out
- The weight of the system parts
- The type and number of ties and braces as well as the distance between them
- The location, number and dimensions of working scaffolds including working area and fall-down protection
- Pick points for the transport of the system components by crane. Please observe this Technical Instruction Manual. Any deviation will require static calculations.

Important: Generally, only well maintained material may be used. Damaged parts must be replaced. Apply only original MEVA spare parts for replacement.

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Types of application

The working platform KAB 190 can be used as a working and/or safety scaffold. Depending on its use, different requirements must be fulfilled. When using the KAB simultaneously as a working and a safety scaffold, the higher requirements must be fulfilled.

■ Use as a working scaffold

According to DIN 4420, the working scaffold must support the load of the workers, their tools and the (construction) material that is required.

■ Use as a safety scaffold

When used as a safety scaffold, the scaffold protects persons against a deep fall. The scaffold can also be used to protect persons, machinery, material and other items below the scaffold from items that may fall down.

Scaffold suspension

Depending on the scaffold group and formwork placement, the scaffold can be suspended with loops or must be suspended with climbing cones.

Depending on the live load, DIN 4420 distinguishes the following scaffold groups

Scaffold group	Live load in kg per square metre
1	—
2	150
3	200
4	300
5	450
6	600

Table 4.1

The admissible type of suspension depends on the scaffold group and formwork placement

Scaffold group	With loops	With cones
1 to 4	Yes	Yes
5 and 6	No	Yes
With formwork *)	No	Yes

Table 4.2

*) Irrespectively of the scaffold group, a scaffold with formwork on top of it must always be suspended with climbing cones.



Fig. 4.3

Suspension with loops



Fig. 5.1

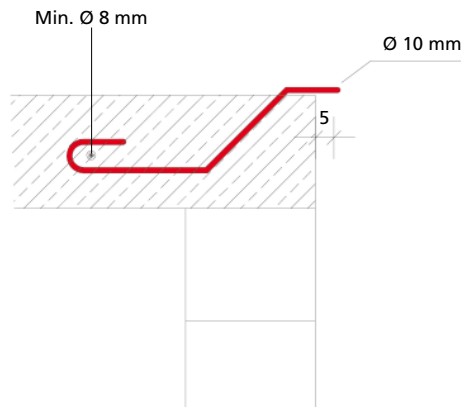


Fig. 5.2

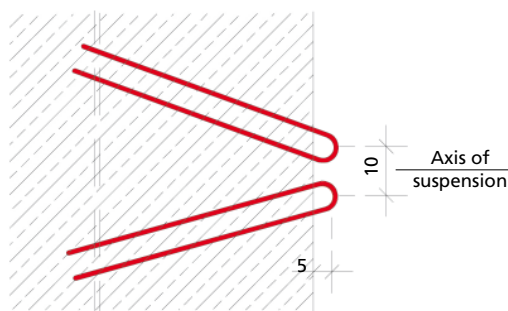


Fig. 5.3

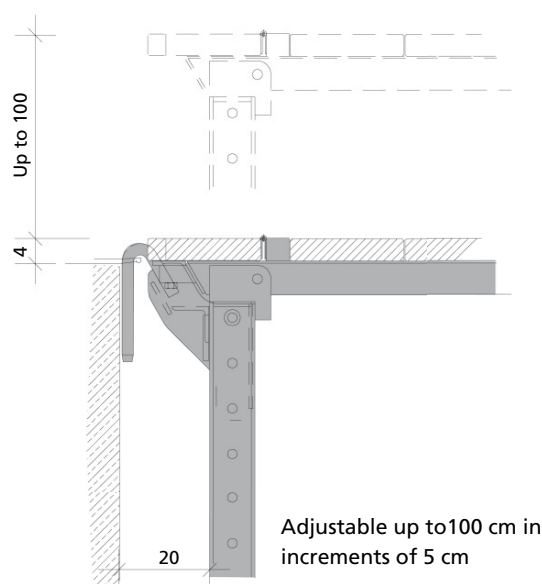


Fig. 5.4

A scaffold can be suspended with loops if it is used as a working and/or safety scaffold within scaffold groups 1 through 4 and a maximum load of 3 kN/m². However, with formwork on top of the KAB 190, a climbing cone suspension – instead of a loop suspension – is mandatory.

The loops must be placed into the reinforcement (Fig. 5.2). Each suspension requires 2 loops (Fig. 5.3). Make sure to install the loops precisely into the reinforcement to guarantee the scaffolds can be suspended in a proper way (Fig. 5.1 and 5.4).

Attention

Do not suspend a platform unless you have received evidence from the constructor or responsible staff that the wall or building part on which the platform is suspended supports the additional load of the platform.

Description	Ref. No.
Suspension loop 10	29-419-70

Suspension with climbing cones

This type of suspension must be used if the load is $\geq 3,0 \text{ kN/m}^2$ or if, irrespectively of the load and scaffold group, formwork is on top of the platform, see p. KAB-20. The shoe adapter is attached with the integrated pins (Fig. 6.1 and 6.4). The maximum load is 6.0 kN/m^2 (scaffold group 6). Free slab edges require an additional reinforcement (with details obtainable from the structural designer), see fig. 6.3. Make sure the concrete has set to 15 N/mm^2 before suspending the platform.

Attention

Do not suspend a platform unless you have received evidence from the constructor or responsible staff that the wall or building part on which the platform is suspended supports the additional load of the platform. Before suspending the platform at a wall containing an insulation, clarify the technical details with a MEVA specialist.

Note

For the minimum dimensions and spacing of the climbing cones check the codes and regulations issued by the local authorities.



Fig. 6.1

Minimum reinforcement according to static calculation

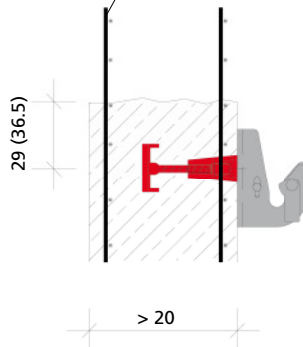


Fig. 6.2 Suspension in the wall

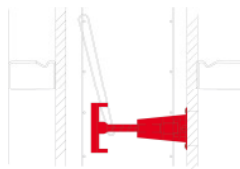
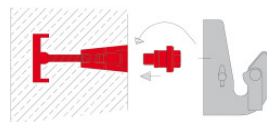


Fig. 6.4 Installation of the climbing cone



The suspension screw must be tightly attached

Fig. 6.5 Connection of the suspension shoe

The dimensions in figures 6.2 and 6.3 refer to the use of anchor plate 15/120 and those in parentheses to anchor plate 15/170 according to the German General Construction Permission Z-21.6-1751. If based on expert static calculations, you can opt for less spacing.

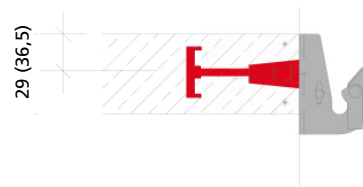


Fig. 6.3 Suspension at free slab edge (supported)

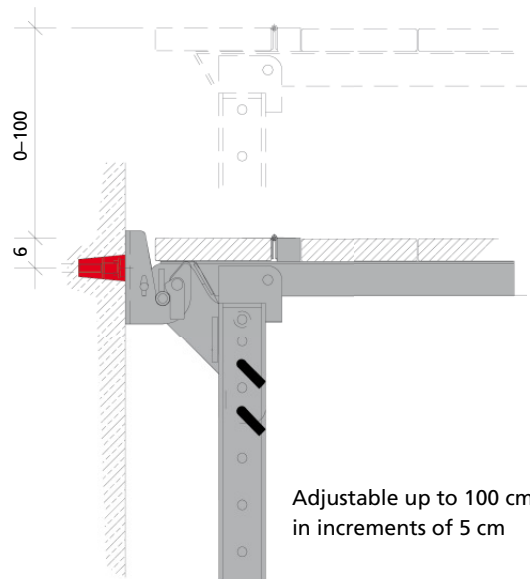


Fig. 6.6

Attention: When using existing anchors for the attachment of the platform KAB, make sure the attachment accessories such as loops and climbing cones are always placed on the wall side on which the platform is placed.

