We ARE INWIDO

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INSTALLATION INSTRUCTIONS

Elitfönster Outline diplomat hajom

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Chap 1. Window's function in a wall

Knowledge-based chapter about how windows and french doors work and what the requirements are for surrounding construction elements to ensure safe installation when integrating complementary items such as windows, french doors and external doors into the building.

1.1 POSITIONING IN WALL

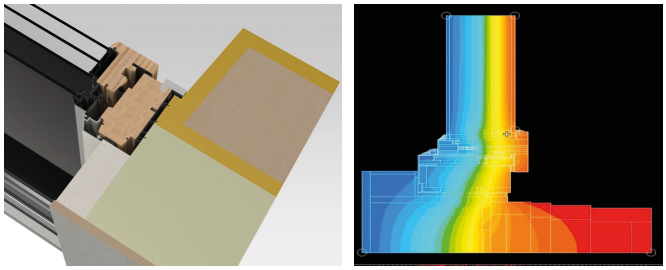
The weather protection shall fulfil many functions as a shield against cold, wind and wet and also withstand stress in the form of rain, sun, wind loads and fluctuations in temperature for example. With their exposed positions, the windows, french windows and external doors play an important role in the building weather protection and are called core complements. In order to meet the function requirements with minimum maintenance and long service lives, the windows/ french windows should:

- be handled carefully on the way to and within the building
- be placed and installed correctly in the wall construction
- be cared for and maintained

The window must always be positioned in the warm section of the wall and special consideration must be made of the design of the wall so that good ventilation and water repellence at the window edges can be achieved. In external walls with layered construction there is always a risk of water and condensation occurring. In addition the outer section of the wall construction moves differently to the inner "warm" section of the wall.

The reasons for locating the windows/french windows in the "warm" part of the wall, that is well withdrawn are many:

- Water that penetrates the wall construction's air gap does not load the window and can be prevented from penetrating the room side of the wall.
- Mounting on the body of the wall is safer and better och better.
- Correct integration (caulking) is easier to achieve.
- The window's location in the "warm" part of the house gives the inside of the window a higher surface temperature, which prevents cold drafts, cold transmission and surface condensation.
- An external niche reduces the air movement around the outside of the window and also improves the heat insulation.
- A protected position extends the durability of the surface coating.



A wall has several different parts that have different functions, which must work together for the building function to be as desired.

It is important that the building's complementary components, such as windows are designed well. A simple thermic calculation can show any weakness in the construction and possible risk of condensation. A non lineal relationship in the thermograph indicates failings, for example a window installed in a wall with an over-insulated frame. The thermal calculation displays that a construction is good based on a linear result.

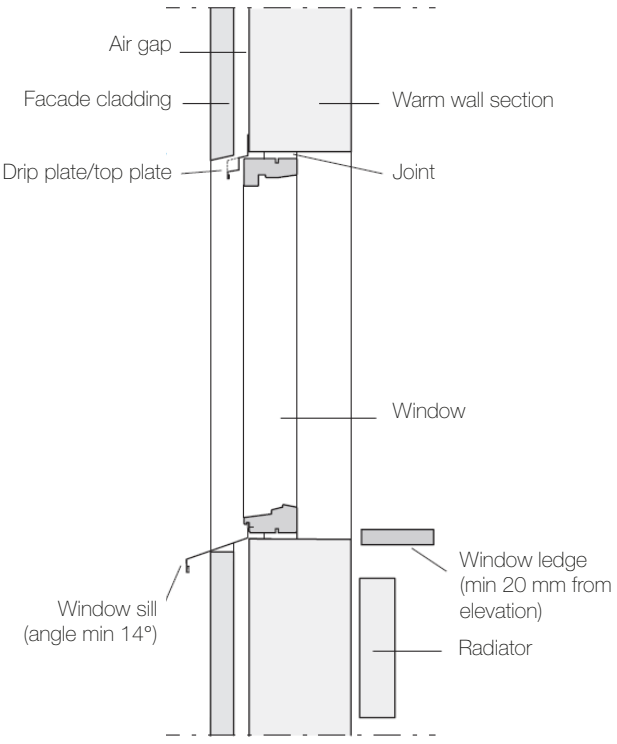


Fig 1. Part designations in a wall around the building's complementary components

1.2 HOW SHOULD A INSTALLATION BE CARRIED OUT CORRECTLY?

To design the installation of windows and french windows correctly one must have knowledge of the product's function and characteristics. This is to design the part of the building where the complementary components will be installed correctly. Achieving correct installation in the building section requires important components such as secondary sealing, sealing around a window and panel cladding. Caulking and mounting are other important characteristics that affect and guide the quality and function of the complete building section.

Take extra care with the component design when installing complementary components, such as seal between frame and wall, drainage for moisture that has penetrated the inner weather protection and the junction of the rendered wall surface and the window.

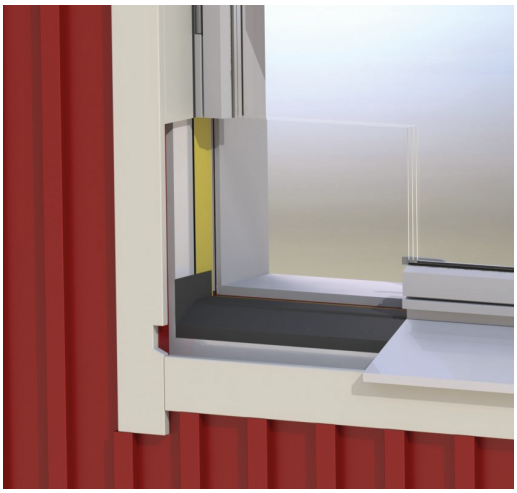
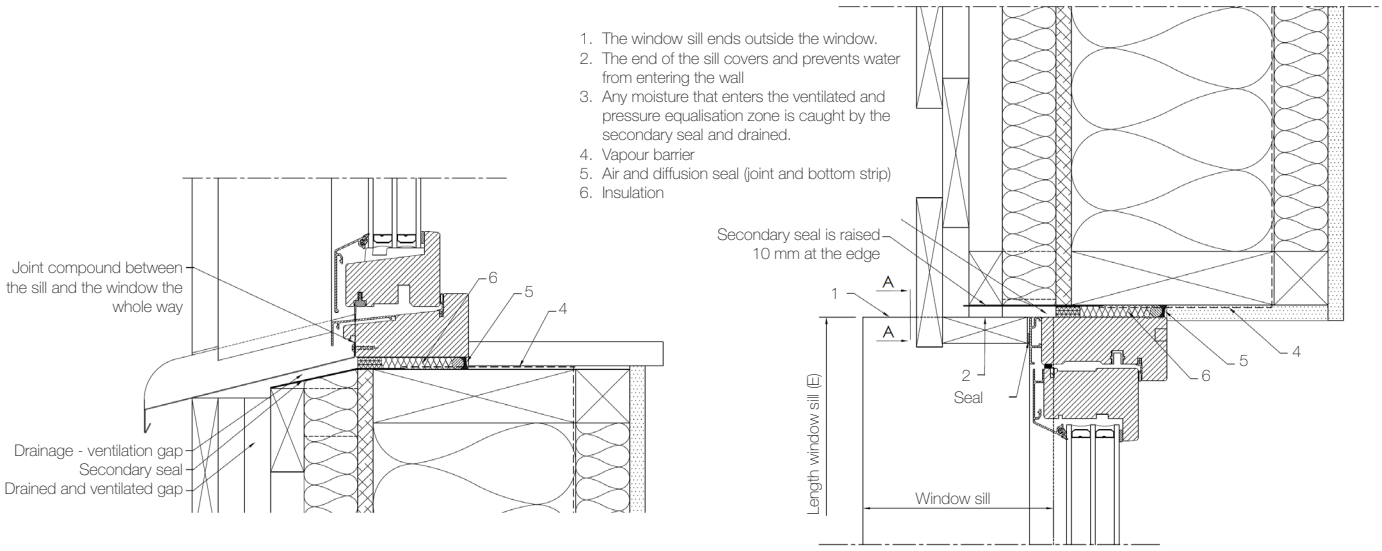


