HANNO

The Little Assembly Helper

Sealing of building components – planning, preparation and implementation

As at: 02/2026

The Little Assembly Helper

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Foreword

This information booklet, published by Hanno Werk GmbH & Co. KG, is intended to help ensure a high standard of workmanship during the on-site installation of windows and external doors.

The assembly helper is primarily aimed at tradespeople carrying out the work and supports them in planning, sourcing materials, training new staff and imparting basic knowledge, raising awareness, whilst also serving as a compact reference guide for training on sealing connections and clarifying any outstanding issues on site. It outlines standard practices and provides information on the planning and execution of sealing for windows, doors and other building elements, and explains common terminology.

It is intended to serve as a concise practical guide and resource, written in plain language, and is not intended to establish new installation guidelines. As at the date of printing (see date on the title page), it complies with generally accepted technical standards. For comprehensive planning of window installation, we recommend the installation guide published by the RAL Quality Association for Windows and Front Doors e. V.

Note: Special building components which deviate from standard installation procedures or which are subject to additional requirements (for special cases, such as, for example, elements providing fall protection, floor-to-ceiling elements in areas in contact with the ground, building elements with enhanced safety features, etc.), must be planned and treated separately and must, in all cases, be installed by a trained specialist with knowledge of their specific characteristics.

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Reading this content is for information purposes only and is in no way a substitute for individual advice.

In the event of errors, missing details or requests for additions relating to specific areas of focus, please contact the relevant person within your organisation.

If you have any questions regarding the details, please do not hesitate to contact HANNO Application Engineering (see page 45) or your local HANNO area manager!

Quality assurance

Quality is the sum of all the properties and characteristics of a product or service that have been previously specified in a contract. The desired quality of a window installation is the result of the interplay between many individual processes, components, trades and people involved:

- Planning, tendering, quotation and contract/order
- Measurements and work planning – including for assembly!
- Procurement or manufacture of windows and external doors
- Packaging and delivery
- Site facilities, site management, construction schedule
- Tolerances and quality of workmanship in previous trades
- Checking planning details for completeness and plausibility
- Error management and corrective action
- Carrying out on-site assembly, load transfer, fastening
- Thermal insulation and sealing
- Acceptance, handover and induction of future users
- Use, Servicing and Maintenance
- Assessing customer satisfaction and improvement processes
- Dismantling and disposal

Quality assurance is the responsibility of everyone involved in the assembly process and should under no circumstances be left to an expert carrying out checks after the fact!

The person carrying out the installation should therefore be familiar with and apply the relevant regulations and product specifications that an expert would refer to when checking for defects!

0. Layer model

The proper sealing of the joints between building components and the building structure is regarded as an essential prerequisite for durability and fitness for purpose. Inadequate sealing – which may be due to the nature of the substrate, improper installation, interference between fixings (e. g. mounting claws) and the sealing membrane, tolerances, deviations from the design or other details – leads to structural damage.

A durable sealing system using suitable products can only be installed on a suitable substrate. This must be smooth, level, sufficiently load-bearing, dry and free from dirt and release films. Repairing small leaks and defects using an MS polymer sealant or membrane patches is considered to be carried out to a professional standard. A pressure roller significantly improves adhesion.

The components of the all-round sealing are divided into three layers – the three-layer model – from the inside out, and form part of a professional installation:

1. Air-tightness layer: The distinction between the indoor and outdoor climate, as seen from the inside. In most relevant reference books and illustrations, this is highlighted in red.

2. Functional layer: The design of the fixing, load-bearing elements (rot-proof blocks made of solid material on which the element rests), thermal insulation and sound insulation. In technical manuals, this is usually highlighted in yellow.

3. Weather protection layer: The sealing of the connection joint between a building component and the building structure or façade on the outside, with driving rain tightness. It is usually highlighted in blue.

It is always essential to ensure these layers are correct! Regardless of whether the installation is taking place in a new build or as part of a refurbishment!

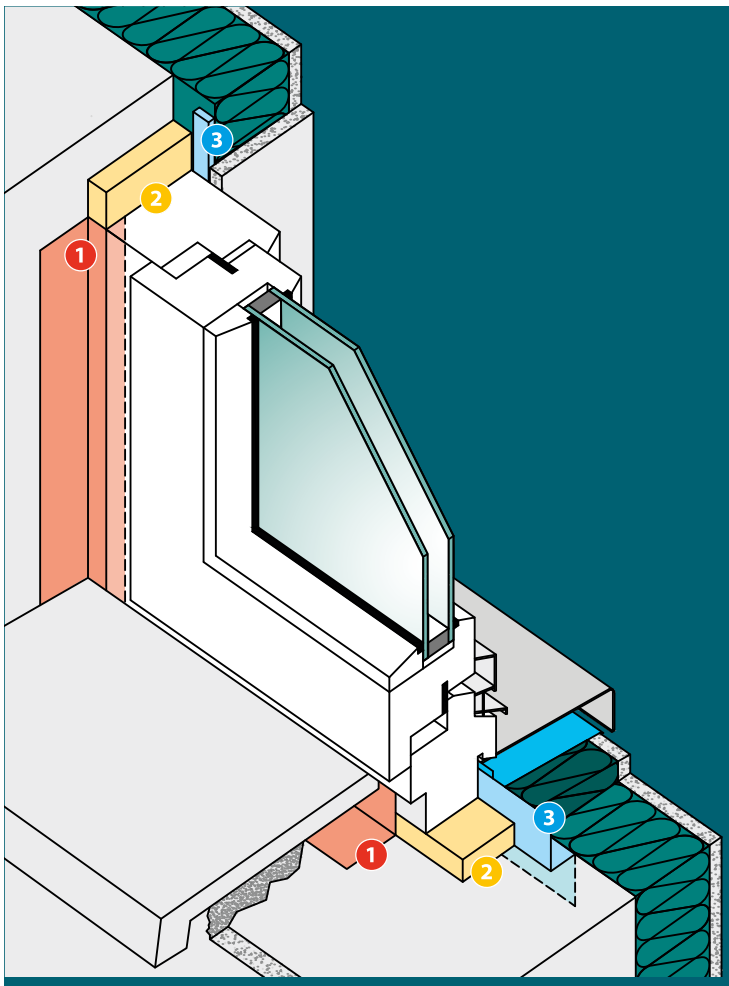


Figure 1: The layer model, based on the 'Installation Guide', is an essential part of a professional installation

1. Definitions

BG1 (exposure class 1): Classification of impregnated foam plastic joint sealing tapes for **visible, not** constructive **protected, external** Application. Required product properties: resistant to driving rain, including test certification up to at least 600 Pa; airtightness a ≤ 1.0; weather-resistant; UV-stable; fire protection class B1 'flame-retardant'.

BG2 (exposure class 2): Classification of impregnated foam plastic joint sealing tapes for **not visible**, constructive **protected, external** Application. Required product properties: resistant to driving rain, including test certificate for at least 300 Pa; airtightness a ≤ 1.0; building material class at least B2/E 'moderately flammable'.

BG-R (exposure class R): Classification of impregnated foam plastic joint sealing tapes for internal, airtight sealing and the production of **internal** Air-tightness layer. Required product characteristics: Air tightness a ≤ 0.1; building material class at least B2/E 'moderately flammable'.

Film: Laminated joint sealing flashing tapes (flashing tape/window film) for creating airtight joints **inside** and/or to provide temporary protection for the joint **outside**, until the façade is completed. Properties: Can only perform sealing on clean, smooth surfaces; any gaps or leaks can be repaired using film patches or MS sealant. Is always more watertight over a surface area than a tape of foam plastic. Limited UV resistance; tested in accordance with DIN 18542:2020 for airtightness and resistance to driving rain; building material class (fire protection) at least B2/E. There is no test standard for films!!

Joint: A planned horizontal or vertical gap between different or identical structural elements, designed to accommodate and compensate for movement. A joint must be provided and must be at least **10 mm!**

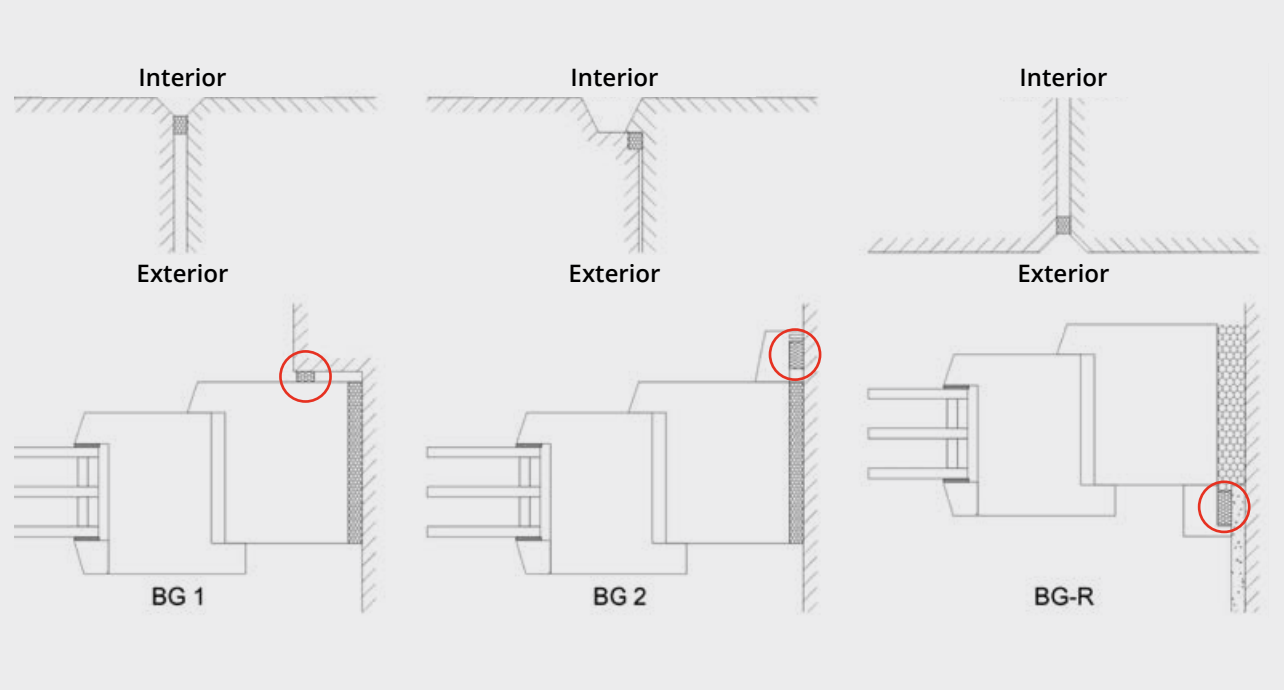


Figure 2: Illustration of the different exposure classes and when each product is used (source: DIN 18542:2020)

MF1: Since the revision of DIN 18542 in 2020, there has been a new classification for impregnated multi-functional sealing tapes made of foam plastic (multi-functional tape, 3-layer tape). The requirements are similar to those of the BG1 classification for a **visible** lasting and **not** constructive **sealed joint**. This product group alone comprises all three sealing layers (see layer model, page 1), **red**, **yellow** and **blue**, etc. (Properties: airtightness a ≤ 0.1, certified thermal and sound insulation values, resistant to driving rain up to at least 600 Pa, weather-resistant, UV-stable, fire protection class B1 'low flammability').

MF2: Since the revision of DIN 18542 in 2020, there has been a new classification for impregnated multi-functional sealing tapes made of foam plastic (multi-functional tape, 3-layer tape). The requirements are similar to those of the BG2 classification for a **not visible** lasting and constructive **sealed joint**. This product group alone comprises all three sealing layers (see layer model, page 1), **red**, **yellow** and **blue**, etc. (Properties: airtightness a ≤ 0.1, certified thermal and acoustic insulation values, resistant to driving rain up to at least 300 Pa, temporarily UV- and weather-resistant for the duration of the construction phase of approx. 3 months, fire resistance class B2/E 'moderately flammable').

Temperatures at which mould is likely to grow: The coldest point (the winter scenario is assessed using a calculated temperature difference of 25 °C, with an internal temperature of +20 °C and an external temperature of –5 °C) is usually the joint where the wall meets the window. In an isothermal calculation, a temperature higher than 12.6 °C (temperature factor f_{RSI} > 0.7) at the sealed, airtight transition from the wall to the window (see the dark green line in the sketch below). A cold, open, and non-airtight structure where dirt and moisture accumulate promotes mold growth and leads to structural damage. The ift Installation Planner can assist with these calculations (https://www.hanno.com/en/service/ift-assembly-planner).