Description	Ref. No.
Suspension shoe KAB..	79-419-55
Climbing cone	
15/M24	29-412-70
Suspension screw	
M24	29-412-80
Positioning disc M24...	29-412-85
Combination spanner	29-411-85
Anchor plate 15/12.....	29-412-30
Anchor plate 15/17.....	29-412-35

Layout and arrangement of platforms

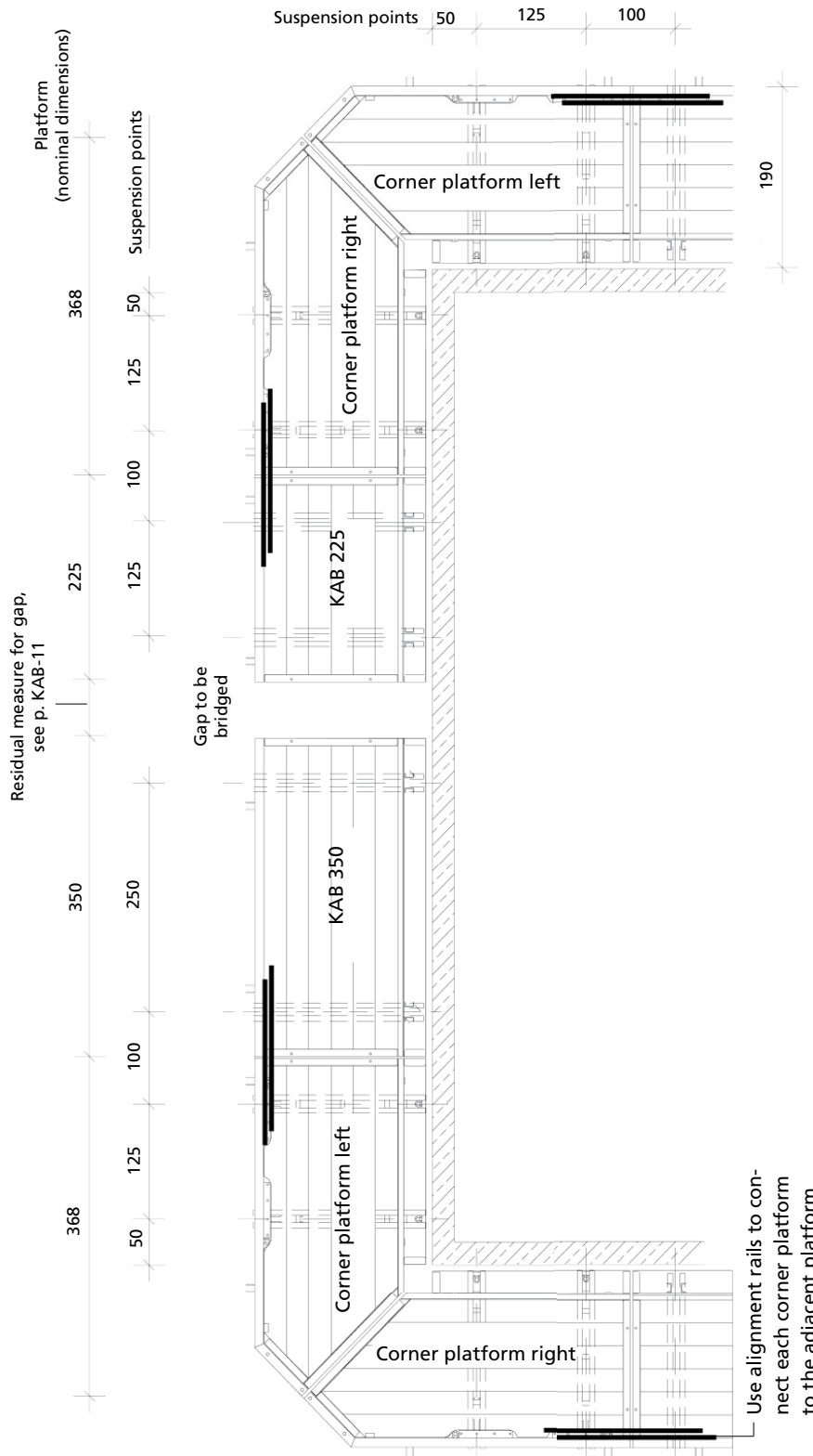


Fig. 7.1

When planning the layout and arrangement of the platforms, always start at a corner (Fig. 7.1).

Gaps with a maximum width of 1,25 m (working scaffold) or 1,10 m (safety scaffold) are bridged on-site with a job-built solution.

If the platform is not all-around, a side railing must be attached with 2 flange screws 18 at each platform end.

Description	Ref. No.
Working platform	
KAB 190/350	79-418-00
KAB 190/225	79-418-10
Corner platform left....	79-418-35
Corner platform right..	79-418-40
Side railing 190 KAB ...	79-419-40
M alignment rail 180 ..	29-400-92
Flange screw 18	29-401-10

Layout and arrangement of platforms

By screwing off and removing the guard-railing, a platform KAB 190/225 located at an inside corner is turned into an inside corner platform (Fig. 8.1). The gap in the guard-railing to the adjacent platform must be closed with a job-built railing.

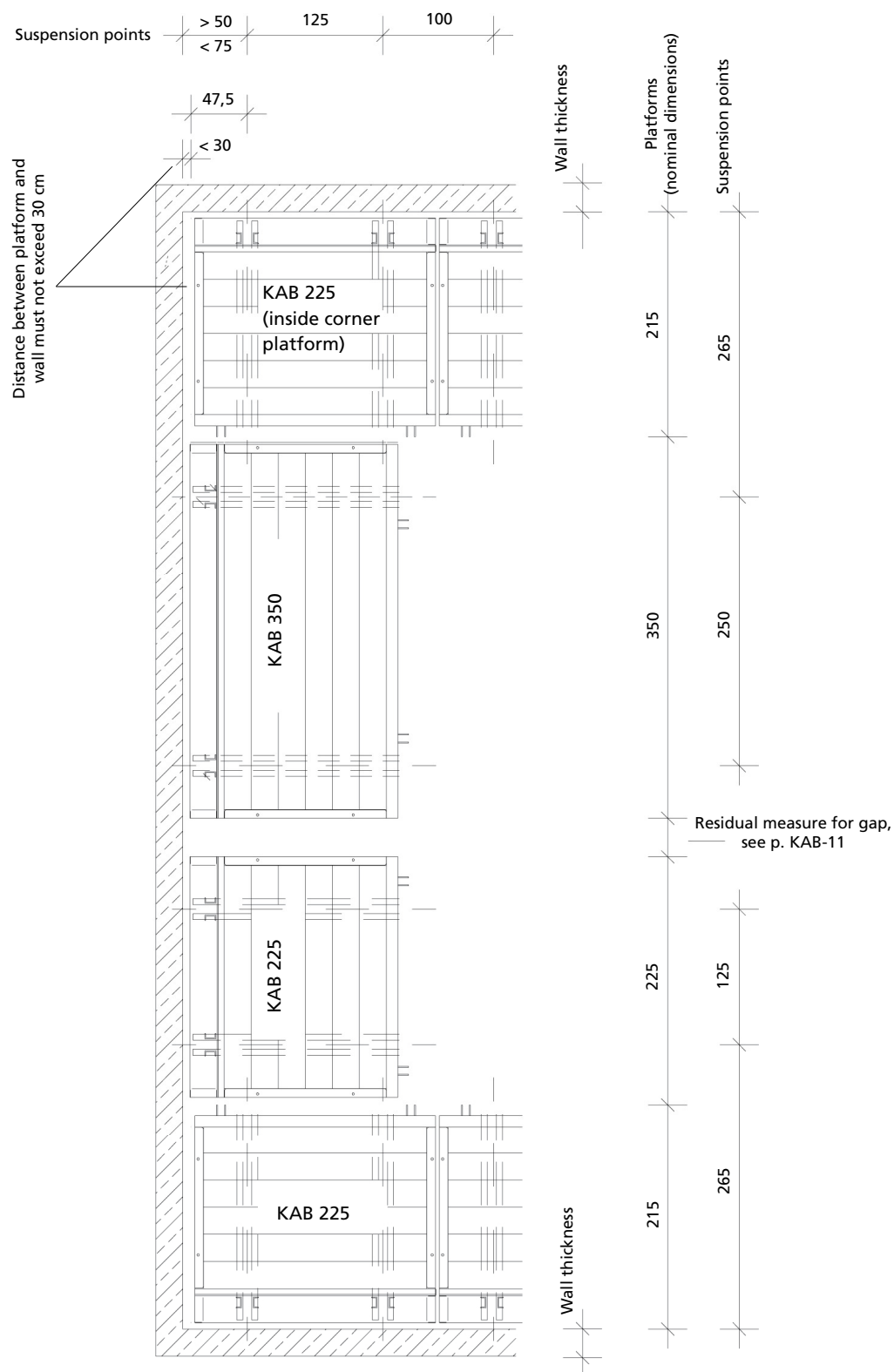


Fig. 8.1

Corner configurations with corner platforms



Fig. 9.1

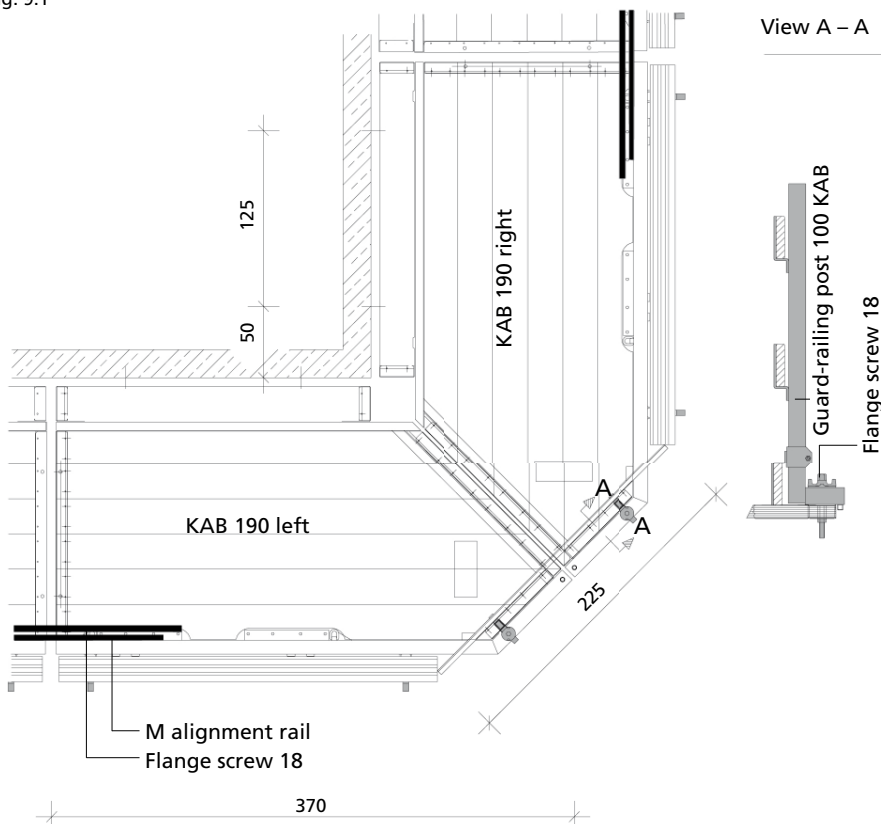


Fig. 9.2

Corner platforms can be used for rectangular, obtuse and acute angled building corners (Fig. 9.1).