Fig 2. Cutaway of a window installed in a wall, showing the caulking, secondary seal, window sill etc.

1.3 SEALING WOODEN WINDOWS AND ALUMINIUM CLAD WOODEN WINDOWS TO THE BUILDING

It is important to know the differences between the different windows. In general a wooden window should be sealed to the frame section, the inside connected to the vapour barrier and the outside to the wind and rain protection (facade cladding).
Aluminium clad wooden windows must be sealed like wooden windows, that is against the wooden section of the frame. The difference is that the aluminium cladding that makes up the weather shield is a ventilated part of the construction. The gap between the frame and the aluminium cladding must be drained and ventilated. The aluminium cladding is secured to the facade cladding using a flexible seal, see more in "external sealing".



SECTION BELOW

LEVEL
Length window sill = frame outer measurement +2 mm
Sill anchored against lifting as necessary

Fig 3. Cross section showing parts involved in window installation. Important that the pressure equalisation/ ventilating zone (3) is ventilated and drained via the secondary seal to avoid moisture staying in the wall.

1.4 HOW SHOULD THE JOINTS BETWEEN CONSTRUCTION ELEMENTS BE SEALED (CAULKED) AND HOW AND WHAT AFFECTS THE JOINTS?

The caulking gap between the frame and the building must be sealed. Characteristics/functions that the seal must have are diffusion tightness, heat resistance, air tightness, flexibility, form stability, water tightness and durability. These characteristics determine the shape and material choice of the caulking. Other function requirements that affect the design of the joints are sound, fire and security requirements, see product specific instructions. An incorrectly executed seal can, for example, cause air drafts, condensation and water penetration that cause damp and condensation problems in the building. Important that the caulking gap is carried out with an outer, surrounding "empty" gap, approx 10-20 mm deep (see fig 5, pt 3). This gap makes up[the pressure equalisation zone and drains and ventilates any moisture. Moisture that is drained via the gap is led away from the building by secondary sealing. A seal must also be made between the threshold and the floor.

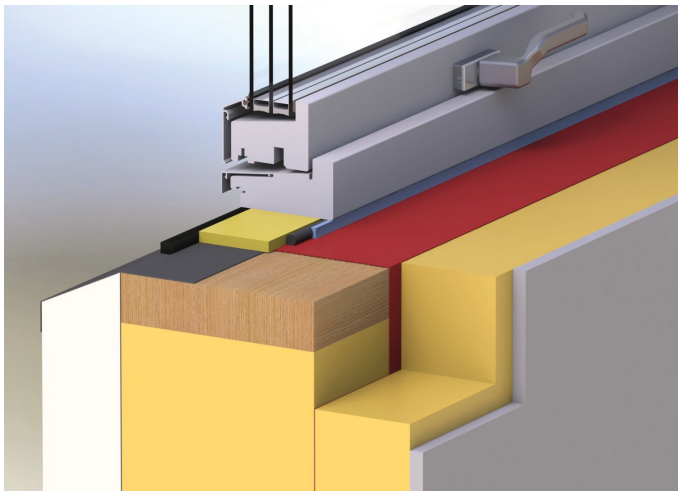


Fig 4. The caulk gap must be sealed, diffusion tight inside, heat insulation and wind and water repellent outside.

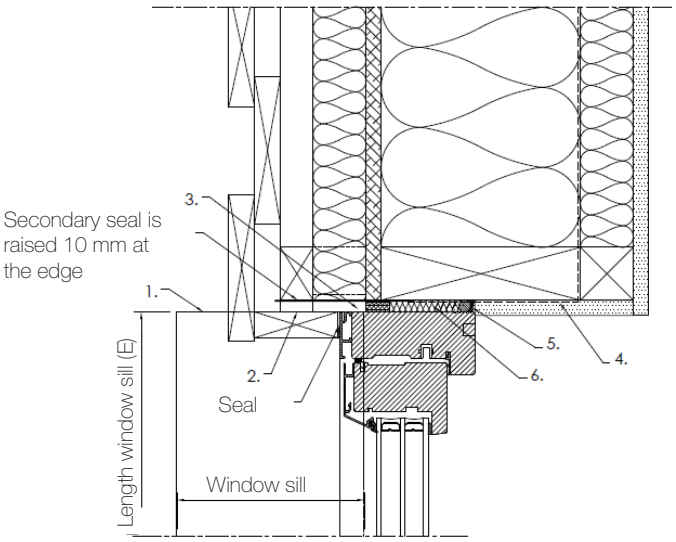


Fig 5.
Horizontal cross section showing important functions for window installation in walls.

1. The window sill ends outside the window. 2. The end of the sill covers and prevents water from entering the wall. 3. Any moisture that enters the ventilated and pressure equalisation zone is caught by the secondary seal and drained. 4. Vapour barrier 5. Air and diffusion seal (joint and bottom strip). 6. Insulation

Expanding foam

If expanding foam or similar is used in any part of the installation, there is a risk that not only will the product be deformed but that it cannot be adjusted or removed without major intervention. No installation faults can be rectified or any adjustments made.

Joining

There is a risk if damage if there is leakage into the wall. It is not appropriate to seal internally and externally around the whole window regardless of the calculated opportunity to dry. It is important that any water has the opportunity to drain. See instructions at "Svenska Fog branschens Riksförbund", www.sfr.nu.

1.5 MOUNTING AND WEDGING

Products must be rigidly mounted to the surrounding building. Rigid mounting means that the building should be able to handle the loads transferred from the complementary components without deformation. Mounting should also allow adjustment.

Fig 6. Sleeve with pressure distributing washer

Requirements for adjustment and strength can be found in the standard SS 817332. When mounting with adjustable mounting fixtures, wedges/spacers must not be used unless stated in the supplier's instructions. When mounting heavy products such as french windows and/or security installations wedges/spavers can be left in place for added stability during mounting. Installation with wedges can means that post adjustment is not possible. Frames with pre-drilled Ø 14 mm hole for installation of so called adjustable frame sleeves. Frames must be secured using screws of the appropriate length depending on the material. Steel fixtures must have the correct type of corrosion protection for the durability requirements.
Wedging must be carried out under all vertical parts. Other sides may require wedging when the installation will be security classified for example according to SS EN 1627 (MK2/RC2).