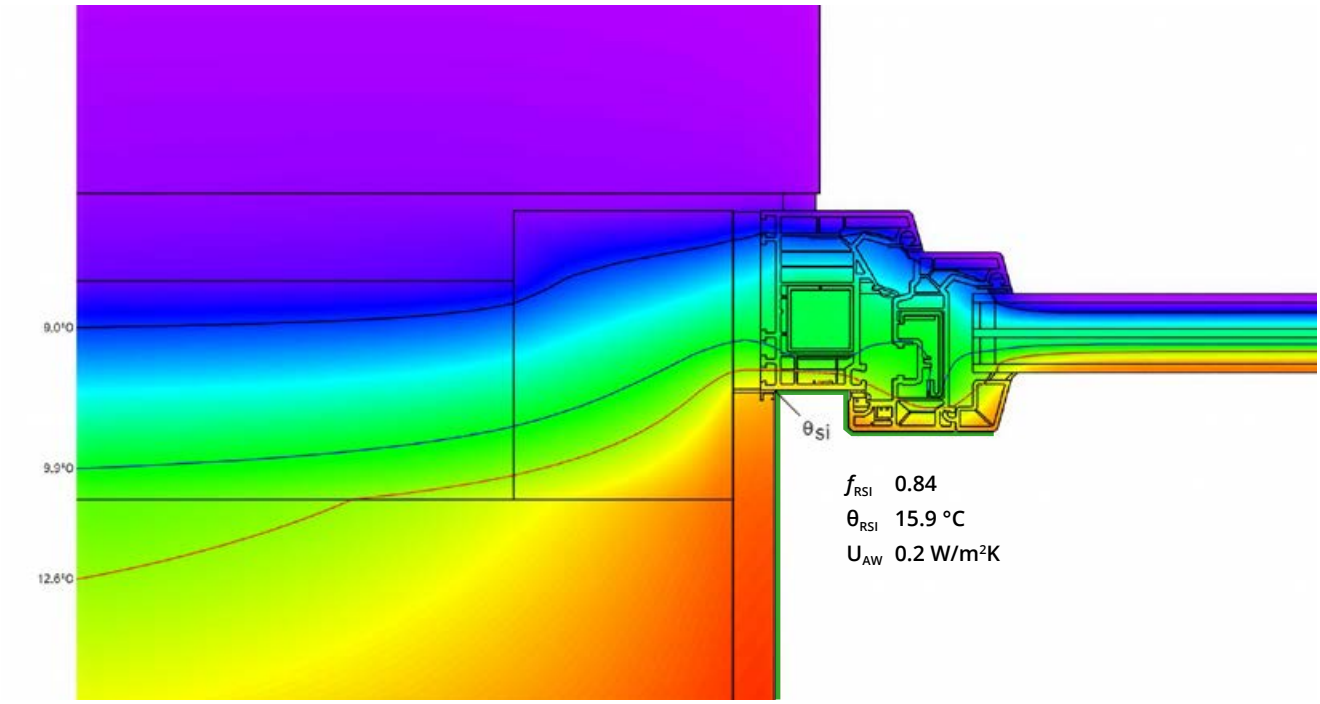


Figure 3: Example of an isotherm calculation for a new building construction. The temperature at the junction between the wall and the building component (the connection joint) must not fall below 12.6 °C in winter, so as not to encourage the growth of mould.

Installation sequence for flashing tapes: When using flashing tapes to perform long-term, functional sealing of the connection joint and to withstand temporary weathering, the order in which the flashing tapes are laid is also crucial. Across the surface, the sheets are generally watertight and significantly more watertight than joint sealing tapes made of foam plastic. Problems can arise if water runs behind the cut edges of the tapes. To optimize the sealing and minimize potential problem areas, it is advisable to lay the sheets from the bottom up, so that water flowing over the membrane from above cannot seep under the overlap but runs down over it instead. Defects and leaks in the building structure and the membrane waterproofing can be professionally repaired using a suitable polymer adhesive.

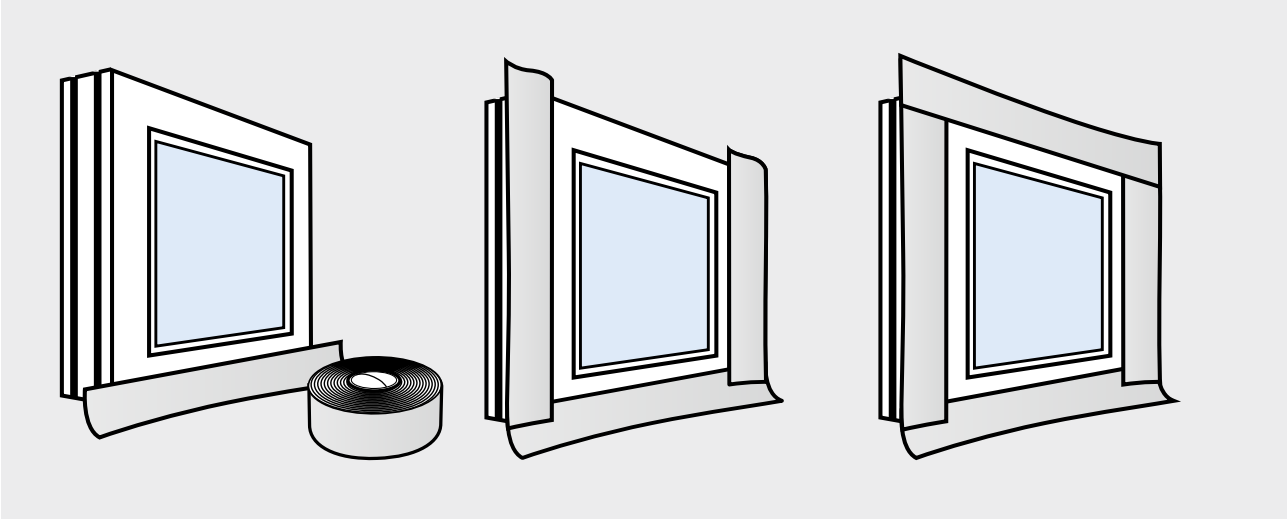


Figure 4: An illustrative, schematic representation of the recommended installation sequence for sealing connection joints between building components and the building structure on the external side using flashing tapes (driving rain tight sealing)

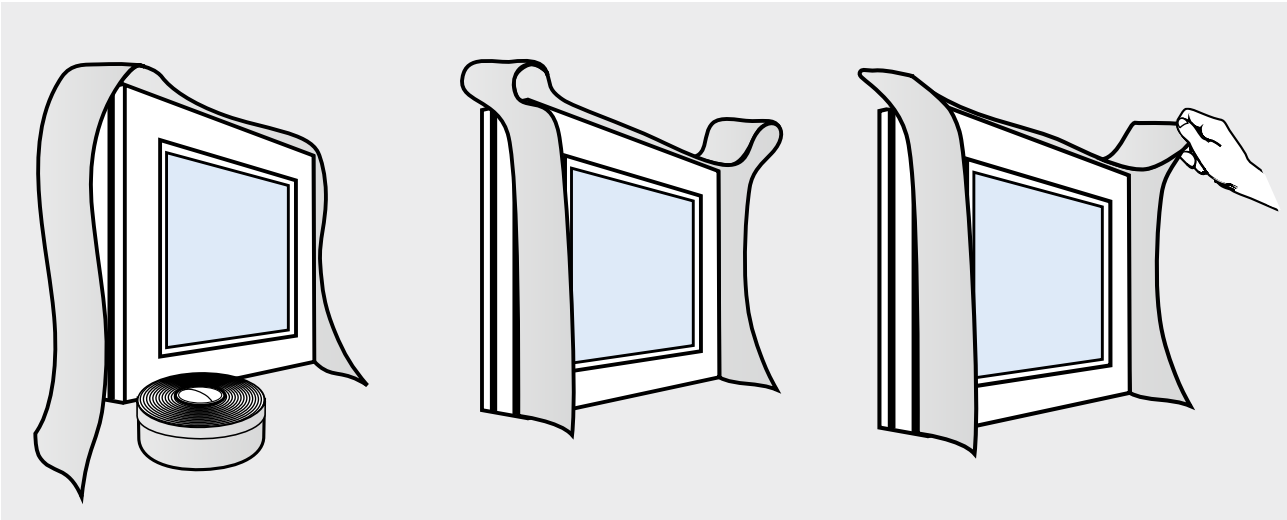


Figure 5: An illustrative, schematic representation of the recommended sequence for laying flashing tapes on the inside of the building component (airtight sealing), the lower connection is made once the unit has been aligned and secured

Sound insulation: To avoid adversely affecting the sound insulation performance of a building component, the tested sound insulation value of the joint sealing must exceed that of the window by approximately 10 dB. The joint of a 37 dB window must therefore have a value of at least 47 dB. For information on favorable installation positions in terms of sound insulation, see Chapter '5. Installation Positions'. Sound insulation is usually provided by the **functional layer.**

Bonding widths: To ensure long-lasting sealing, the bonding surface of the **Flashing tapes on the building component** must be no less than 15 mm. In exceptional cases, 10 mm may also be permitted in some places where **more complete and covering the entire surface** Ensure that the bonding is carried out correctly; this must be verified by conducting tests yourself. The adhesive width on the side of the structure (against the wall) should be 30–35 mm, of which **at least 75 per cent** must also adhere to the building structure! Where full adhesion is achieved, 20 mm may be sufficient in exceptional cases. The overlap between layers of membrane must also be at least 20 mm, and ideally 30 mm. **The quality of the bond must always be checked by carrying out your own tests.** In accordance with the technical note 'Plastering over window films', the adhesive width on the window reveal should be a maximum of 60 mm or half the width of the reveal (see figure 14, right, for an illustration). **The adhesion of flashing tapes can be significantly improved by using a pressure roller.**

Note: The plasterer may require work to be carried out in accordance with Technical Note 5, 'Plastering of Window Joint Films', issued by the Federal Association for Interior Finishing and Facades and the Building Plaster Industry Group, and may also demand that any defects be rectified at a later date. Removing old and already bonded window films is time-consuming and labor-intensive.

Key measurements when applying film

Name of the unit of measurement	Minimum size / minimum width
Adhesive width on the window frame	at least 15 mm (1)
Adhesive width on the building structure	at least 30–35 mm (2)
Overlapping of films on top of one another	at least 20 mm, preferably 30 mm (3)
Max. adhesive width (reveal)	½ reveal or max. 60 mm (4)
Proportion of successful bonds	At least 75 per cent of the adhesive surface must adhere

Table 1: Overview of the required adhesive widths for durable and professional sealing

Figure 6: Adhesive width just under 15 mm, but neatly finished → This design can work in the long term!

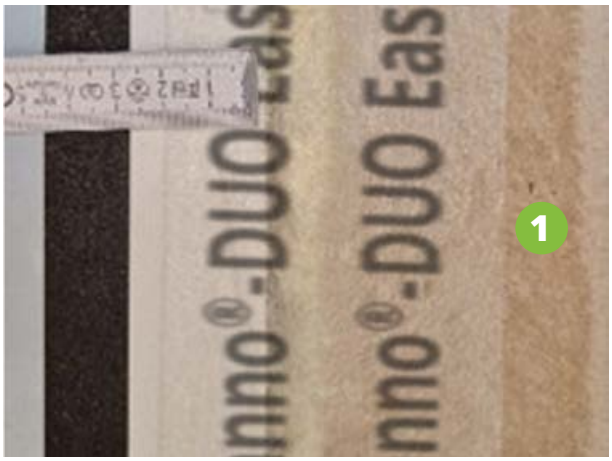


Figure 7: Adhesive width well over 15 mm and neatly finished → The sealing will last for years!

Figure 8: Very small adhesive area, but neatly finished → This could work in the long term!

Sealing will only provide a lasting solution and withstand the stresses and environmental factors if the following key points are observed:

- Minimum bonding widths must be observed.
- Substrates must be prepared in accordance with the manufacturer's instructions; they must be clean, and the surface must be free from any release agent residues or dirt.
- The maximum adhesive widths specified for the building structure must not be exceeded.
- Films may be stuck down with a single or, occasionally, a double overlap; further overlaps and excessive creasing should be avoided.

Figure 9: Load-bearing blocks must not protrude or obstruct subsequent trades

Protruding parts must be removed so as not to obstruct subsequent work. A support for load transfer must be flush with the surface or set back (see figure 9).

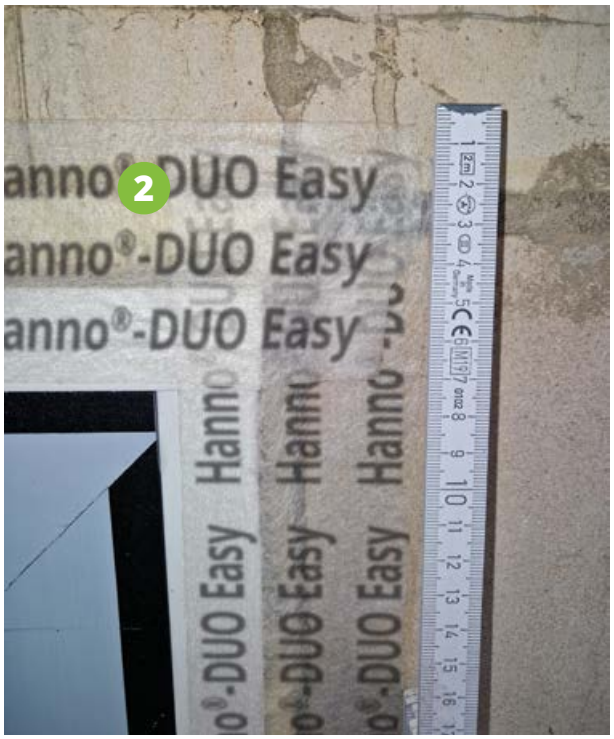


Figure 10: Adhesive width on the building structure ≤ 20 mm. This may work in the long term, but it does pose a risk. The contractor must carry out their own tests to assess adhesion and bond quality.