The guard-railing is installed with 2 guard-railing posts and 3 planks, and attached with 2 flange screws 18 at the nuts that are welded in the frame of the platform. For safety reasons attach the guard-railing posts before suspending the platform.

Connect the corner platform with an M alignment rail 180 with the adjacent platform before exposing it to load (Fig. 9.2).

Attention

When a corner platform is suspended and does not have an adjacent platform because that platform is not yet suspended, secure the corner platform so it cannot tilt.

Description	Ref. No.
Corner platform KAB 190	
left	79-418-35
right	79-418-40
Guard-railing post	
100 KAB	79-419-75
Flange screw 18	29-401-10
M alignment rail 180 ..	29-400-92

Side railing

A side railing must be attached with 2 flange screws 18 at the platform end (Fig. 10.1 and 10.2).

If the platform is a secondary platform, side railing 85 KAB must be attached at its end.



Fig. 10.1

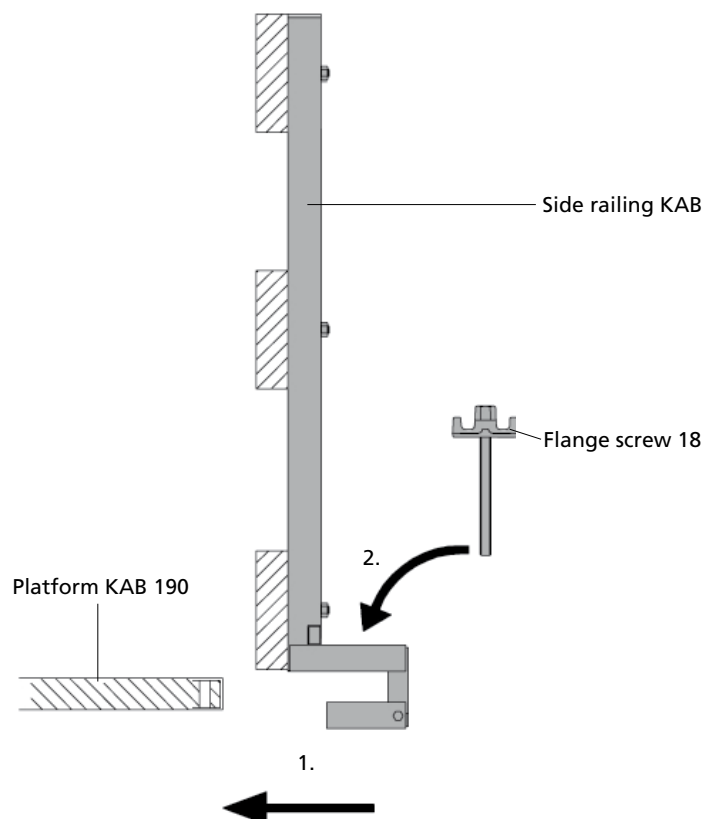


Fig. 10.2

Description	Ref. No.
Side railing	
190 KAB	29-419-40
85 KAB	29-419-45

Bridging gaps between platforms

Maximum residual measure of gap: max. 1,25 m for a working scaffold or max. 1,10 m for safety scaffold

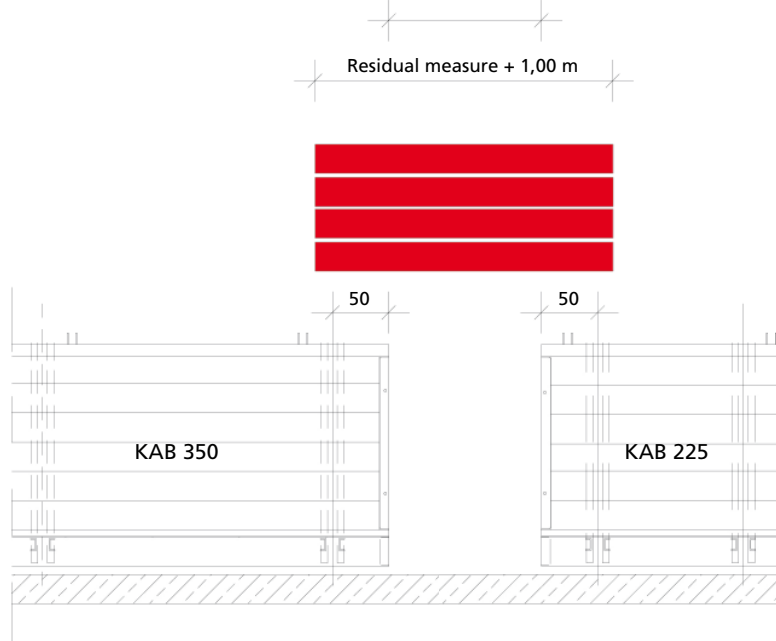


Fig. 11.1

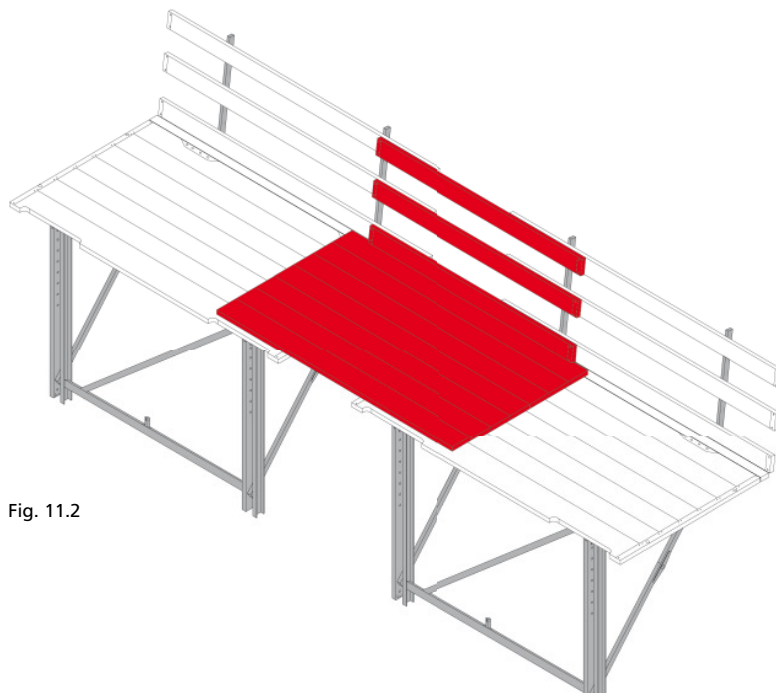


Fig. 11.2

Gaps can be closed on site by bridging them with planks that are secured against sliding (Fig. 11.1).

Working scaffolds allow for a maximum gap of 1,25 m while safety scaffolds allow for a maximum gap of 1,10 m when using planks that are sized 28 by 4,5 cm

With a gap exceeding 1,10 or 1,25 m, you have 2 options:

- Rearrange the platform layout so the gap does not exceed 1,10 or 1,25 m.
- Or "split" the gap into two by attaching a single bracket in the center of the gap so that neither gap exceeds 1,10 or 1,25 m.

The planks that bridge a gap must be at least 1,00 m longer than its residual measure so they can be supported by the brackets of the platform (Fig. 11.1 and 11.2).

The gap in the guard-railing must be closed with platform planks (Fig. 11.2).

Platform assembly

The below step numbers also refer to the numbers in fig. 12.2 and 12.4.

1. Bring the railing into a vertical position.
2. Make sure the fold-up plank is folded back as shown in fig. 12.2 and 12.4.
3. Loosen and remove the flange screw acting as a transport lock.
4. Attach the four crane slings.
5. Lift the platform and it will unfold.
6. Make sure sliding sheet A has slid into the safety lock position.
7. Attach the spacer KAB.
8. Attach the loop or shoe adapters at the required height.

Now the platform can be lifted and suspended to the wall.

Disassembly

To disassemble the platform, proceed in the opposite order.