1.6 MOUNTING HOLES FOR FRAME SLEEVE

Cover Ø 19 mm included with all deliveries. See product specific instructions for hole location. For all installation, use of adjustable frame sleeves that meet the requirements of Swedish Standard SS 81 73 32, such as Kartro Adjufix or similar, are recommended with the accompanying screws appropriate for the materials.

1.7 OUTER SEAL BETWEEN WINDOW AND EXTERNAL WEATHER PROTECTION (FACADE CLADDING)

On the exterior the outer weather protection shall seal against the window (complementary component) via a flexible joint. The joint shall permit movement between the different building elements without breaking the seal. An example of a joint is expanding seal tape.

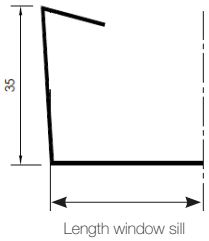


Fig 8. Will ends with edge for render

1.8 Window sill

It is important that the window sill is designed so that water is led away from the wall and not further into the wall. Greater angle and higher ends effectively prevents water penetration. The sill must have an angle of at least 14 degrees, preferably 25 degrees. The ends should be 35 mm or higher. For rendered constructions the ends are made with render ends.
Careful design of the building element is required for the secondary seal and window sill to function and give the desired moisture protection, ventilation and draining.
The front edge of the sill must be a rounded shape to prevent injury.

1.9 SECONDARY SEAL

The normal material for the secondary seal is butyl tape. The window is secured against penetrating moisture with a secondary seal in the window opening. The seal is routed up approx. 100 mm on each side of the window hole and the bottom level is angled towards the outside. The seal should cover the depth of the window frame.

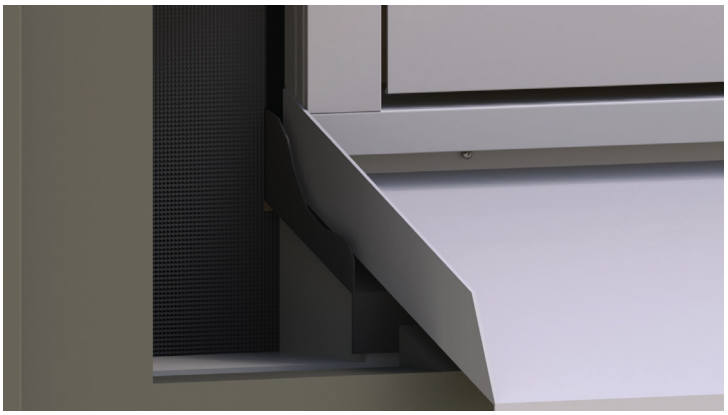


Fig 10. There must be drainage and ventilation between the secondary seal and the window sill.

Fig 7. Flexible sealing tape between the window and the facade (external weather protection).

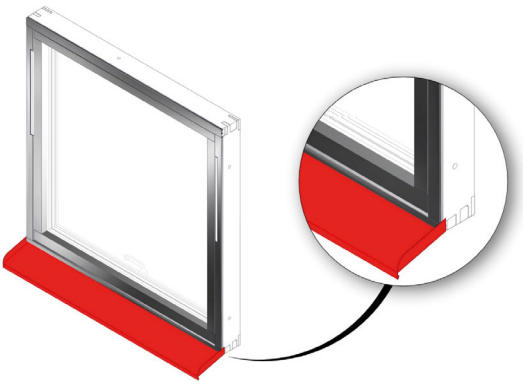


Fig 9. It is important that the window sill is angled outwards, recommended 25 degrees and that the ends are sufficiently high to prevent water penetration.

Fig 11. Secondary seal is drawn along the full width of the window opening and 100 mm up at the sides. The seal prevents water from penetrating further into the construction.

1.10 REGULATIONS

Compilation of frequently occurring regulations covering windows, french windows and external doors.

The following categories are covered:

- Legal requirements, for example Planning and Building Act (PBL), Boverket's Building Regulations (BBR) and CE marking.

- Industry specific requirements, for example AMA and SSF (Crime prevention association), Bygg Ikapp Handikapp. In general it should be stated in the contract documents what requirements apply.

- It is also common for the supplier to have some type of quality marking, for example a P marking from the "SP Technical Research Institute of Sweden".

Compilation of the most common requirements:

- For new builds and refurbishment of buildings the Planning and Building Act (2010:900), PBL applies. The PBL also contains regulations for building plots and certain facilities other than buildings.

- Boverket's building regulations, BBR, for example personal safety requirements, glass requirements, shutters, cutting injury, evacuation etc.

- Windows and french windows must be CE marked and have performance declarations with classification characteristics according to SS-EN 14351-1:2006+A1:2010.

- Windows and doors - Terminology according to SS-EN 12519:2004.

- Intruder protection windows and doors according to SS-EN 1627:2011.

- Swedish Standard SS 81 73 32, Doors and windows - Frame mounting - Classification and selection of device.

- Child protection hardware must meet the standards for strength and resistance according to SS-EN 13126-5:2011 och SS-EN 16281:2013.

- Security classified products according to CE marking for example fire classified products must be third party certified.

Chap 2 Installation example

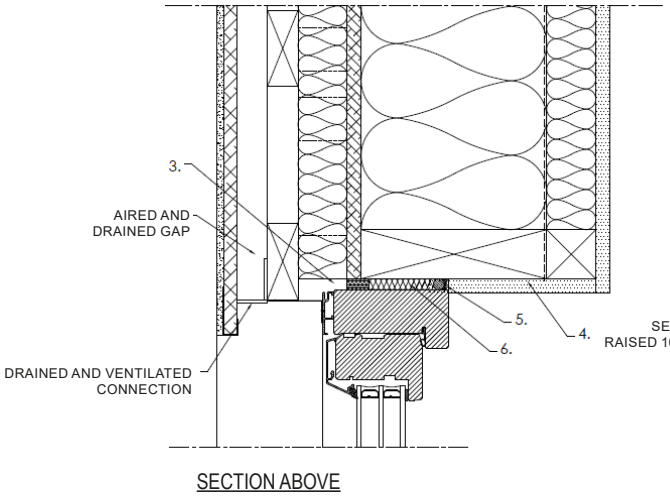
2.1 RENDERED FACADE

Windows installed in walls built as aired construction with render as the facade cladding.

Note that the construction is only an example and must be designed for each project.
Detail drawings showing connection panels, see chapter 3. Connection panels.