Figure 11: An adhesive width of ≥ 30 mm on the building structure, where adhesion to the substrate varies in places, provides greater assurance of the quality of the sealing

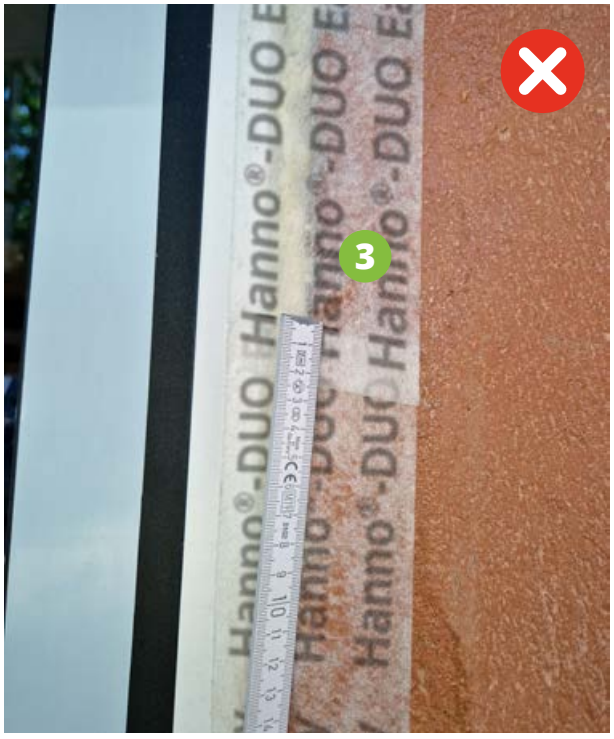


Figure 12: An overlap of ≤ 20 mm may be critical

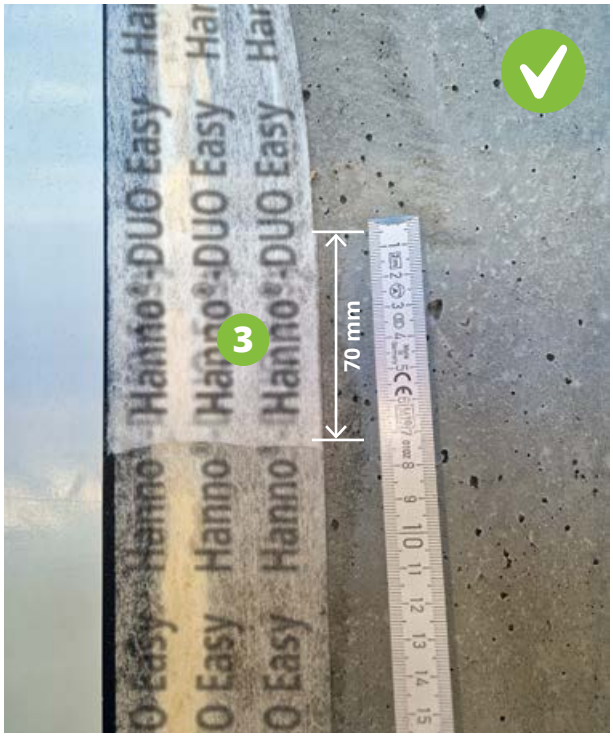


Figure 13: Generous, well-finished overlap

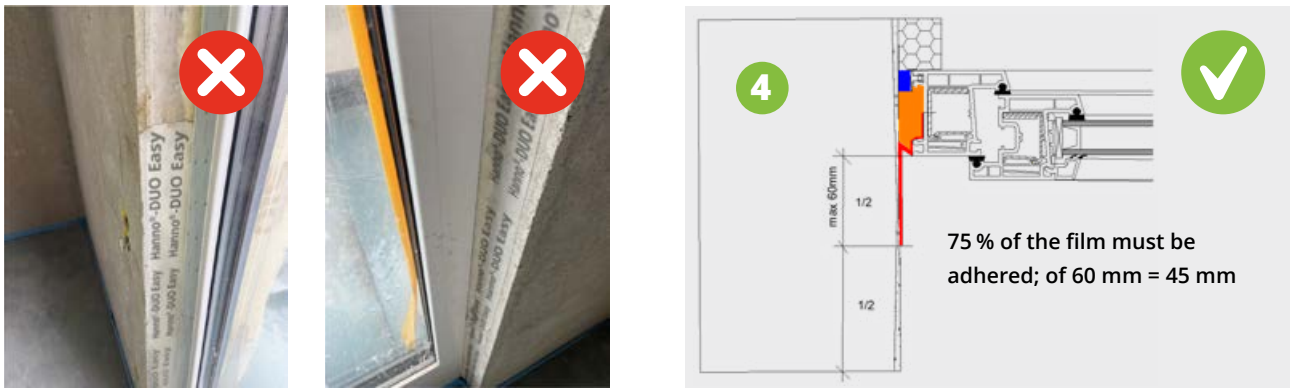


Figure 14: Examples of bonding widths at the window reveal (from left to right): The left and center images each show a bonding width that is too wide, whilst the image on the right shows the correct bonding width in accordance with the plasterers' technical guidance note (source of drawing: HANNO)

Product selection: Not every sealing product is suitable for every application, nor is it compatible with Can be combined with any fastening method. However, with careful planning, the strengths of individual components can be utilised to the full. Joint sealing tapes and multi-functional tapes, which have a defined range of joint applications, offer excellent thermal and acoustic insulation thanks to their homogeneous structure, but require parallel joint flanks to function effectively in the long term. Flashing tapes, which are generally not permanently UV-resistant but are significantly denser, are more tolerant of greater tolerances and can often be more easily combined with fasteners, such as installation claws and anchors, which penetrate the airtightness of the sealing layer.

Contact between fixing elements and the airtight layer should be avoided, but cannot always be prevented. Sealing the mounting claws retrospectively with foil patches is considered to be the correct method. The leak is due to the design. If a direct-fixing screw penetrates and dislodges a film seal attached across the entire surface of the rear of the window frame, rectifying the problem is often difficult or even impossible.

Note: Mounting or fastening components must be protected against corrosion by masking them with flashing tapes, unless they are otherwise structurally sealed with high levels of airtightness or are resistant to corrosion in accordance with the manufacturer's specifications. Any collisions or penetrations of the sealing caused by fixing materials must be rectified professionally, ensuring they are as free as possible from air pockets, and with due care.

Figure 15: Masking off fixing elements which, due to their design, penetrate the layer of airtightness (source: HANNO)

Airtight materials: A plastered surface is generally considered to have airtightness. A rigid foam, such as XPS, which is cleanly and fully bonded to the substrate, can also achieve this, unless otherwise stated. A pre-wall installation system that is firmly bonded to the wall structure is also considered an airtightness layer, provided that the installation instructions are followed and the system is fitted accordingly. Drywall is not considered airtight, and the fasteners must **always** be covered with tape to prevent corrosion.

Note: The render, just like the building element and the internal, touchable surfaces, is considered an airtight layer. The junction between the building structure/plaster and the building component must be made airtight using a suitable sealing product (multi-functional tapes, flashing tapes and plastering strips can meet these requirements and accommodate movement – consultation regarding the product is required here) in an airtight manner and with sufficient movement compensation, so that any expected cracking between the building element and the render caused by movements, expansion and changes in length does not affect the durability and integrity of the airtightness layer.

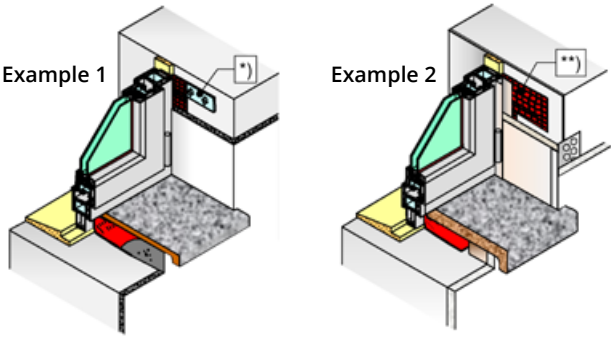


Figure 16: Illustration of an airtight and a non-airtight connection (the plastered wall (left) is considered airtight; the version on the right, using plasterboard, is not considered airtight, which is why an additional airtightness sealing is applied here using flashing tapes (source: LzM 2020, Table 2.3)

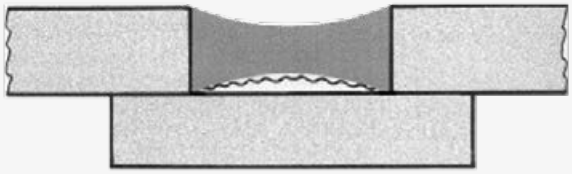
Note: On the room side, behind the inner airtight layer, no further insulation is installed. The airtight layer forms the inner barrier.

Single-film solution: In the case of fully or partially cantilevered installations, when using films as a sealing product, it may make sense to work with just a single film – referred to here as a single-film solution. This protects the connection joint during the construction phase and, once completed, acts as the inner, airtight layer. The single-film solution is appropriate whenever, when sealing with two films – the inner film and the outer film – no defined cavity is created that can be filled with insulation material, or whenever the films stick together during installation. The film is applied to the building structure on the external side of the building element and protects the fixings from corrosion. On the interior side, behind the airtightness layer, no further insulation is installed. In this case, the integrated ETICS (plus, where necessary, additional work using, for example, PU spray foam) acts as the functional layer. Protection against driving rain is provided after completion of the façade, for example by means of a sealing profile, a joint sealing tape or a rendering strip.

Figure 17: Single-film solution in practice (source: HANNO)

Defined cavity: Voids (of constant volume along the length of the joint), for example with a joint width of 10 mm and a joint depth of 20 mm, should generally be avoided or, once they have formed, filled as completely as possible with an insulating material. An XPS strip cut to width or a suitable joint sealing tape (a simple, cost-effective option with thermal insulation properties) can also be used here. If the joint depth is 10 mm or less, the single-film solution may be more practical. If in doubt, HANNO sales and HANNO application engineering are on hand to offer advice and assistance.

Sealants: Sealant manufacturers generally require a non-absorbent, closed-cell backfill material – a round cord – to ensure their products are used correctly and last for the long term. This prevents the sealant from adhering to any surfaces other than the two intended flanks, meaning that movement only needs to be accommodated in one direction, which significantly reduces the risk of the sealant joint tearing. A joint sealing tape does not usually meet this requirement, as the foam is open-celled and absorbent; therefore, approval from the manufacturer for the 'use of sealant on joint sealing tapes' should be obtained!



EN 15651-1: 2020: TYPE F, EXT-INC-CC, Class 25LM

Figure 18: Correct 2-flank adhesion (source: IVD Guideline 9 on sealants)

Important: An exterior sealant must have a minimum elongation of 25 %, comprising 12.5 % tensile elongation and 12.5 % compressive elongation, which, for a 10 mm joint, corresponds to a movement capacity of 1.25 mm in each direction, i.e. 2.5 mm. An indoor sealant has a movement capacity of approximately 15 %.

Corrosion protection: Protecting structurally significant components (fasteners such as brackets or screws) from corrosion – the degradation of the material caused by environmental factors – is a key element in ensuring a durable installation and the long-term functionality of a component. It is generally assumed that a window will remain in a building for 40 years (according to VOB: 30 years) and must fulfil its function throughout this period. If contact between corrosive materials and conditions that promote corrosion is to be expected, this process must be prevented as effectively as possible, e. g. by means of airtightness in masking. Inadequate corrosion protection poses a risk to life and limb.

2. General information on the outdoor sealing of sealing products

Joint sealing tapes are classified as BG1, BG2 and BGR: BG1 and BG2 for applications exposed to driving rain, and BGR for indoor applications requiring airtightness. A product exposed to the elements must, in all cases, have a current test certificate in accordance with DIN 18542:2020, which must not be more than 5 years old!

Regarding product group BG1 in outdoor weathering tests:
Depending on the degree of compression, a patina or crust forms on the surface as the product ages and is exposed to increasing levels of UV radiation. This protects the underlying foam structure and, according to laboratory reports, makes the product increasingly dense. For this reason, the patina must not be removed. Furthermore, the joint width specified on the label must be adhered to in all cases; ideally, the midpoint between the minimum and maximum joint widths should correspond to the actual joint width found on site, so that the product can absorb and compensate for movement.

Figure 19: According to LzM or RAL GZ711, a tape must not open up any further than its cut width. A ratio > 1:1 encourages the tape to come loose due to component movement and thermal expansion. The pointed beginnings and ends of a roll are not intended to allow the tape to be joined without misalignment; they are a result of the manufacturing process. The cellular structure of the 'point' will not settle back in the same way as the rest of the product and must always be cut off.

For **multi-functional and 3-layer tapes** the same principles apply as for joint sealing tapes; however, since the introduction of the MF1 (“1” also for exposed and weathered) and MF2 (“2” for structurally protected) classifications, additional requirements must be met. Proof of airtightness (BGR in accordance with the old standard from 2009) must be provided, as must information on thermal conductivity.

Figure 20: MF2 multi-functional tape following a driving rain test, with no water ingress

Important: Unlike BG2 joint sealing tapes, which are generally tested to withstand driving rain up to 300 Pa, a HANNO-MF2 tape – which in most cases is left in place until the façade is completed – can be exposed to the elements for 3 months. The products have been certified as having driving rain tightness of ≥ 600 Pa and are capable of withstanding the standard 3-month period of exposure to the elements on construction sites.

(Non-woven-backed) flashing tapes or joint sealing flashing tapes are in any case denser than open-cell foam; however, the non-woven surfaces are not designed to withstand prolonged exposure to UV light. Like MF2 multi-functional tapes, flashing tapes should withstand at least the standard 3 months of UV exposure, as they temporarily protect the joint during this period and are subsequently covered by a finishing layer. Information on UV stability can be found in the technical data sheet. The Hanno®-Flashing Tape DUO Easy used and shown here can be exposed to the elements for up to 12 months.

3. Handling element couplings

Corner details, connections and additional profiles: How can airtightness be achieved?
A blower-door test is usually carried out as soon as the **airtight** Once the layer has been leveled, approximately 4 weeks after the windows and doors have been sealed, depending on the manufacturer's instructions. It should be noted that the sealing in the corners must be of sufficient length and, in the event of visible leaks, may be repaired using polymer adhesives, such as the approved MS film adhesive.

A leakage current can also (see figure 21) pass through the plasterboard. In this case, there is no vapour barrier behind the plasterboard, which **airtight** A layer is achieved simply by using a masked OSB board. If the window and door manufacturer specifies in its installation guidelines how to handle the connection of its own sealing strips, these guidelines must be followed (see figure 22). If no specifications are provided, experience shows that these joints often do not achieve airtightness with the sealing lip alone. Panel joints can also be sealed using Hanno®-Flashing Tape DUO Easy.

