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Technical information
Installation guidelines



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01 Foreword

These installation guidelines specify the planning and detailing of wall connections to ensure the suitability of use of a fitted window even for extended periods of time.

 In addition to the installation guidelines (the guideline for installation of windows and external pedestrian doors, Edition 8/2022) created by RAL-Gütegemeinschaft Fenster und Haustüre in collaboration with Ift Rosenheim is to be observed. You can procure this guideline from a bookshop with the ISBN: 978-3-86791-483-3 (issue 2022) or also from www.ift-rosenheim.de, for example.

Outside of Germany, the specific national regulations must be consulted.

The cloud-based software "ift-Montageplaner" (ift installation planner) can be used as a help in planning the installation of windows in professional manner.

The following versions are available:

- generic ift version (<https://www.ift-montageplaner.de/ift>)
- company-specific portal versions with selection options for actual products

Explanation of symbols



Affix with PVC adhesive, white profiles with adhesive 1251660/1251670, laminated profiles with solvent-free adhesive (e.g. Weiss Cosmofen 515).



Seal with silicone

02 Fixing the units

02.01 Load values

To ensure suitability of use of windows, doors and facades for an extended period of time, all design forces acting on the window must be reliably transmitted to the building. The following forces occur during this process:

- wind load,
- dead load,
- horizontal live loads. This is based on DIN 1055.

- the flexural rigidity of the frame profiles,
- the position and number of fixing points
- the internal/external temperature difference
- the thermal expansion of the materials used and
- the flexibility (spring stiffness) of the fasteners.

In addition to the above loads, the forces exerted are also influenced by the following:

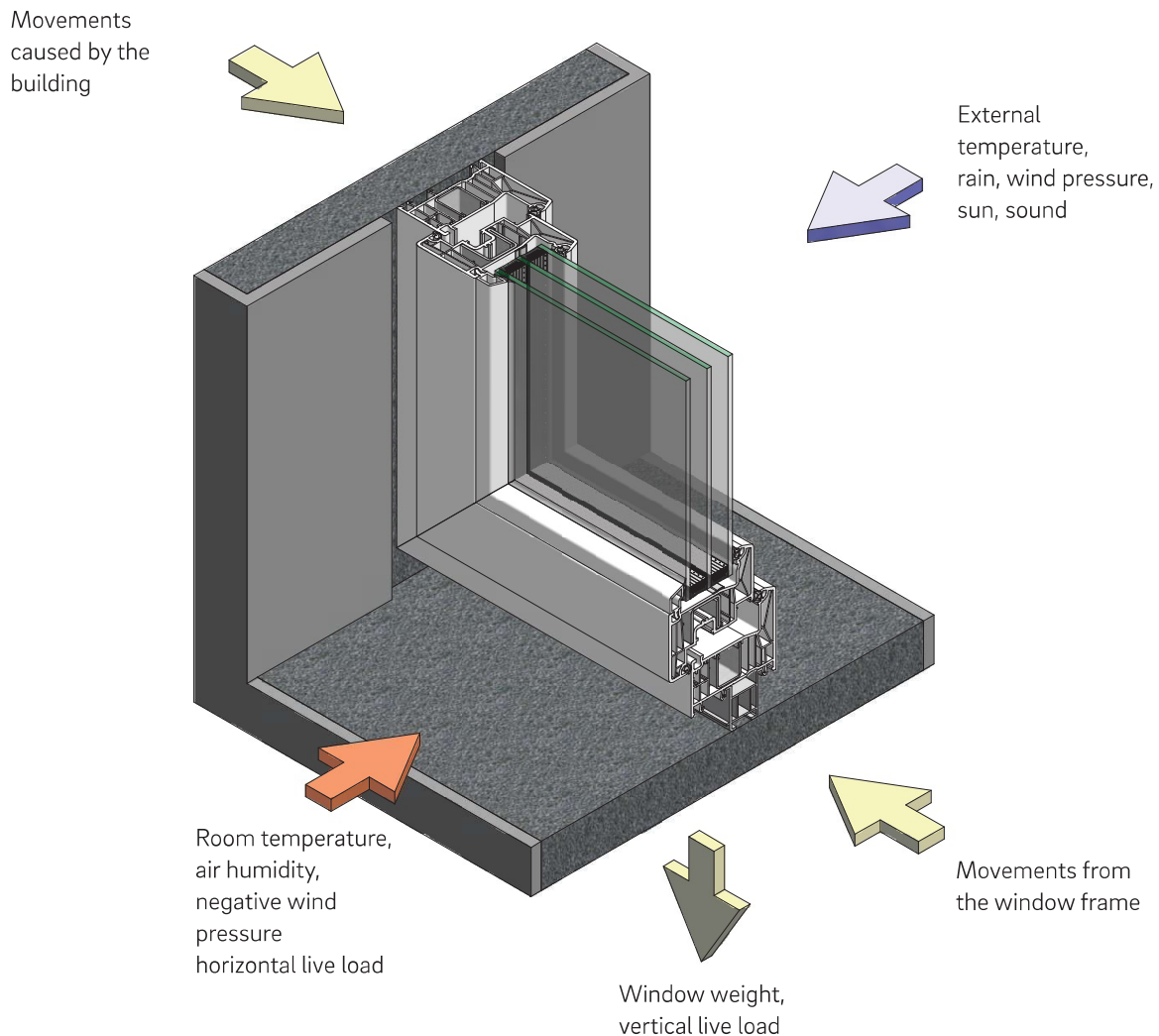


Fig. 1: Effects on the installation connecting joint

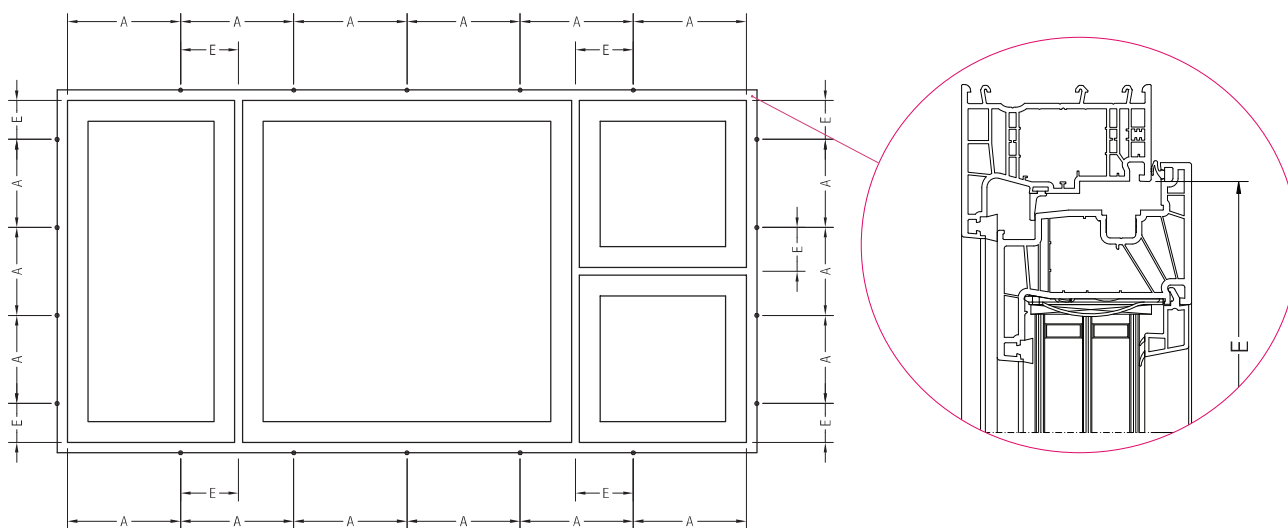


Fig. 2: Fastening distances for PVC windows

• - Fastening points

A - Fastening distance max. **700 mm**

E - Distance from the inner corner of the profile approx. 150 mm

02.02 Load distribution

Wind loads and horizontal moving loads

The correct selection of the fasteners depends primarily on the load applied, the situation and the wall connecting system.

The fasteners used are primarily designed to distribute the wind load and the horizontal live load. In line with the latest technology, PUR foams, gunnable sealants or other insulation or sealing materials are not defined as fixing materials/ fasteners.



Fastening must be carried out mechanically!

The arrangement of the fasteners for PVC windows is specified in fig. 2.

Dead loads

They are defined as the forces generated by the self-weight of the window or door element.

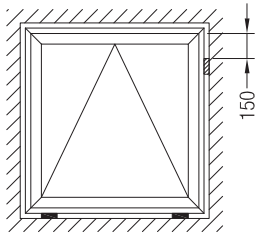
The frames must be supported for load distribution to the masonry and fastened to the masonry using only approved and commercially available fasteners (see e.g. "www.ift-montageplaner.de") (see Fig. 3)

The latter are not sufficient for load distribution of the self-weight!

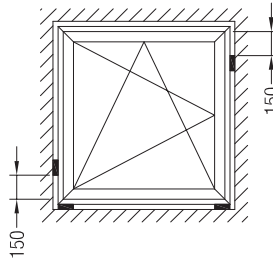


The following should be taken into account for this:

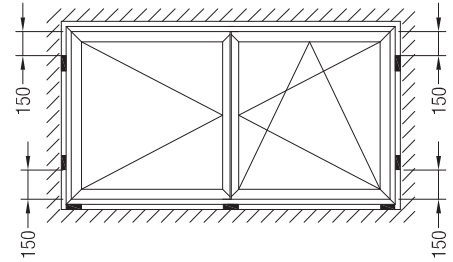
- Supporting and spacing blocks must be made of a suitable material.
- The supporting and spacing blocks must be arranged so that the frame is prevented from being clamped.
- When fastening to the construction at the top, there must be no spacing blocks between the frame and the construction, and no fastening systems must be inserted with spacer fastening (e.g. Amo® III screws), in order to prevent the frame from being clamped, e.g. as a result of ceiling deflection or lintel deflection.
- The supporting blocks must remain in the construction joint for continuous load distribution.
- For units positioned in front of the masonry, correspondingly stable steel angles or brackets must be used.
- Adequate flexural rigidity of the frame profile must always be ensured.
- The support blocks must not affect subsequent work, such as sealing the connecting joint.



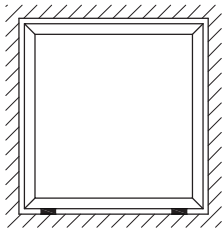
Bottom-hung windows
(Support blocks underneath hinges)



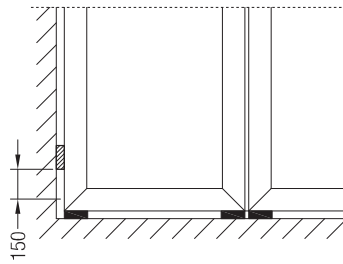
Tilt and turn windows



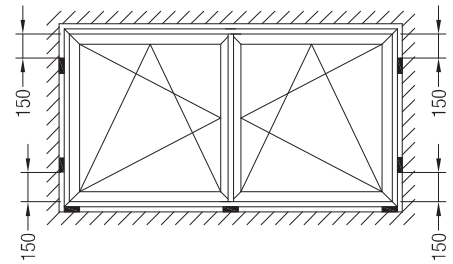
French window without fixed centre mullion
(The supporting block in the area of the dummy mullion profiles shall not affect the function of the window)



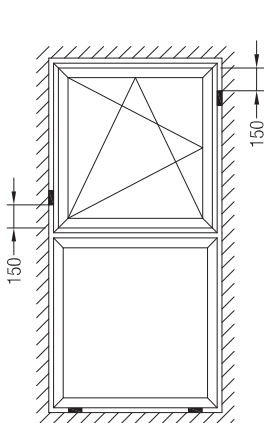
Fixed light
(Support blocks underneath the glazing blocks)



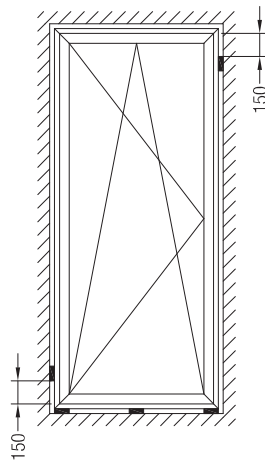
Coupling



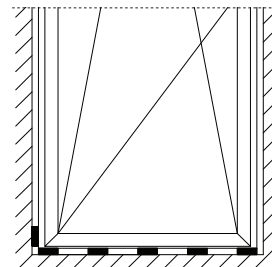
French tilt and turn window with fixed center mullion
(The supporting block in the area of the vertical mullion shall not affect the function of the window)



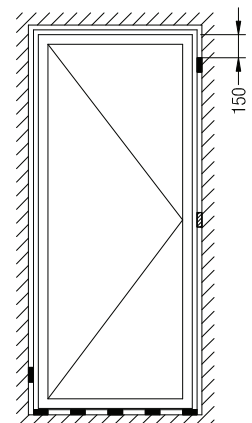
Single sash tilt and turn window
with fixed glazed bottom light
(Supporting blocks underneath the glazing blocks)



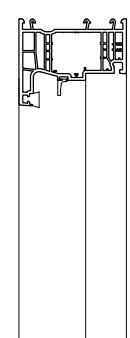
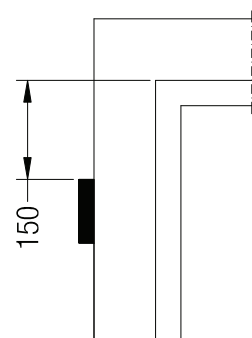
Balcony tilt and turn door



Balcony tilt and turn door with
threshold



Entry door



■ Supporting block
▨ Spacing block

Fig. 3: Arrangement and design of supporting and spacing blocks

02.03 Fasteners

The relevant conditions on site determine the selection of the correct fasteners. Masonry and fasteners must match to one another. This means that it is essential to follow the manufacturer's instructions (fig. 4), such as

- specified shear loads,
- maximum distance between frame and masonry: maximum usable length d_a ,
- minimum anchoring depth h_v ,
- distance of anchor from edge,
- drilling diameter d and drilled hole depth t_d .

For fastening, we recommend approved fasteners only. Some important fasteners are shown in figs. 5 to 7.

 Adhere to the manufacturer's specifications

When fastening the frame profile horizontally at the bottom, choose a fastener that does not necessarily open the reinforcement chamber from the rebate base.

If this is not possible, the reinforcement chamber must be permanently sealed.

The choice of fastener is based on the construction of the masonry.

In perforated brick masonry, the masonry must be filled in the anchor area (e.g. use injection mortar Fischer FIS VS 150 C).

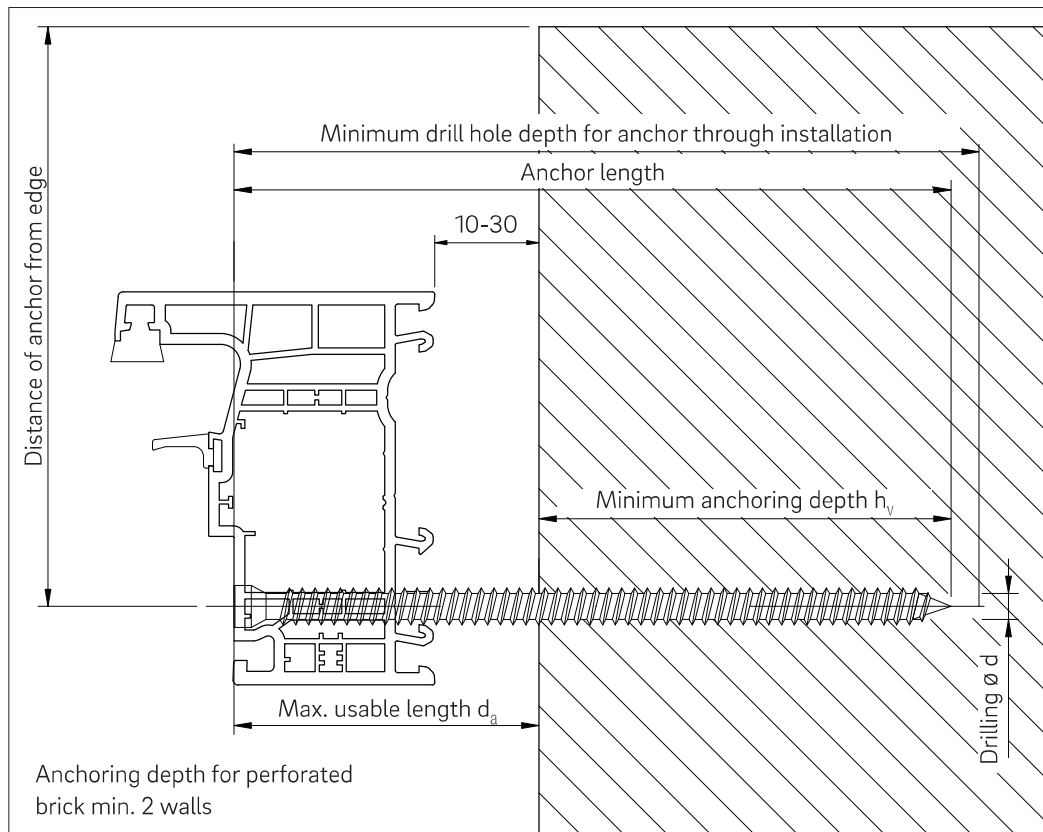
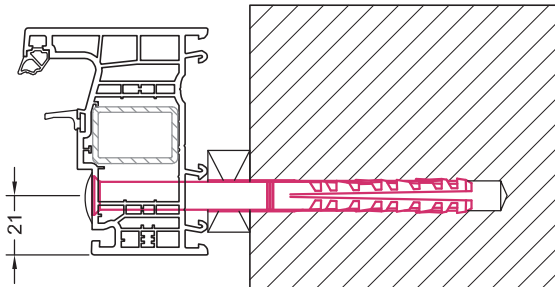


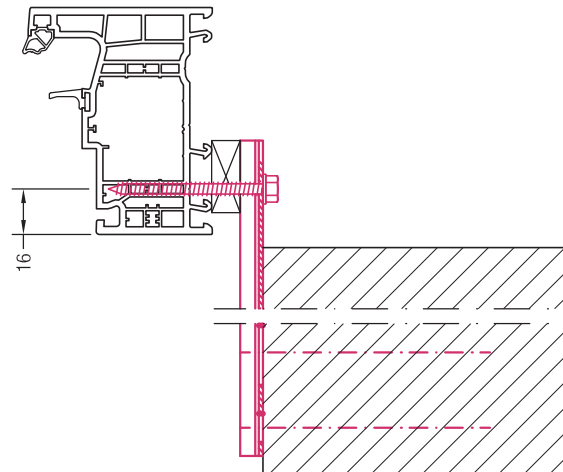
Abb. 4: Important dimensions for fastening

02.04 General instructions on fixing windows

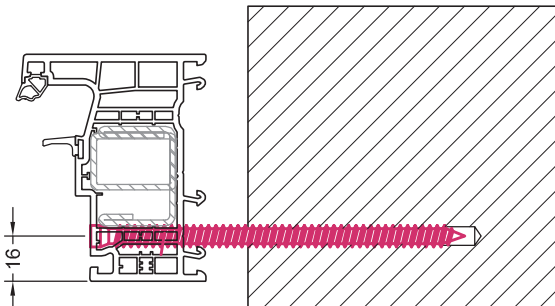
- Drill correctly; do not use drills on hammer mode (except for concrete)!
- Observe the loadbearing capacity and length of the anchor, while taking the wall structure into account!
- Use screws/bolts, anchors, straps, brackets, mounting systems, etc. that are appropriate for the anchor system!
- Blow out the drill holes!
- Observe the center-to-center and edge distances specified by the anchor manufacturer, based on the building material!
- Tighten screws evenly without exerting pressure onto the frame! (Use a cordless screwdriver with torque limiter!)
- A combination of supporting block and fastener is preferable!
- Hammering in nails, even special versions, is not permitted!



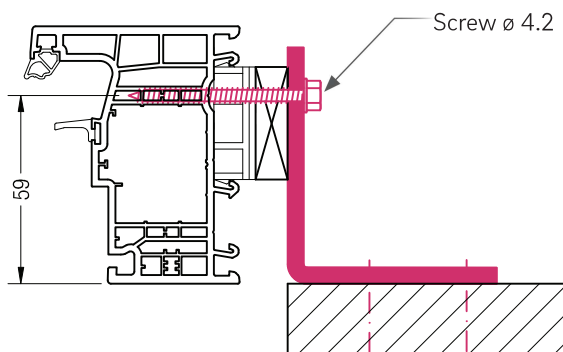
Tube frame dowel $\varnothing 10$
Use for approved masonry as per manufacturer's specifications. Not permitted for burglary resistance from RC 2 and fall protection.