Fig. 12.1

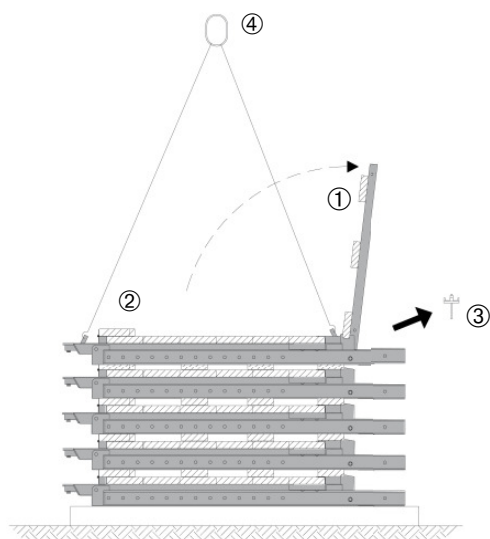


Fig. 12.2

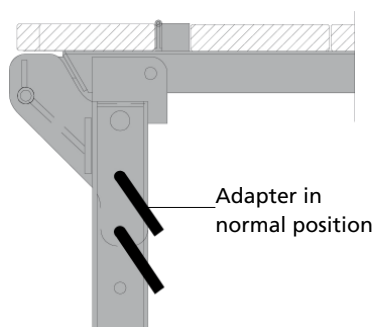


Fig. 12.3

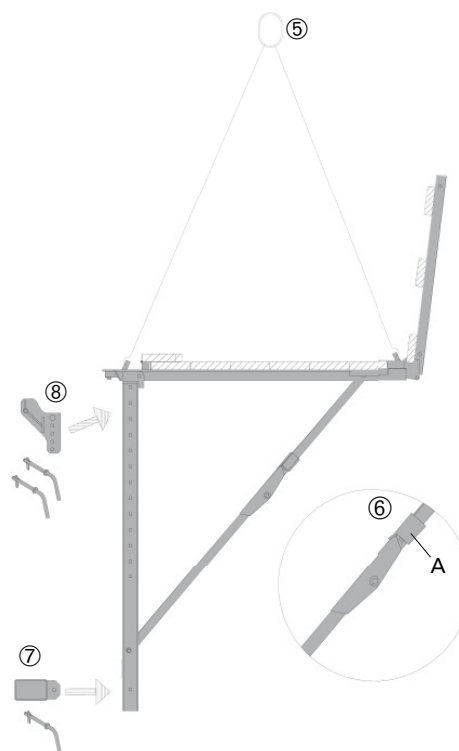


Fig. 12.4

Description	Ref. No.
Loop adapter KAB.....	79-419-20
Shoe adapter KAB.....	79-419-25
Spacer KAB	29-419-30

Suspending and securing the platform

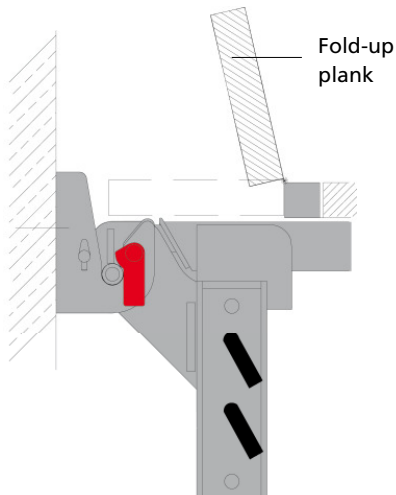


Fig. 13.1 Uplift protection, locked position

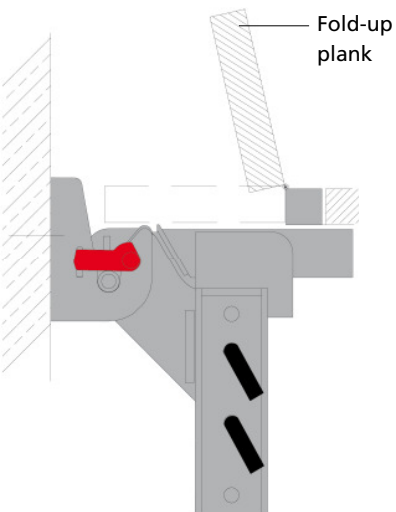


Fig. 13.2 Uplift protection, unlocked position



Fig. 13.3

The assembled platforms are flown in by crane, suspended at the prepared suspension devices and secured (Fig. 13.1 and 13.4).

Loops

The hooks of the loop adapter are long enough that no further uplift protection is required.

Climbing cones

The suspension shoe has an integrated uplift protection. After suspending the platform, check to make sure the uplift protection is in locked position (Fig. 13.1).

Before removing the platform the uplift protection must be unlocked (Fig. 13.2).

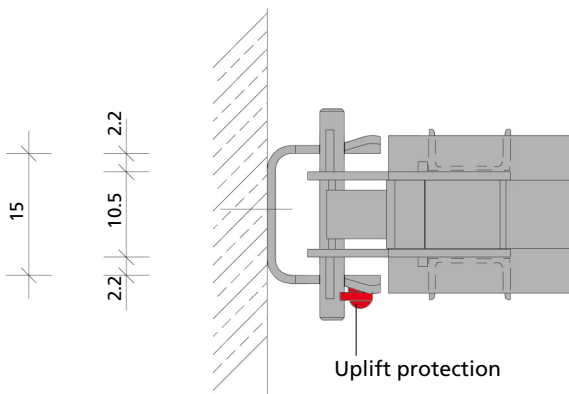


Fig. 13.4

Height adjustment

If necessary, the platform KAB 190 can be adjusted to different heights in increments of 5 cm while the suspension stays at the same height (Fig. 14.3 and 14.4).

Attention

If the platform is supported against brickwork, the pressure at the spacers must be observed and, if necessary, distributed by placing an H20 beam onto the spacers so the load is distributed.

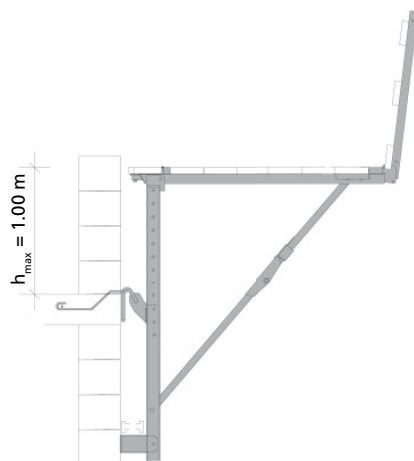


Fig. 14.1 In this example, the pressure against the brickwork must be observed. If necessary, place an H20 beam onto the spacers so the load is distributed.



Fig. 14.2

Reduction of the admissible load when adjusting the platform in height (upwards)

Note that with an upward adjustment of 50 cm or more, the admissible load is reduced for static reasons (see tables 14.5 and 14.6).

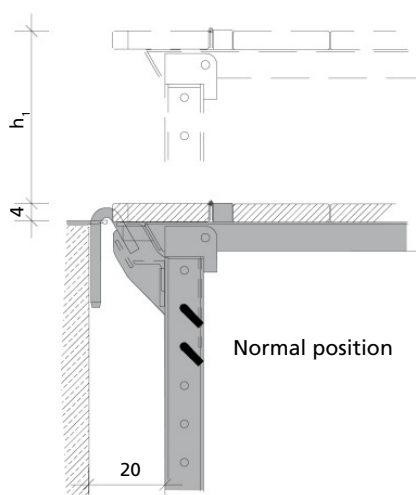


Fig. 14.3

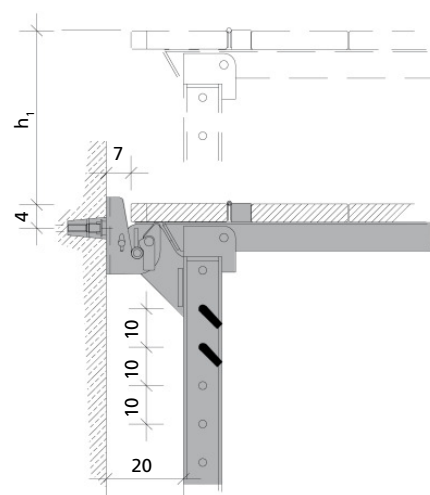


Fig. 14.4

Loop suspension

h_1 (cm)	Load (kN/m ²)	Scaffold group	Form-work
0	3	4	No
0–50	3	4	No
50–100	2	3	No

Table 14.5

Cone suspension

h_1 (cm)	Load (kN/m ²)	Scaffold group	Form-work
0	6	6	Yes
0–50	6	6	No
50–100	3	4	No