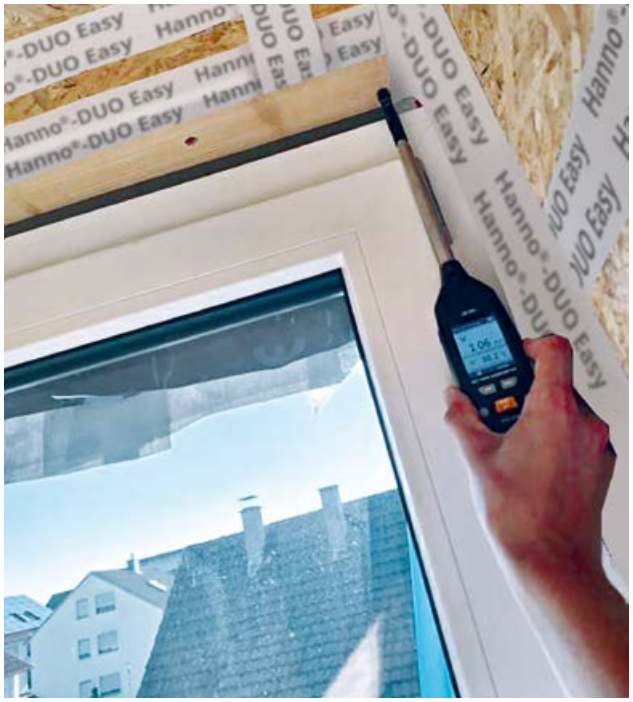


Figure 21: Air leakage in the corner may be caused by leaks in the corner detailing, but this is not necessarily the case (example from a blower-door test)

Figure 22: Bottom element with sill profile, with extensions on the left and right supplied by the system manufacturer

The recommendation is as follows: As rectifying the problem involves a great deal of effort, it is advisable to fit a sealing tape, such as a BG2-class joint sealing tape, to prevent draughts. A similar approach should be taken with connections between different system components, such as connecting a roller shutter box to a window. If there are installation guidelines specifying how the connection should be made, these must be followed (see figure 23). If there are no specific guidelines, it is recommended to use a sealing tape, such as a class BG2 joint sealing tape, to ensure airtightness and prevent draughts.

Figure 23: Surface-mounted roller shutter box connected to a window frame profile. This presents a challenge that needs to be addressed: what internal measures are required to ensure airtightness? One possible solution could be the use of joint sealing tape.

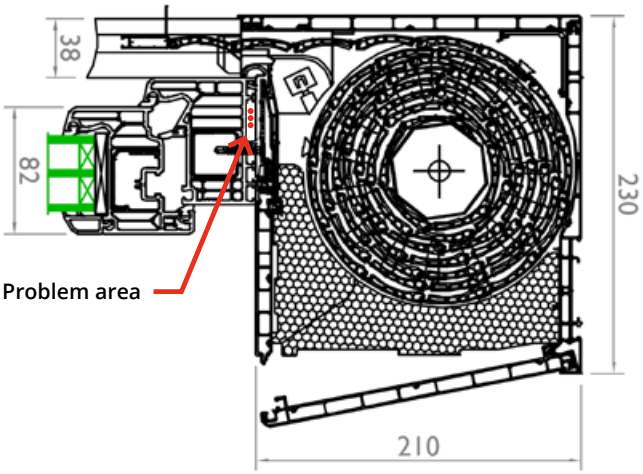


Figure 24: Illustrative diagram showing the 'problem areas'. How is the joint intended to be sealed? Are there any specifications from the system supplier? (The red dots indicate the critical point.)

4. Sealing complex geometries and the ‘tradesmen's hole’

The term ‘tradesmen's hole’ refers to the transition between the lower corners of a building element and the external plinth and façade, which must be sealed to withstand driving rain. Problems arise here due to the complex geometries and the interfaces between the various trades, where the scope of work and responsibilities are often not fully clarified. These include the contractors responsible for insulation, external render, the external window sill, the plastering strip, window installation, building sealing and the fitters of pre-wall installation elements, provided these are not fixed and sealed as part of the window installation. Complex contours are very difficult to finalise once the façade has been completed; however, with careful planning and communication, time-consuming rework can often be avoided. The key principle is this: water ingress must be prevented, and any water that has penetrated must be drained away in a controlled and structurally sound manner.

Figure 25: An example of a ‘tradesmen's hole’

Figure 26: Complex geometry of the profiles

Figure 27: Complex geometries can be filled prior to assembly, but are difficult to touch up afterwards. Important: If a sealant cannot be painted over (e.g. silicone), this may subsequently form a separating film.

5. Installation positions: Positive and negative effects on sound insulation

As shown in the figure below, the installation position of components has an impact on the level of sound insulation that can be achieved. The installation positions within the green frame show installations with solid backing of the window frames, which are considered non-critical. Installation positions without backing – for example, installation in the insulation layer within the red frame – may be critical where high sound insulation requirements apply. With careful planning, even high requirements can be met.

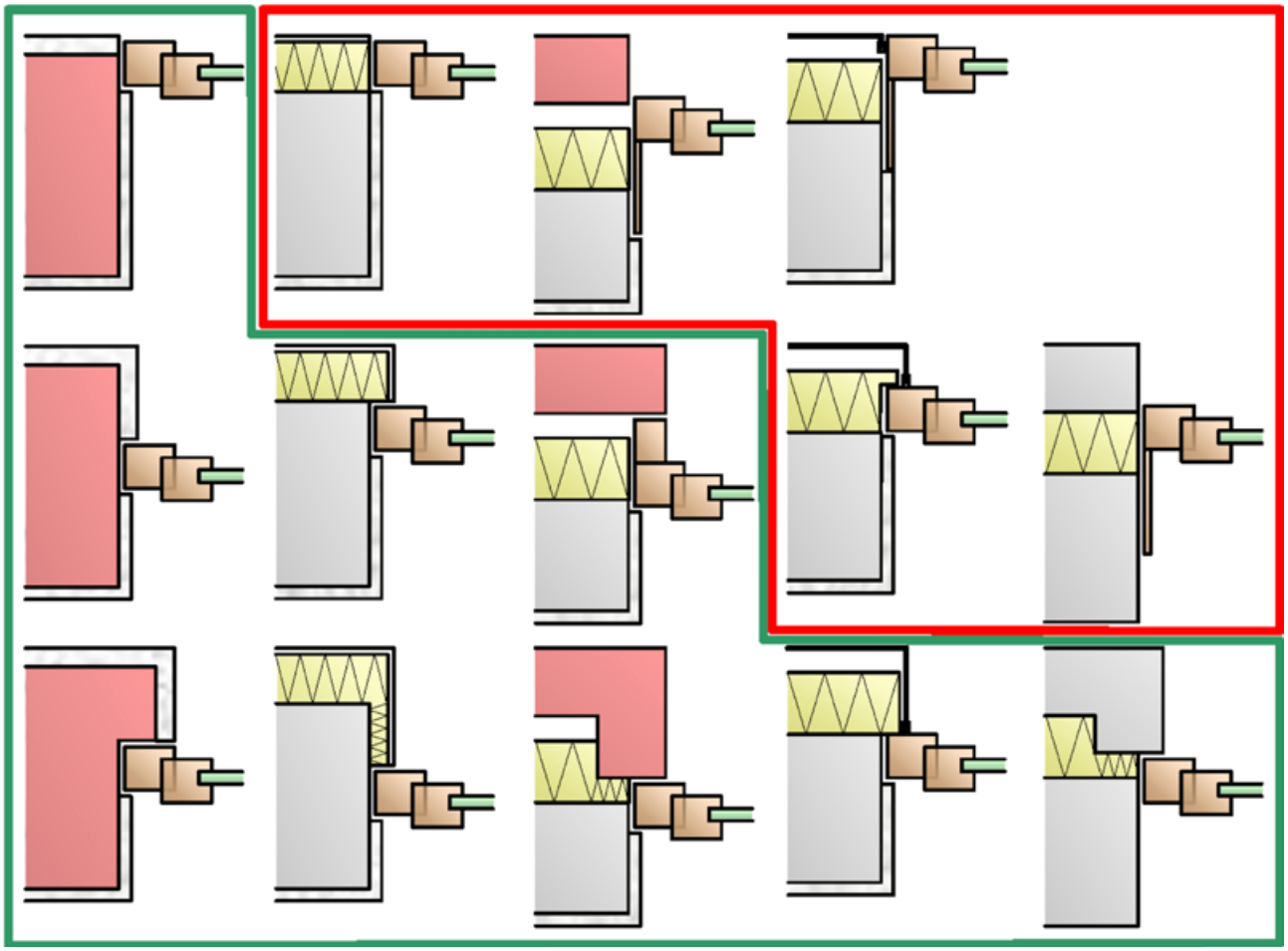


Figure 28: Acoustically critical and non-critical installation positions (source: LzM 2020)

One possible approach to meeting higher sound insulation requirements could be to incorporate mass during installation – for example, by fixing the panels to a heavy pre-wall installation system – in order to block the sound from travelling through the lightweight insulation strips.

Note: Situations in which the window frame does not have a solid backing – e. g. installation within the insulation layer – are considered critical from a sound insulation perspective (where high requirements of over 40 dB apply). The steps set out in the enclosed installation instructions must be followed in order to achieve high performance levels.

6. Sealing a ‘flush joint’ with flashing tapes

An example of a factory layout plan showing a proposed ‘flush joint’ installation position and sealing with flashing tape on both the outer and inner sides. Detailed information on the required bonding surfaces, as well as the minimum and maximum adhesive widths, can be found in the information table in the explanation of the term ‘adhesive widths’ (see page 7). In this case, bonding is carried out exclusively on and against the webs and the side of the frame profile.

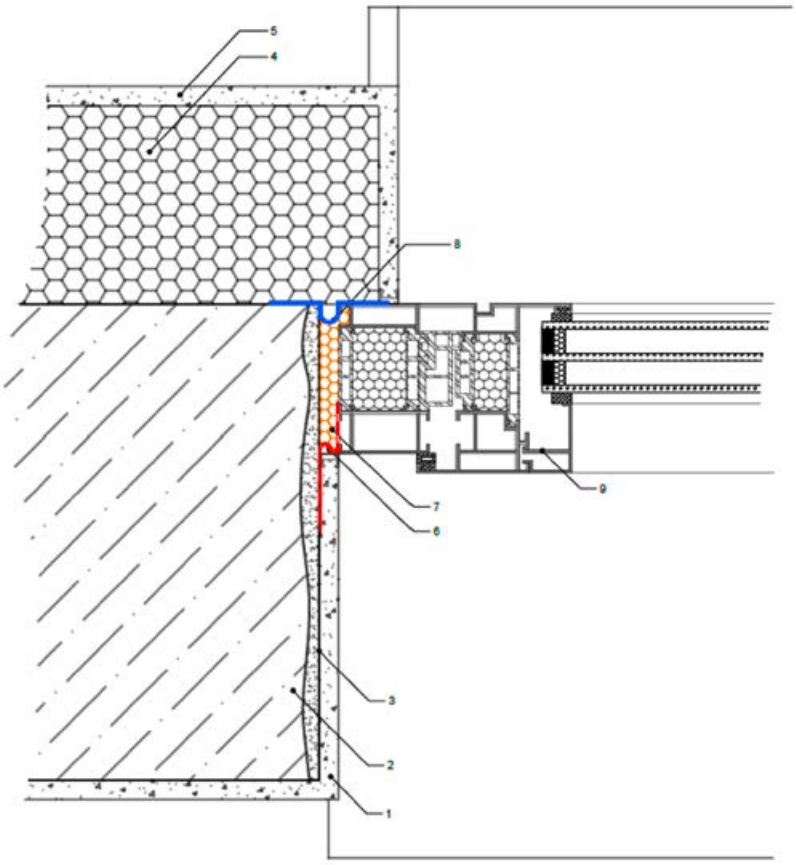


Figure 29: ‘Flush joint’ installation position

- Once the external cladding/façade/ETICS/clinker brickwork has been completed, a joint sealing tape of quality class BG1 can provide driving rain tightness on the outside of the façade.
- If the façade has not yet been completed, the connection joint must be temporarily protected against driving rain! This can be achieved using flashing tape, multi-functional tape or joint sealing tape.
- Fixing can be carried out using direct fixings, which do not require corrosion protection, or alternatively using brackets or consoles. As these penetrate the inner layer, additional corrosion protection may be required, e. g. using Hanno®-Flashing Tape DUO Easy Pads.

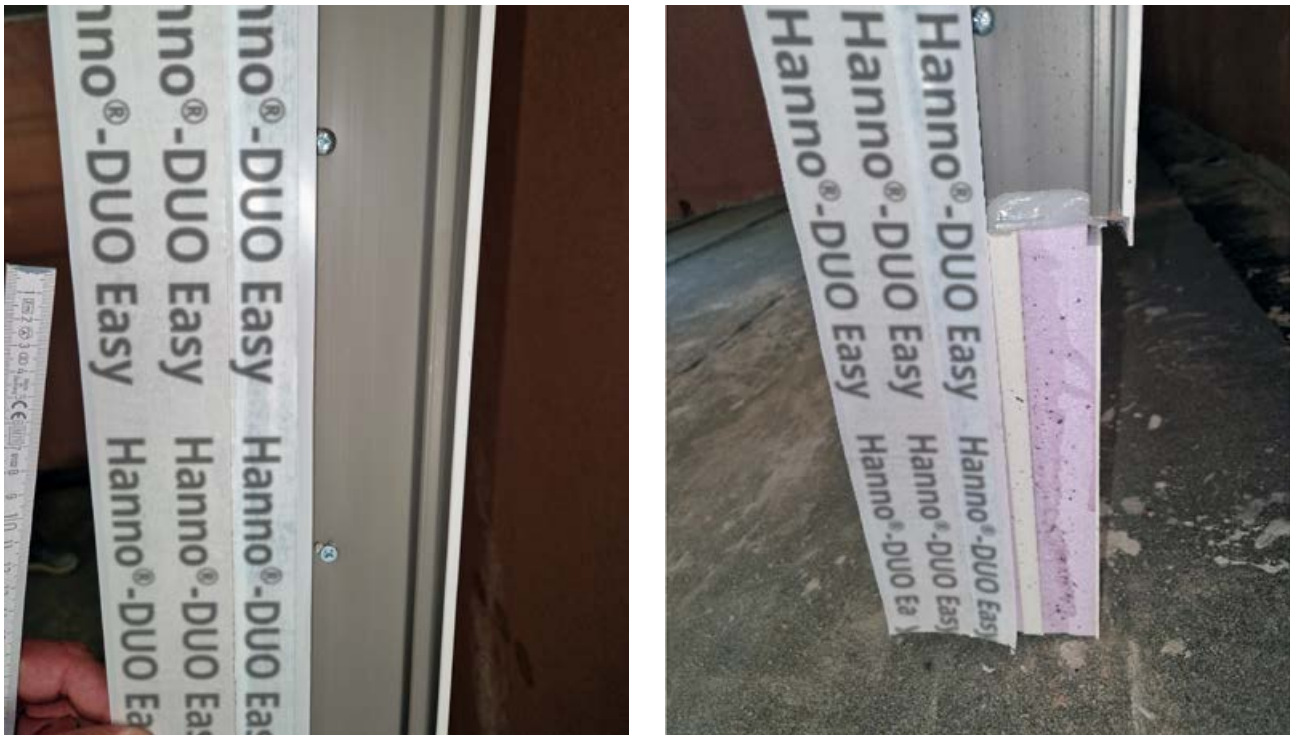


Figure 30: Clean bonding to the ribs of the profile. Please note: Not all sealants provide the same level of adhesion! Polymer = generally good adhesion; silicone, in most cases, poor to no adhesion.