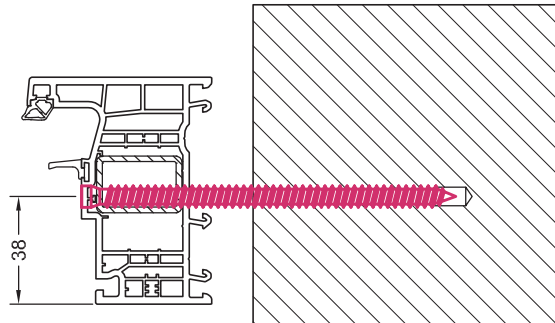
EL anchor 200/1,5 Knelsen GmbH, art.no. 405102



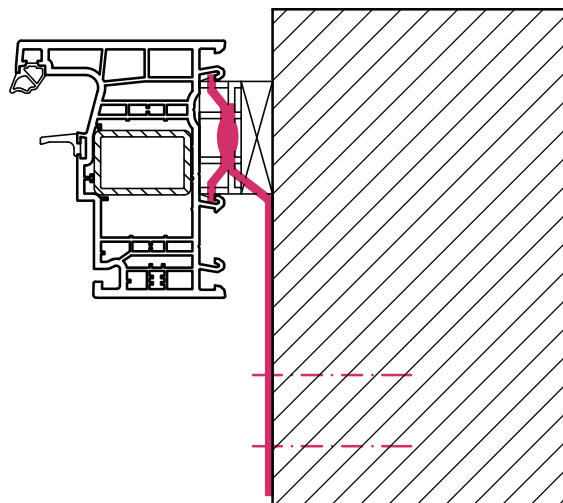
Window installation screw $\varnothing 7.5 \times \text{L-ZK}$



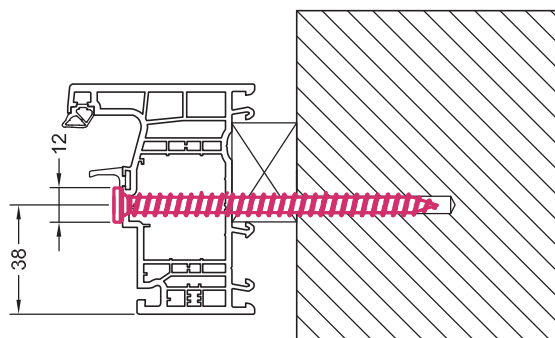
Angle



Window installation screw $\varnothing 7.5 \times \text{L-ZK}$



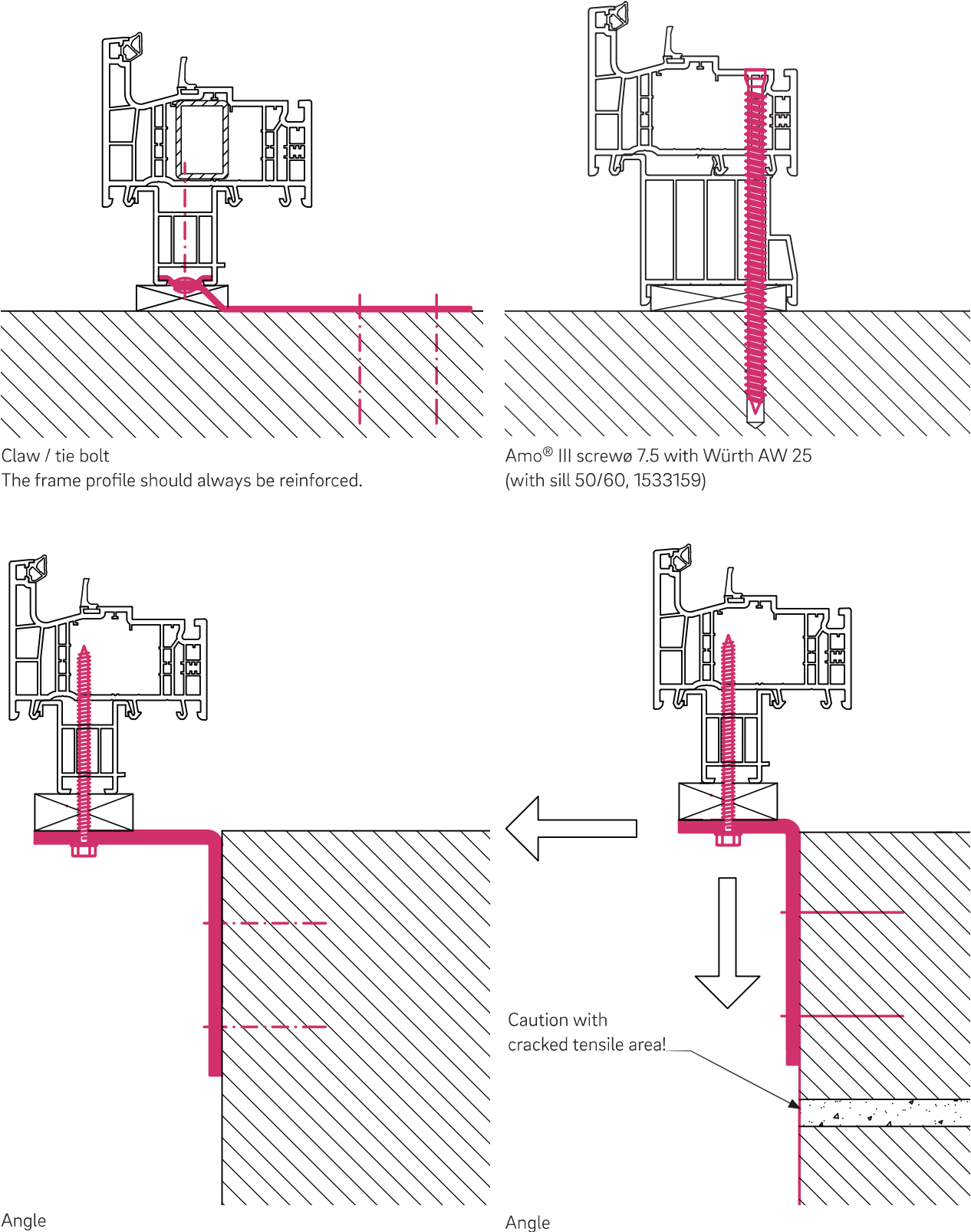
Claw / tie bolt (not permitted for entry door).
The frame profile should always be reinforced.



Window installation screw $\varnothing 7.5 \times \text{L-LK}$

i When using multifunctional sealing tapes (e.g. Illbruck Triplex) in connection with colored profiles and roller shutter guide rails, an installation fastening on 38 mm axis is recommended.

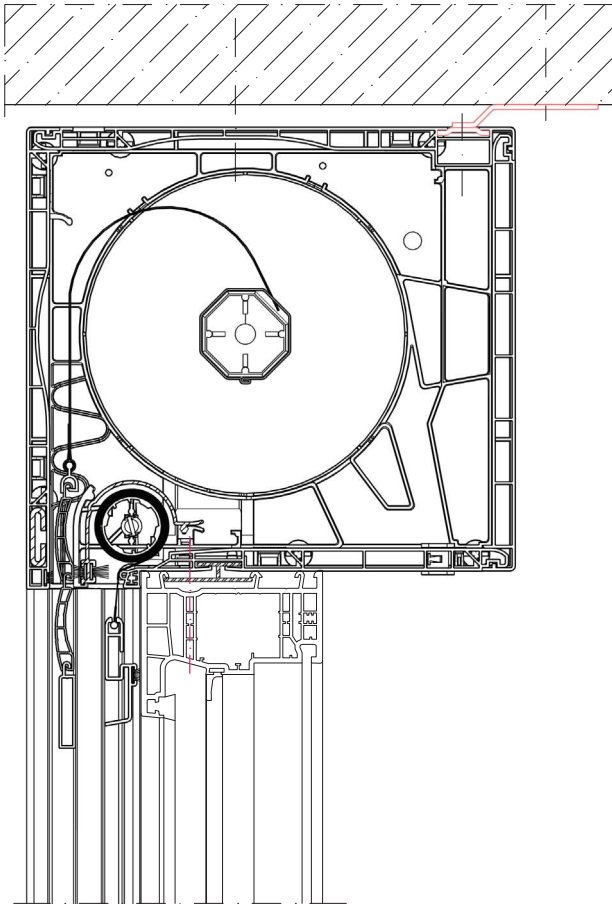
Fig. 5: Fasteners



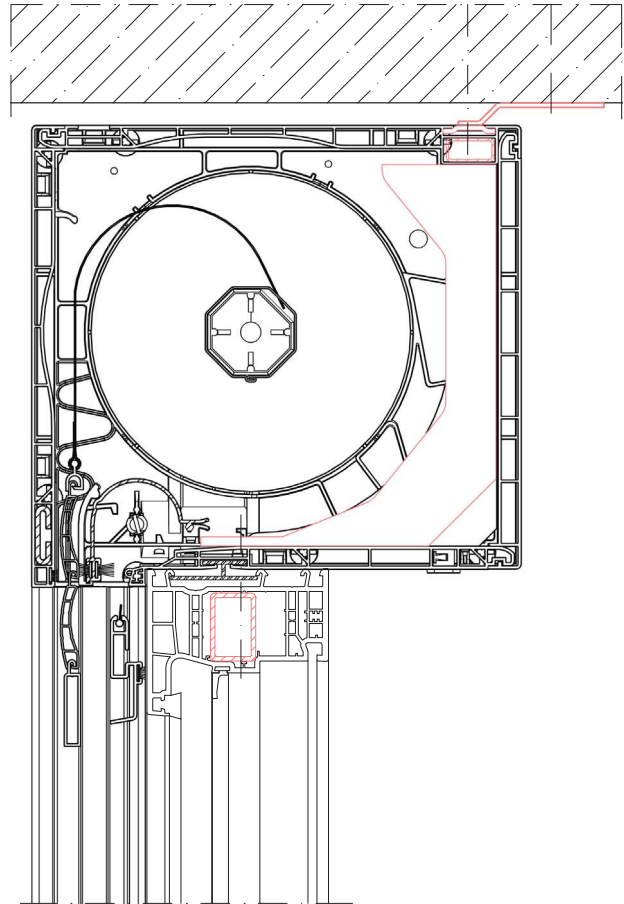
 Load bearing components should be sized according to the loads applied.

Fig. 6: Fasteners for fixing of bottom unit

Static reinforcement of roller shutter boxes/fastening with claws



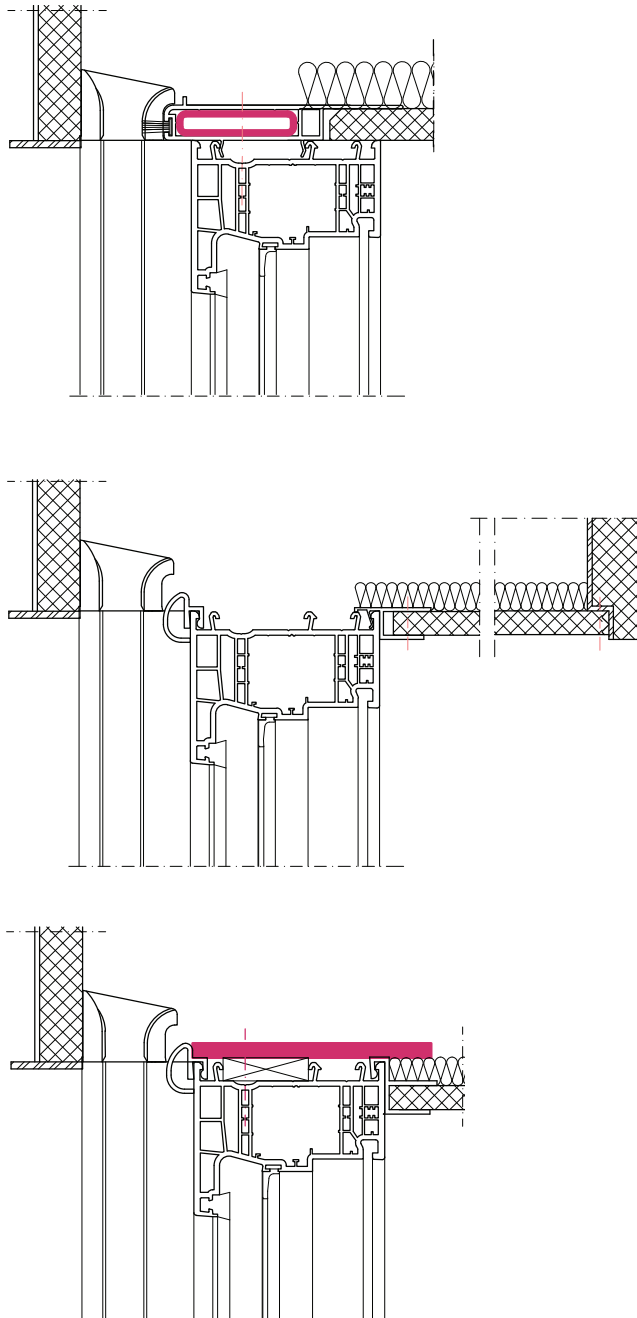
Roller shutter box without steel reinforcement in the frame profile



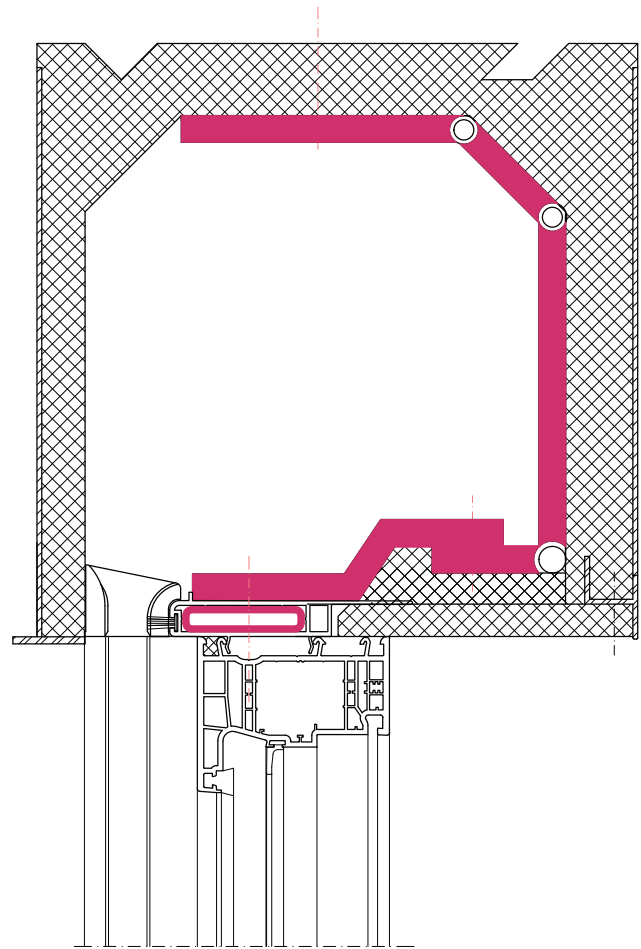
Roller shutter box with wind load static console.

Fig. 7: Reinforcing and fixing of roller shutter boxes

Static reinforcement of lintel boxes



Fixing of lintel boxes using window stabilizers



Window stabilizer, such as HALESTA or in-house construction

i Additional reinforcement of the frame profile is provided by screw-fastening the roller shutter cover to the main profile. The number of remaining fasteners depends on the requirements to be taken into account from paragraph 02.01.

Fig. 8: Reinforcing and fixing of lintel boxes

02.05 Special connections

Supplementary profiles

Supplementary profiles such as window sill connector profiles, extensions etc. are to be screwed to the main profiles.

Roller shutter box

If windows are installed in combination with a roller shutter box, upwards fastening is problematic independent of the box construction (head box or lintel box). In this case, the upper frame profile has to undergo a static load analysis (see section: static load)

Reinforcement or fixing is possible as shown in the diagrams in fig. 7.

For larger element widths, the subdivision of the element is essential for sufficient structural design and fastening. The details of the joint are shown in Fig. 9.

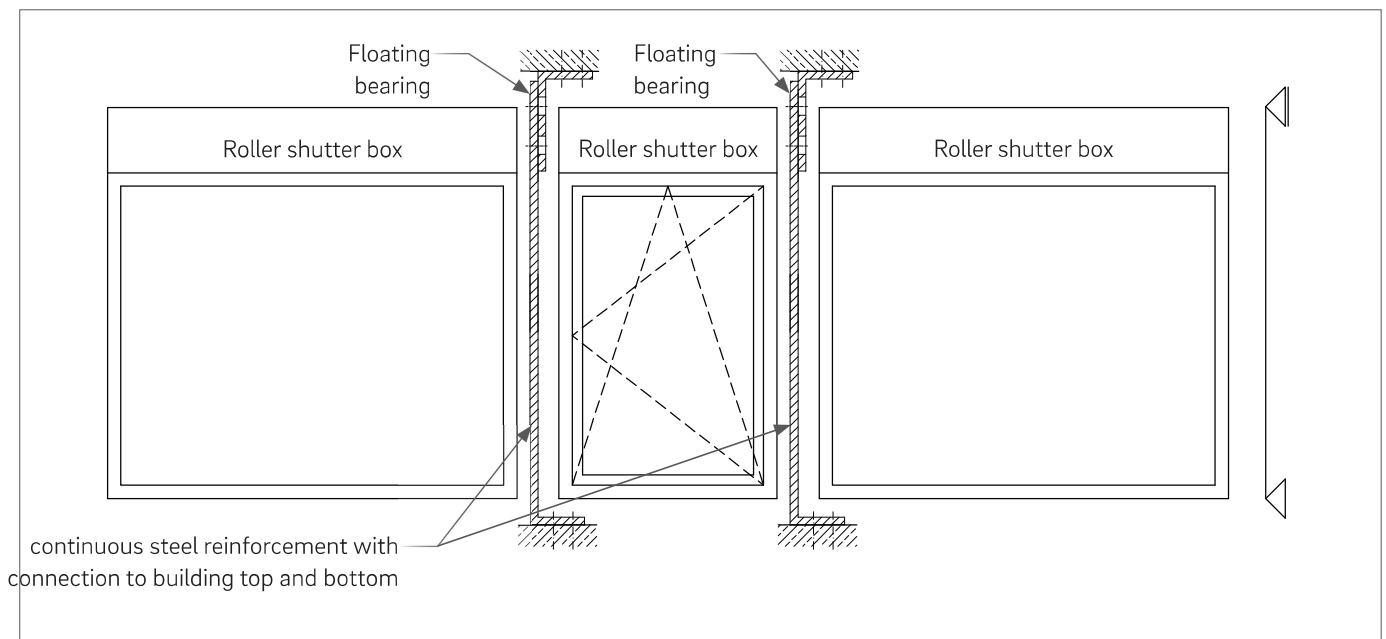


Fig. 9: Element couplings with the roller shutter box

French doors and entry doors

French doors and entry doors are subject to dynamic loads – such as slamming the door shut – rather than static loads. Moreover, fewer closing points exist on a door than a window. For this reason, additional fixtures should be fitted in addition to the standard fixing points described above (see Fig. 10).

For multi-section entry doors with mullions or as coupled individual elements, additional reinforcement profiles should also be fitted (fig. 11).

Fixing in the lower area should be carried out as shown in the illustrations in Fig. 12

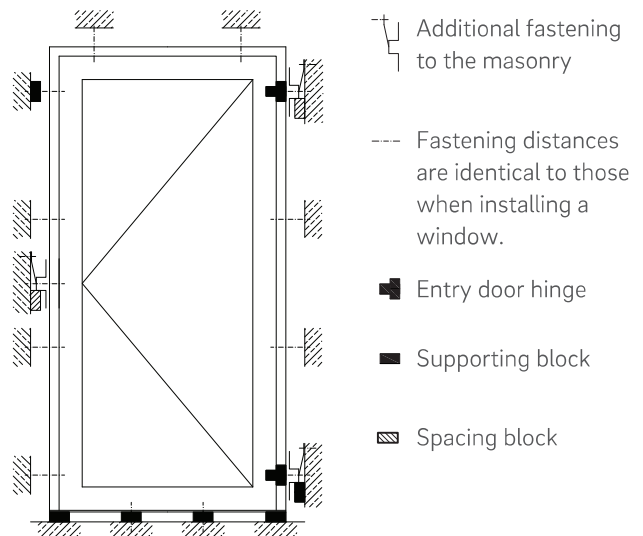


Fig. 10: Fastening of a entry door

i Additional fastenings are not required for French doors with a sash weight ≤ 130 kg!