Table 14.6

Height adjustment

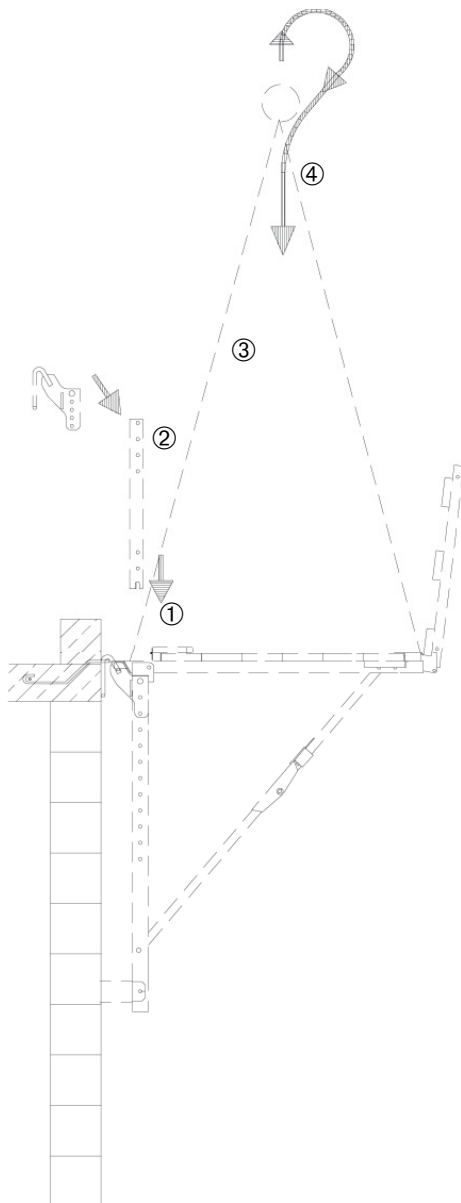


Fig. 15.1

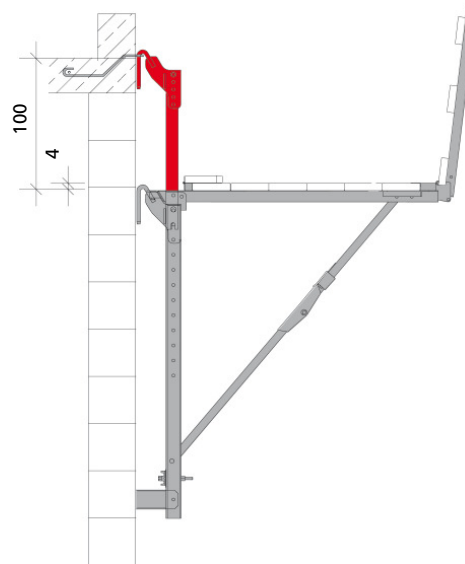


Fig. 15.2

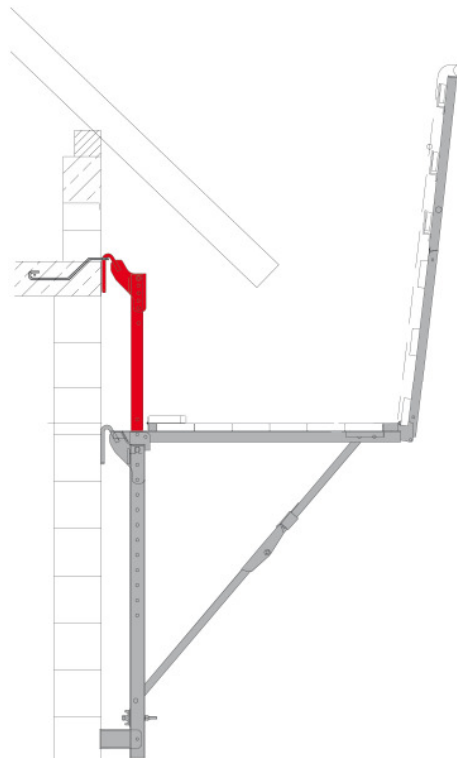


Fig. 15.3

Platform at a lower position

When the platform is for example used as a safety scaffold beneath the eaves, it must be suspended at a lower position than normal and equipped with height adjustment 100 KAB when assembling it on the ground.

The below step numbers also refer to the numbers in fig. 15.1

1. Make sure the fold-up plank is folded back as shown in fig. 15.1.
2. Plug in the height adjustment 100 KAB from above and equip it with a loop or shoe adapter. Note that you must have the double amount of adapters available (Fig. 15.2).
3. Attach the four crane slings.
4. Fly the platform to where it is needed for suspension (Fig. 15.1).

Please note

The transport spreader KAB can be used to suspend, move and remove the KAB scaffold beneath the eaves (p. KAB-16 and KAB-17).

Description	Ref. No.
Height adjustment 100 KAB	29-419-15

Transport spreader KAB

Two transport spreaders KAB are necessary to suspend, move and remove a platform beneath the eaves. This page and the following page describe how to transport, prepare for use and use the transport spreaders for the KAB platform when used as a safety scaffold beneath the eaves.

Transport

The transport spreader must be folded and secured with a head bolt 16/90 and a cotter pin 4 at positions ②, ① und ④ (Fig. 16.1).

Prepare for use

On the construction site, remove the head bolts and cotter pins, unfold the transport spreader and place a head bolt 16/90 and a cotter pin 4 at positions ③ and ⑤ to secure the transport spreader (Fig. 16.2).

Note

For the use of the transport spreader see p. KAB-17.