To bear in mind:

- Pressure equalising, ventilated gap around the window
- Secondary seal in the lower edge of the window opening
- Building that can handle the loads of a rigid installation
- Positioning of frame screws in height and sideways differs between the products
- Sufficient angle and correct design of the window sill
- Flexible outer seal against the widow



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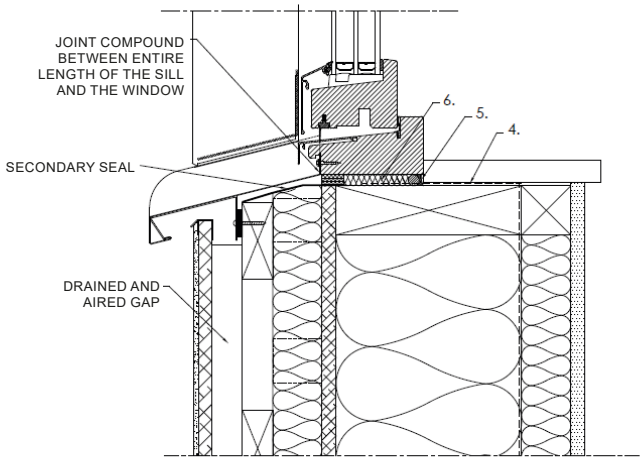

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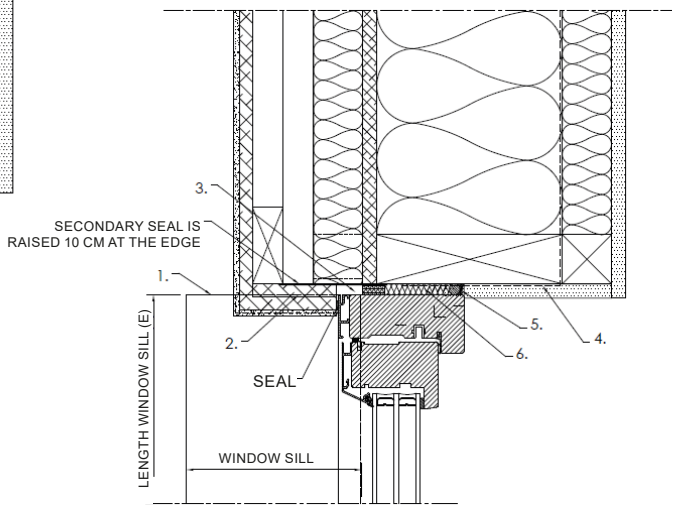


PLAN

LENGTH WINDOW SILL = FRAME EXTERNAL DIMENSION +2 MM.
SILL ANCHORED AGAINST LIFTING AS NECESSARY

1. The window sill ends outside the window.
2. The end of the sill prevents water from entering the wall.
3. Any moisture that enters the ventilated and pressure equalisation zone is caught by the secondary seal and drained.
4. Vapour barrier
5. Air and diffusion seal (joint and bottom strip).
6. Insulation

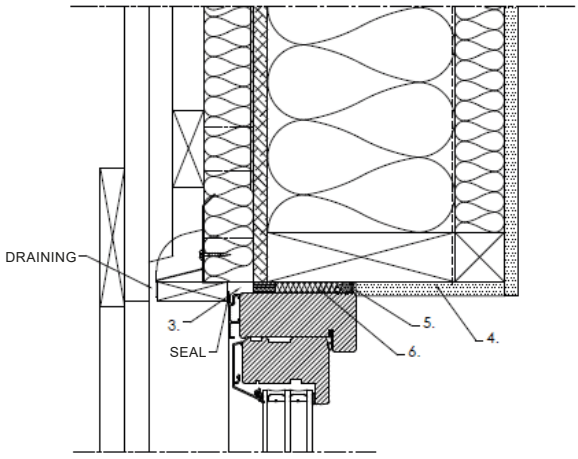
2.2 WOOD FACADE

Windows installed in walls built as aired construction with wood as the facade cladding.

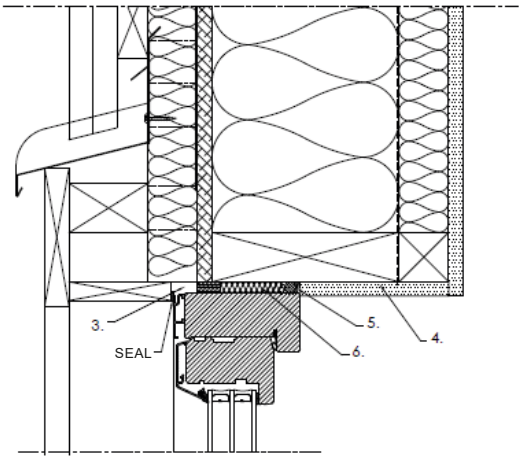
Note that the construction is only an example and must be designed for each project.
Detail drawings showing connection panels, see chapter 3. Connection panels.

To bear in mind:

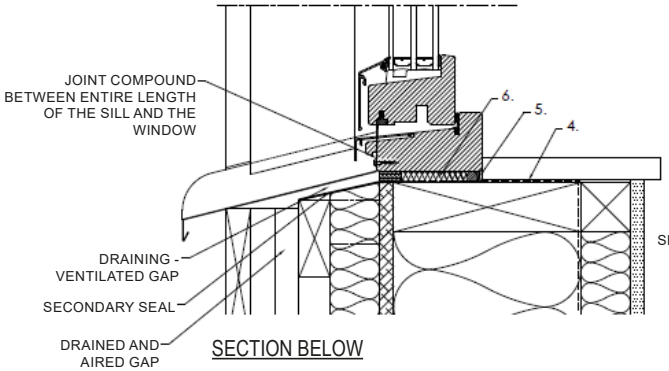
- Pressure equalising, ventilated gap around the window
- Secondary seal in the lower edge of the window opening
- Building that can handle the loads of a rigid installation
- Positioning of frame screws in height and sideways differs between the products
- Sufficient angle and correct design of the window sill



SECTION CONCEALED TOP PLATE



SECTION VISIBLE TOP PLATE



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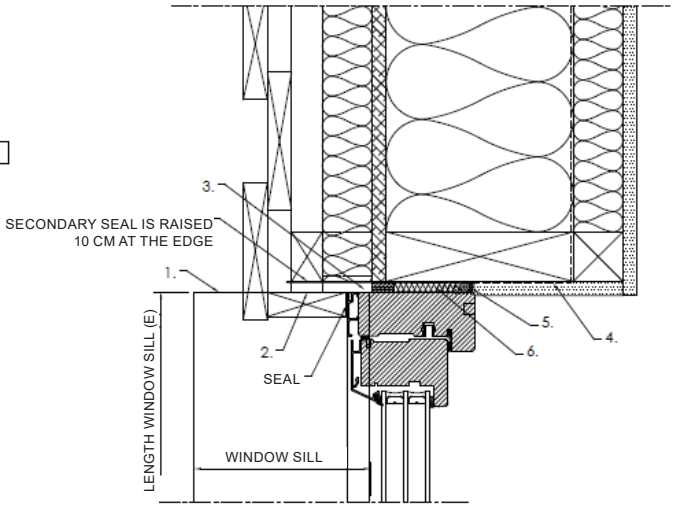