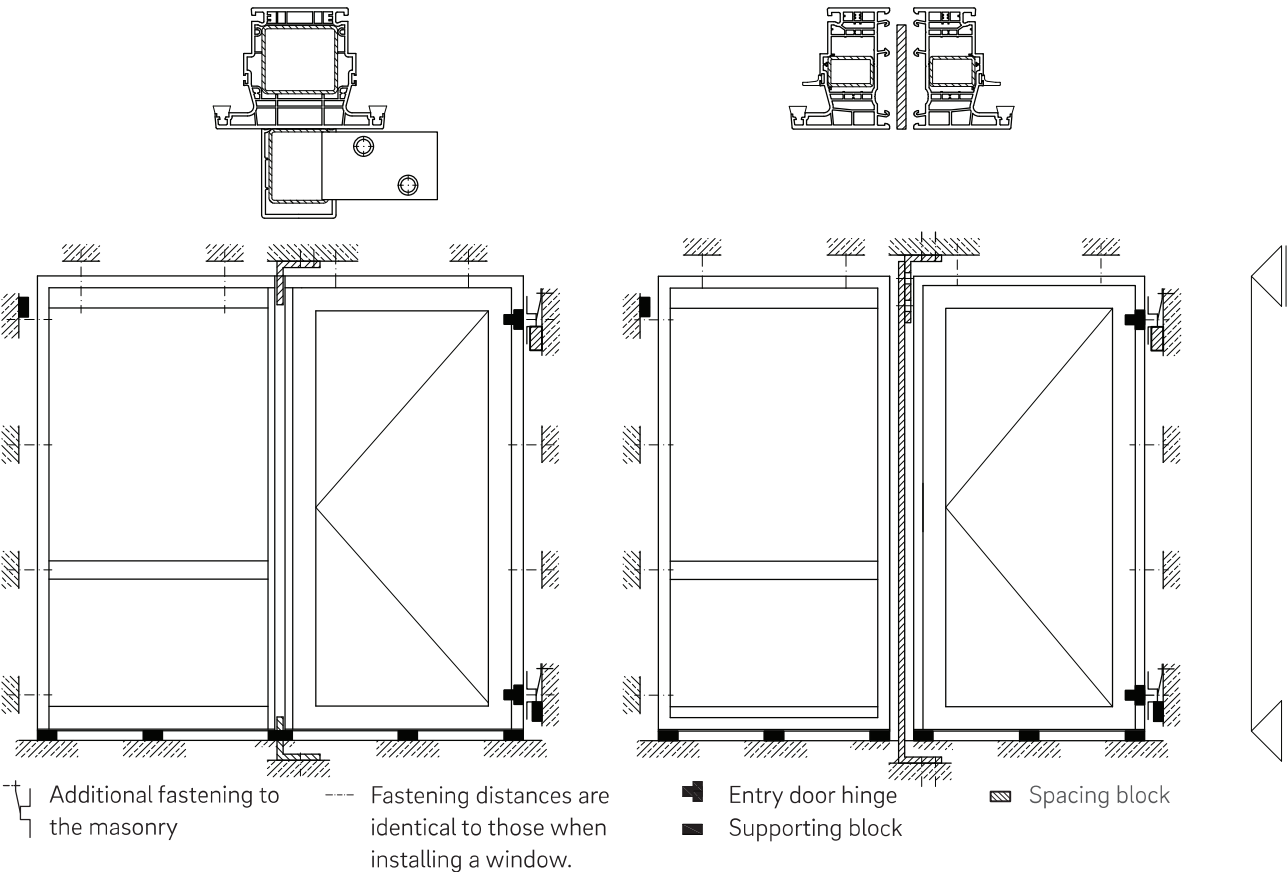


Fig. 11: Fastening of multi-part entry doors

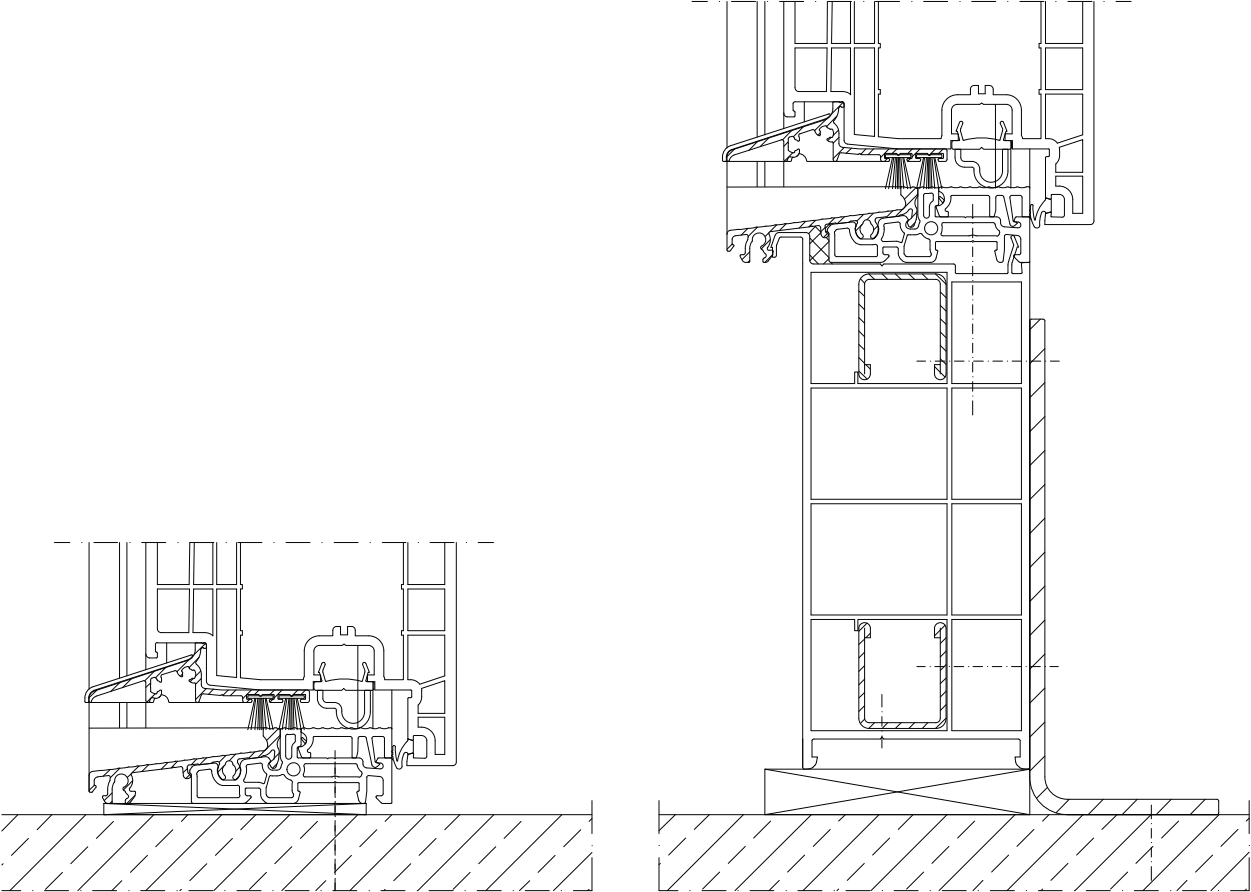


Fig. 12 Fastening the threshold

Frame couplings and element joint

For the safe distribution of the acting forces to the building, for element joints the reinforcements used for bracing must be fastened to the building. Make sure that the reinforcements are never rigidly clamped; use a fixed and floating bearing as shown in fig. 15 to compensate for the building-related movements.

Window width [mm]	Length change [mm] at $\Delta T = 30\text{ K}$ with $\alpha_{\text{window}} = 0.42 \cdot 10^{-4} / \text{K}$	Δl
1,500	± 1.9	
2,500	± 3.2	
3,500	± 4.4	
4,500	± 5.7	

Table 1: Change in length of white PVC windows due to thermal loads.

For large element widths or heights, both the horizontal and vertical expansion of the profiles must be compensated by an expansion joint. The expansion of white profiles is shown in table 1. In simple terms, when dimensioning the coupling width of white windows, a change in length of $\pm 1.25\text{ mm}$ per meter of profile length should be taken into account; this figure should be doubled for non-white windows.

Outside profile color	Profile length	Element area
White / cream-white, reinforced	$\leq 4.50\text{ m}$	$\leq 13.50\text{ m}^2$
White / cream-white, non-reinforced	$\leq 4.25\text{ m}$	$\leq 12.75\text{ m}^2$
Non-white, reinforced / non-reinforced		

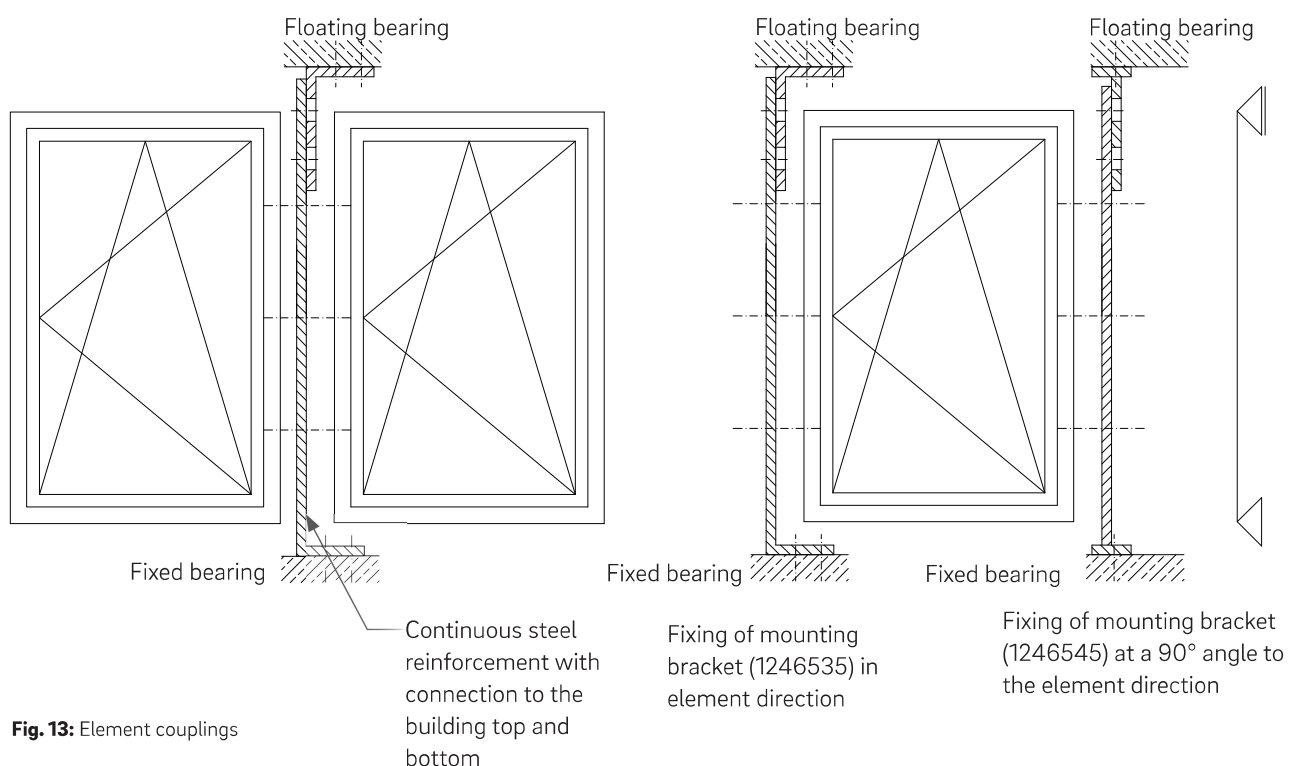
Maximum profile length for elements with one-sided corner mullion:

Outside profile color	Maximum element width	Maximum element area
White / cream-white, reinforced	$\leq 4.00\text{ m}$	12.75 m^2
White / cream-white, non-reinforced	$\leq 3.00\text{ m}$	12.00 m^2
Non-white, reinforced / non-reinforced		

From these profile lengths and over, the frame joints must be designed as expansion joints (Fig. 14). These expansion joints must not be bridged using frames, support profiles, etc. In addition, the movement of the profiles must not be restrained.

Recommendation for non-white elements with a profile length of 2.5 m or more:

- Do not fill the installation joint in the corner area of the frame profile with foam (distance from the frame corner, approx. 300 mm).
- Use of expansion accommodating insulating material
- The fastening material must enable the frame profile to change length due to thermal influences



Maximum profile length with one-part fixed glazing:

Profile color	Profile length
"White" (cream-white) on both sides	≤ 3.0 m
"Non-white" on the outside / "White" on the inside	≤ 3.0 m ¹⁾
"Non-white" on both sides	≤ 2.5 m

¹⁾ taking into account that white glazing beads are glued in the corners
(as per specifications in chapter "Fabrication guidelines", sec. "9. Profiles under thermal load").

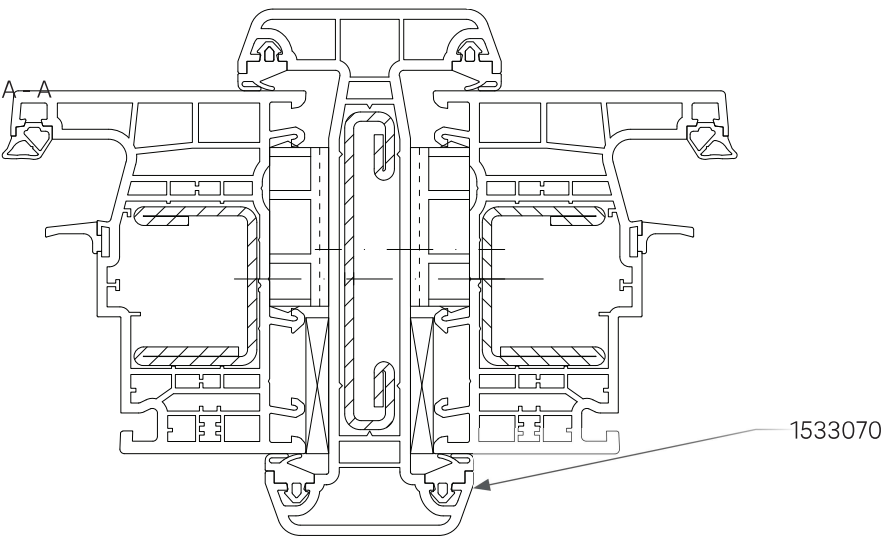
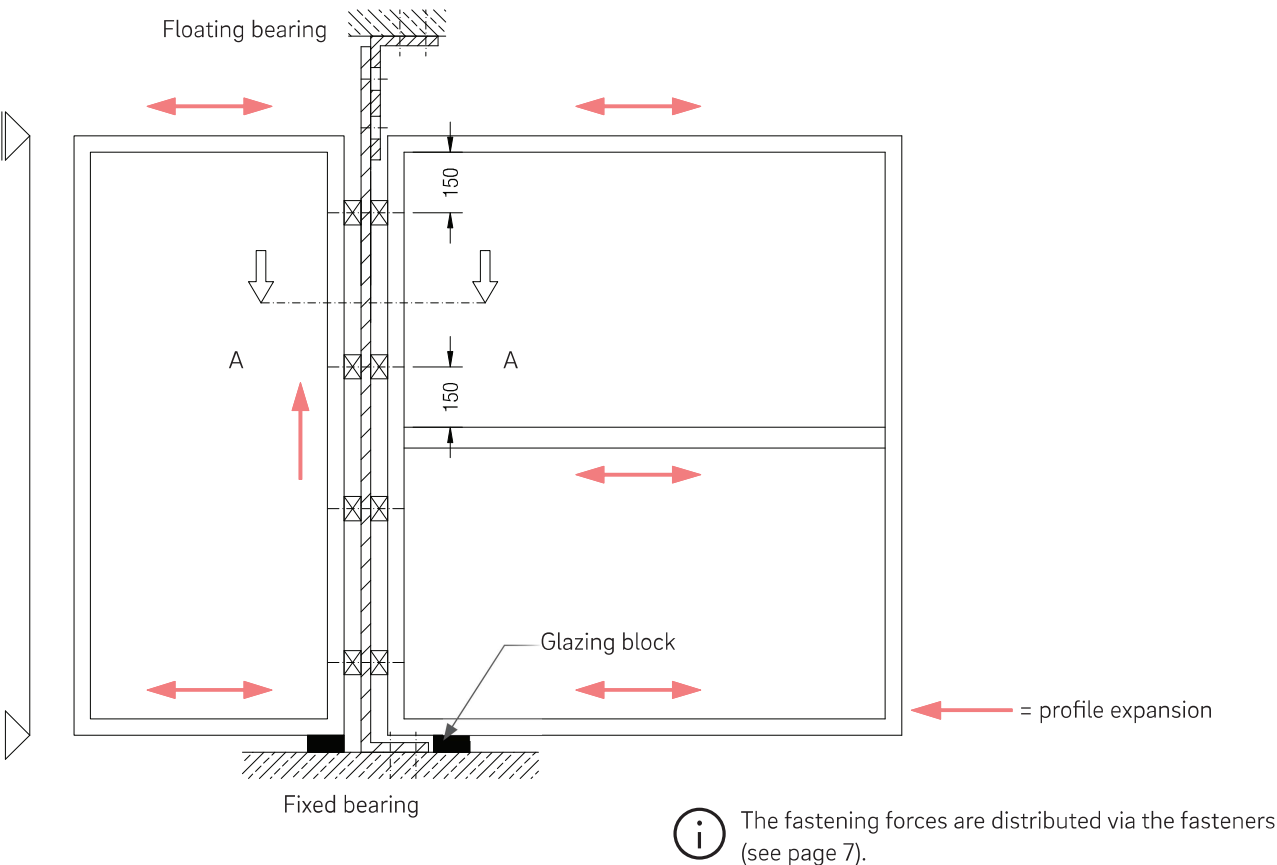


Fig. 14: Element expansion joint

Load distribution via frame extensions

When using extensions with a face height exceeding 60 mm, fastening to the masonry using claws/tie bolts or screws/ bolts is not sufficient. In such cases, the extension profiles must be fastened, e.g. with angles (fig. 15).

Element view

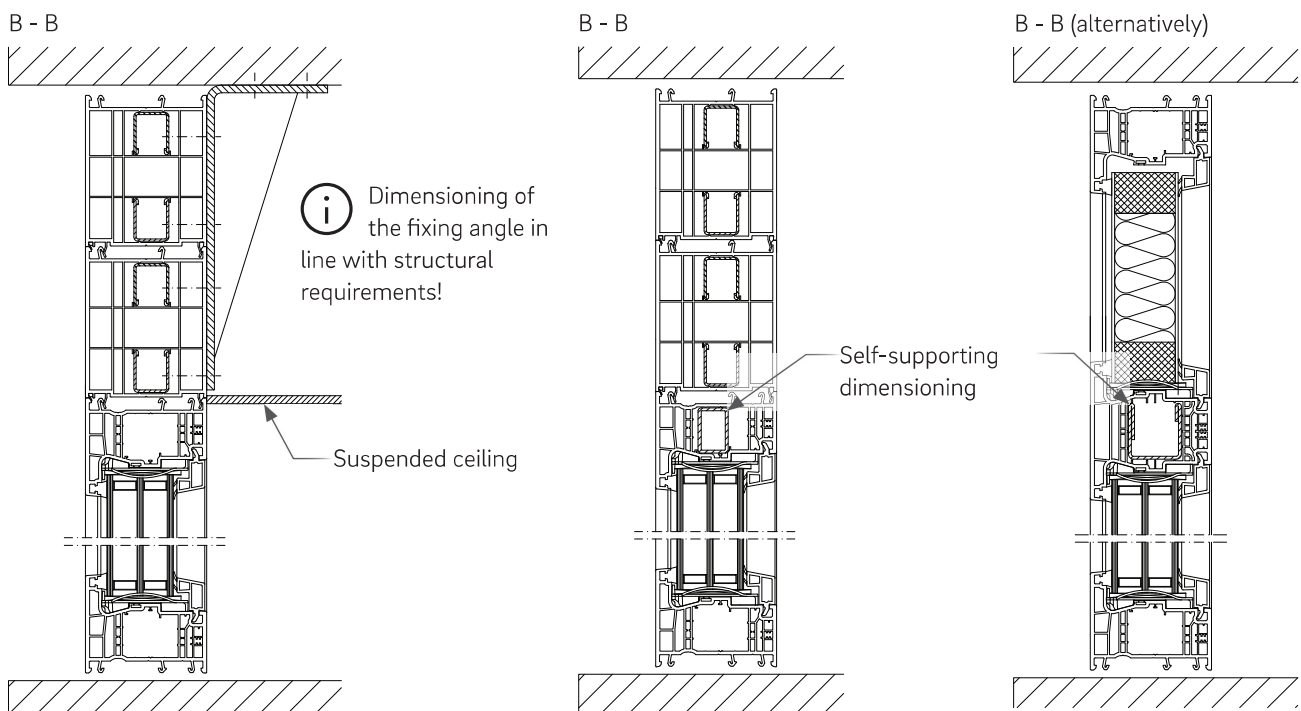
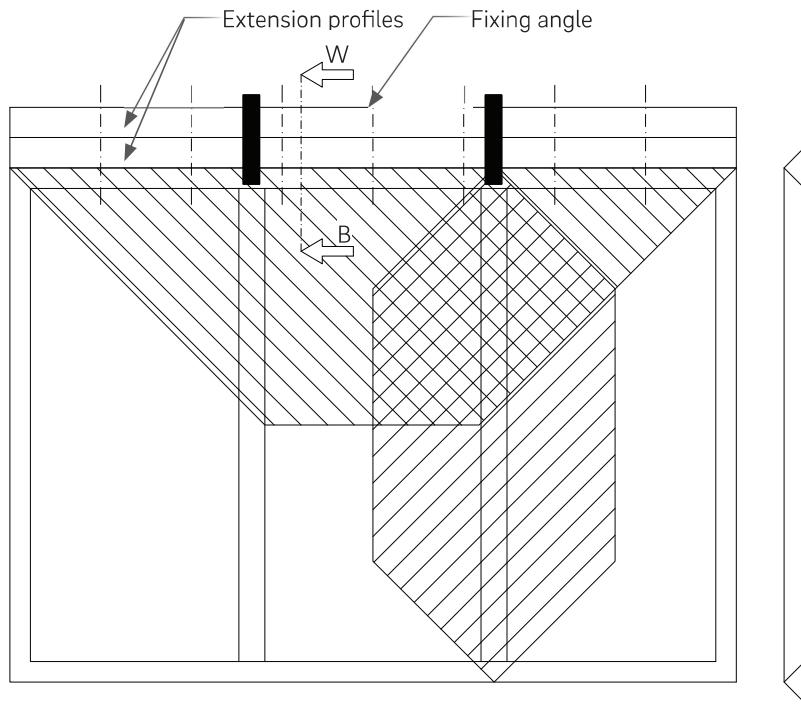


Fig. 15: Fixing frame extensions

03 Sealing and insulation

03.01 Joint sealing

Windows and doors including connecting joints must be able to permanently withstand the effects given in fig. 1. To meet this requirement, the correct design and detailing of the construction joint is of the utmost importance in terms of joint geometry, insulation and waterproofing.

Water is everywhere and in its different aggregate states (gaseous, liquid and solid) it is the general cause of many building defects, whether through direct infiltration from the outside (e.g. rainwater) or via condensation of diffused water vapor (from the inside).

Windows and their connection joints are therefore affected by driving rain from the outside and by the high relative air

humidity of the interior and the resulting condensation.

Therefore, the following principles apply to the correct sealing of the connecting joint:

The outside of the building has to be protected against rainwater. Rainwater is not permitted to penetrate the connecting joint, and at the same time, moisture that may penetrate the sealing joint must be allowed to dissipate to the outside.

Correct sealing on the inside must prevent penetration of damp room air.

These basic requirements require a joint structure in line with fig. 16:

Function level 1:

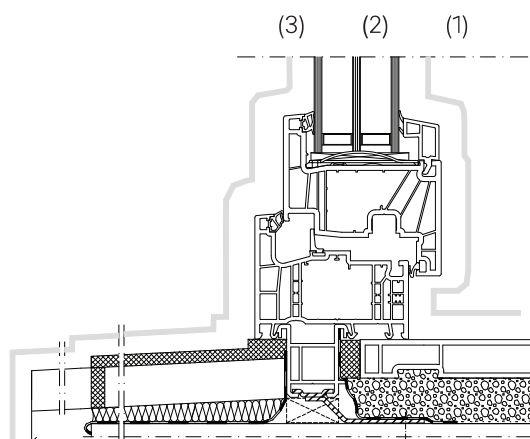


Fig. 16: The level model

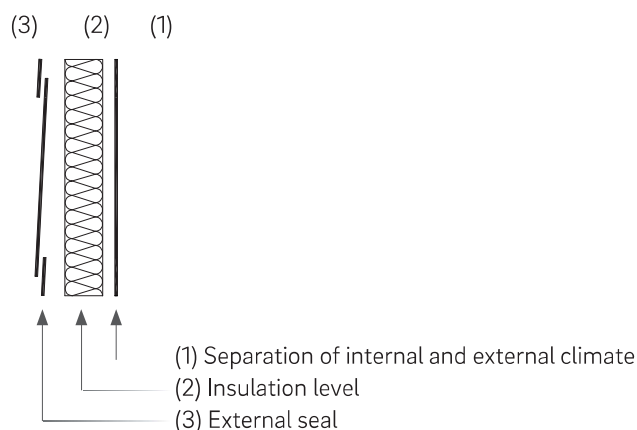
Separating of interior and exterior climate: airtight, even more impermeable than the exterior seal. The level separating the interior and exterior climate may not be interrupted and be apparent over the completely interior surface of the exterior wall. Its temperature must be above the dewpoint temperature of the room.

Function level 2:

Insulating level: sound and thermal insulating material. In this area, in particular the performance of thermal and sound insulation must be ensured over a reasonable period of time. To ensure these functions, this area must "stay dry" and be fully separated from the internal air.