Adhering the film to the webs and, depending on the profile, to one side of the rear of the frame usually achieves the required adhesive width of approx. 15 mm. The adhesive width and adhesion when handling the components should be checked and assessed as part of training. It should be checked whether the film adheres more firmly and is easier to handle when adjusting the window frames and pulling the film strip if an additional edge of the web is also covered with film. This must be checked individually by the installer and determined by the on-site installation team.

Important: HANNO acrylic adhesives offer very high final adhesion, but are also designed to give the fitter time to make adjustments. Full adhesion is only achieved after 30–60 minutes.

7. Alternative bonding method, where simple bonding to ribs is not feasible

Alternatively, the smooth, unprofiled surface on the back of the window frame can also be used as an adhesive surface, as it provides a larger contact area for the acrylic adhesive. It should be noted that the fasteners, both when securing the component to the building element and when securing the element to the building structure, must ensure the sealing of the **inner layer** must not be damaged. Repairing leaks is always a difficult and time-consuming process (see figures 15, 31 and 37).

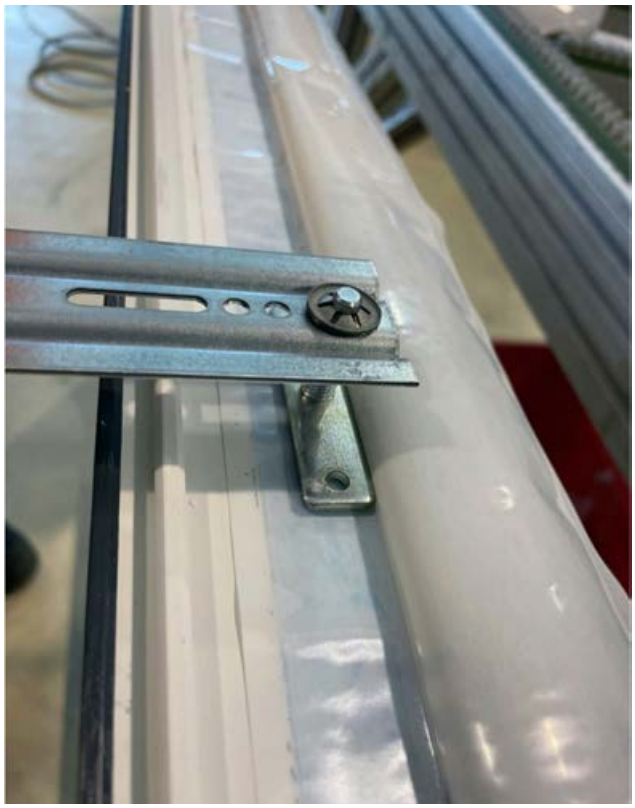


Figure 31: 'Flush joint' installation position utilising the wide adhesive surface – collision between a fastener and the sealing layer (source: HANNO)

Please note the following: It is highly likely that the bonding of the sealing product will interfere with the fixing device (bracket, clamp, load-bearing bracket, direct-fixing screw or angle bracket) and damage the airtight layer.

If a claw on the fastening tab gets caught in this area, it may damage the non-woven backing or the adhesive surface of the flashing tape **(airtight, inner layer)** or if a screw connection penetrates or pierces the airtight layer, or mechanically separates the adhesive bond from the window frame, this is considered a leak, which must be rectified in all cases to prevent structural damage.

The requirements for the **functional layer** states that the joint must be completely (at least 90 %) filled with insulation material. In this case, the designer must check whether complete filling is possible with the selected construction method; this, in turn, must be compared and verified by the fitter on site against the actual conditions encountered.

8. Repairs to the sealing caused by external factors

The sealing of building components is always completed **according to** load transfer and fixing. Care must be taken to ensure that the substrates are suitable and of the correct quality for a durable, effective sealing system, and that the required bonding widths are maintained.

*Please note: It is not possible to carry out a **long-lasting** and to ensure the bond is applied correctly! According to the VOB, a service life of 30 years is specified; technical presentations by the ift Rosenheim describe the term **"permanent"** already spanning a period of at least 40 years – it is reasonable to assume that this period will become established.*

Due to their limited UV resistance, flashing tapes offer only temporary protection for the **functional layer** from driving rain and external factors. Please refer to the manufacturer's data sheet for detailed product specifications.

Hanno®-Flashing Tape DUO Easy and DUO Easy Pads are in accordance with valid Outdoor weathering tests: UV-stable and weather-resistant for 12 months (EN 1114 and EN 1027 under Central European climate conditions).

UV stability / weather resistance	12 months**, MPA*

Figure 32: Extract from a technical data sheet containing information on UV stability

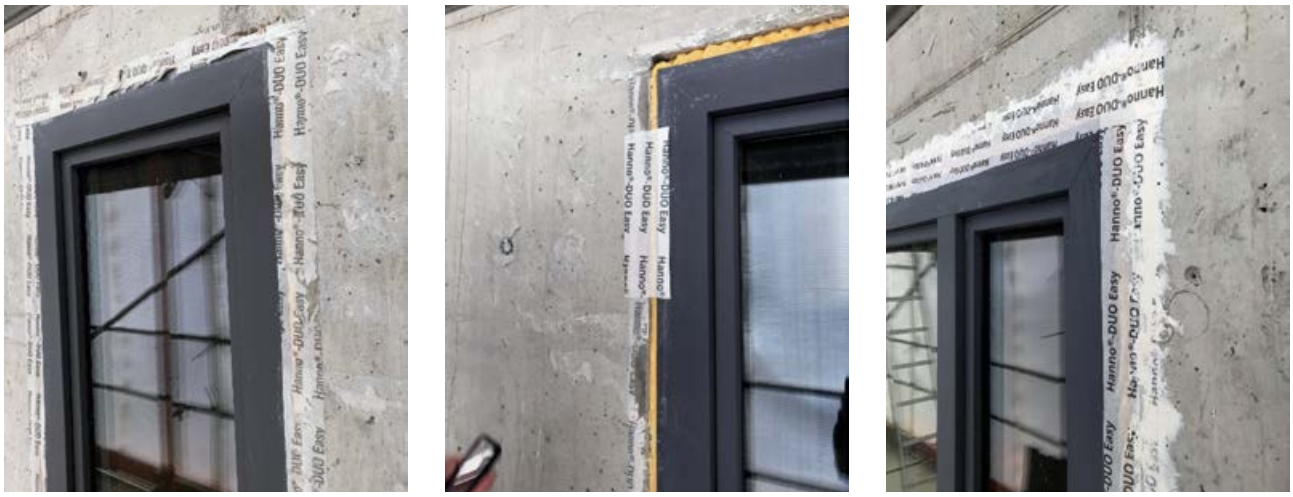


Figure 33: Repair of a sealing membrane that was mechanically damaged during façade cleaning using a grinding disc

Picture on the left: The sealing with flashing tapes was carried out thoroughly and correctly; however, it was subjected to mechanical stress from residues during the removal of the external thermal insulation composite system (ETICS) and the cleaning of the façade. The residue does not provide sufficient adhesion for new film to be applied over it. Excessive aging of the material and embrittlement of the film caused by sanding can be observed. It is no longer elastic and is therefore unable to accommodate movement; it can be pressed through and is slowly disintegrating.

Center image: Mechanical removal of old film strips and residues by soaking the adhesive surfaces with an alcohol-based (isopropyl) cleaner and then scraping them off with a spatula or a blade.

Picture on the right: New sealing on a mechanically cleaned substrate. Large voids and defects, as well as cut edges on the membrane sheets, can be repaired and sealed using a suitable polymer sealant (e. g. HANNO® MS Adhesive) rather than plaster. **Please note:** Please note the application thickness and drying times for adhesives and sealants!

Note: Before repeating the sealing process for building components, any loose remnants of the old sealing material must be completely removed and the bonding surfaces cleaned. If the substrates were damaged (e.g. very deep scratches) during the mechanical removal of the old membrane sheets, these must also be repaired by sanding, cleaning or filling.

Anything that can be removed should be removed. Adhesive residue can be removed with ***non-soluble*** *cleaning products, any softened residue should be scraped off using a smooth tool, and the bare surface can be cleaned using grinding discs for an angle grinder. If in doubt, please consult HANNO.*

9. Cantilevered installation in the insulation layer: The single-film solution

If the component is installed in front of the wall – and thus within the insulation layer – in order to achieve an optimal isotherm profile (see figure 33 for an example), the installer will usually fix it in place using brackets and consoles. This installation position is the best possible for thermal insulation, but may have a negative effect on the sound insulation to be achieved (see page 18, figure 28, non-critical installation positions).

Important: Fitting and fastening components exposed to the elements must be protected against corrosion.

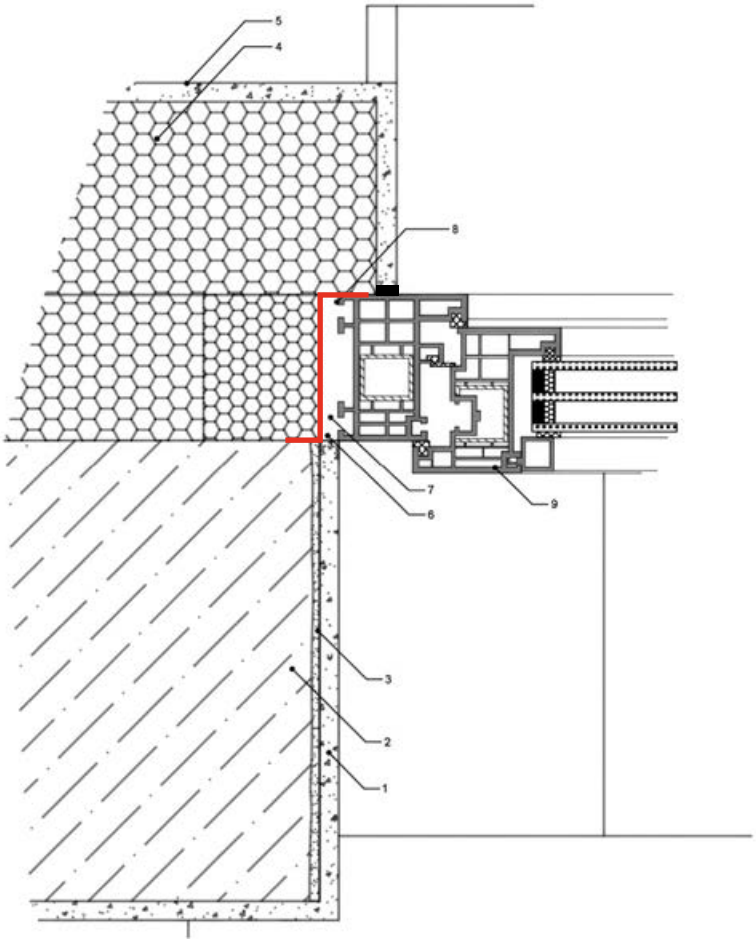


Figure 34: A single-film solution (highlighted in red) that provides both airtightness and temporary protection for the connection joint

*Note: If a window protrudes completely into the insulation layer, there is a possibility that there will no longer be a defined cavity between the inner and outer films that can be filled with insulation material. Furthermore, in this case, the films stick to one another. To avoid cavities, it is possible to dispense with the inner film altogether (**Please note:** Take account of sd values and use moisture-variable systems, such as the Hanno®-Flashing Tape DUO Easy, which are designed with technical specifications suitable for this application).*

Voids should always be avoided and, if they do occur, should be filled in.