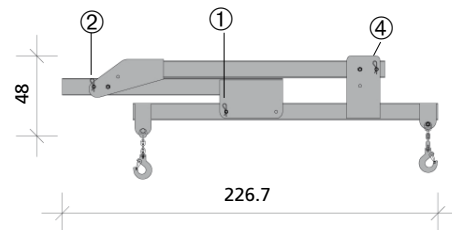


Fig. 16.1

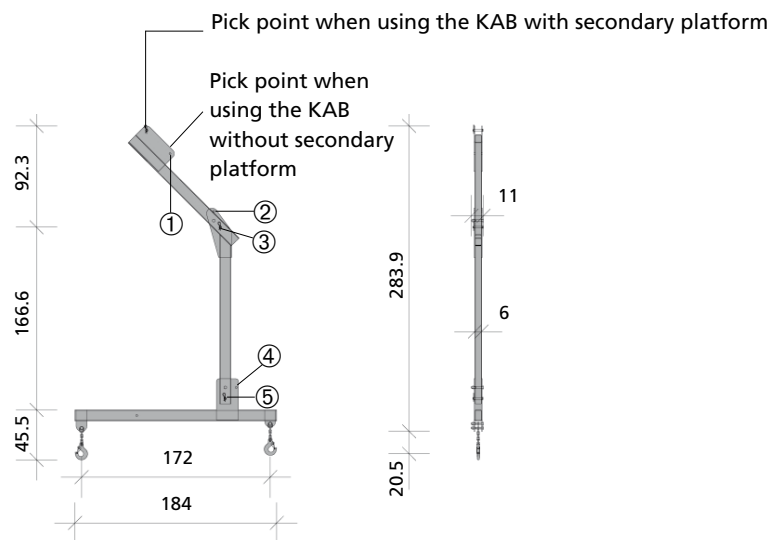


Fig. 16.2

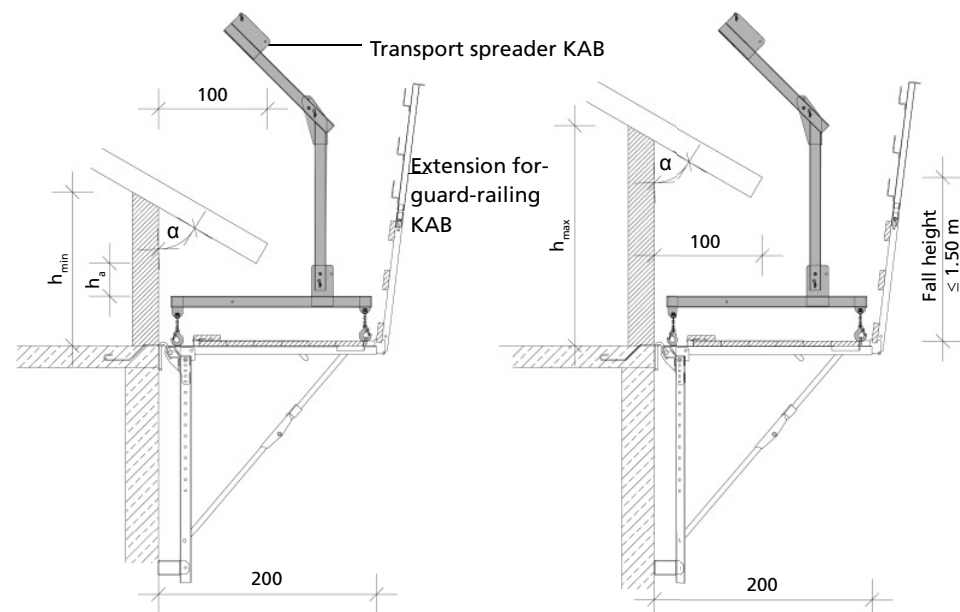


Fig. 16.3

Fig. 16.4

Description	Ref. No.
Transport spreader KAB	29-419-90

Transport spreader KAB

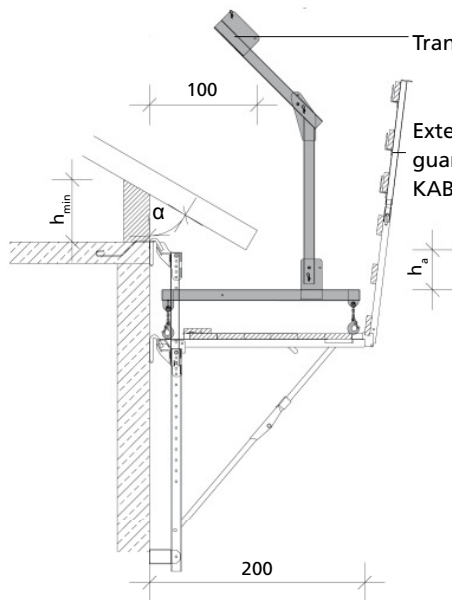


Fig. 17.1

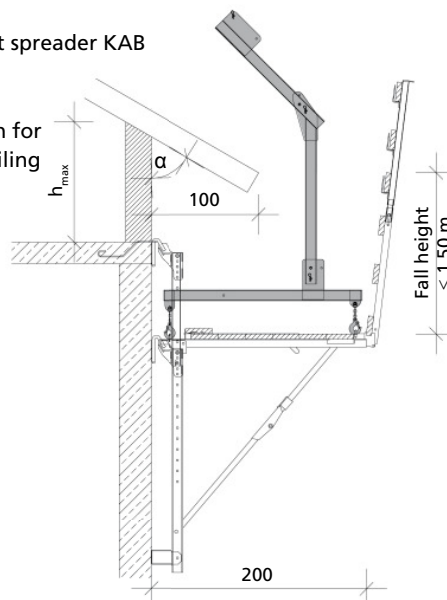


Fig. 17.2

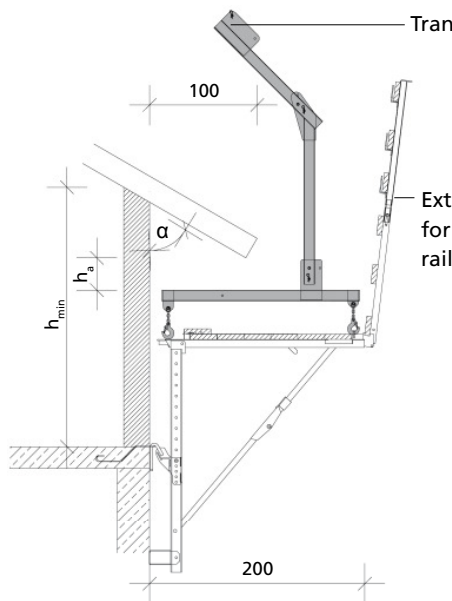


Fig. 17.3

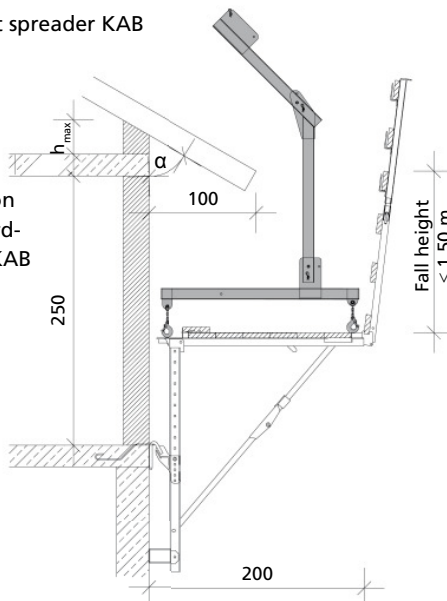


Fig. 17.4

Use

The transport spreaders are used to move and remove working platforms KAB that serve as a safety scaffold and for this purpose are suspended beneath the eaves

- at normal position
- exactly 100 cm below normal position
- up to 100 cm above normal position in increments of 5 cm

The height for the platform position must be selected in a way that the platform can be suspended and moved with the help of the transport spreader. See the figures on the left and table 17.5 below for the admissible heights depending on the inclination of the roof.

Attention

The person that attaches and detaches the four crane slings must be secured (at the building) against falling down and the local accident prevention regulations must be observed.

	Suspension at normal position		Suspension below normal position		Suspension above normal position	
Slab inclination	45°	60°	45°	60°	45°	60°
Slab projection	1,00 m	1,00 m	1,00 m	1,00 m	1,00 m	1,00 m
Height h_{min}	1,85 m	1,41 m	0,95 m	0,58 m	2,85 m	2,41 m
Height h_{max}	2,49 m	2,02 m	1,59 m	1,12 m	Floor height + 0,79 m	Floor height + 0,32 m
Height h_a :	≥ 0,30 m	≥ 0,30 m	≥ 0,30 m	≥ 0,37 m	≥ 0,30 m	≥ 0,30 m

Table 17.5

Description	Ref. No.
Transport spreader KAB	29-419-90

Wall openings

Bridging of large wall openings

In the case of a skeleton construction with reinforced concrete or in the case of large window openings, the platform is supported with a secondary platform (Fig. 18.1) or with a bracket extension and a push-pull prop (Fig. 18.2) against the wall or slab below the platform.

Attachment of the secondary platform

The below step numbers also refer to the numbers shown in the figures on the right.

1. Loosen and remove the flange screw acting as a transport lock.
2. Hang the secondary platform to the platform and unfold it.
3. Firmly connect the secondary platform with a flange screw 18.
4. Attach the spacer.
5. Fold up the guard-railing and secure it.
6. Attach the push-pull prop R 460. At its top it requires a screw M16 x 120 with a nut M16.

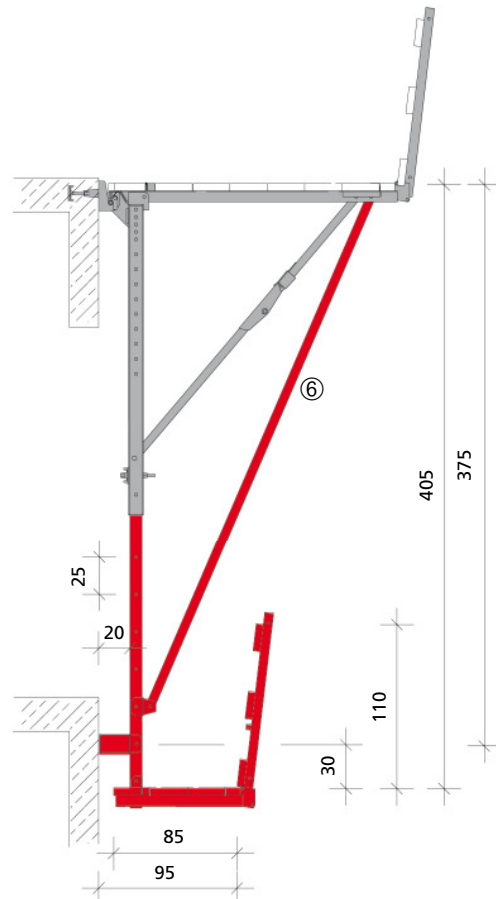


Fig. 18.1

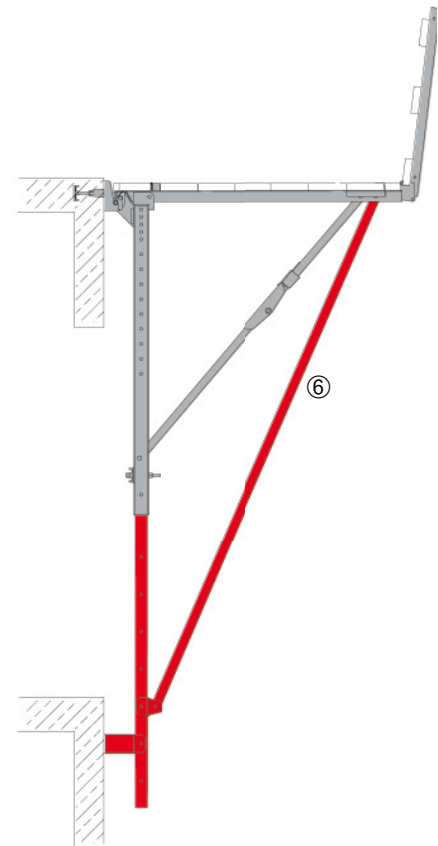


Fig. 18.2

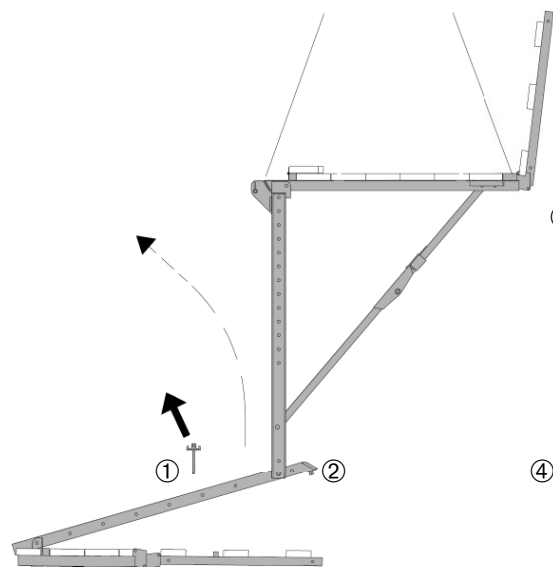


Fig. 18.3

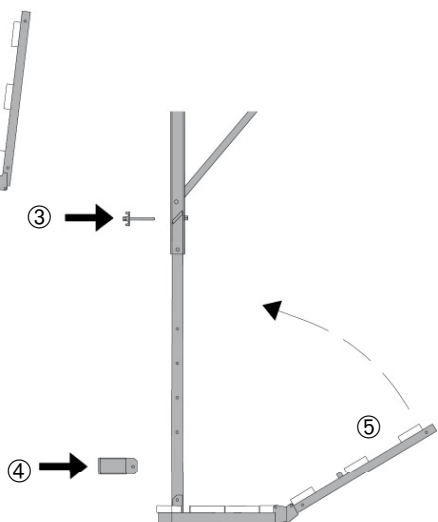


Fig. 18.4

Description	Ref. No.
Secondary platform KAB	
85/350	79-418-50
85/225	79-418-55
Bracket extension	
200 KAB	79-419-05
Brace connector KAB	79-419-60
Push-pull prop R 460	29-109-80
Screw M16 x 120	63-120-40
Nut M16	63-130-00

Wall openings

# beams	Load (kN/m ²)	Scaffold group	Width w (m)
1 x H20	3	4	2,00
2 x H20	3	4	4,00
+ Formwork			1,50

Table 19.1

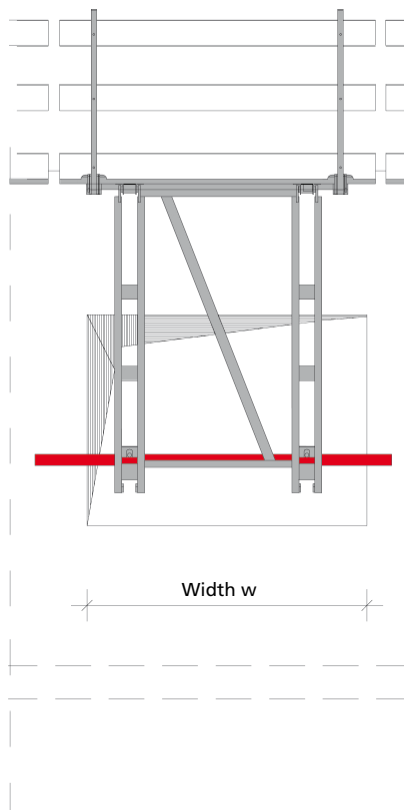


Fig. 19.2

Bridging of horizontal wall openings

When working without bracket extensions or secondary platforms, openings can also be horizontally bridged by placing a square timber or H20 beam on the spacers (Table 19.1 and fig. 19.2 through 19.4).