Function level 3:

External seal – Weather protection



permanently watertight under heavy rain, vapour diffusion permeable, UV resistant material. The level of weather protection from the external side must prevent virtually all ingress of driving rain and carry off penetrated rainwater to the outside in a controlled manner.

At the same time any penetrated moisture must be able to escape from the functional area to the outside.

From these findings, the following principle is derived:

"The inside is more tight than the outside".

The position of the window in the masonry also influences the formation of condensation on the surface profile and reveal area caused by the temperature of the internal component surfaces. DIN 4108 (here especially Part 7 and Addendum 2) and DIN EN ISO 10211-2 regulate the relevant conditions on site.

Installation should be carefully planned in advance applying the standards given.

i According to the principle "inside sealed tighter than outside", functional levels 1 and 3 are combined (see Figs. 17 and 18). Observe the information provided by the manufacturers. Detailed illustrations are given in the IVD Data Sheet No. 9 "Sealants in connecting joints for windows and external doors - Principles for design and construction". The design of functional level 3 must ensure water tightness, functional level 1 is used to separate internal and external air. In functional level 1, install the sealing materials in such a way that they are closed on all sides. Paste-like adhesives are to be used on surfaces which are not

smooth. Do not use bituminous membranes.

The seal level should also be continued in the area of the window sill side connection (fig. 19).

The choice of sealing material used is determined by the external wall system, i.e. the wall connection. Selection criteria are the joint geometry and the material of the wall connection (masonry). Observe the information provided by the manufacturer on the sealing materials to be used, e.g. the processing instructions for the correct application of pliable sealants. This applies primarily to the surface humidity, pressure resistance, temperature, material compatibility and surface adhesion. Pretreatment may be required depending on the condition.

i **For the renovation of old buildings:**
Note the quality of the existing plaster!

Fig. 17: Examples of external joint seal

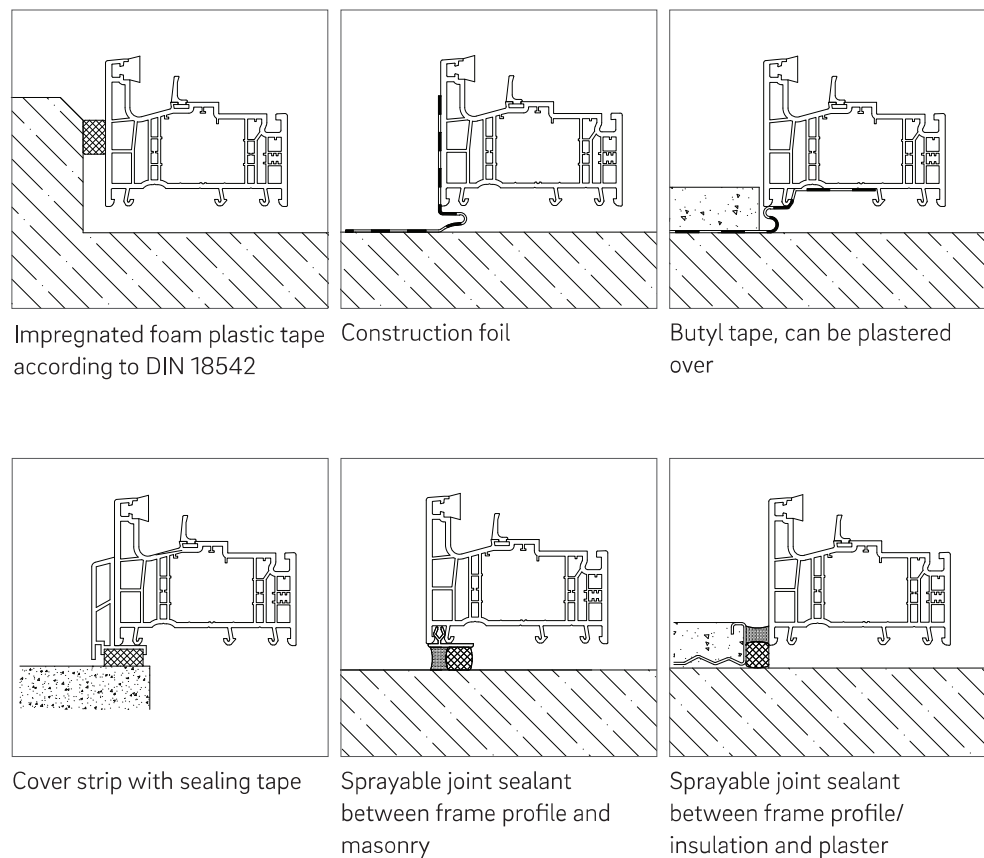


Fig. 18: Examples of internal joint sealing

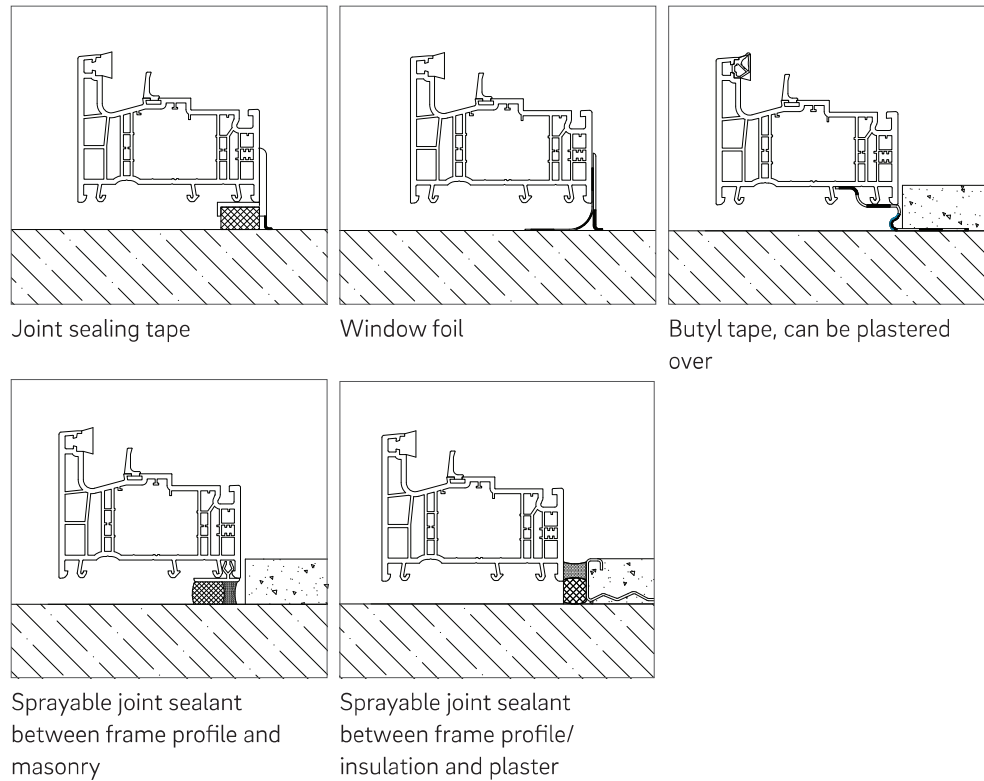
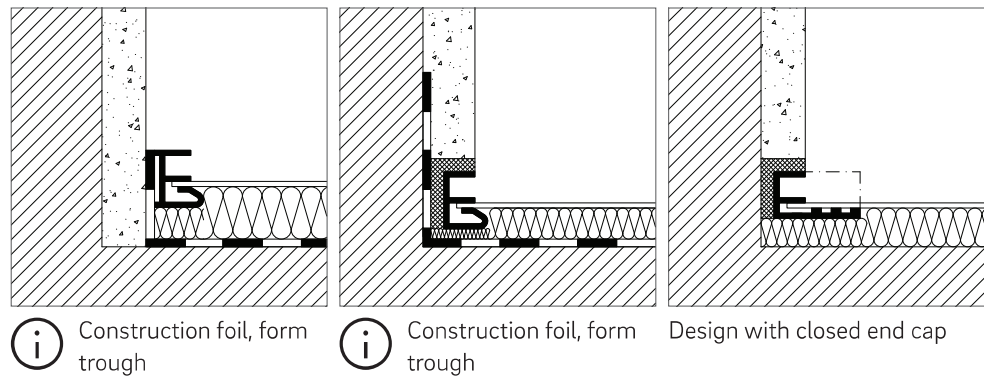
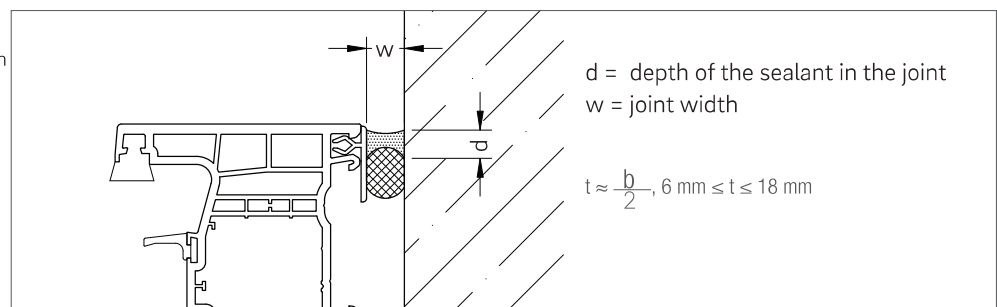


Fig. 19: Seal in the area of the window sill side connection



When using sprayables sealants, precise sizing of the joint is a prerequisite for a permanent seal (Fig. 20).

Fig. 20: Dimensioning a joint when using sprayables sealants



As "rigid PVC" is affected by the thermal load causing expansion or shrinkage (see table 1), construction joints must be planned and designed in such a way that the sealing materials can absorb the frame movements without breaking away from their sealing level.

No stress cracking must occur either in the welded frame corners.

The minimum joint width can be found in tables 2 and 3 depending on the sealing system used. Compliance with the

minimum joint widths does not exempt from compliance with the manufacturer's specifications for sealants and sealing tapes.

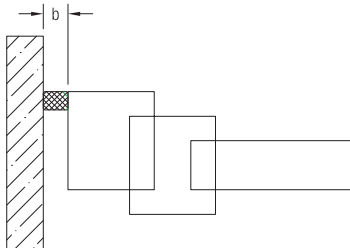
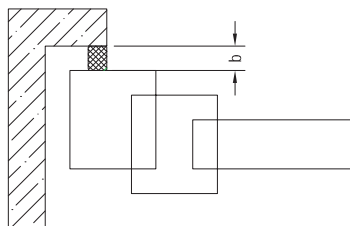
Element exterior color	Joint design with sealing tape for element width/height							
								
	up to 1.5 m	up to 2.5 m	up to 3.5 m	< 4.5 m	< 2.5 m	< 3.5 m	< 4.5 m	
White	8 mm	8 mm	10 mm	10 mm	8 mm	8 mm	8 mm	
Non-white	10 mm	10 mm	10 mm	12 mm	8 mm	8 mm	8 mm	

Table 2: Minimum width of sealing tapes

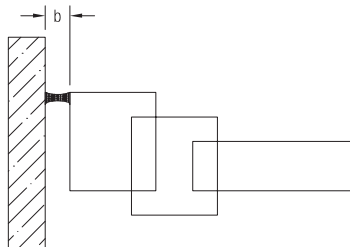
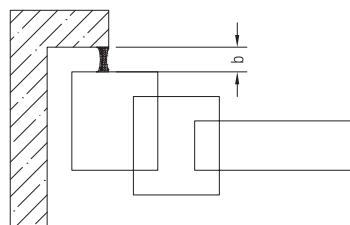
Element exterior color	Joint design with sealing for element width/height							
								
	< 1.5 m	< 2.5 m	< 3.5 m	< 4.5 m	< 2.5 m	< 3.5 m	< 4.5 m	
White	10 mm	15 mm	20 mm	25 mm	10 mm	10 mm	15 mm	
Non-white	15 mm	20 mm	25 mm	30 mm	10 mm	15 mm	20 mm	

Table 3: Minimum width of seals

03.02 Joint insulation

The following materials can be used to insulate joints:

- 1-component PUR foam,
- 2-component PUR foam,
- glass wool,
- rock wool,
- spray cork,
- insulation tapes.

i During the installation that the insulating materials used must remain dry in order to retain their insulating function

During the hardening process, PUR foams expand and create

more or less pressure, which has to be absorbed by the window construction.

i For roller shutter boxes:
The hardening PUR foam must not cause any deformations in the area of the head pieces and the external cover profile (see fig. 21). Alternative insulating materials are to be used here or the PUR foam is to be applied with appropriate care.

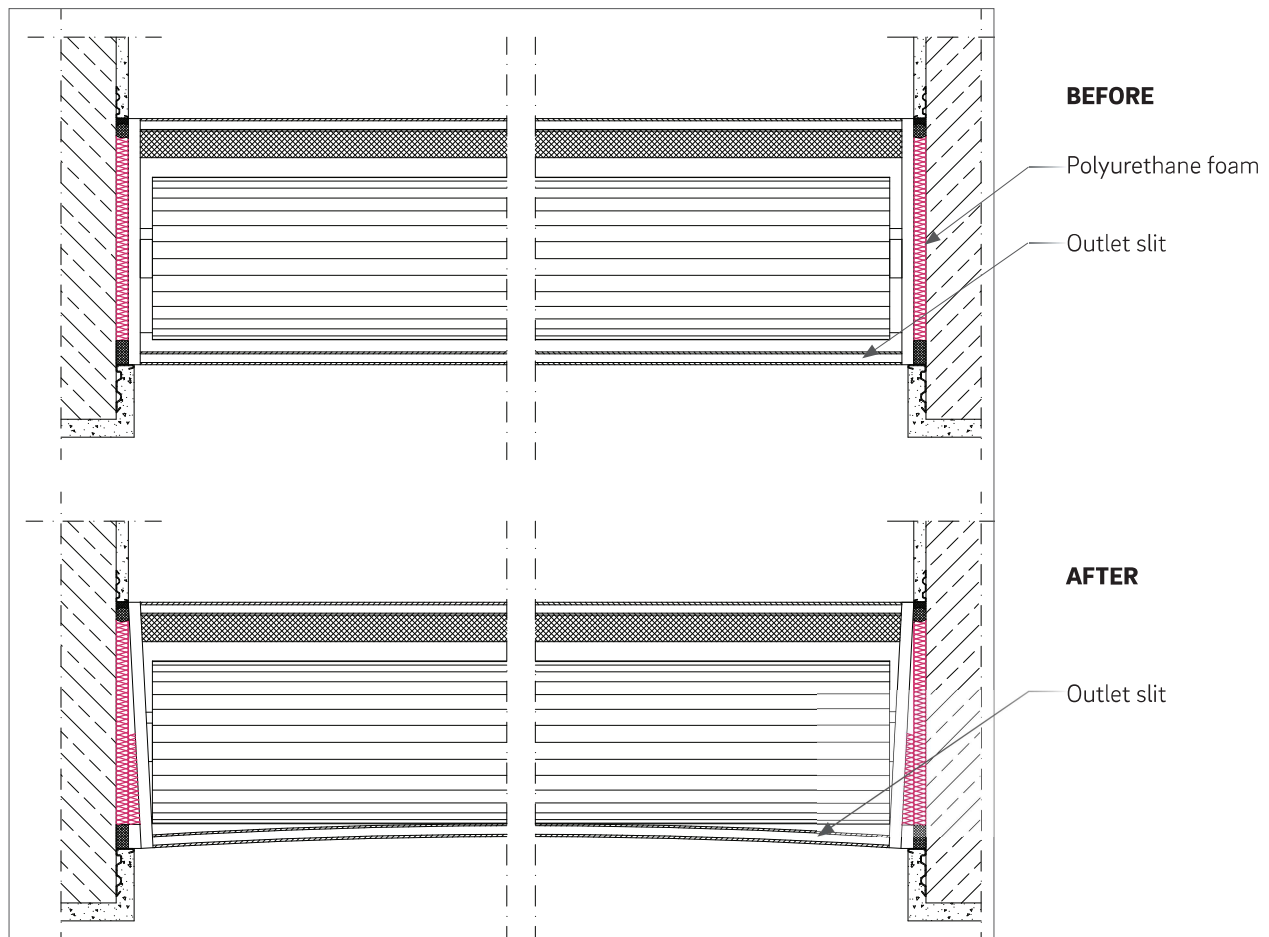


Fig. 21: Insulation in the area of the roller shutter box

03.03 Joint construction



The connection joint must be dimensioned so that the structural movements, e.g. from the lintel or ceiling deflection (as a rule, $L/500$ span), can be absorbed.

The following should be taken into account:

- The structural movements must not be transferred to the window element through spacing blocks or fasteners.
- The insulating materials used must be able to absorb the deformations that occur (e.g. stone, glass wool, insulating tapes, etc.).

04 Measurement

The threshold details of entry doors and casement doors must be specified in advance.

To avoid errors, record the actual site conditions directly at the building site. This includes the actual conditions on site and the precise site measurements of all window reveals. The German construction contract procedures VOB/B Section 4 No. 3 specify the inspection of the work carried out by the preceding trades, by the contractor with the option of raising concerns in writing. It is recommended to proceed as follows when checking the condition of the construction and for the notification of defects, which may be required, to the planner or client:

- The construction and details of the external walls and the building materials used form the basis for selecting the necessary fasteners.
- The type and condition of the wall covering (render, plaster, brick, etc.) determine the choice of the internal and external sealing systems.
- The wall structure determines the type of connection and the installation level.
- Potential movements from windows and the building structure are decisive for selecting the connecting profiles and the details of expansion joints.
- Do height reference points (metre marks) exist?
- Are there any detectable thermal bridges and moisture penetration?
- Do the wall openings conform to DIN 18202 "Tolerances in building construction"?
- Are all joints or vertically perforated bricks covered by smooth rendering?

The dimensions of the window reveals must be determined directly at the building. To do this, measure three times the heights (left, centre, right) and widths (top, centre, bottom) of the window openings. The smallest dimension is vital for production!

The metre mark must be provided on each floor and should be positioned not more than 10 m from the point of installation.

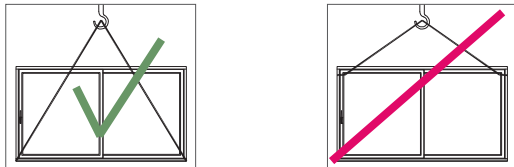
If changes or additional measures become necessary due to exceeding the dimensional tolerances set out in DIN 18202, or deviations from the specified conditions on site, they must be agreed before beginning installation.

Any concerns should always be raised in writing.

05 Transport and storage

When transporting the units and for subsequent storage at the construction site, observe the following:

- secure and stable position of the units,
- vertical transport and storage of the units,
- the crane transport is to be carried out with suitable hoisting belts and slings; it is not permissible to attach or mount onto frame profiles,



- protection against damage caused by shifting, twisting, tilting and deflection of the elements,
- protection against mechanical damage and contamination,
- avoid stacking directly together,
- stress relief of the hardware of larger units using the transport support profile, 1561780,
- no direct exposure of glazing to sunlight (breaking of glass).

After the manufacturing of the window elements by the manufacturer, it must be observed that these window elements are protected against effects of heat/heat accumulation until their provision for installation (this means: no use of transparent or dark packaging foil; no stacking of windows onto each other and no storing without ventilation).

06 General installation guidelines

The windows must be installed plumb and level. Deviations from this requirement should be agreed to in writing.

In the case of window openings with wide clamping (e.g. very wide window elements or horizontal window strips), the size of any possible sill deflection or ceiling deflection must be clarified with the client so that a suitable constructional joint can be formed.

Forces from construction movements must not be transferred to the installed element!

The specific properties of materials used during the installation are to be taken into consideration when installing windows below 5°C.

Avoid direct impacts on the frame and sash parts.

The protective foil has to be pulled off from all profiles immediately following installation. Remove any residue of installation foam adhering to the windows immediately prior to curing.

According to the German construction contract procedures VOB/B Section 4 no. 5, the contractor is responsible for the protection of installed windows against damage until acceptance. It is advisable to agree individual measures with the client, e.g. for protection during subsequent foaming. When rendering/plastering, protect the surfaces of the profiles by applying a cover.

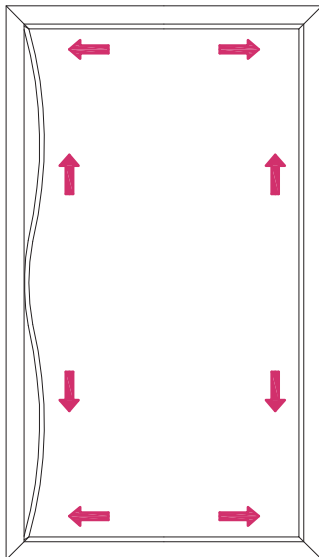
After completing the installation work, check the function of all opening parts for smooth operation and record.



When installing colored elements, the notes in the technical guideline "Correct design and use of colored PVC profiles for windows and front doors" issued by RAL Gütegemeinschaft Kunststoff-Fensterprofilsysteme e. V. must also be observed.

07 Assembly/removal of glazing beads

07.01 Assembly of glazing beads



The cut to size glazing beads are inserted into the glazing bead groove of the sash profile and then pressed or knocked in until they lock into place.

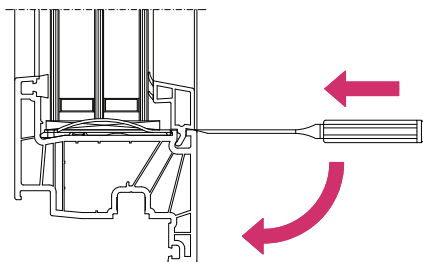
Start with the short glazing beads. The longer glazing beads are bent, inserted into the glazing bead groove in the mitre-cut surfaces on both sides and pressed/knocked in starting from the middle.

Ensure that the mitre-cut surfaces are closed following installation.

07.02 Removal of glazing beads

Press a sharp milled tool (e.g. chisel with a width of at least 15 mm, sharpened trowel) into the joint between the glazing bead and sash profiles and carefully lever the glazing bead out of the glazing bead groove.

Start in the center of the long glazing beads.



08 Quality assurance

In summary, note the following criteria for installation:

Planning:

- type of masonry,
- dimensional specifications,
- anticipated movement,
- joint geometry,
- seal (suitability and compatibility)
- installation level,
- weather protection,
- forces occurring,
- fixing,
- insulation,
- accessory parts.