PLAN

LENGTH WINDOW SILL = FRAME EXTERNAL DIMENSION +2 MM.
SILL ANCHORED AGAINST LIFTING AS NECESSARY

1. The window sill ends outside the window.
2. The end of the sill prevents water from entering the wall.
3. Any moisture caught in the ventilated and pressure equalising zone is trapped by the secondary seal and drained.
4. Vapour barrier
5. Air and diffusion seal (joint and bottom strip).
6. Insulation

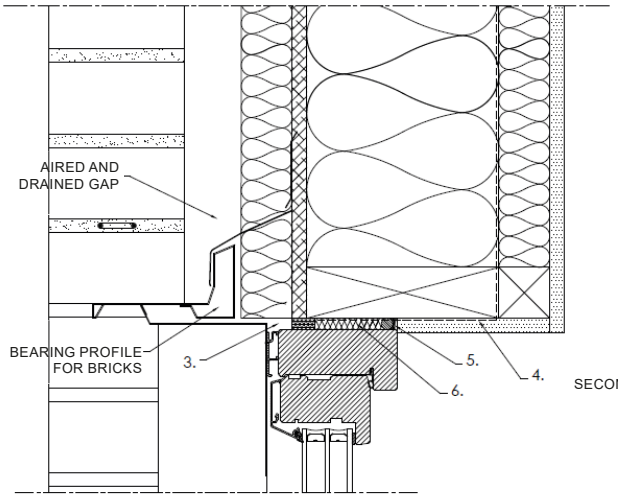
2.3 BRICK FACADE

Windows installed in walls built as aired construction with bricks as the facade cladding.

Note that the construction is only an example and must be designed for each project.
Detail drawings showing connection panels, see chapter 3. Connection panels.

To bear in mind:

- Pressure equalising, ventilated gap around the window
- Secondary seal in the lower edge of the window opening
- Building that can handle the loads of a rigid installation
- Positioning of frame screws in height and sideways differs between the products
- Sufficient angle and correct design of the window sill



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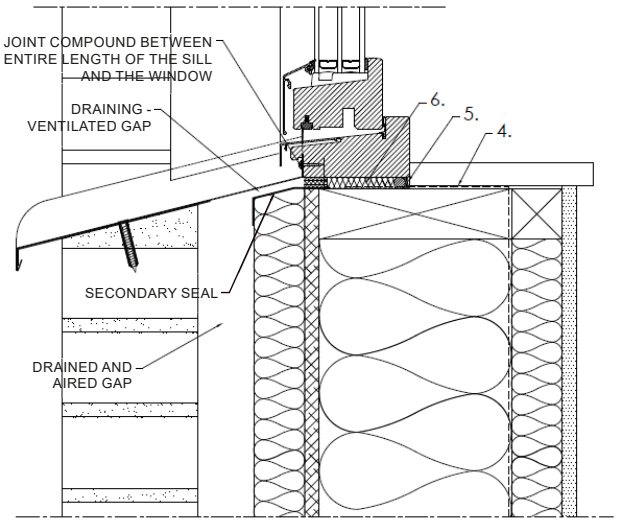

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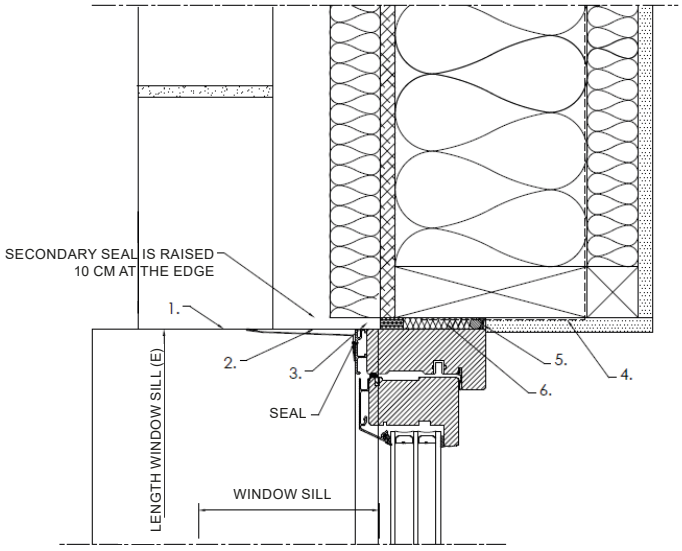


PLAN

LENGTH WINDOW SILL = FRAME EXTERNAL DIMENSION +2 MM.
SILL ANCHORED AGAINST LIFTING AS NECESSARY

1. The window sill ends outside the window.
2. The end of the sill prevents water from entering the wall.
3. Any moisture caught in the ventilated and pressure equalising zone is trapped by the secondary seal and drained.
4. Vapour barrier
5. Air and diffusion seal (joint and bottom strip).
6. Insulation

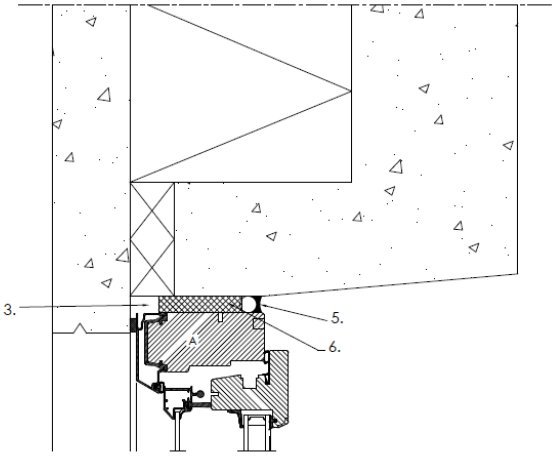
2.4 PREFAB FACADE

Windows installed in walls carried out with sandwich construction for Prefab industry.

Note that the construction is only an example and must be designed for each project.
Detail drawings showing connection panels, see chapter 3. Connection panels.

To bear in mind:

- Pressure equalising, ventilated gap around the window
- Secondary seal in the bottom edge of the window opening with drainage to the outside of the wall
- Building that can handle the loads of a rigid installation
- Positioning of frame screws in height and sideways differs between the products
- Sufficient angle and correct design of the window sill



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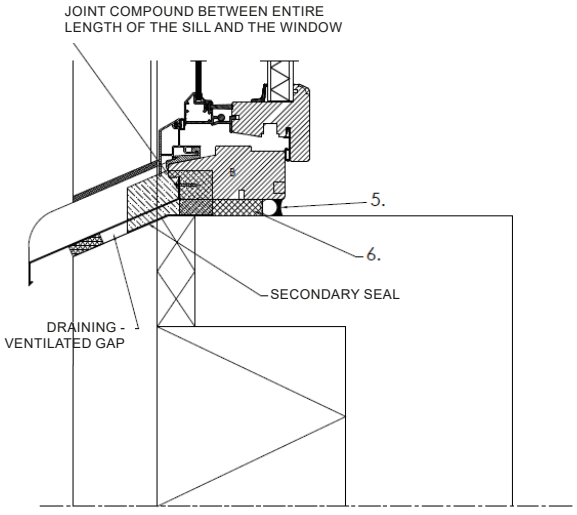