Attention

Square timbers and H20 beams must be secured against falling down.

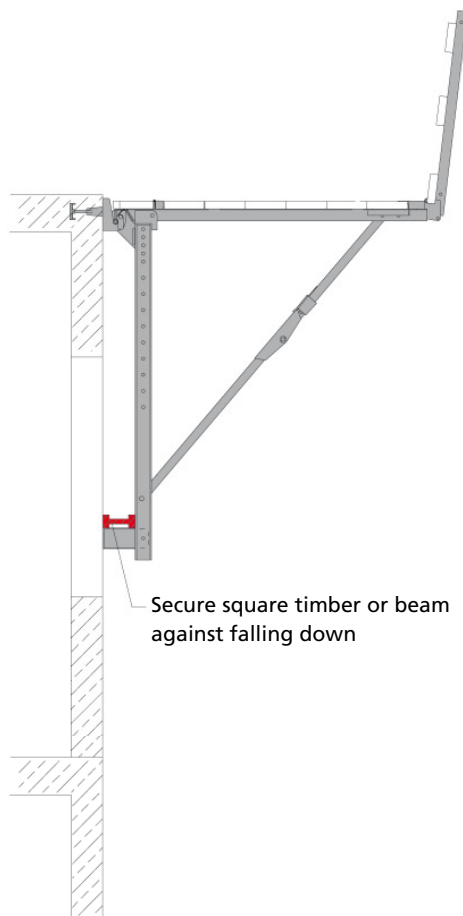


Fig. 19.3



Fig. 19.4

Formwork on top of the platform

If formwork is braced on the platform, the maximum formwork height is 4,25 m (Fig. 20.2). If the formwork is braced by a slab (Fig. 20.1), it can be as high as 6,00 m.

The platform is equipped with holes (Fig. 20.4) that allow for a fast and safe attachment of the wall formwork braces.

Attention

If the formwork is braced on the platform (Fig. 20.3), the platform cannot be adjusted in height at the suspension points and the entire assembly must be secured against wind. Also note that in this case the platform may only be suspended with climbing cones.

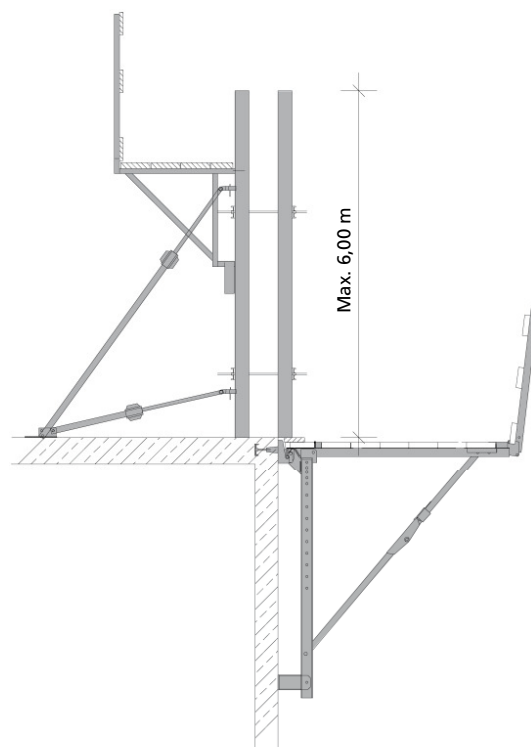


Fig. 20.1

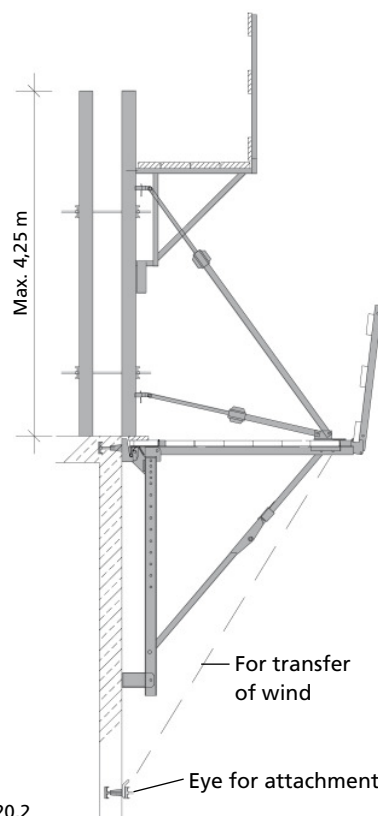


Fig. 20.2



Fig. 20.3

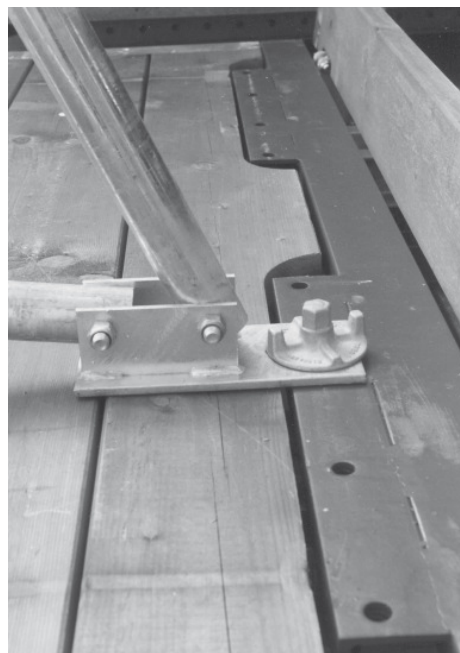


Fig. 20.4

Description	Ref. No.
Brace frame 250 with formwork-prop connector	29-104-20
Flange screw 18	29-401-10

Safety scaffolds

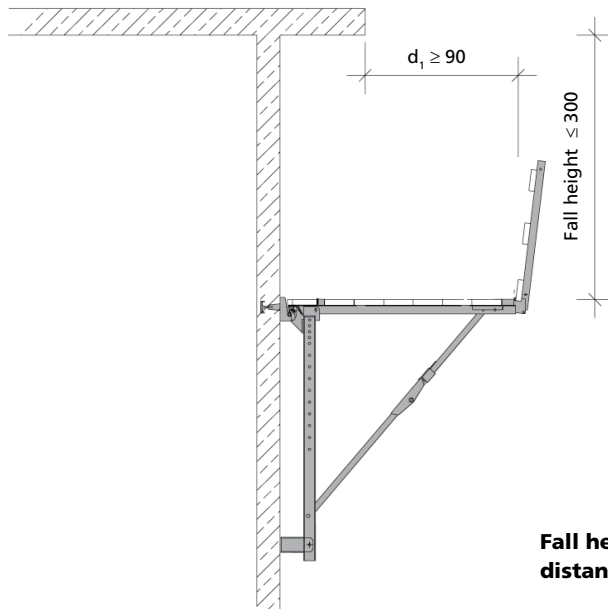


Fig. 21.1 Use as safety scaffold

Fall height and horizontal minimum distance for safety scaffolds

Maximum fall height	200 cm	300 cm
Minimum distance d_1	90 cm	130 cm

Table 21.2

Safety scaffold

The maximum fall height must not exceed 300 cm. The horizontal distance d_1 depends on the fall height and must not be less than 90 cm (Fig. 21.1 and table 21.2).

Canopy

The width of the canopy depends on the construction site and must not be less than 150 cm.

Overhead guards must be equipped with a covered guard-railing with a minimum height of 60 cm.

When using a safety scaffold also as a canopy, the planking must cover the entire area, i.e. the fold-up plank must be closed and cover the gap between the platform and the wall (Fig. 21.3).

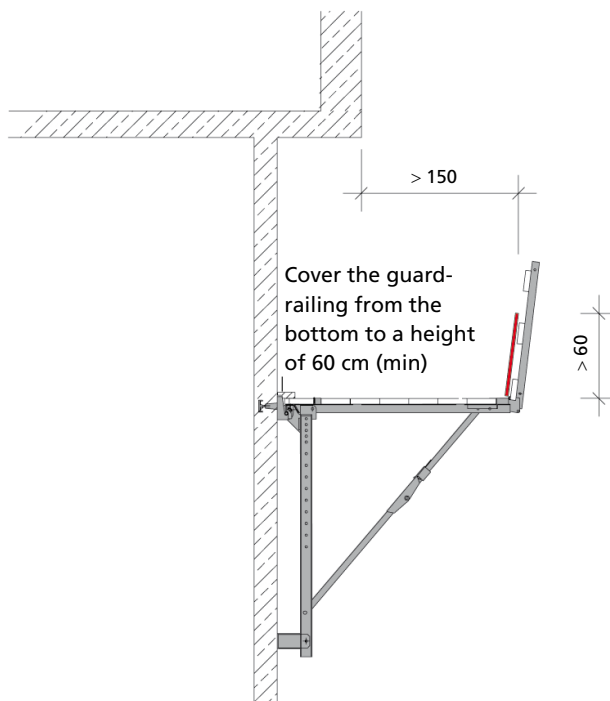


Fig. 21.3 Use as a canopy

Safety scaffold (roof)

When using the platform as a safety scaffold for the roof, its guard-railing must be covered with a safety net that has a maximum mesh width of 10 cm (Fig. 22.1).