Production control:

- performance schedule requirements met?
- correct elements?
- matching accessories?
- detail drawings?

building inspection prior to commencing the installation:

- building tolerances?
- walls straight?
- flat coating?
- wall stop?
- reveals in the area of the sealing levels smooth?
- connection elements free from defects?
- installation for a model room required?

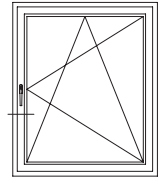
Instructions for installers:

- using detail drawings,
- treat crucial details with special care,
- discussion of the installation instructions and deployment of a responsible site manager,
- only install windows in perfect condition!
- check dimensional accuracy prior to installation!
- position the windows - inspection!
- is the required joint width of 10-20 mm available?
- are the fixing devices adequate?
- what path do the sealing levels follow?

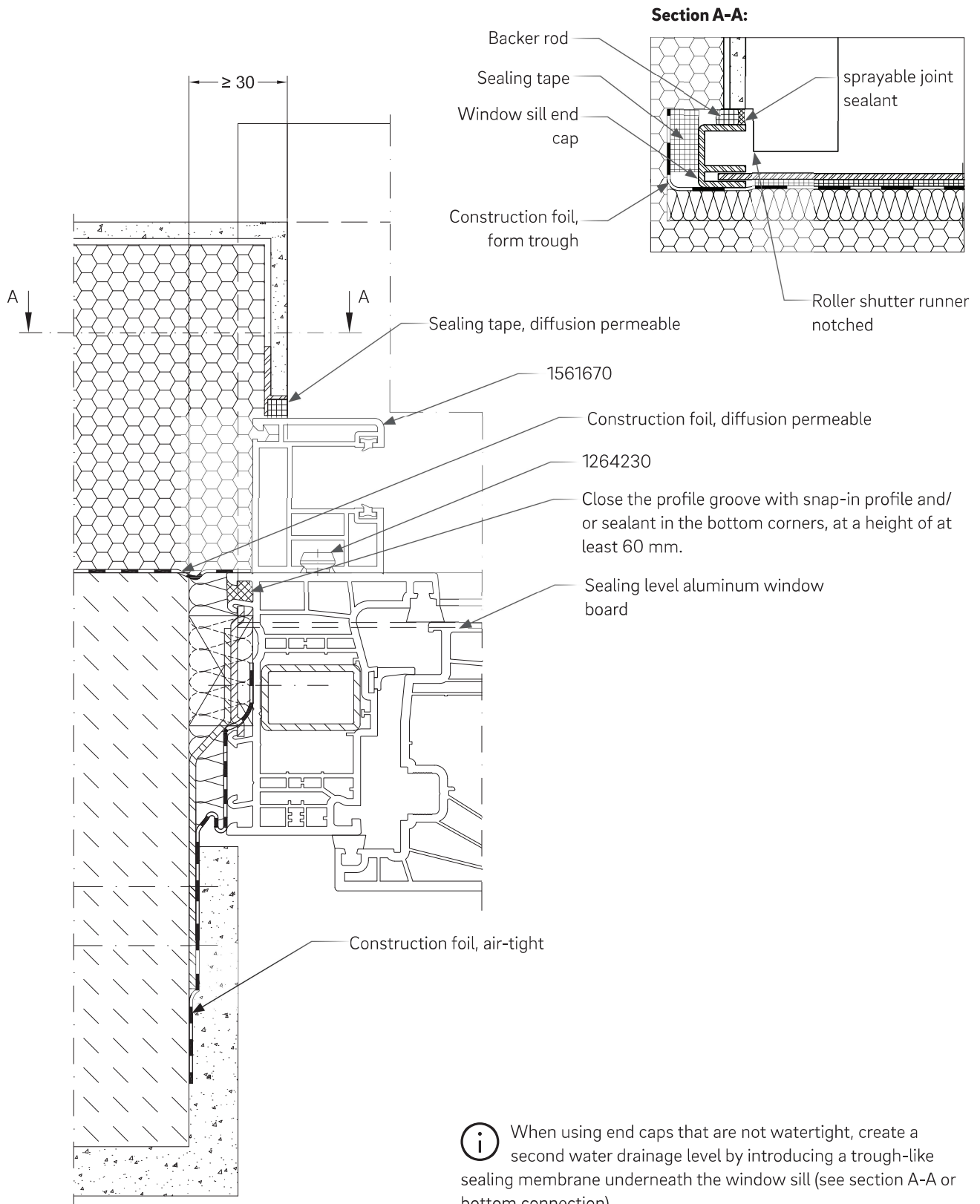
Acceptance of work:

- An acceptance of the work should be carried out in every case.
- Are sound insulation measurements required? If so, then only with the jobsite manager.

09 Installation examples

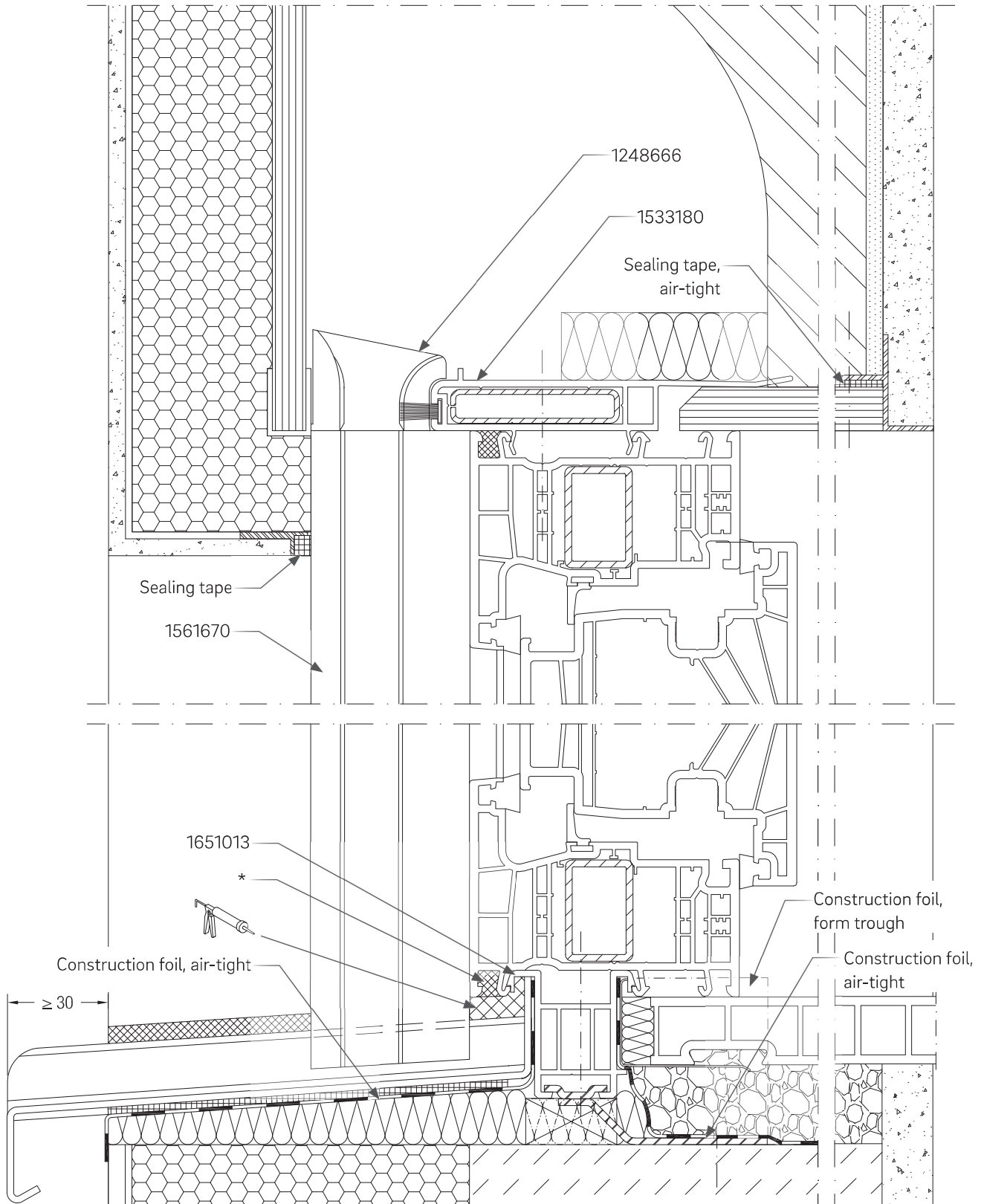
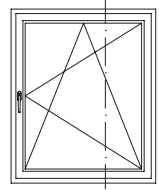


09.01 Masonry with ETICS, window unit with on-site roller shutter box

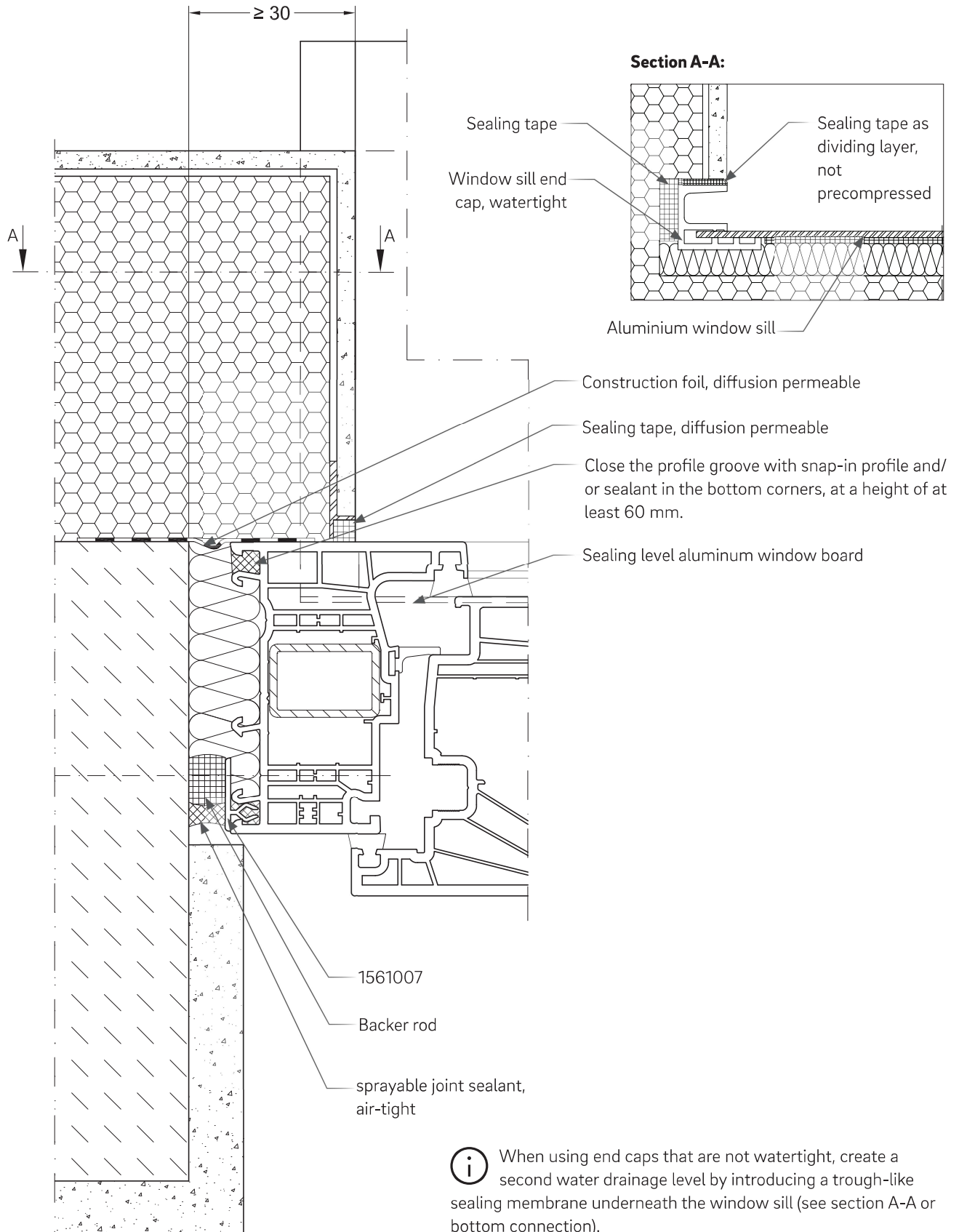
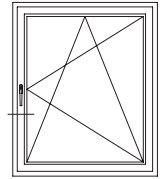


Masonry with ETICS, window unit with on-site roller shutter box

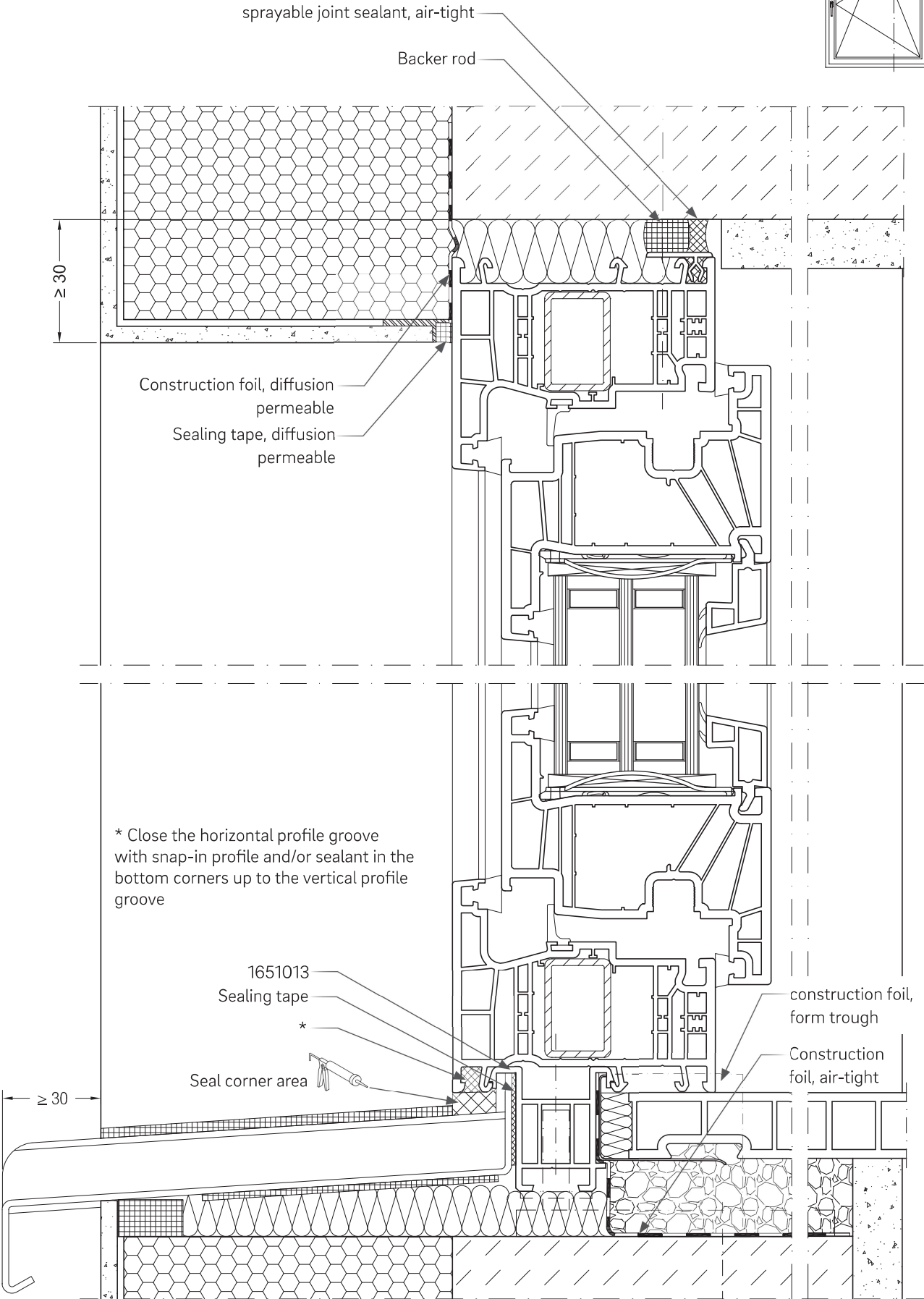
* Close the horizontal profile groove with snap-in profile and/or sealant in the bottom corners up to the vertical profile groove



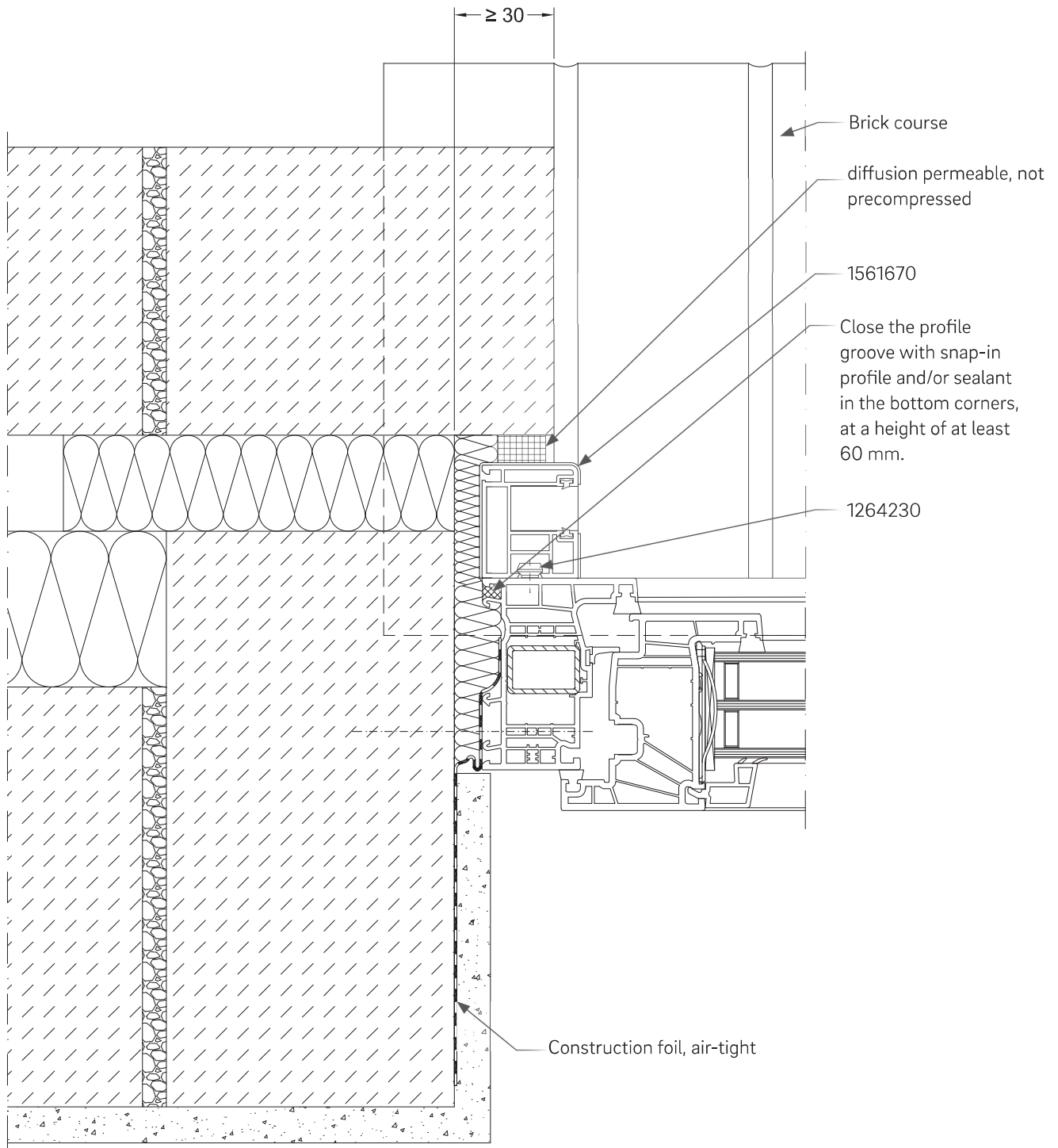
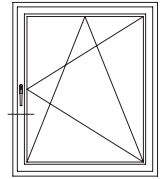
09.02 Masonry with ETICS



Masonry with ETICS

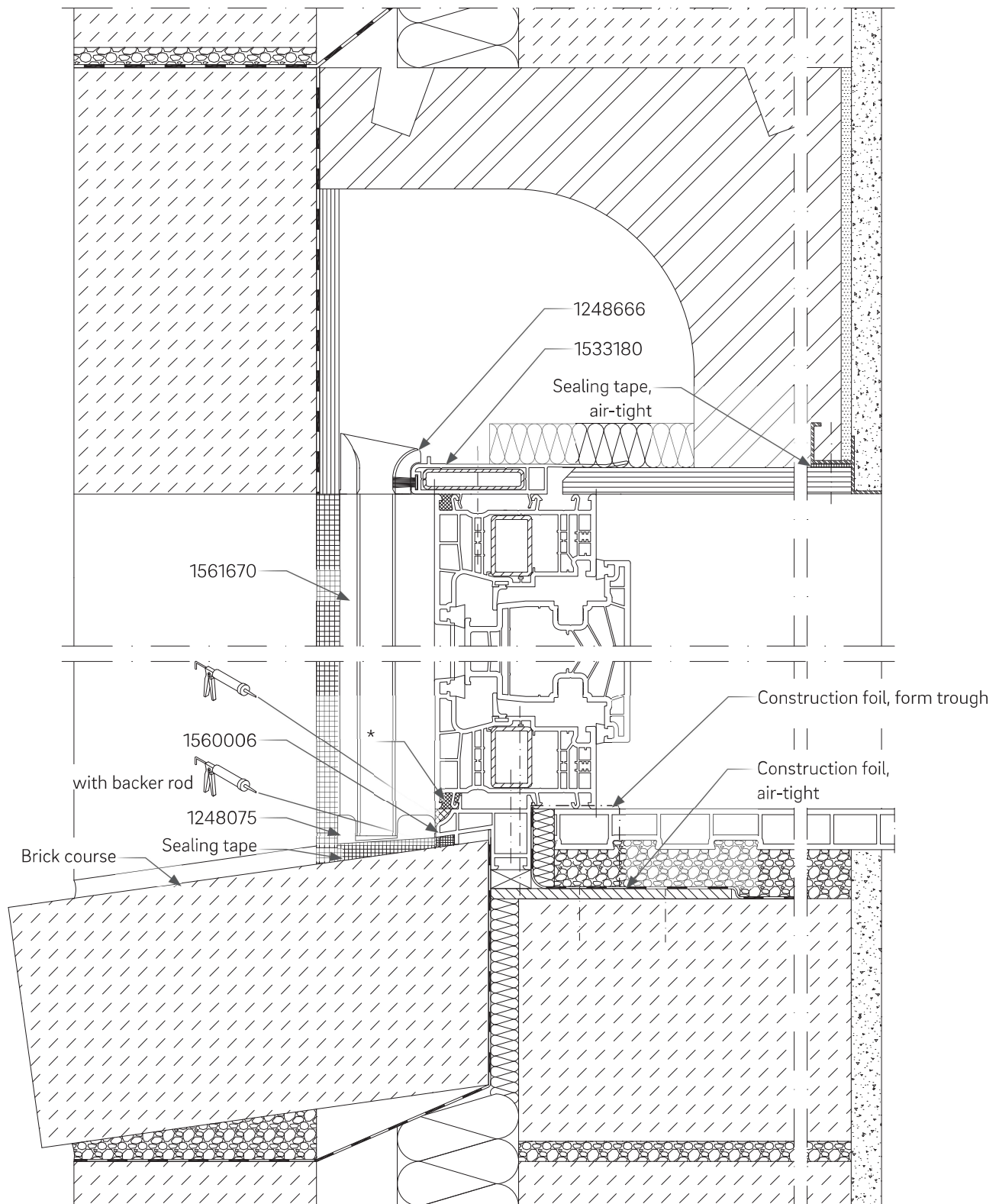
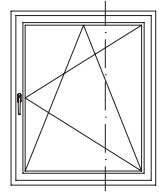