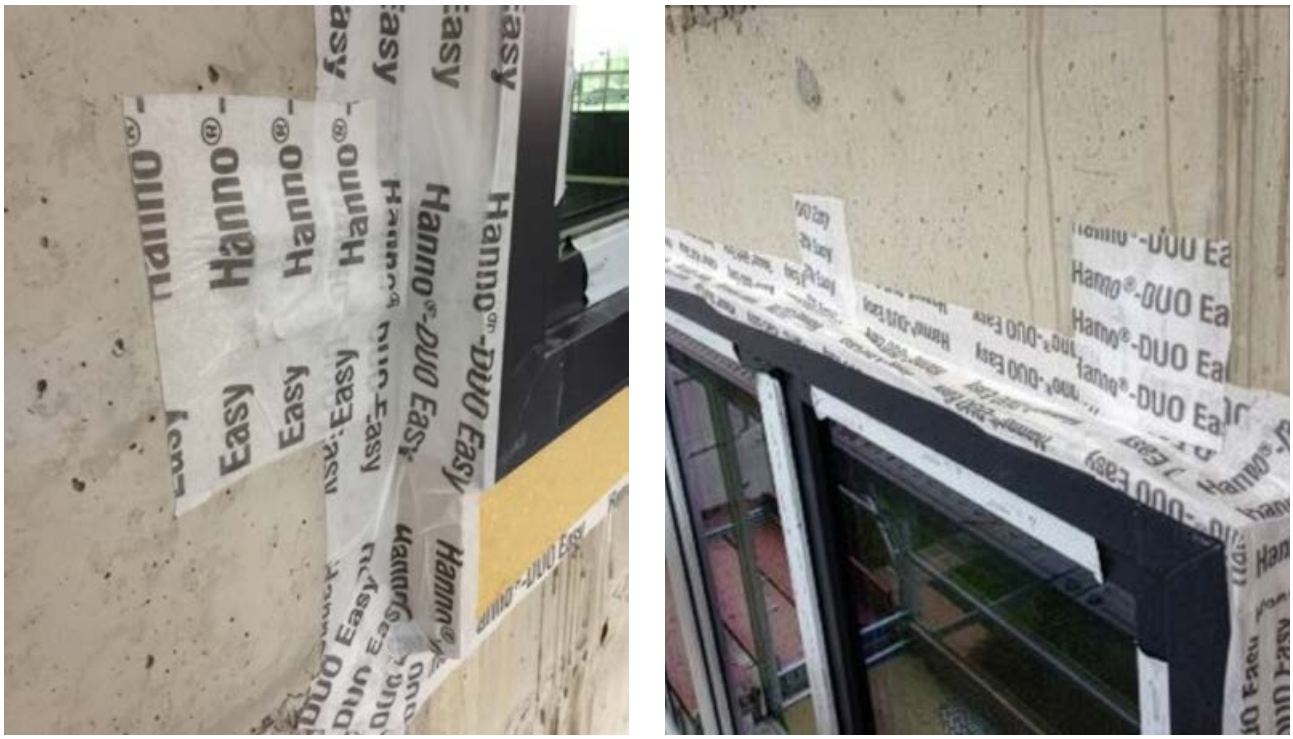


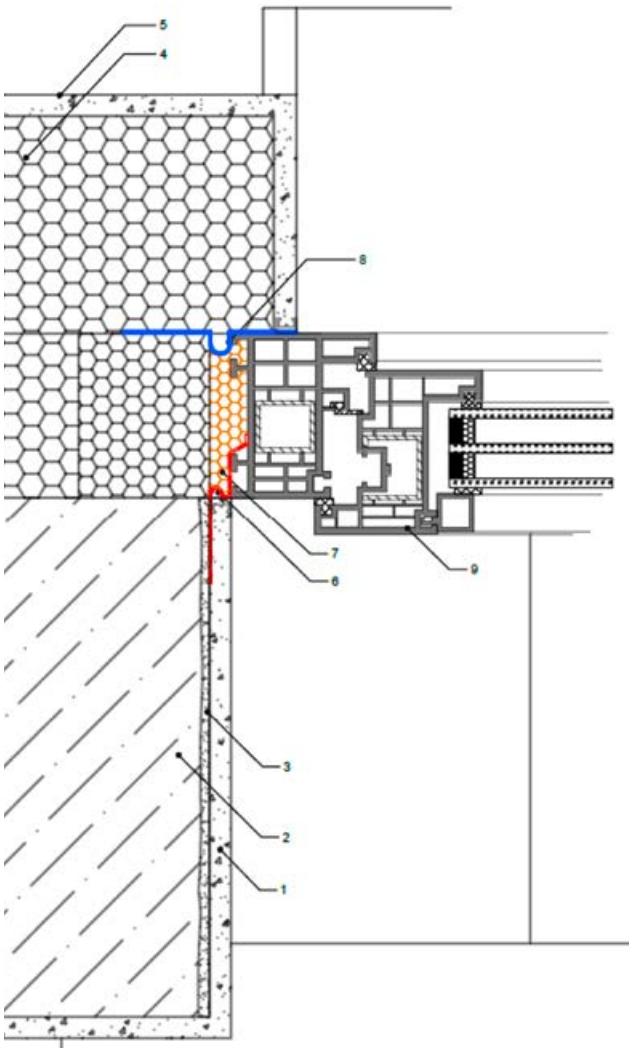
Figure 35: Corrosion protection of fasteners: theory versus practice (source: HANNO)

Practical notes on the single-film solution
Until the façade is completed, the sealing ensures airtightness and protects the joint from driving rain. The films must be bonded neatly and, as far as possible, without creases, **all round** and should be carried out with as few air pockets as possible; the fixing materials must be fully protected against corrosion. **Please note:** Avoid any standing water at the cut edge of the film!

Once the façade has been completed, it takes on the roles of the functional layer and weather protection.
The requirements for the configuration of the three layers (**airtightness layer**, **functional layer** and **protection against driving rain**) are met, as the film ensures airtightness.

No further insulation is installed behind the airtightness layer!

10. Preparation and installation of the internal sealing



Normally, the three sealing layers are created using three different sealing products, as shown in the layers model. For all product groups, care must be taken to ensure that the work is carried out to a high standard and that the products are bonded correctly, whilst also paying attention to the correct sequence of application.

It is advisable to start by adhering the inner film (see the bottom right-hand illustration) on three sides (left, right and top) and to guide it round the corner in a loop, as shown in the picture, to avoid creating a leak or weak point at an early stage. This is followed by securing the film in place and, finally, applying the outer film. The joint should be filled as completely as possible with PU in-situ foam before attaching the inner or outer films. If the window frame is plastered generously, the film can also be applied to the inner surface without any problems (bottom left of the image, see bonding widths).

Figure 36: Sealing windows to a wall edge strip or pre-wall installation system.
Please note: Is it known whether this has been bonded to the building structure in an airtight manner?

To determine the type of internal sealing, it must be established whether there is plaster on the inside (typically 1.5 cm thick, as **airtight layer** (as shown) or if something else is planned. In any case, we recommend protecting brackets and fixings from corrosion by masking them (see figure 37); however, this is not strictly necessary in the case of plastered reveals.

Figure 37: Illustrative diagram showing how to mask off tabs and fasteners

11. Masking off floor-level elements: focus on the base on the inside

Figure 38: Sealing the extension with flashing tape, followed by fixing with mounting brackets

Important for the inner, **airtight layer** is that it is designed to run all the way round on all sides and is free from leaks.

On the inside, there is also a very high risk of the fastener penetrating the sealing layer or damaging it during installation.

To ensure a permanently effective sealing, the film layers must overlap by at least 20 mm (see table 1 on page 7, 'Bonding films'). The load is transferred from the building element via the solid core in the extension, supported by rot-proof blocks underneath. In this case, there is an integral rigid foam layer within the extension; the lower extension is fixed in place using the mounting bracket provided (observe the product's approval and material properties).

Corrosion is a factor not only on the sides of the soffit, but also at the bottom! To ensure long-term functionality, the fixings must be protected against corrosion or selected to be corrosion-resistant.
If the floor structure is unknown, it is advisable – as with the sides – to seal the products airtight for safety reasons, as shown in the picture. Suitable film patches include cut-to-size pieces from the material used for the **inner, airtight layer** flashing tape or plasters manufactured specifically for this purpose, such as HANNO®-Flashing Tape DUO Easy Pads.

Provided that information on the floor structure is available, and provided that the floor structure and its joints are airtight and the angle is suitable, it is not necessary to apply additional sealing to the fasteners (see 'sealing at the sides'). Masking the area always provides additional security.

Figure 39: The mounting brackets can be protected against corrosion using cut-to-size pieces of the flashing tapes

12. Double-shell masonry (North German method), windows in the insulation layer

In the case of double-shell masonry, the method of sealing depends heavily on the stage of construction. Where the facing brickwork has already been completed, installation is carried out against the facing brick course. Here, if the resulting joint remains visible, it can be sealed using a class BG1 joint sealing tape or a suitable sealant. If a strip conceals the connection joint and the tape is not directly exposed to the elements or UV radiation, class BG2 is sufficient.

For the implementation of the **functional layer** for soffits that have already been plastered, a multi-functional tape (e.g. figure 56), which requires parallel joint flanks, is suitable; for unplastered soffits, a flashing tape (e. g. figures 36, 37, 40). If the facing brickwork has not yet been completed, the single-film solution (see section 'single-film solution') or sealing methods similar to those used in ETICS installations, with an inner and outer membrane, may be employed. It must be clarified who is responsible for creating the driving rain tight connection to the facing brickwork.

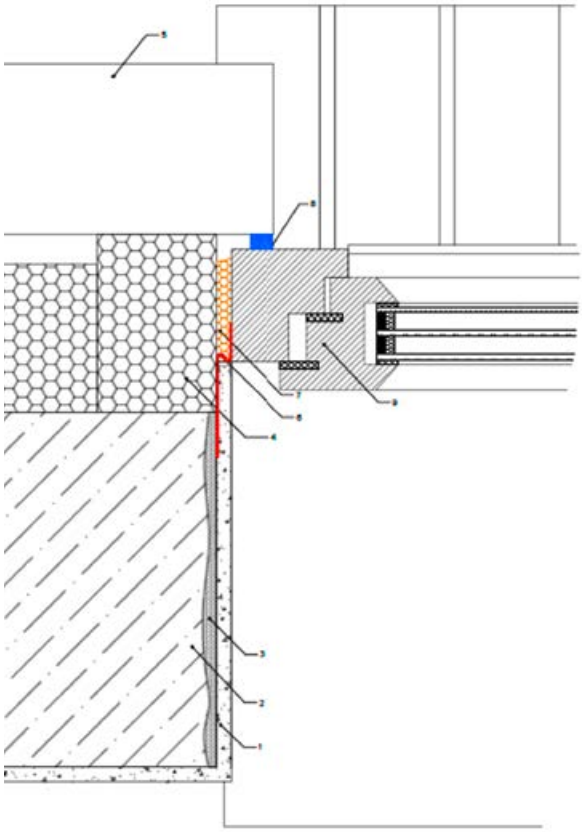


Figure 40: Possible method of installation where the facing brickwork is already in place: joint sealing tape against the clinker bricks; fill the joint between the window and the building structure as completely as possible with insulation material; create an airtight seal using a flashing tape.

Tip: If a tape needs to be replaced or fitted at a later date, the following procedure will make the job easier.

- Chill the dough beforehand so that it rises more slowly
- If necessary, dampen the acrylate adhesive/fixing aid to reduce adhesion to the joint flanks
- Cut the tape slightly longer than required (2–3 %), insert it into the joint and secure it with wedges so that it can expand slowly within the joint and allow the adhesive to dry again
- Once the joint is visually sealed, the wedges can be removed

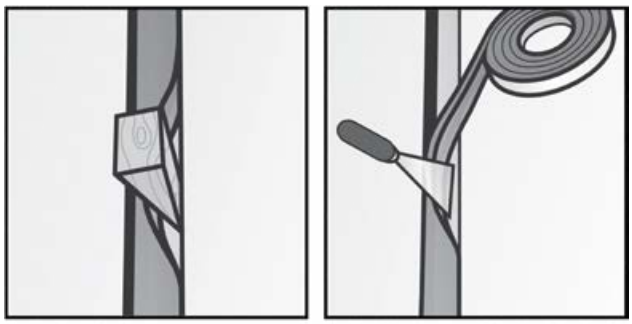


Figure 41: Retrofitting the sealing tape

The function of the flashing tapes is identical to that of the previous ones, with the exception that, in this case, a joint sealing tape of quality grade BG1 or a sprayable sealant (see page 12, 'Sealants') is used subsequently for sealing the joint with the facing brick. Sealing between the façade and the building component is performed once the façade has been completed.

The set back for joint sealing tapes is specified in technical manuals, such as the installation guide, as 1–3 mm, so that the tape, when flush with the surface, is not subjected to mechanical stress during cleaning and does not become dislodged due to movement. In theory, the set back could also be significantly larger. It is important that any surface water collecting on the joint sealing tape is drained away at the bottom of the window sill or roller layer and does not pool. In the event of significant unevenness in the facing brickwork or the bearing joint, please do not use this as a guide and double up the tapes where necessary as a solution; instead, request rectification, providing photographic evidence. Alternatively: If the bed joint is load-bearing and has been neatly finished, the gap can, if necessary, also be filled with a sealant in a matching color.
→ Be sure to consult us beforehand!

The self-adhesive surface of a joint sealing tape is referred to as a fixing aid. It is designed to make installation easier by allowing the tape to adhere to the window on its own. In theory, it is also possible to stick the product to the window reveal or the stop/brickwork rather than to the window itself, as the adhesive surface is not technically necessary.

Please note: The self-adhesive side with a fabric reinforcement (fixing aid) adapts significantly less well to uneven surfaces! Good adhesion and the formation of corners on less-than-ideal surfaces must always be checked by carrying out your own tests.

Please note: A joint sealing tape is only impervious to driving rain within the tested, specified joint application ranges! Ideally, a tape with a recommended joint width of 7–12 mm should be used in a joint measuring 9–10 mm. In this case, the product can accommodate and compensate for movement in both directions.

Figure 42: Until the facing brickwork is completed, a membrane can be used to protect the connection joint; once the facing is complete, a joint sealing tape is used to seal the joint against the façade (see single-film solution)

Figure 43: Joint sealing tape installed with a very large set back; expansion joint open. Question: Can surface water running off the joint sealing tape drain away at the bottom? Would the client agree to the expansion joint being sealed with a sealant of the same color?

13. Practical examples: When are joint sealing tapes suitable, and when is rectification required?

These three layers must be carried out during every installation, and the fitter is responsible for protecting their work and the joint from the elements! Regardless of whether a plastering bead is later used for sealing the window, a sealant is applied or a joint sealing tape is used, the insulation, the joint and the structure must be protected from the elements! This chapter contains images illustrating sealing with joint sealing tape – showing both good and poor workmanship.