If the guard-railing height is not sufficient, the extension for guard-railing can be plugged on top of the guard-railing (Fig. 22.3). See table 22.2 for the required height of the guard railing. The fall height h_1 must not exceed 150 cm.

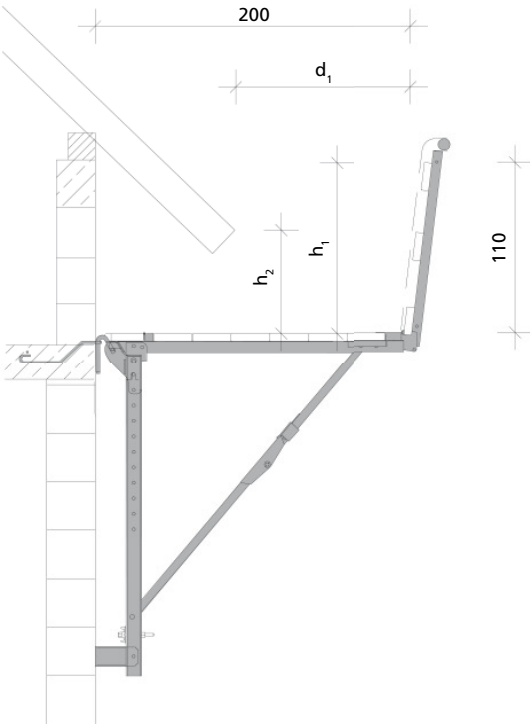


Fig. 22.1

Required distances
$h_1 \geq h_2 + 150 \text{ cm} - d_1$
$h_1 \geq 100 \text{ cm}$
$h_2 \geq 150 \text{ cm}$
$d_1 \geq 70 \text{ cm}$

Table 22.2

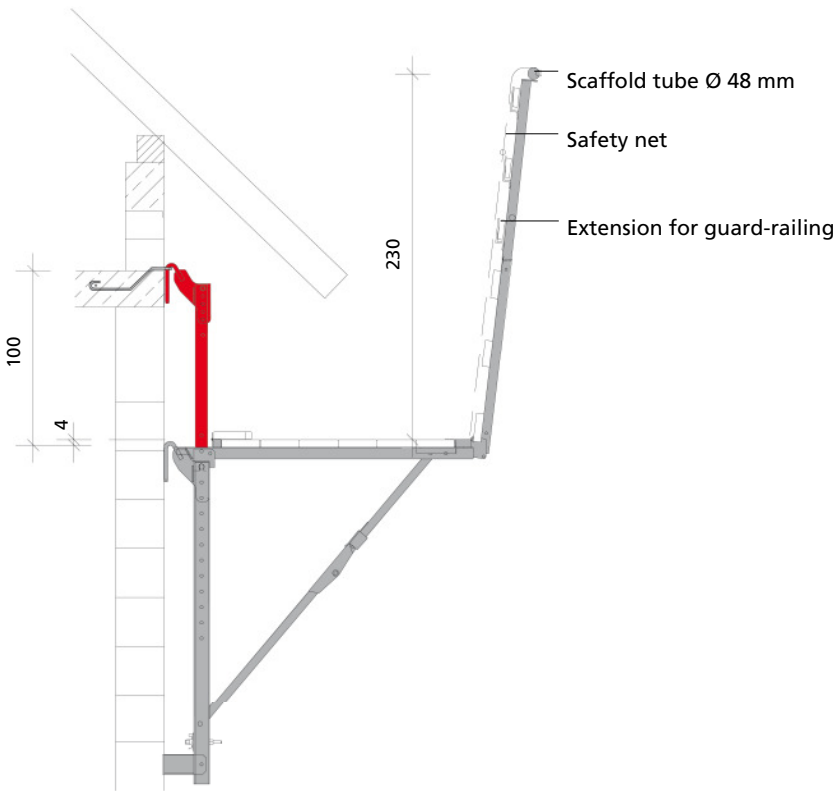


Fig. 22.3

Description	Ref. No.
Extension for guard-railing KAB	79-419-85

Load-bearing capacity

Suspension with loops

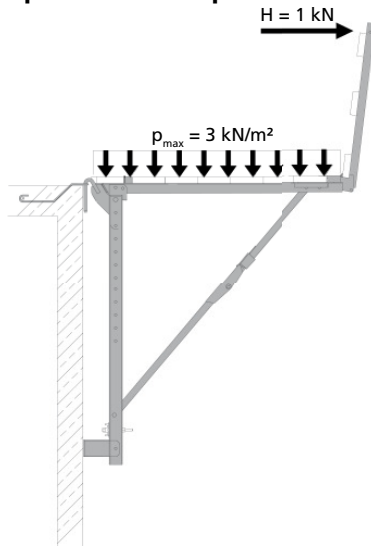


Fig. 23.1

The suspension and use of the platform determine the load it can support.

Suspension with loops

Only for working and safety scaffolds with no formwork on top (Fig. 23.1):

$$p_{\max} = 3,00 \text{ kN/m}^2.$$

Suspension with climbing cones and suspension shoes

■ Working scaffold with no formwork on top, see fig. 23.2

■ Platform with formwork braced on top of it, see fig. 23.3

■ Platform with secondary platform and formwork on top of the platform, see fig. 23.4

Suspension with climbing cones

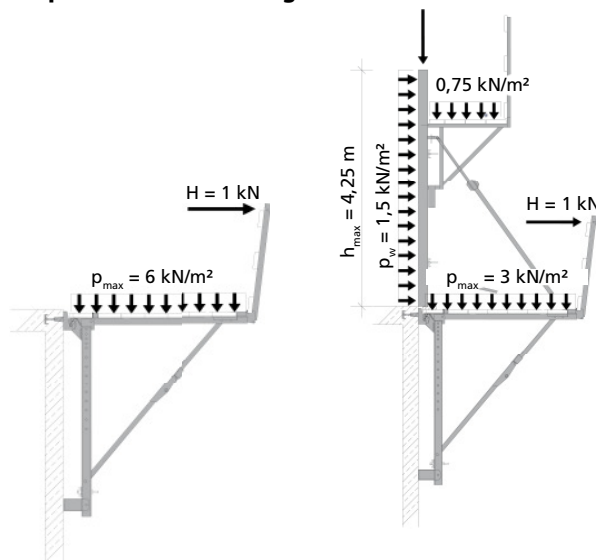


Fig. 23.2

Fig. 23.3

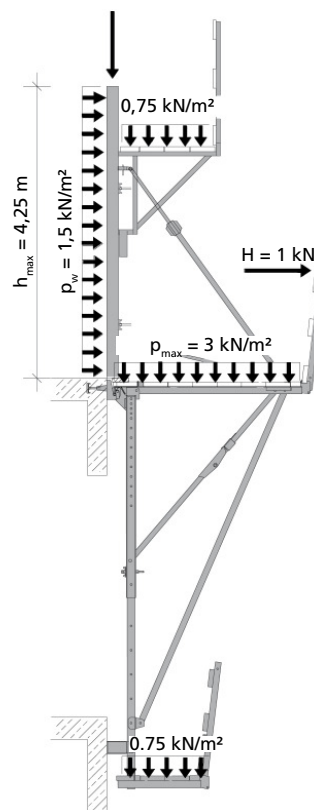


Fig. 23.4

Service

Cleaning

The working platform KAB 190 is cleaned professionally upon return.

Cleaning and regeneration of wall formwork

Cleaning is done using industrial equipment with assembly lines.

The regeneration is carried out as follows: The frames are checked and, if necessary, repaired, painted and provided with a new facing.

As long as the formwork equipment is up-to-date, a regeneration will always be a more economical solution than purchasing new formwork.

Please note that the cleaning and regeneration service is not available in all countries in which MEVA does business.

Rentals

With much equipment on stock, we offer our customers the option of renting supplementary material during peak times. We also give prospective customers the chance to test MEVA formwork so they can see its benefits for themselves in actual use.

RentalPlus

Since MEVA started the flat rate for cleaning and repair of rented formwork systems in early 2000, more and more contractors experience the outstanding advantages. Ask our representatives about the details!

Formwork drawings

Of course, all offices in our technical department have CAD facilities. You get expert, clearly represented plans and work cycle drawings.

MBS

MEVA Basic Support

MBS is an addition to AutoCAD, developed by MEVA Formwork Systems in 2000. MBS is based on standard programs (AutoCAD and Excel) and can be used on any PC that has these two programs installed. It includes pull down menus for AutoCAD and applications to ease forming. It also includes the possibility to create take-offs.

Special solutions

We can help with special parts, custom-designed for your project, as a supplement to our formwork systems.

Static calculations

Generally, this is only necessary for applications like single-sided formwork where the anchor parts are embedded in the foundation or the base slab. If requested, we can perform static calculations for such applications at an additional charge.

Formwork seminars

To make sure that all our products are used properly and efficiently, we offer formwork seminars. They provide our customers a good opportunity to keep themselves up-to-date and to benefit from the know-how of our engineers.