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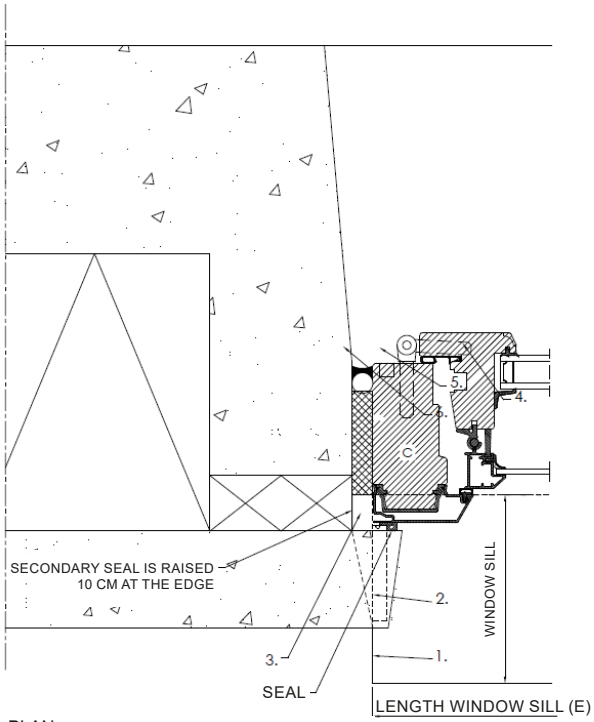


PLAN

LENGTH WINDOW SILL = FRAME EXTERNAL DIMENSION +2 MM.
SILL ANCHORED AGAINST LIFTING AS NECESSARY

1. The window sill ends outside the window.
2. The end of the sill prevents water from entering the wall.
3. Any moisture that enters the ventilated and pressure equalisation zone is caught by the secondary seal and drained.
4. Vapour barrier
5. Air and diffusion seal (joint and bottom strip).
6. Insulation

Chap 3. Connection panels

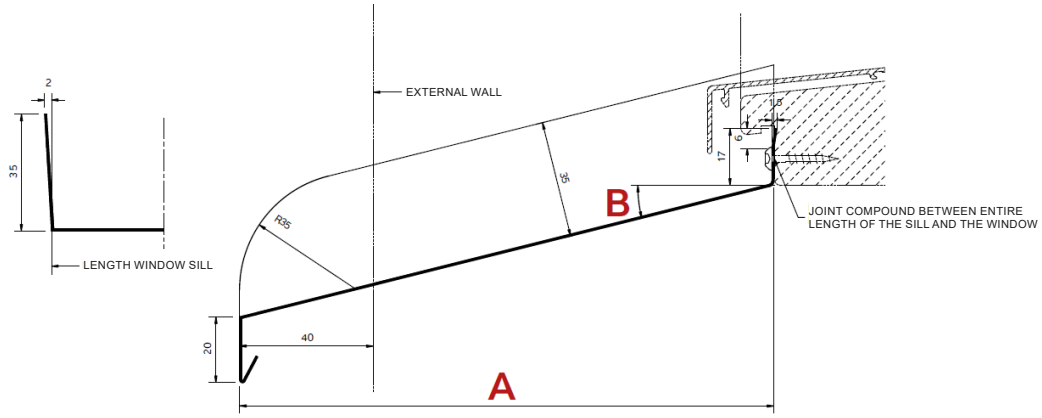
A correctly installed window sill does not just give a smart appearance but also protects your house against penetrating moisture.
Following sketches are proposals for design of connection panels.

3.1 GENERAL INSTRUCTIONS

The angle of the sill is 14 degrees as standard, but the recommendation is 25 degrees. The increased angle improves run off and reduces the risk of water staying on flat surfaces and being pushed into the construction.
The sill must be mechanically secured by screwing to surrounding surfaces. Connections are sealed using joint compound. Mechanical installation according to AMA or equivalent. If necessary the sill is secured against lifting using fixings.
The ends of the sill must be tight. Visible accessible parts that can mean a risk of injury must be rounded.