09.03 Double skin brick masonry, window unit with on-site roller shutter box

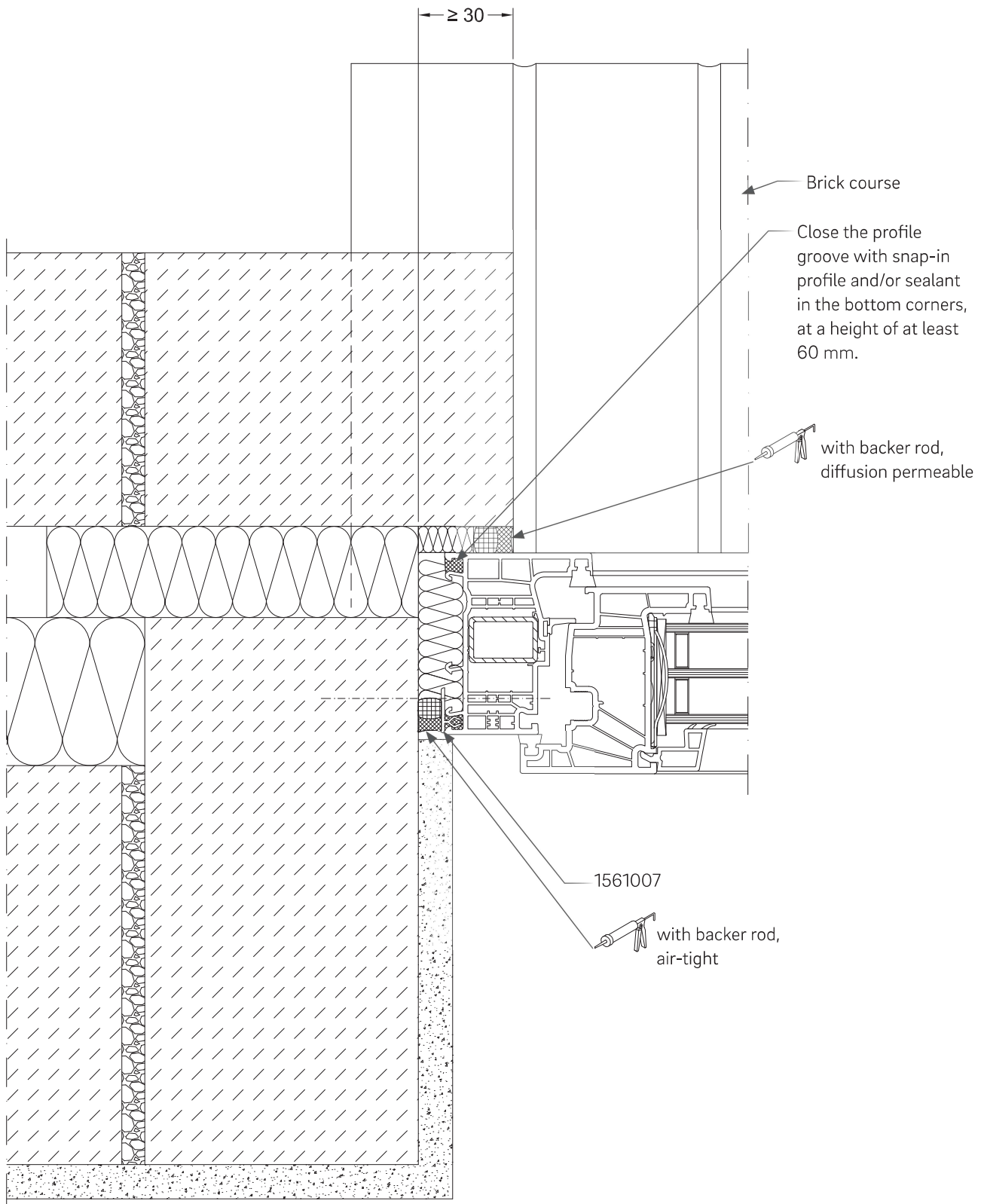
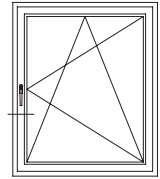


Double skin brick masonry, window unit with on-site roller shutter box

* Close the horizontal profile groove with snap-in profile and/or sealant in the bottom corners up to the vertical profile groove



09.04 Double skin brick masonry

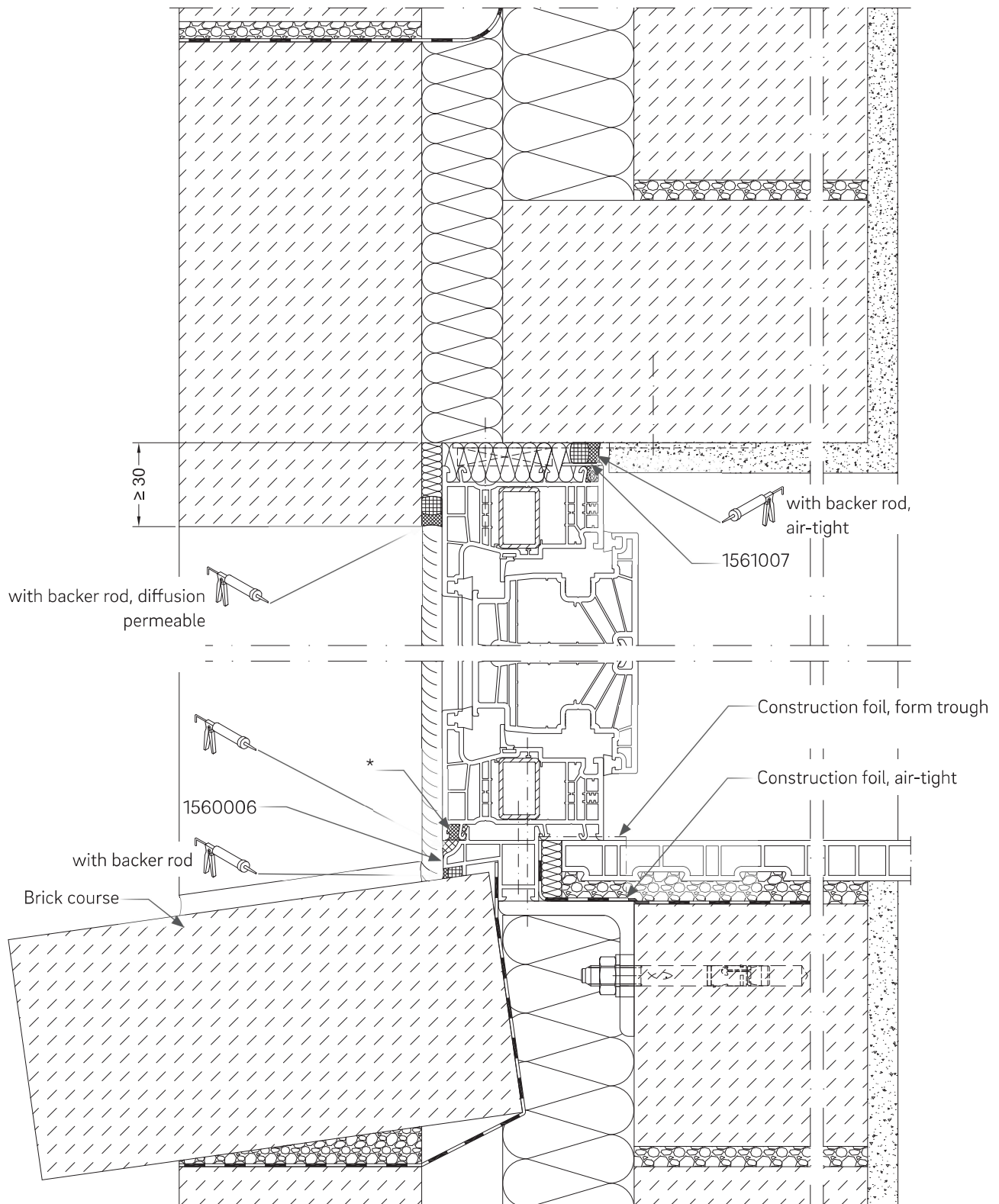
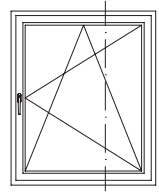


Double skin brick masonry

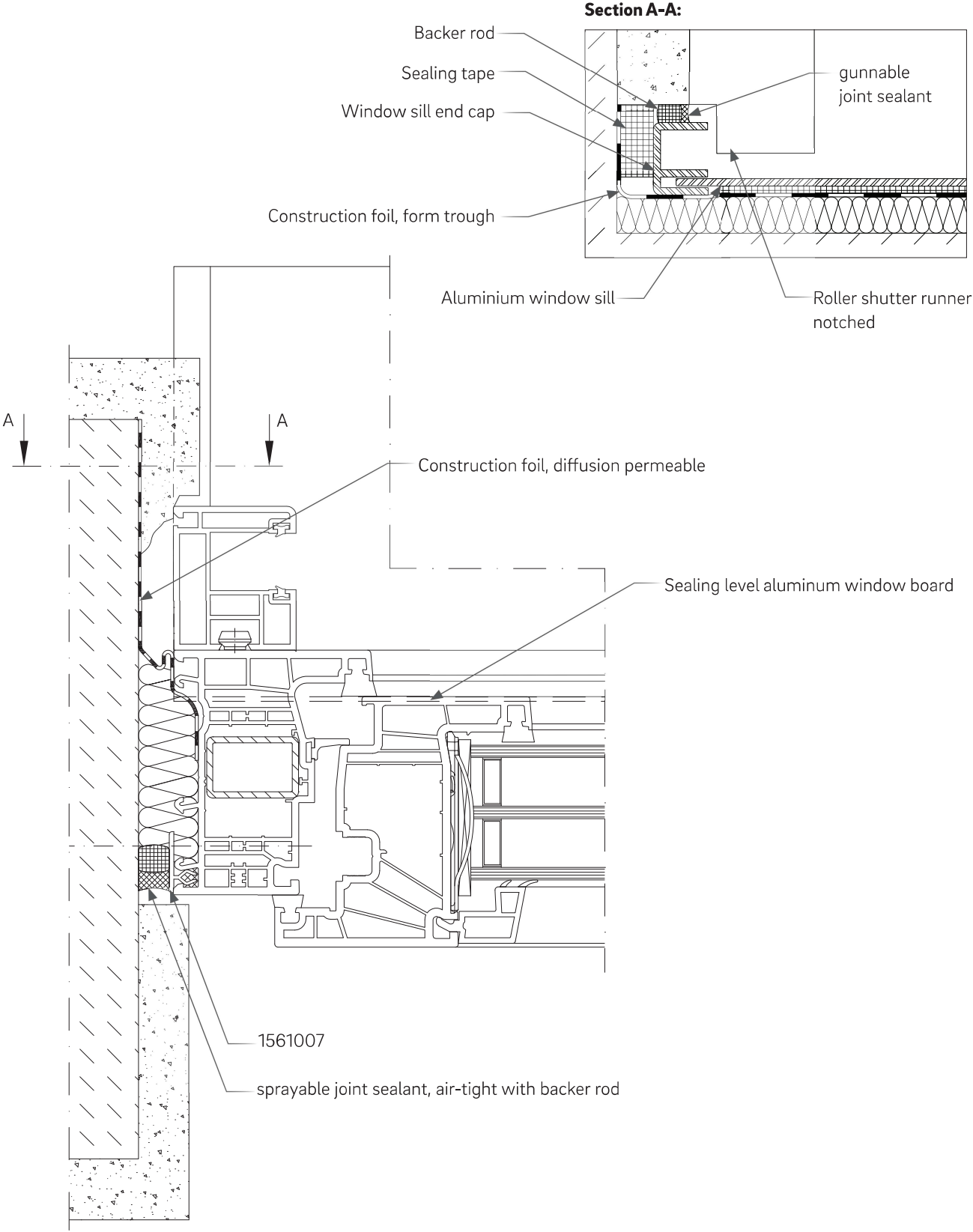
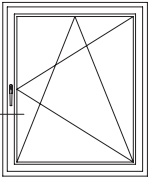


Fastening the element e.g. using SFS window installation rail JB-D or similar.

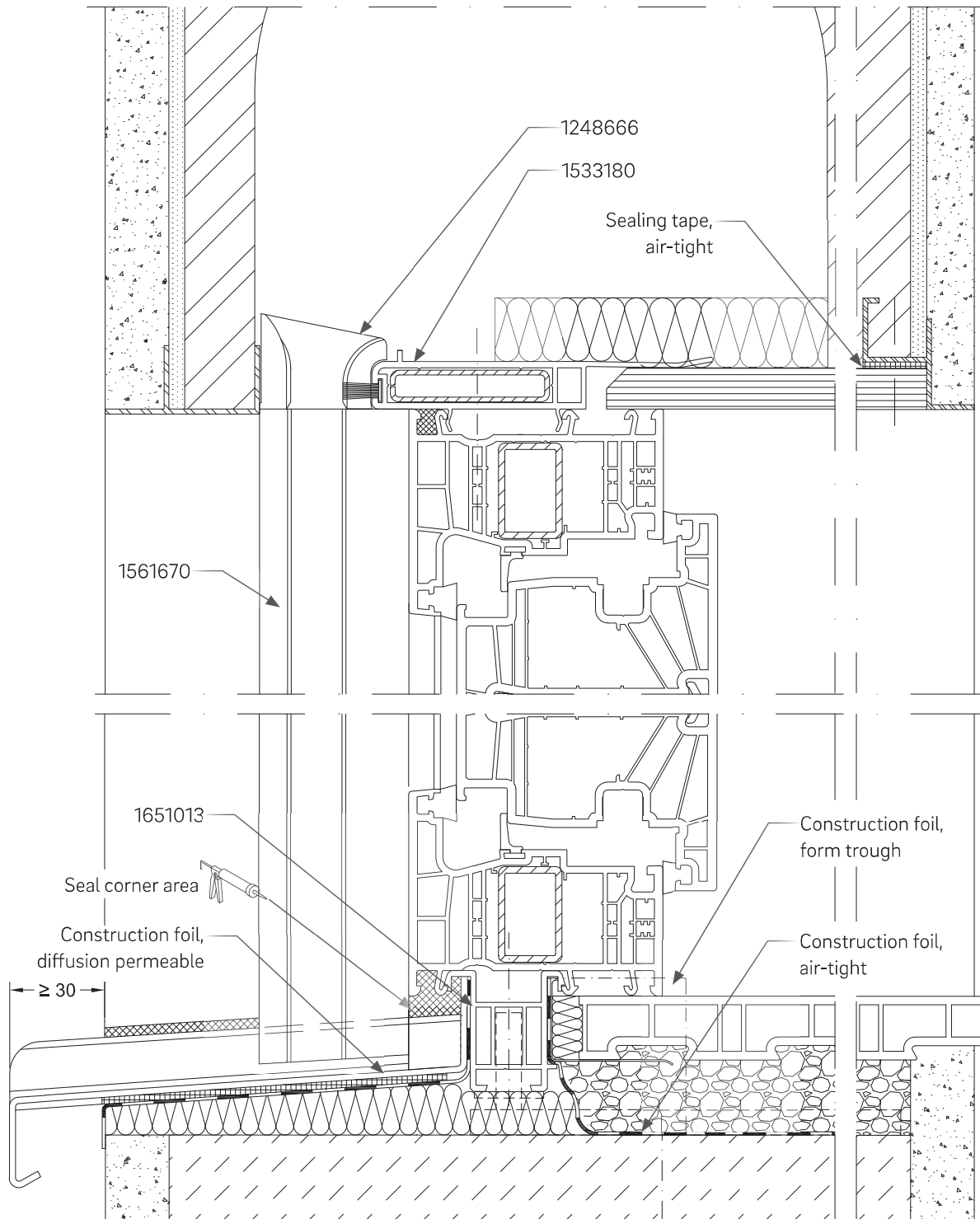
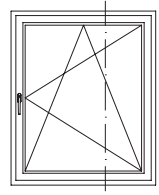
* Close the horizontal profile groove with snap-in profile and/or sealant in the bottom corners up to the vertical profile groove



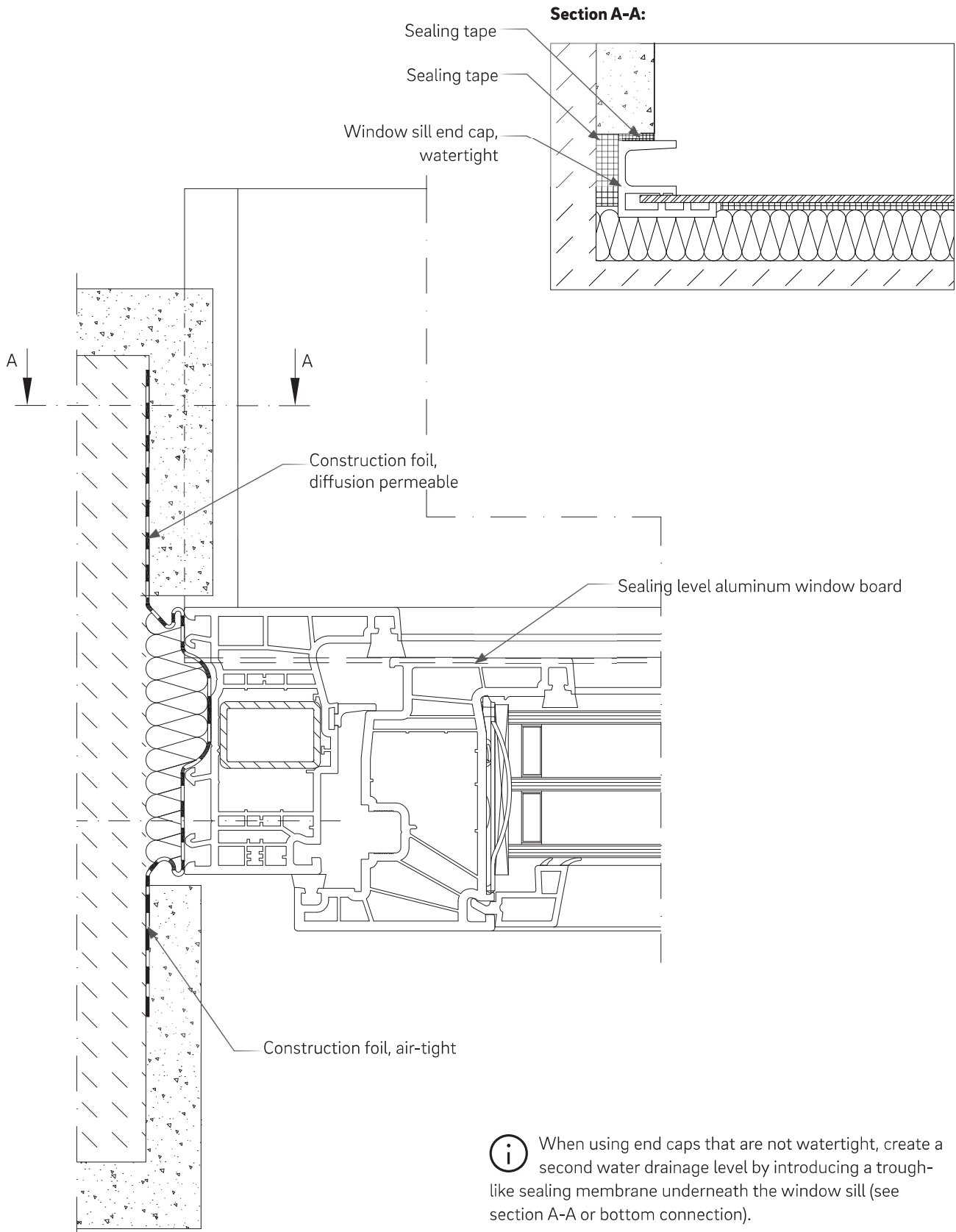
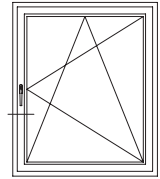
09.05 **Single skin rendered masonry (no wall rebate), window unit with on-site roller shutter box**