Figure 44: **That wasn't done properly!** On the left, there is no set back, and the area is exposed to both UV radiation and mechanical stress. The large set back in the center is highly unlikely to drain surface water in a controlled manner, and the open joint is not impervious to driving rain, which may lead to damage. On the right, the tape can no longer compensate for the misalignment of the stones, has expanded too far and is no longer UV-stable (as it has expanded beyond the maximum joint application range).

Figure 45: Joint sealing tapes (left) are not suitable for situations involving standing water! Water must ALWAYS be drained away by design, as the product will become saturated and, over time, allow water to pass through! Right: The maximum joint width for the tape, as indicated on the label, and the 1:1 ratio of cut width (e. g. 15 mm) to joint width (e. g. 10 mm) must not be exceeded → the tape is coming loose and is no longer UV-stable! The pointed ends of the tapes are caused by a mitre cut made during the continuous production of the raw foam. These will not expand fully and are not intended to be joined seamlessly. The pointed ends must be cut off and disposed of!

Figure 46: Neatly installed joint sealing tape to ensure durable sealing at the connection joint. The set back is 1–3 mm; the selected tape width is sufficient to accommodate movement and compensate for any unevenness.

HANNO offers a wide range of sealing tapes for window and façade construction. We recommend Hannoband®-BG1 (which has even been tested to withstand hurricanes of up to 9000 Pa)!

14. Sealing using multi-functional foam plastic tapes

Explanation of the properties and specific features involved in the installation of multi-functional tapes, illustrated with images from inspections, site visits and quality assurance processes.

Figure 47: Joints (center image) and corner details (left and right images), shown here on a test specimen for the MO/01 test carried out by ift Rosenheim, must be finished neatly! The tape must extend beyond the determined joint width in order to perform tight sealing at the corners. Center image: Only a cleanly and straightly cut strip of tape can perform sealing of a joint!

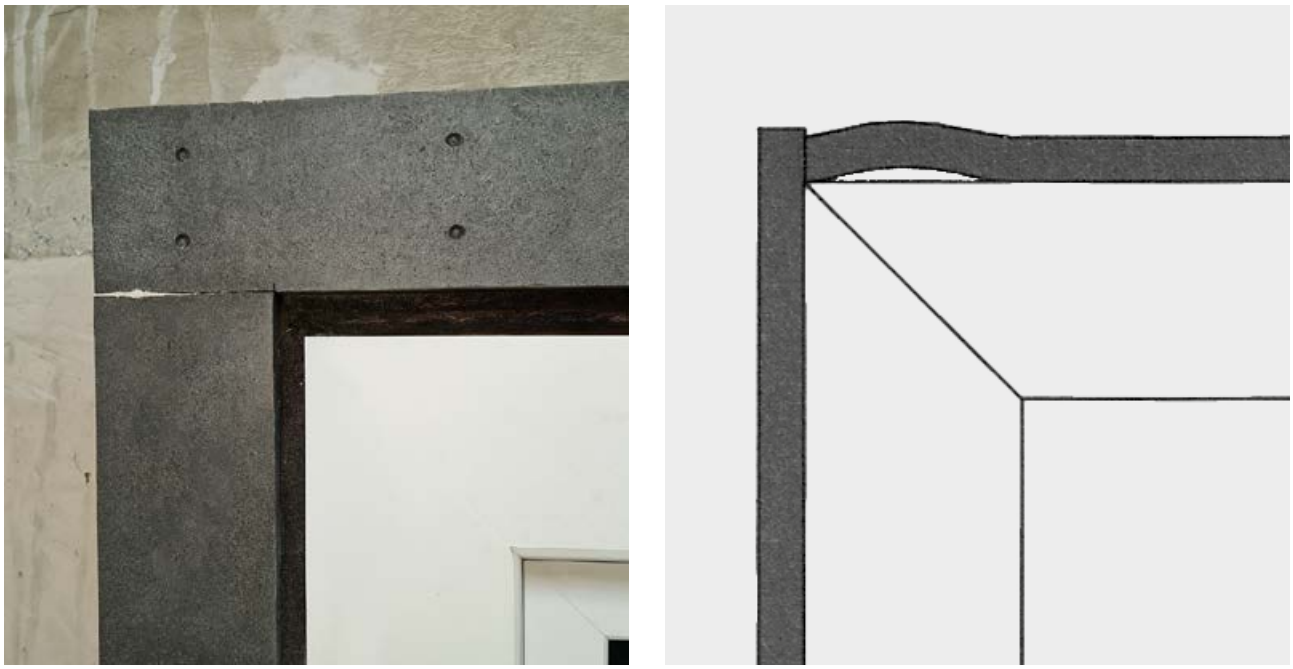


Figure 48: A clean and professionally finished corner within a pre-wall installation system

Figure 49: Just like pre-compressed foam plastic sealing tapes, multi-functional tapes require parallel joint flanks (left-hand image) to ensure long-term functionality and sealing. The maximum joint application range must be observed and must not be exceeded.

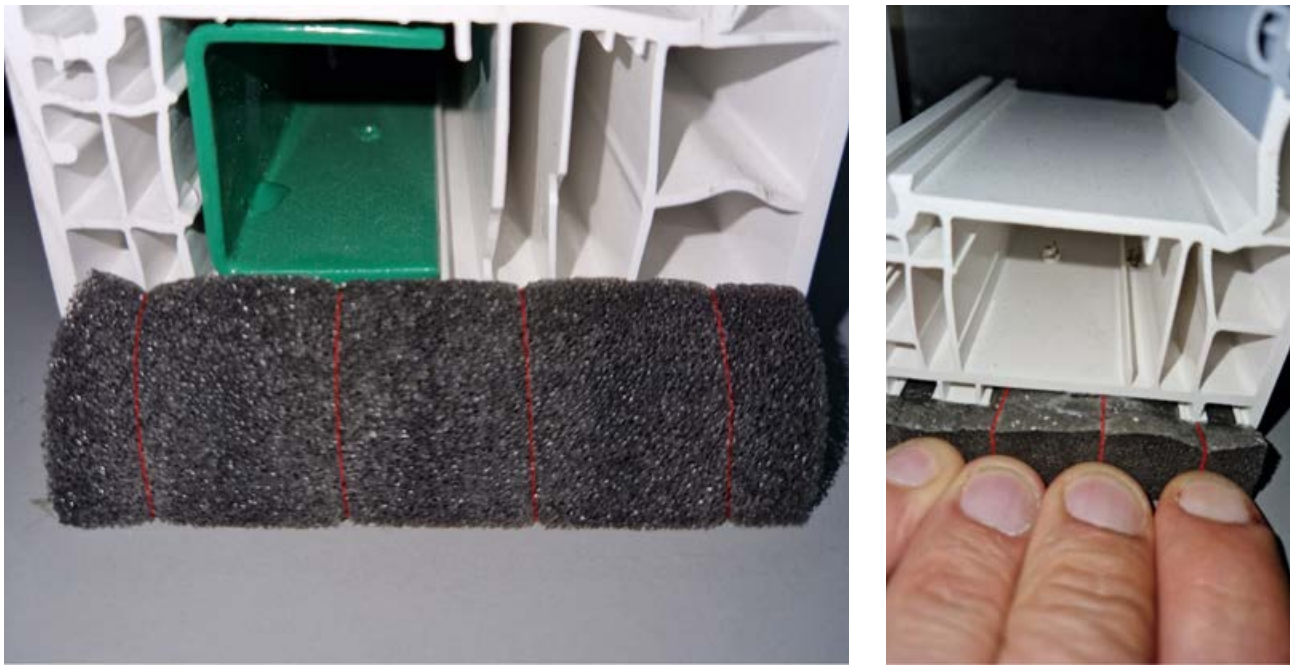


Figure 50: The airtightness of the tapes is achieved by the membrane and the non-woven fabric incorporated into the self-adhesive layer. Thanks to the non-woven fabric, the product also performs sealing around complex geometries, in this case the rear of a plastic window.

Figure 51: Minor leaks, gaps and leaks can be repaired using a suitable MS polymer sealant. Both images show defects: on the left, a 'small' one where the tape has been cut too short; on the right, a 'large' one where the tape has either been fitted whilst severely overstretched or cut far too short.

Figure 52: Leaks in the corner can be repaired using suitable polymer adhesives; it is important that the adhesive can be painted over and has adequate elasticity! In the middle image, a small leak has been neatly repaired; in the images on the right and left, the cellular structure of the tape is so clearly visible that, in most cases, it can be assumed that the joint has been extended well beyond its intended range of application. The rule 'as much as necessary, as little as possible' should be followed.

Figure 53: Tapes must not open fully before the windows are fitted into the opening; instead, they should be pressed into place and perform sealing through expansion once the windows have been positioned! Joints must always be finished with sufficient material allowance.

Figure 54 (explanation from left to right): The joint has been installed with insufficient material (open joint) and the product's joint application range is too narrow for on-site joints (as indicated by the open structure of the tape). In the middle image, a tape of the correct dimensions was selected, which is why the joint is sealed. On the right-hand side, the practical repair of defects using a suitable MS polymer can be seen.

Summary of details on sealing with multi-functional tapes

- Multi-functional tapes are divided into two quality grades: for concealed use, the MF2 grade, which must have airtightness; and for visible use, the MF1 grade, which must also be UV- and weather-resistant.
- Joints and corner details must be finished neatly and with sufficient material allowance.
- The airtightness of the tapes is achieved by the membrane.
- Minor leaks, defects and gaps can be repaired using a suitable MS polymer sealant.
- Tapes must not open fully before the windows are fitted; instead, once the windows are in position, they should press against the frame and perform sealing by expanding.
- All compressed tapes require parallel joint flanks to provide permanent sealing. Parallel joint flanks can also be achieved using a pre-wall installation system. A major advantage is that the window fitter is not dependent on the tolerances of the building shell and can determine the joint widths themselves.

Safe and quick sealing of window joints – that's what HANNO's all-in-one multi-functional tapes are designed for.

Thanks to the moisture-variable membrane technology, the joint dries out all year round, ensuring reliability during installation.

15. Details of the ceiling connection – not every product is suitable for exposed concrete

If the plans show that the top edge of the window frame will be joined to an exposed concrete ceiling, or if it is simply leveled with a thin layer of filler, the use of flashing tapes may not be possible, or the work must be carried out with considerably greater care. Severe wrinkling can prevent the minimum thicknesses of thin-set plasters from being achieved. This can be remedied by using multi-functional tapes (see figure 56), which seal the joint airtight without extending onto the surface of the ceiling. If a thick plaster is used, any product is generally suitable for creating the airtightness layer. Sealants or jointing compounds can also be used.

Important points to note regarding services:
How is the transition from the horizontal to the vertical strip carried out, and can this transition be made permanently of high level airtightness? The corner areas present a challenge. A 'sealing strip' is not a flat PVC strip, but always a chamber profile with a test certificate. A flat plastic strip serves only cosmetic purposes and is not suitable for creating an airtight seal.

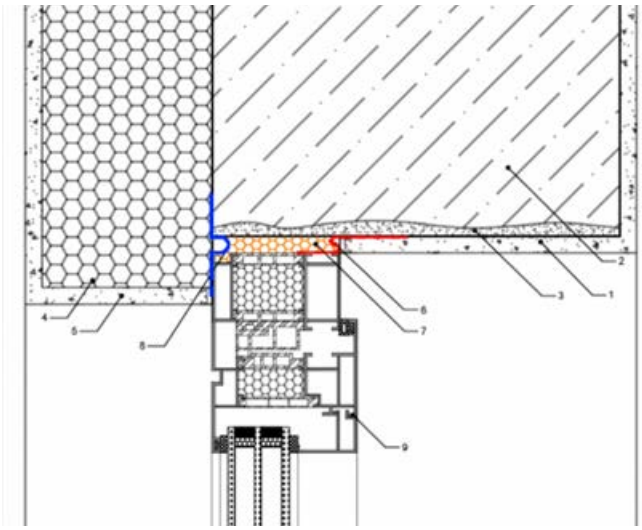


Figure 55: Connecting the airtight layer to the floor slab using flashing tapes

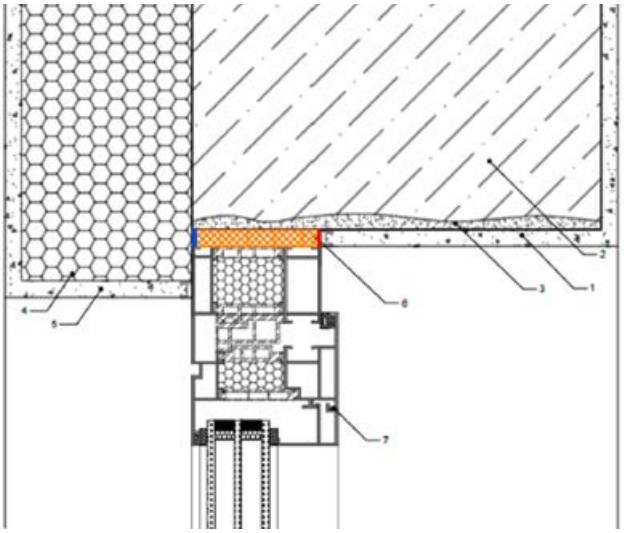


Figure 56: Connecting the airtight layer to the floor slab using multi-functional tape. In the case of thin renders, films may be too thick.

16. Sealing of ground-contacting elements: Connecting the building sealing with flashing tape

The sealing of structural elements in contact with the ground – known as building sealing (BWA = Bauwerksabdichtung) – and the connections between accessible roof surfaces and the façade and windows requires **always** detailed planning and proven expertise in the requirements for building sealing, known as the 'sealing certificate'. Knowledge of these services can be offered as part of the refurbishment package and may ensure smoother and more efficient workflows during the construction process, whilst also saving the client the hassle of liaising with an additional contact person from that trade.

This is based on the regulations and standards governing building sealing, such as DIN 18531 (occupied and unoccupied roofs), DIN 18532 (car parks), DIN 18533 (structural elements in contact with the ground), DIN 18534 on interior sealing and DIN 18535 on the construction of tanks and basins, as well as the flat roof guidelines (Flachdachrichtlinie). These regulations are not the subject of this assembly helper, which is provided for information purposes only.