3.2 WINDOW SILL

Window sill standard



Window sill with rendered edge

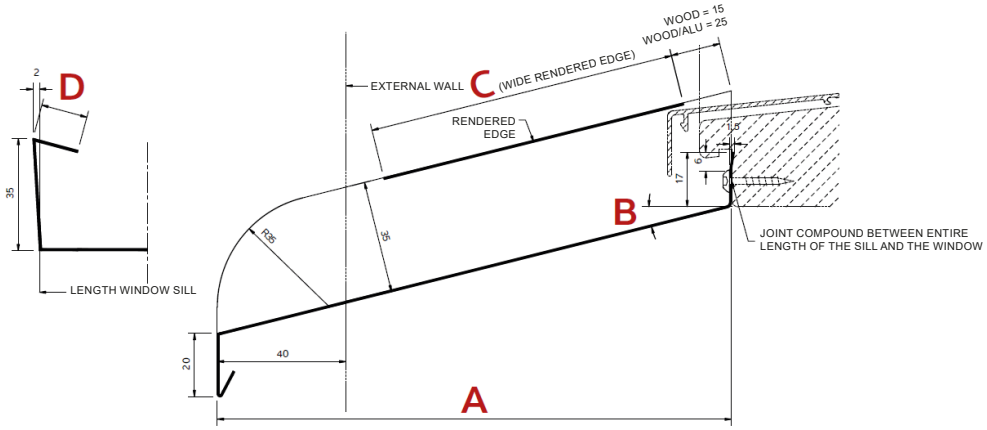


Fig 12. Window sill with and without render edge

3.3 TOP PLATE

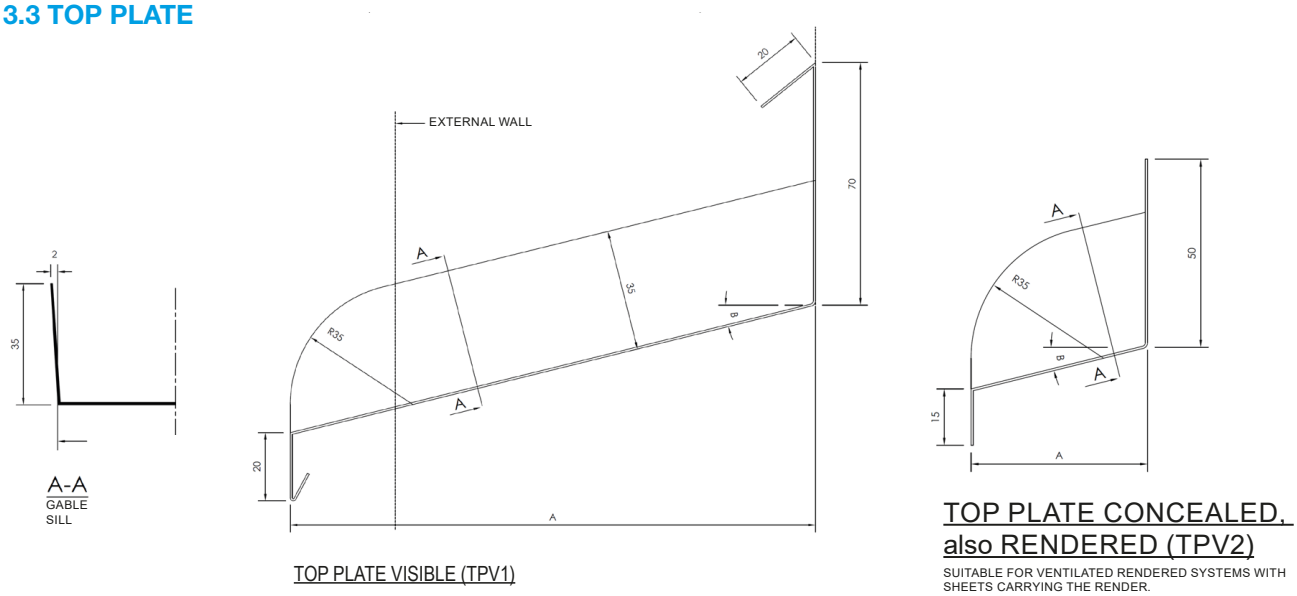


Fig 13. Visible respectively concealed top plate. Render edge can be like the window sill.

3.4 THRESHOLD SILL FOR FRENCH WINDOWS

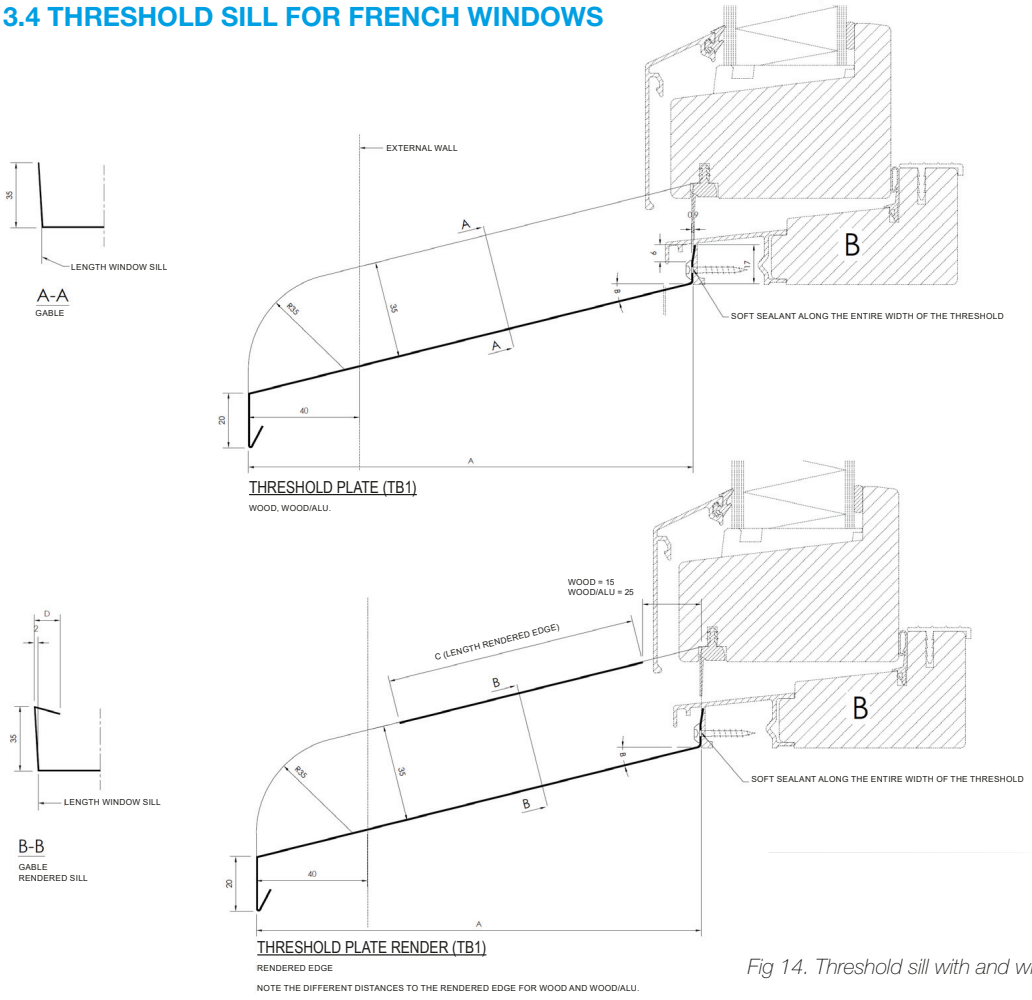


Fig 14. Threshold sill with and without render edge.