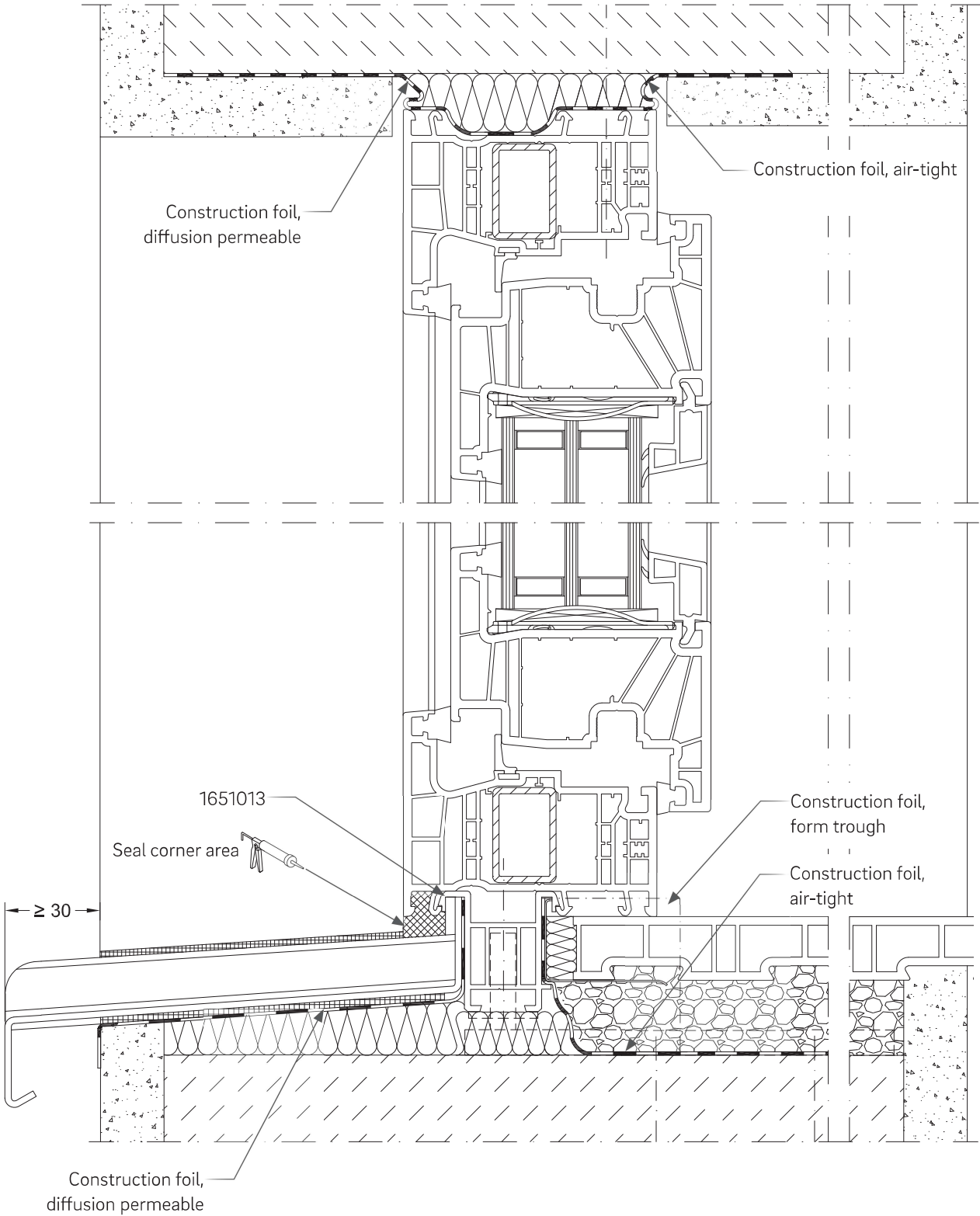
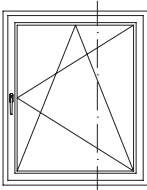
Single skin rendered masonry (no wall rebate), window unit with on-site roller shutter box



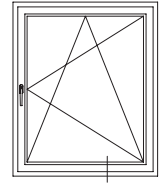
09.06 Single skin rendered masonry (no wall rebate)



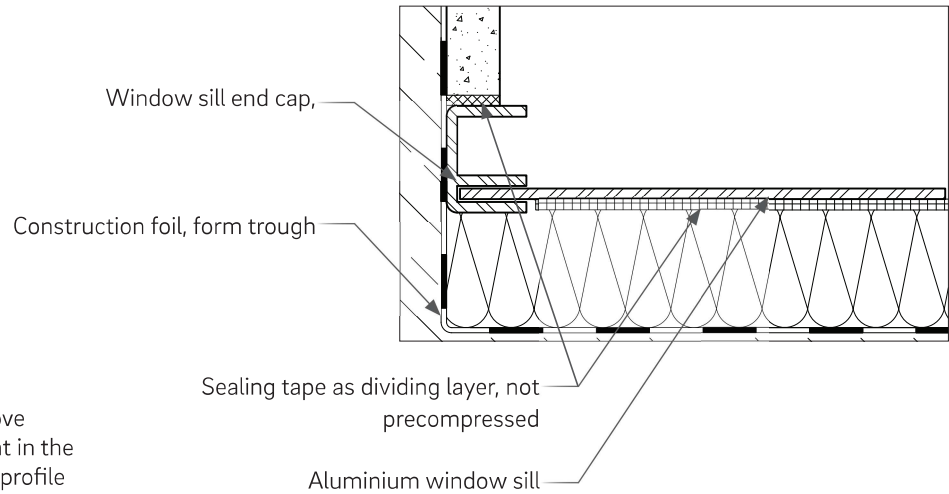
Single skin rendered masonry (no wall rebate)



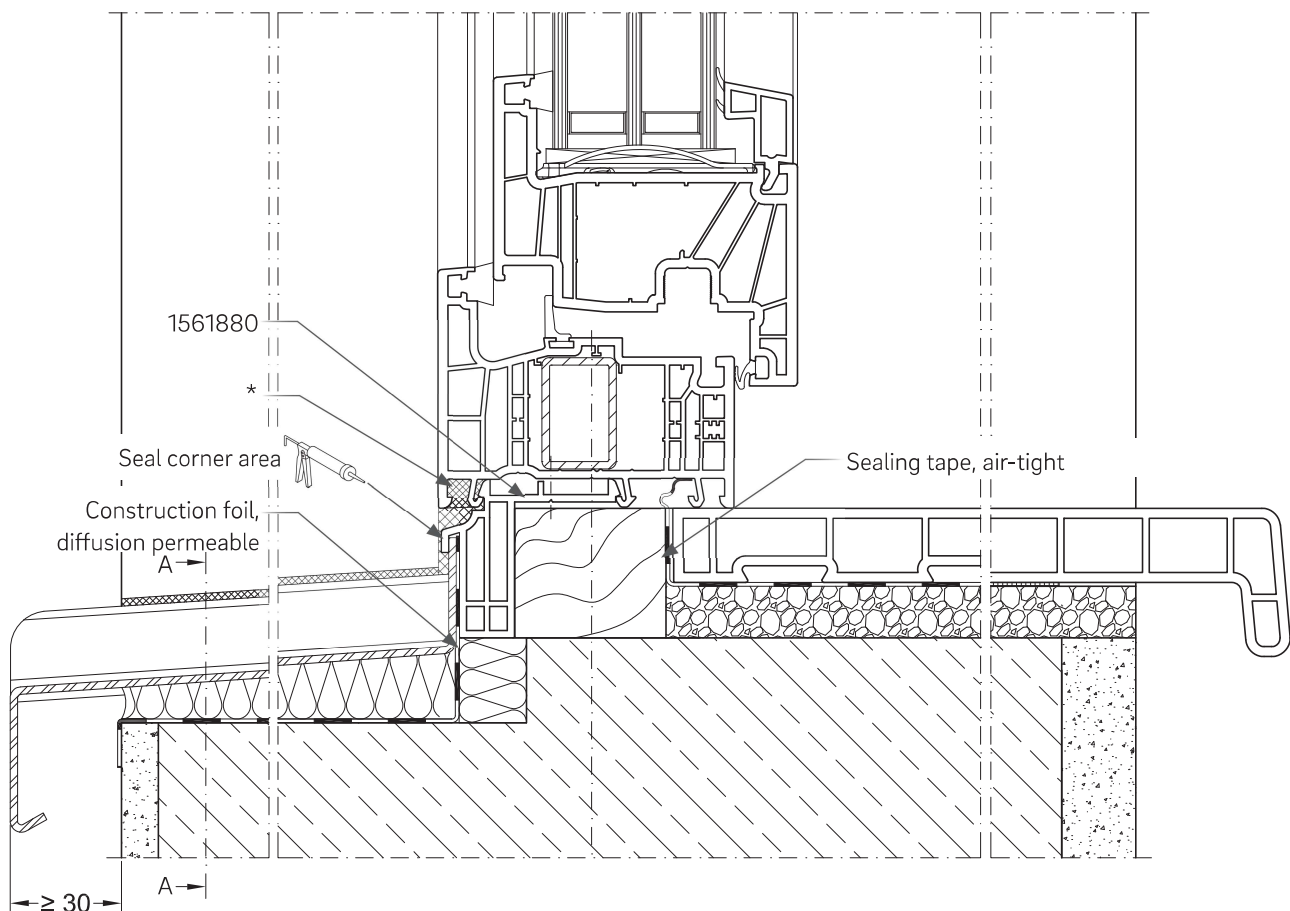
09.07 Bottom connection, sill no.37



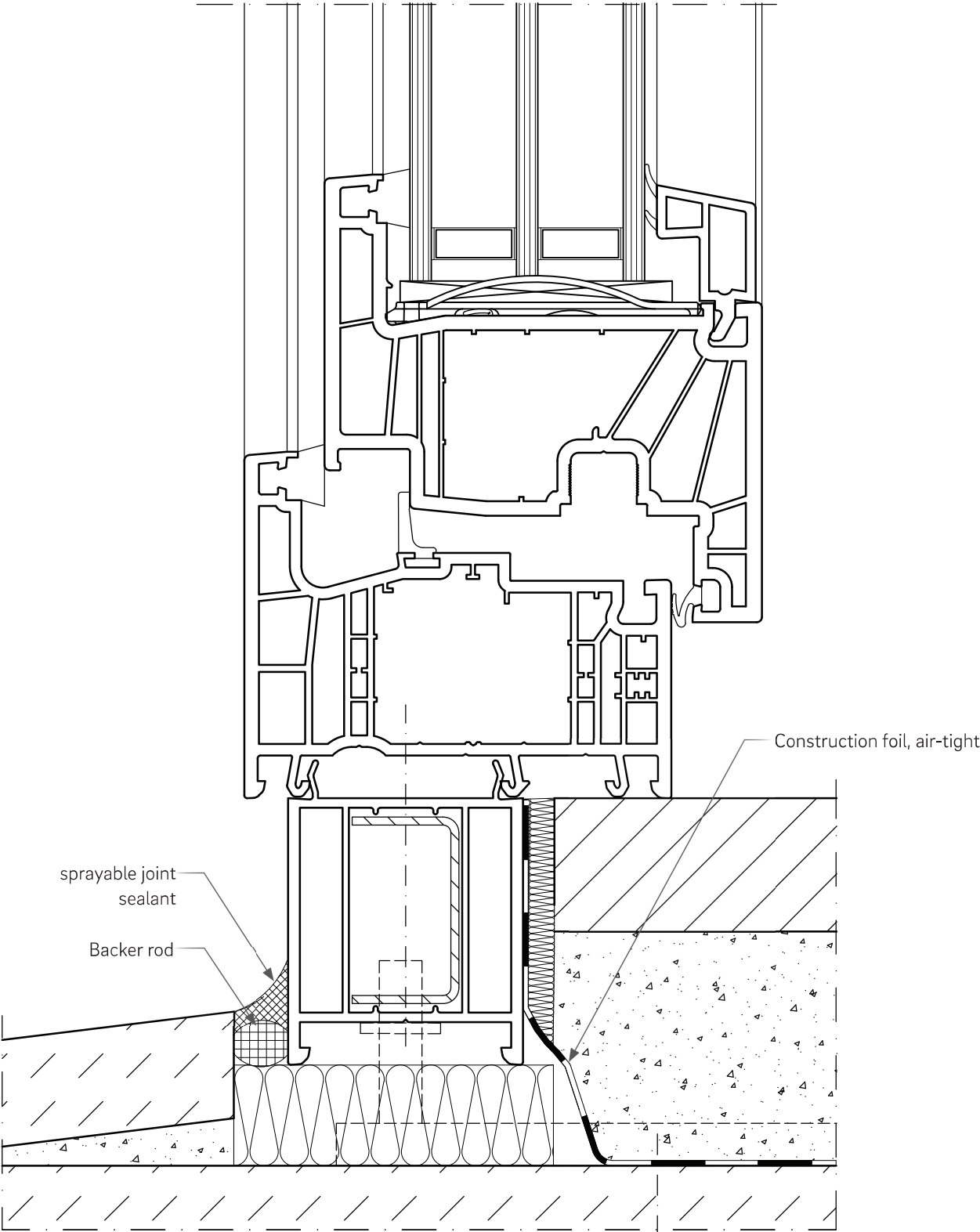
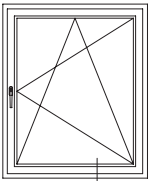
Section A-A:



* Close the horizontal profile groove with snap-in profile and/or sealant in the bottom corners up to the vertical profile groove and also close the vertical profile groove at a height of at least 60 mm

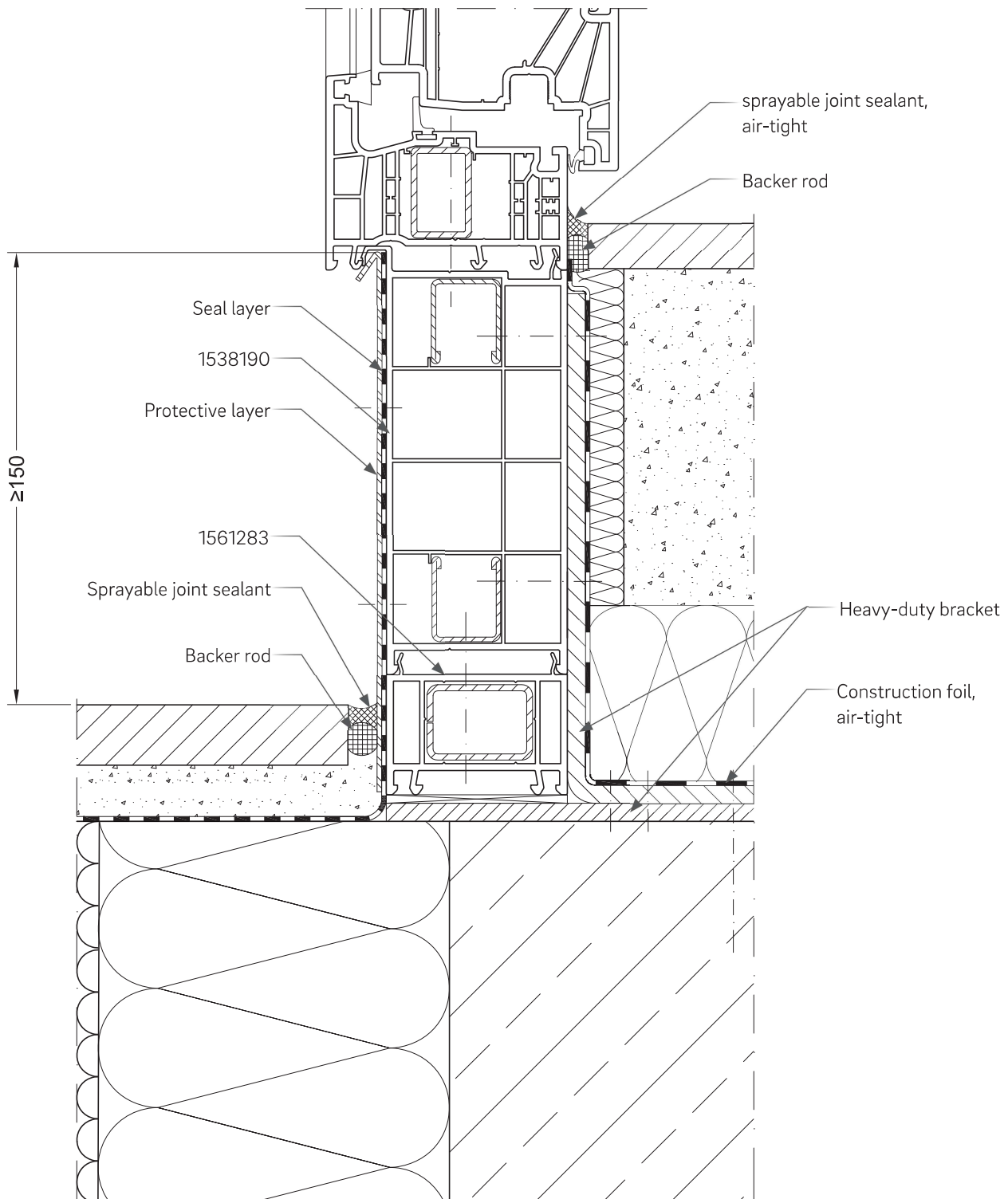
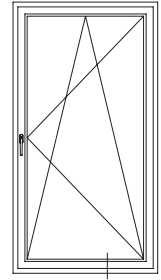


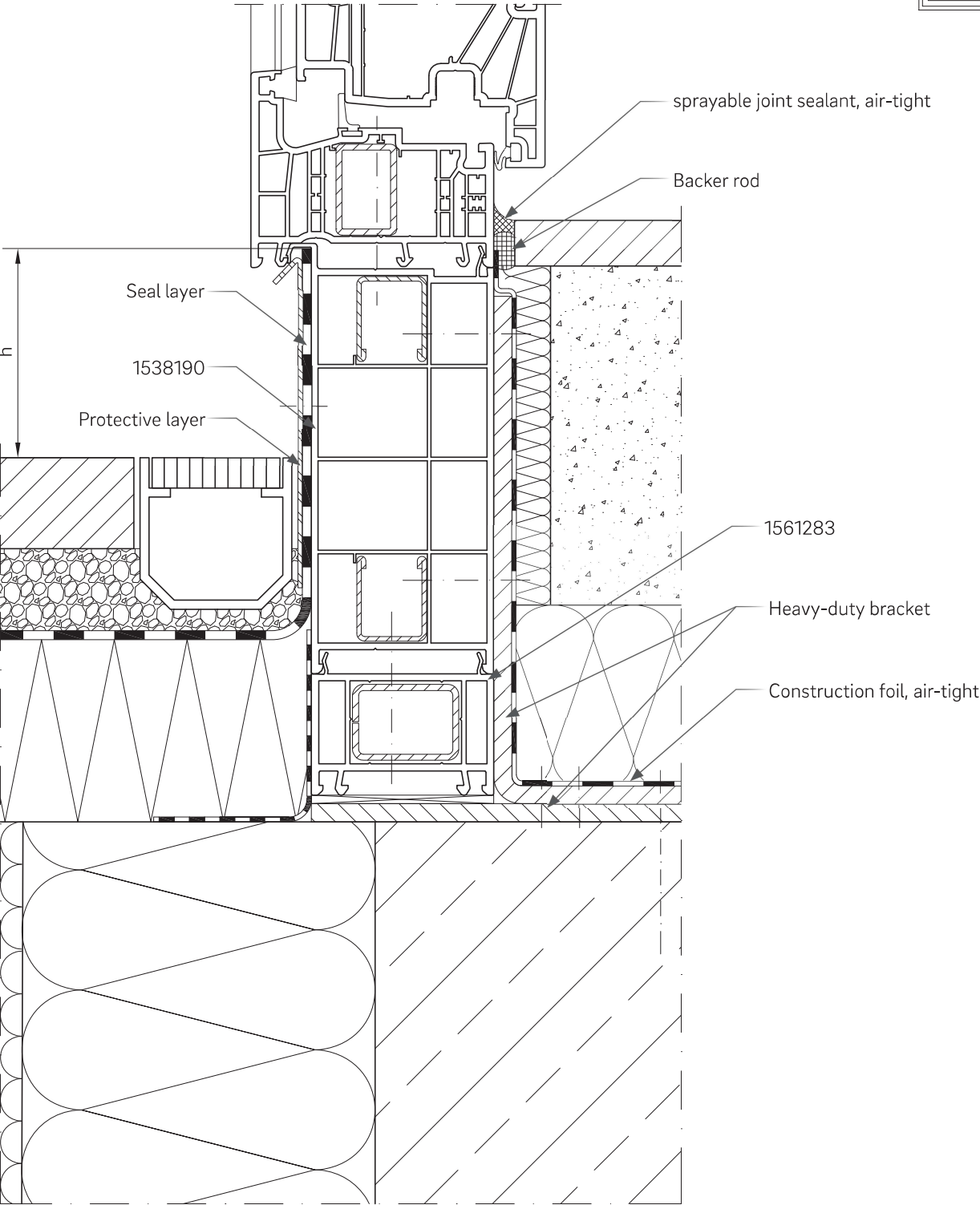
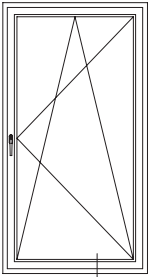
09.08 Bottom connection, sill no.34