Figure 57: Example from a combined ift test for standing water (water under pressure in the area in contact with the ground) and driving rain, taken from a joint test of system suppliers for plastic windows, system suppliers for threshold profiles, manufacturers of building sealing and manufacturers of joint sealing (for the building envelope connection).
(Source: HANNO)

As shown in figures 58 and 60, the sealing of a building is extended 150 mm up the building structure to protect the building from one-off heavy rainfall events, water seeping up from the ground or snow drifts. In the design, the site gradient always runs away from the building.

Note: It is almost always possible to deviate from the standard sealing height of 150 mm in certain areas, provided that measures to drain away water are planned and implemented on a case-by-case basis. A combination of generous overhangs, a drainage system and water drainage must be planned, always tailored to the specific circumstances of each individual case. In any case, specialist knowledge of this type of connection and the relevant products is required. An impression of the products' performance can be gained from available test reports on system tests, such as the combined driving rain and standing water test, carried out using Remmers MB2K and Hanno®-Flashing Tape DUO Easy.

HANNO offers high-quality flashing tapes for all RAL-compliant applications in window installation involving a vapour pressure gradient.

17. Required characteristics of a bonding surface for building sealing

- That's just the way it has to be.
- It must be free of holes.
- It must be flush.
- In accordance with DIN 18533-3, 10.3.4 Movement joints, 10.3.4.1 Type 1 joints for W1-E: In the case of a surface sealing system using crack-bridging MDS, the joints are sealed using joint tapes made of plastic or elastomeric membranes, which are laminated with a non-woven fabric or woven fabric to **Embed** in the crack-bridging MDS.
- A liquid membrane may be described in the test report as having a higher density than joint sealing flashing tape, but it must **not** is used for building sealing and is also suitable for withstanding the pressure **none** Suitable BWA!
  A BWA must have a suitable crack-bridging layer at the joints with a pressure of at least 2000 Pa. → This means: resistant to a water column/standing water ≥ 20 cm in height. Always check the manufacturer's data sheet for performance details!

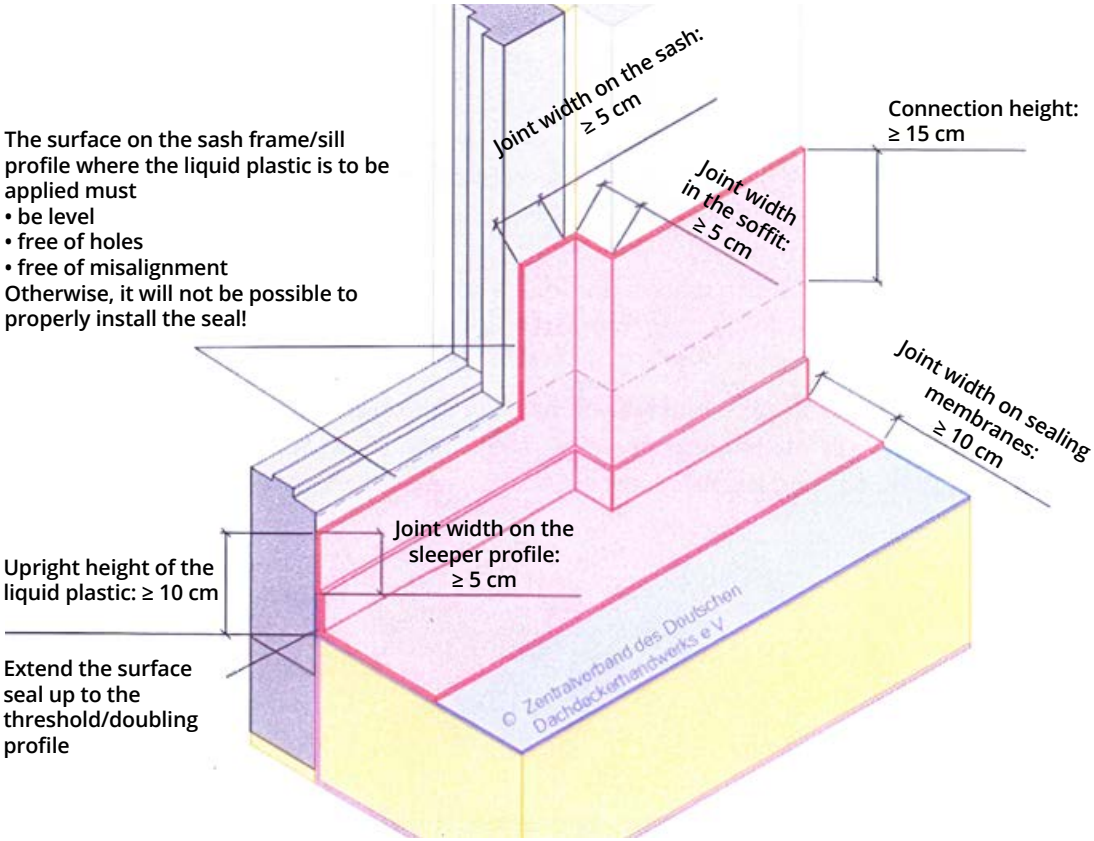


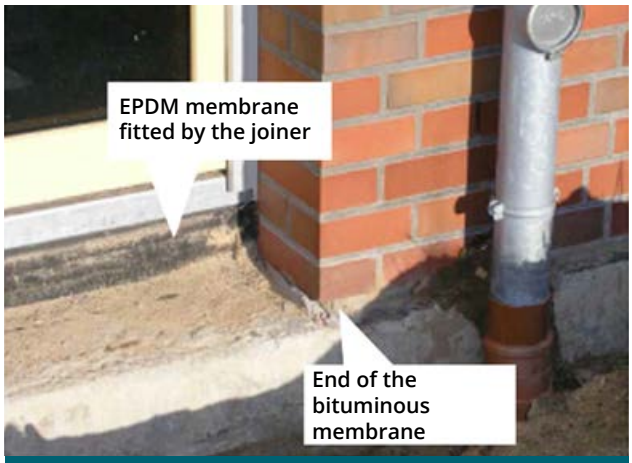
Figure 58: Connection of the floor-to-ceiling window sealing to the BWA (source: Central Association of German Roofers)

Unless otherwise expressly stated by the manufacturer, the building sealing must,

- have at least 5 cm of adhesive surface on the window frame,
- have at least 5 cm of contact surface on the threshold,
- overlap the adjacent sealing membrane by at least 10 cm and be turned up vertically by at least 10 cm against the floor threshold profile and the window,
- must be formed on the building structure at a height of at least 15 cm.
- A decoupling strip in the corners must have a contact area of at least 2.5 cm on each side.
- A joint sealing tape must be embedded in the first layer of sealing.

Custom solutions and dimensions or widths that fall below these specifications are possible, but must be agreed with the relevant manufacturer!

Details of the subsequent repair of the sealing gap



Sealing details

Details of the subsequent repair of the sealing gap

Sealing details

Figure 59: The renovation involves replacing windows and integrating them into the existing building sealing (source: *The Forgotten Connection*, Dipl.-Ing. Henrik-Horst Wetzel)

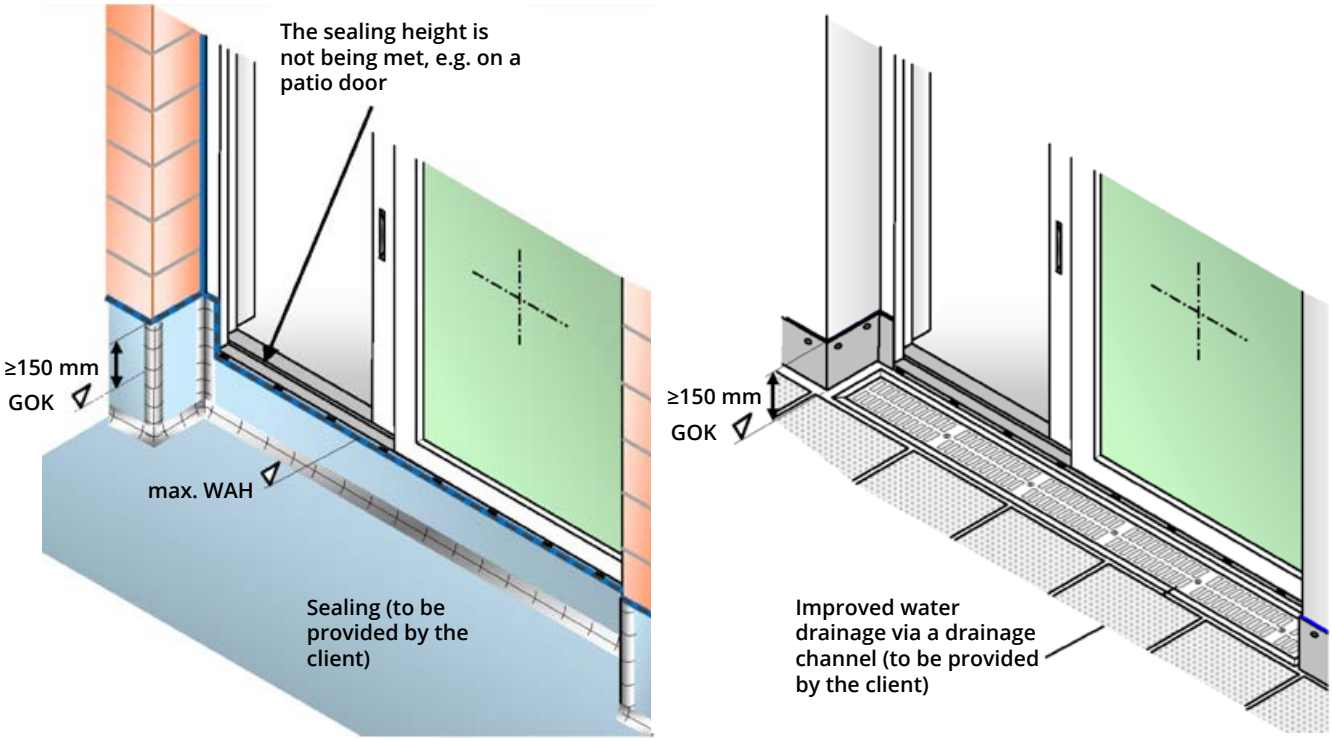


Figure 60: Example of a sealing solution for floor-to-ceiling, accessible elements (source: LzM 2024)

If the sealing height is less than 150 mm, the connection must be always to be planned in detail by trained specialists!

Where the depth below the sealing tray is ≥ 150 mm, a suitable combination of the following structural details must be selected to ensure adequate water drainage. Water accumulation varies from region to region, and the respective regional 100-year flood level must be taken into account when planning drainage:

- A slope away from the building of > 1° should be provided on the site where paving joints are open; a slope of > 2.5° should be provided where paving joints are closed.
- Drainage in the substrate must be planned and installed to ensure that any water that accumulates can seep away adequately.
- A drainage channel must be designed and installed across the full width of the element before any section where the sealing level is not yet reached.
- A generous, shading roof overhang can help to reduce the water load on the structure.
  Specifications regarding the angle and projection are provided, amongst other things, in the installation guide.
- On the inside of the building, clean-walk zones should be incorporated behind the structural element in order to reduce the load on the floor.

Figure 61: The building connection (flashing tape for windows) is installed first and, as recommended, is bonded up to 5 cm below the upper edge of the building sealing. The building sealing is then applied over the flashing tape.
Important: The flashing tape must be non-woven-backed and allow the building sealing to adhere properly. Please check the relevant compatibility with the manufacturer.

18. Assessment before work begins and communication

Plans drawn up at the design stage do not always correspond to the situation encountered on site. If work cannot be carried out as originally planned (this may be due to requests for changes, delays caused by the progress of other trades, supply chain issues, rectifying defects or discrepancies at interfaces), the 'Little Assembly Helper' advises open communication.

Changes to the sequence of work may mean that a fastening or sealing product originally planned may no longer be the best solution, or may result in additional work. In any case, the work must be carried out professionally.

Please note: In many cases, a photograph and/or a brief description of the concerns raised can prevent the situation from escalating. Not everyone involved has in-depth knowledge of the requirements for the proper execution of work carried out by other trades.

HANNO won't leave you on your own

You can count on it: Our partnership with HANNO goes far beyond simply selling products. As a member of RAL-FDKS, HANNO advises you before the start of your project on how to properly waterproof your construction joints to ensure long-term functionality. Whether you need to seal concrete elements, facade elements, window or door joints, or whether you're undertaking a timber construction project or a roof conversion, HANNO's specialists are always available to assist you and will work with you to develop the product concept best suited to your construction project.

Even whilst your construction work is underway, you can always turn to HANNO Application Technology for assistance with tricky situations and unforeseen problems.

Training courses

HANNO regularly organises extensive training courses on the sealing of construction joints. This ensures that your staff are familiarised with the latest techniques, installation guidelines and products. In this way, HANNO helps you to protect yourself against warranty claims and to offer your services in line with the latest state of the art.

CAD/BIM data and the ift installation planner

Via the HANNO website and Heinze's CAD and AT Manager, you can access numerous CAD details, tender documents, detailed drawings and BIM data for HANNO products free of charge. In addition, the installation planner from ift Rosenheim – now also specifically tailored to HANNO – supports you in the planning and implementation of your construction projects. You can easily find the relevant links under the respective product at: **www.hanno.com**

Information and contact details

This information has been compiled for the induction of new staff, for training and awareness-raising, and as a reference guide for the installation of sealing connections; it complies with generally accepted technical standards (as at 02/2026).

This reference work sets out practices and information on the planning and execution of sealing for windows, doors and other building elements, and explains common terminology.

If you have any questions regarding specific details, please feel free to contact HANNO Application Engineering or your regional HANNO area manager: www.hanno.com/en/contact-us/contact-person-hanno/

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