09.09

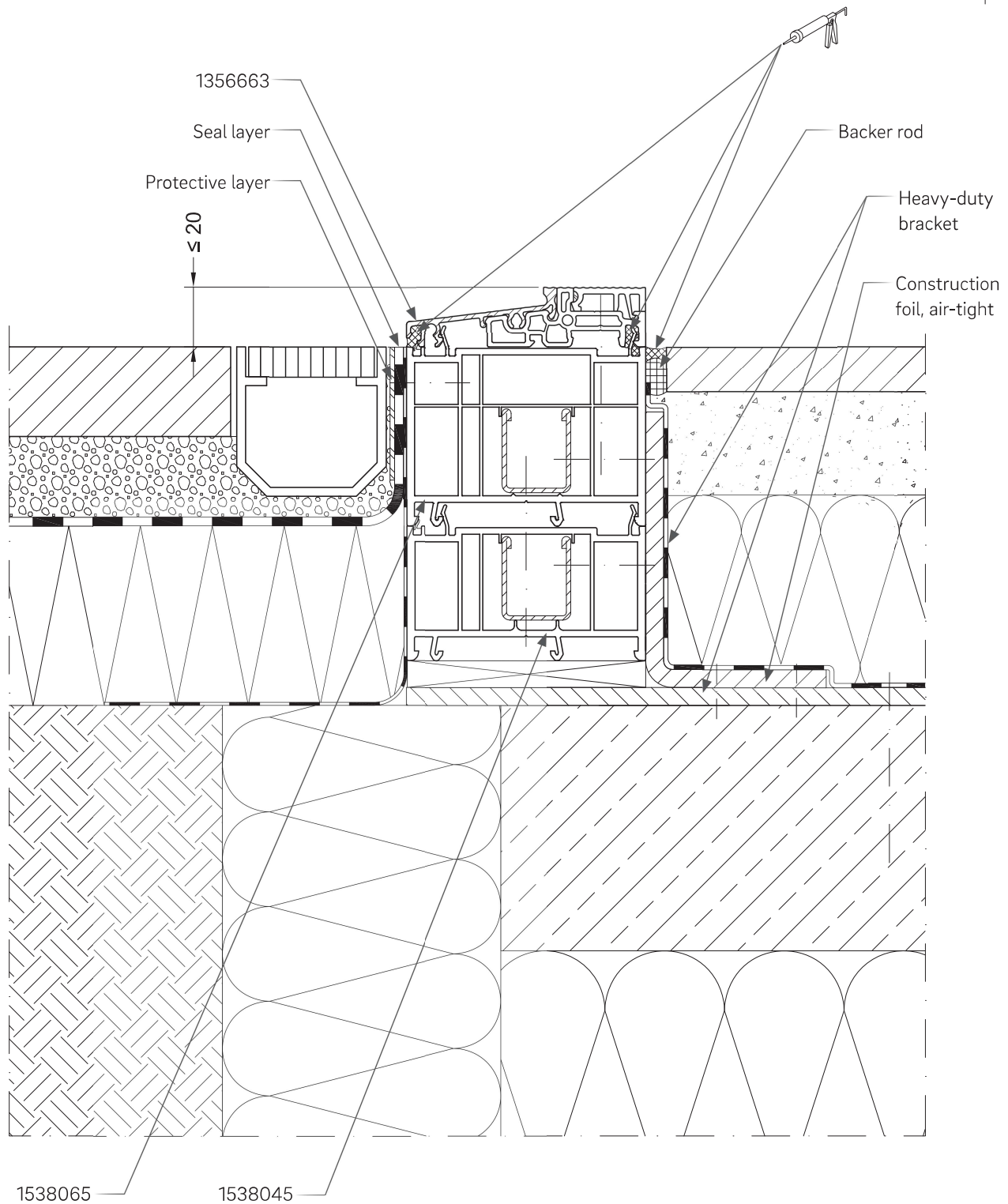
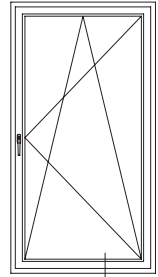
Connection at bottom, installation height ≥ 150 mm (DIN 18531-5),
window sill 134/60 and frame extender 40/60



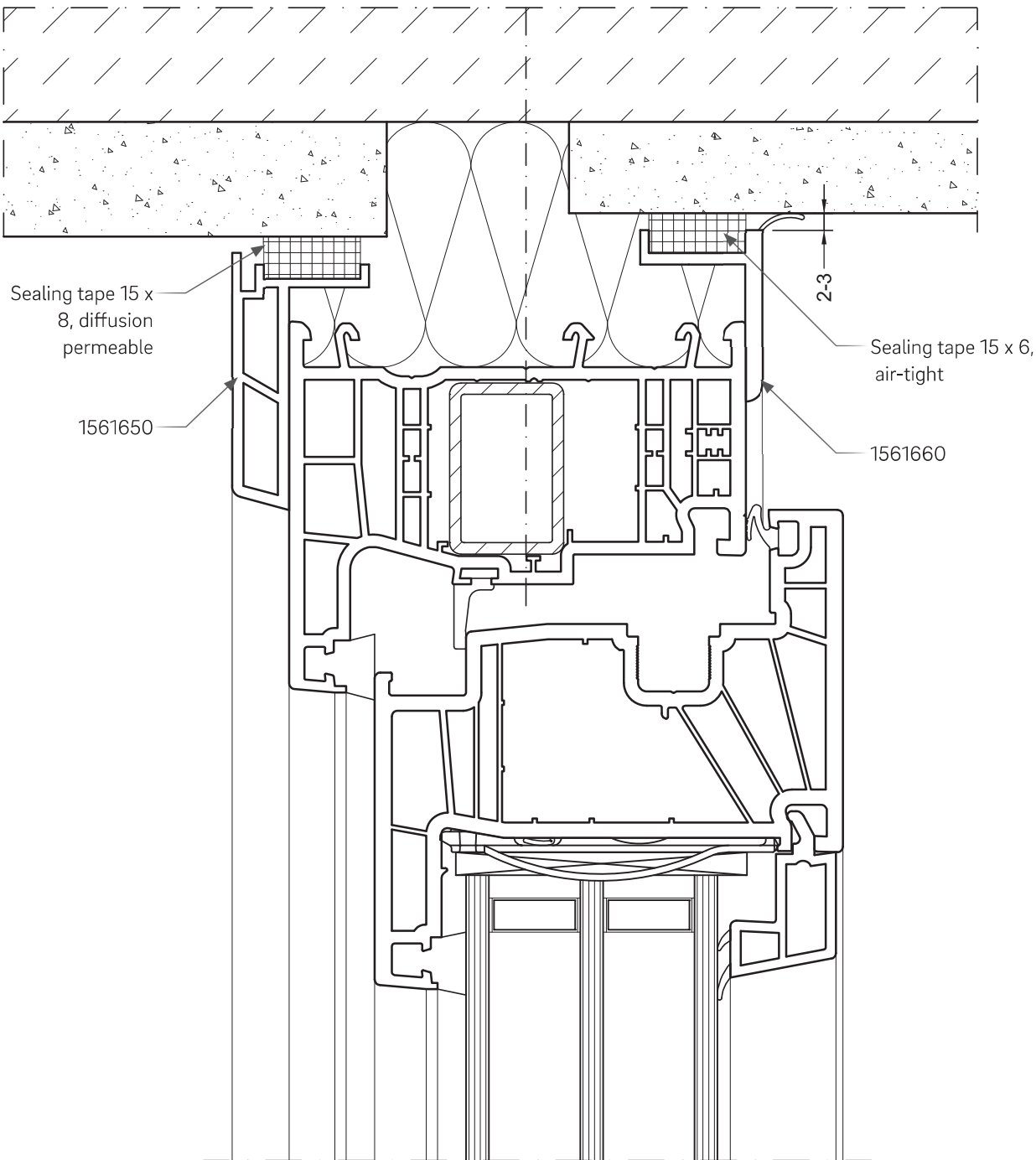
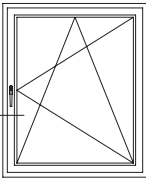


09.11 Universal threshold connection with gutter, installation height ≥ 20 mm (DIN 18531-5)

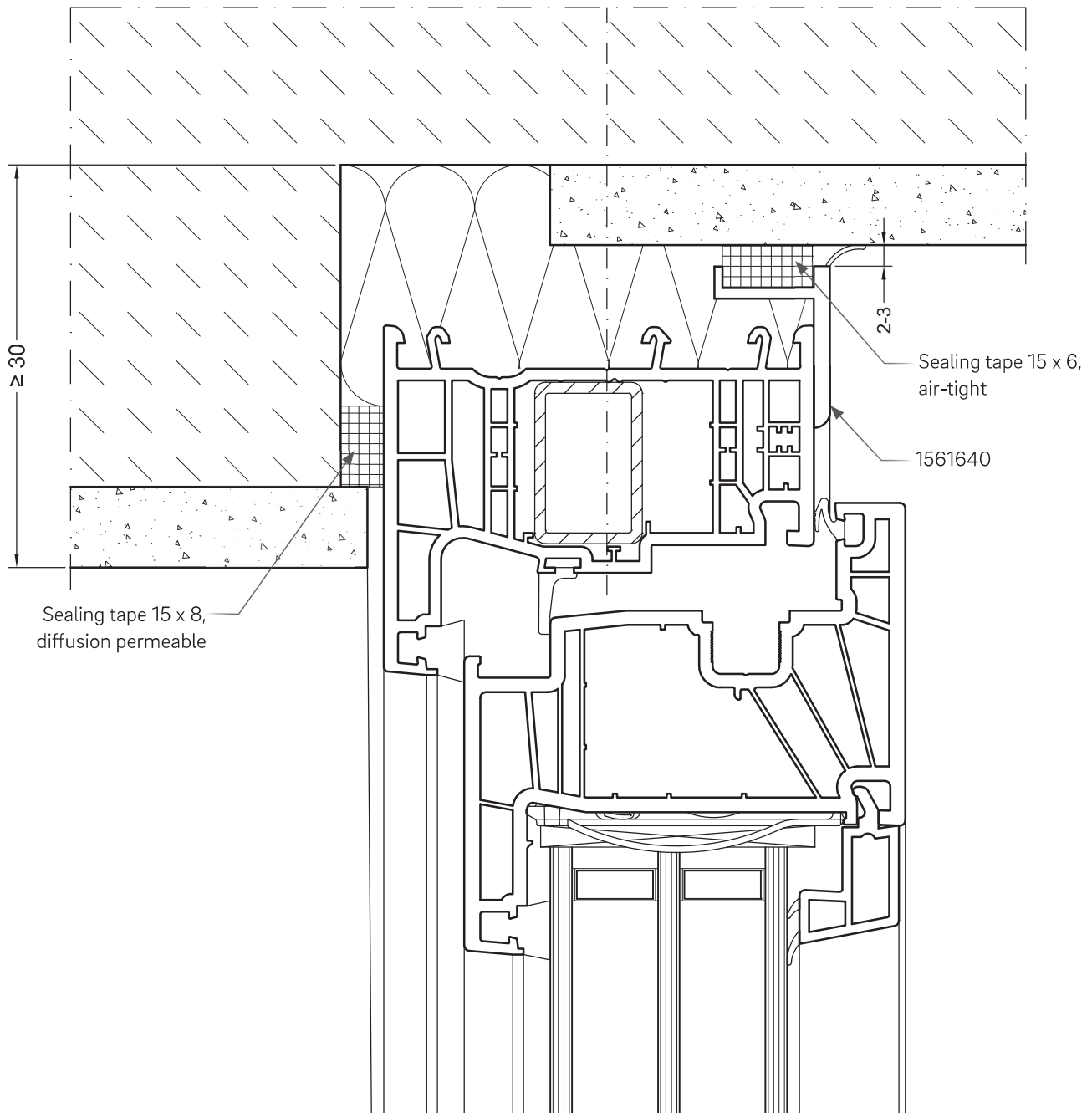
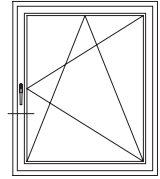
i Threshold connections with a low upstand or without upstand are to be protected from heavy water loads e.g. by means of sufficiently large canopies, facade setbacks and/or directly drained channels with grating.



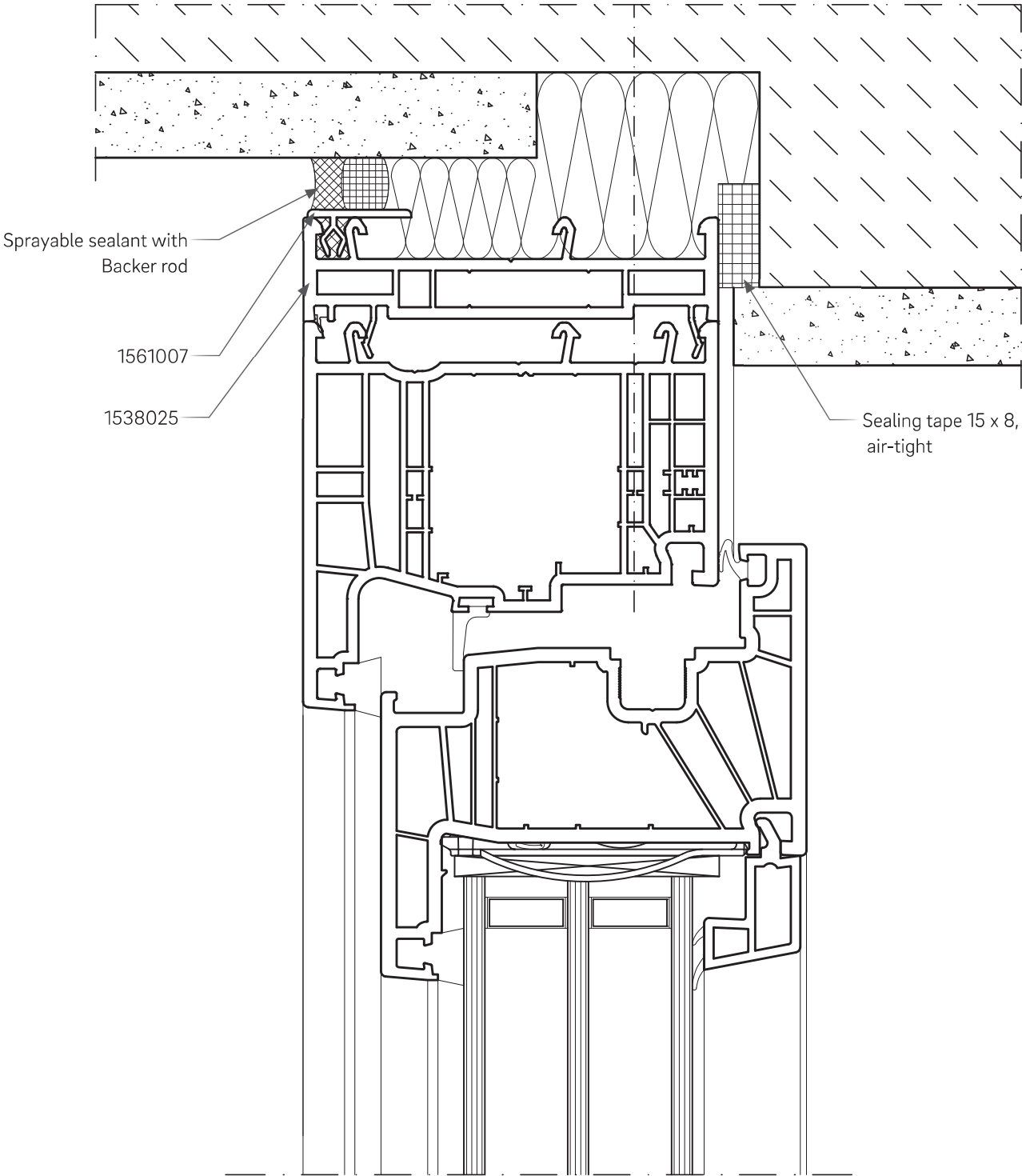
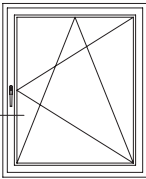
09.12 No wall rebate, top or lateral connection



09.13 External wall rebate, top or side connection

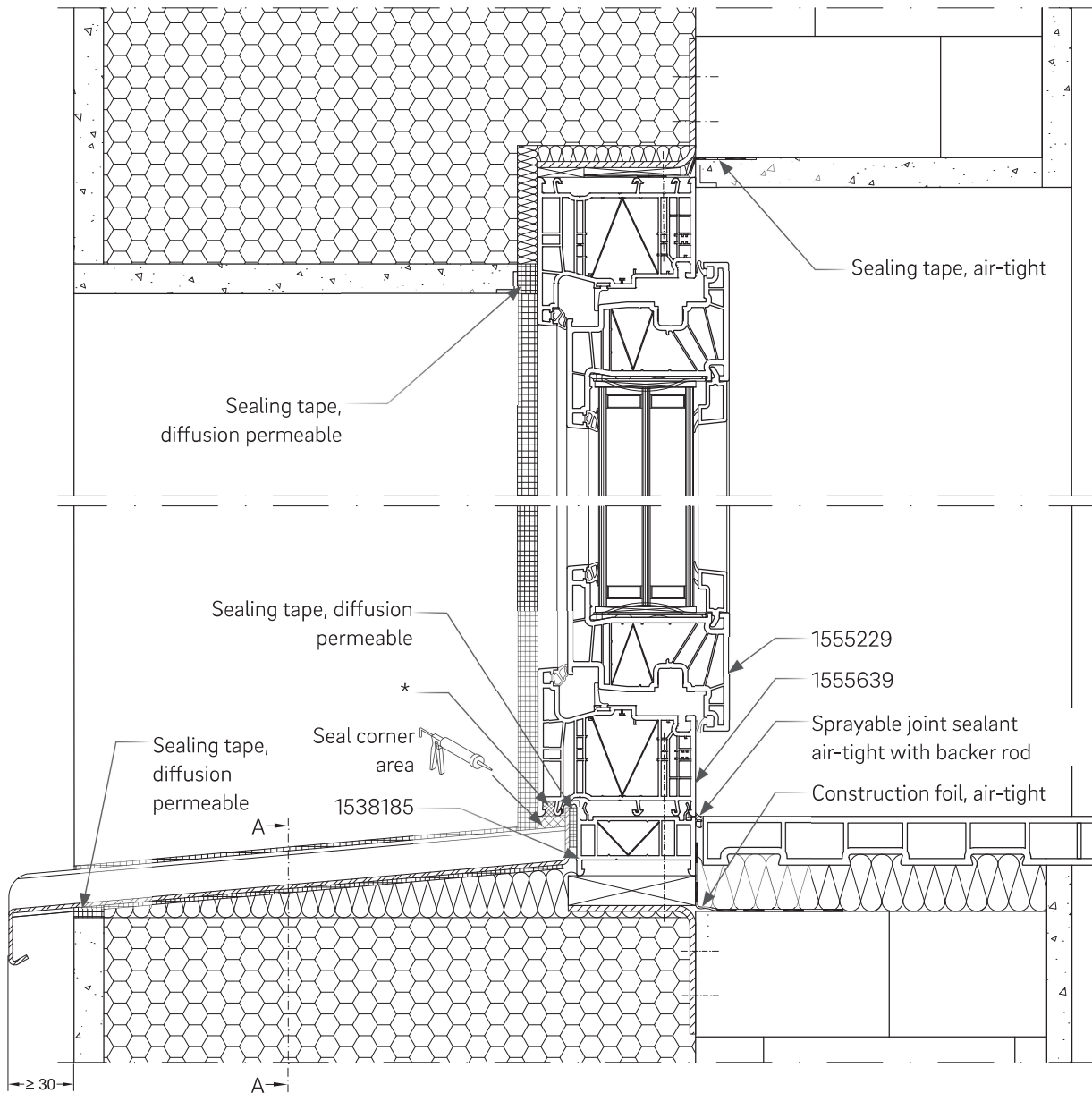
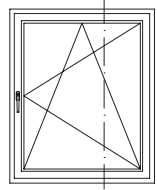


09.14 Internal wall rebate, top or side connection

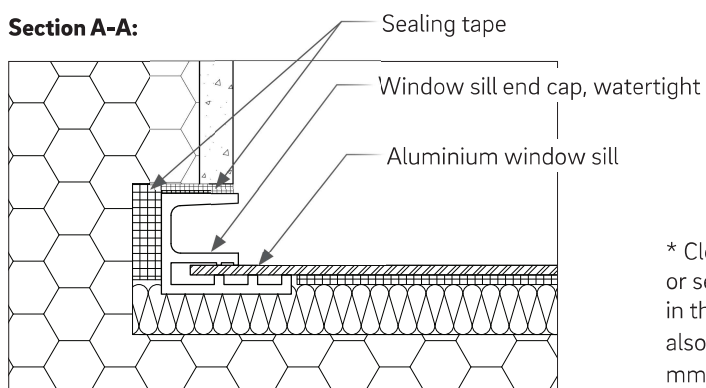


i For frame extension without IDS, sealing with silicone in the external fixing hook area is required.

09.15 Passive House tested installation situation - ETICS with sill 1538185

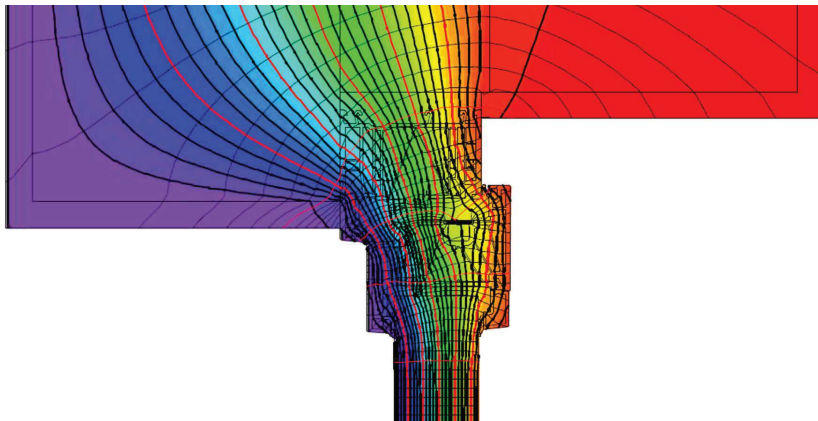


Section A-A:

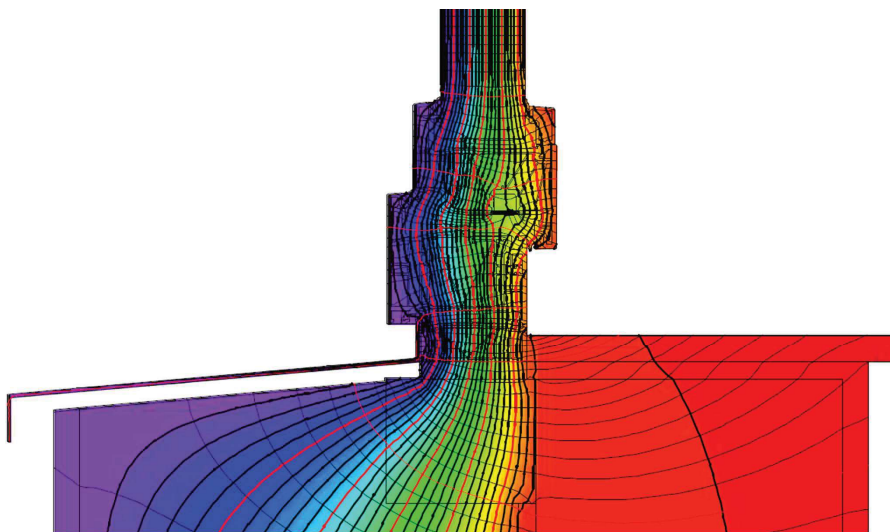


* Close the horizontal profile groove with snap-in profile and/or sealant in the bottom corners up to the vertical profile groove and also close the vertical profile groove at a height of at least 60 mm

Passive House tested installation situation - ETICS with sill 1538185



Lateral and top connection



Bottom connection

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