3.5 THRESHOLD SILL FOR ALUMINIUM THRESHOLD (FRENCH WINDOWS AND EXTERNAL DOOR)

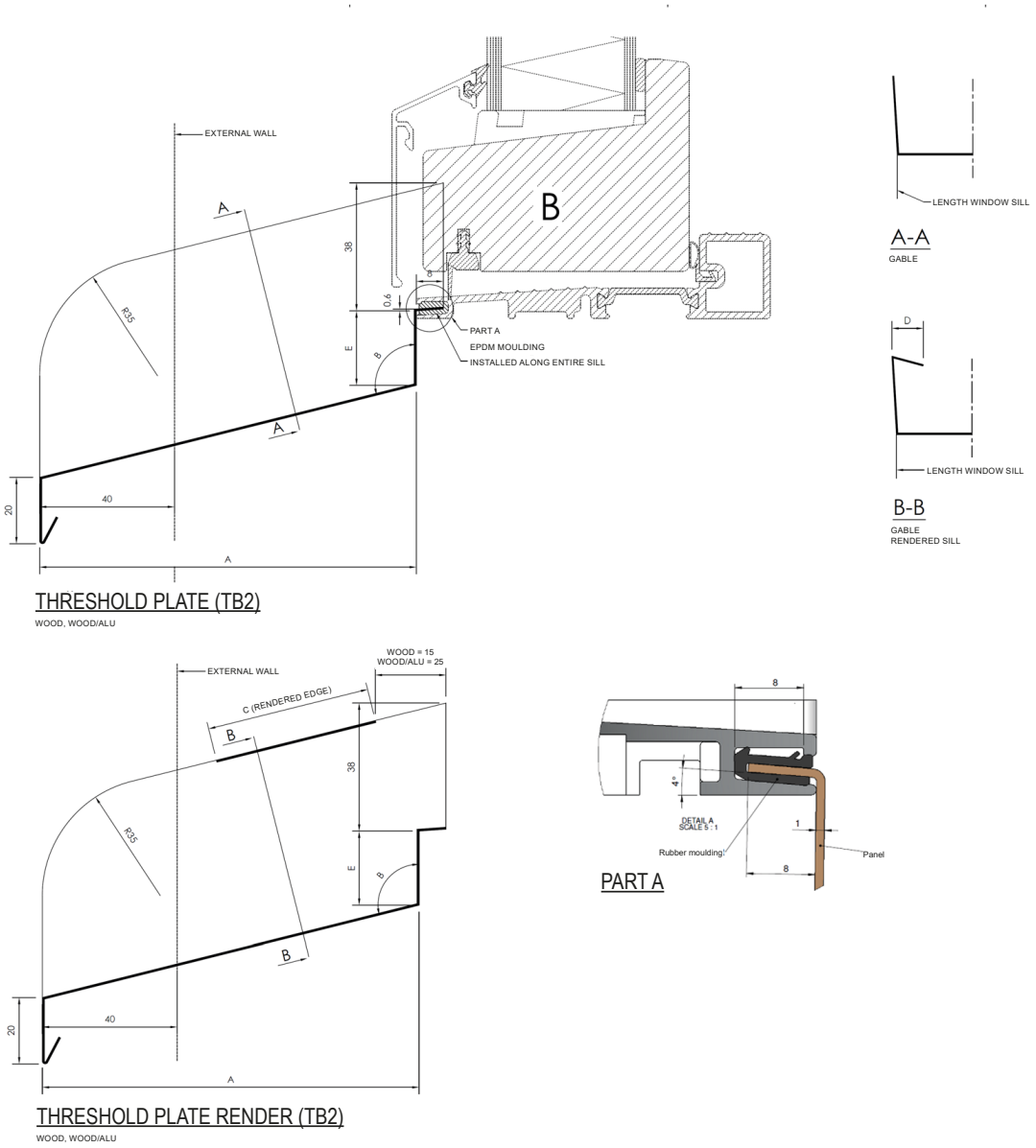
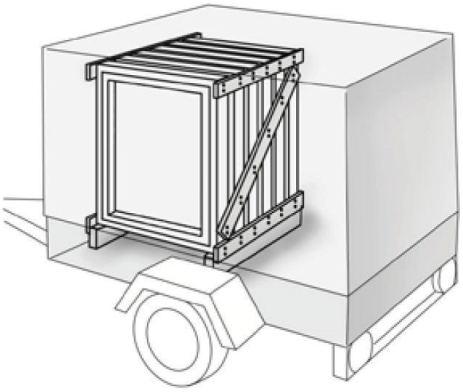


Fig 15. Threshold sill with and without render edge.

Chap 4. Delivery schedule

4.1 TRANSPORT

During transport the windows must be protected from moisture and rain as well as dirt. They must therefore be transported in covered vehicles. Windows shall be transported standing on their edges and not lying flat.



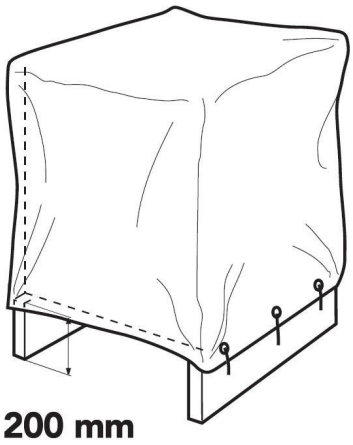
4.2 RECEIVING DELIVERY

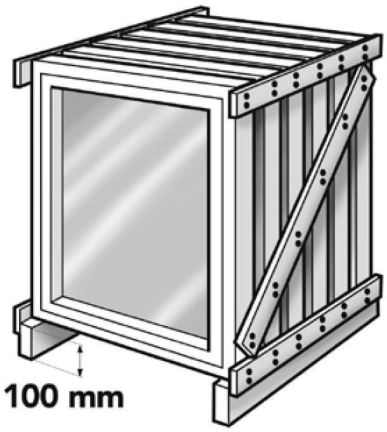
The windows must be checked on receiving a delivery. Any transport damage or failures in the delivery must be noted on the freight note by the recipient immediately and the transporter and sales company notified. Visible faults must notified before installation, no later than 5 days after delivery was received.

4.3 STORAGE OUTDOORS

If the windows are stored outdoors this must only be for a short time.
Note that:

- Storage should be roofed, for example cold store, garage or similar.
- The premises must be well ventilated and good airflow below and between the windows arranged.
- Only store under tarpaulin in exceptional cases, which must then cover the top and sides and be secured so that rain cannot get in.
- The windows must be stood on edge on a flat surface with at least 200 mm free distance between the windows and the ground.
- The space below the tarpaulin must be well ventilated.
- Hardware etc. that is delivered separately must be stored indoors.





4.4 STORAGE INDOORS

Ideally windows /window packages must be stored indoors protected from rain. Storage is on edge not lying.
Note that:

- The premises must be well ventilated
- The humidity must be a constant low
- The windows must be positioned on edge on a flat surface at least 100 mm above the floor so that hardware cannot damage other windows.

Chap 5. Preparations before installation

5.1 OPENING DIMENSIONS

Window opening usually refers to the opening in the outer wall of the weather protection in which the windows (french doors, door) will be installed. Design the window opening so that the frame can be secured in solid material for rigid installation. Note that larger door and windows require mounting points in the top and bottom. Set the dimensions so that the relationship between the outer dimensions of the frame and windows opening allows a joint width of 10-15 mm. That is sufficient for fixing caulking and sealing.

5.2 MEASUREMENTS

Sizes of windows and decking doors are given in modules. 1 module (M) = 100 mm. Module size gives the minimum size for the window opening in walls where the product will be installed (for example, for the size M 9/13 the opening must be at least 900 mm wide and at least 1300 mm in height).

The product's actual measurements are usually 20 mm smaller than the module size (see the supplier's instructions). This is to leave room for caulking and sealing between the frame and the wall of at least 10 mm around the whole frame (for example size 9/13 means that frame outer width is 880 mm and the frame outer height is 1280 mm).

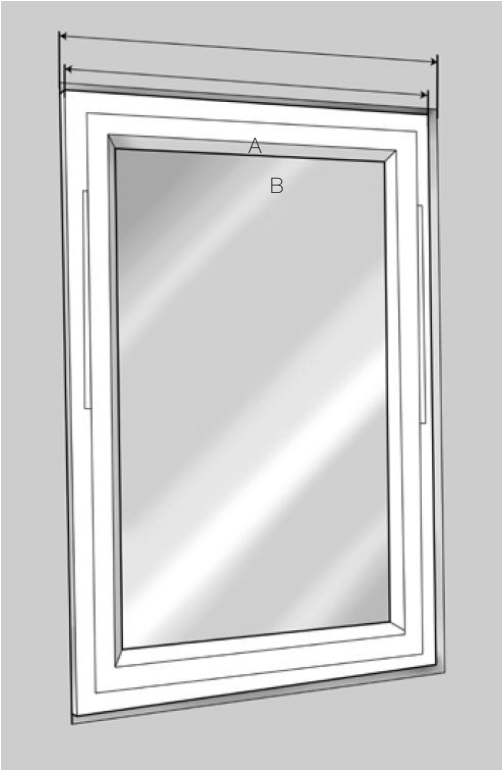


Fig 16. A gives the window opening dimensions
B gives the frame's outer dimensions (A-20 mm)

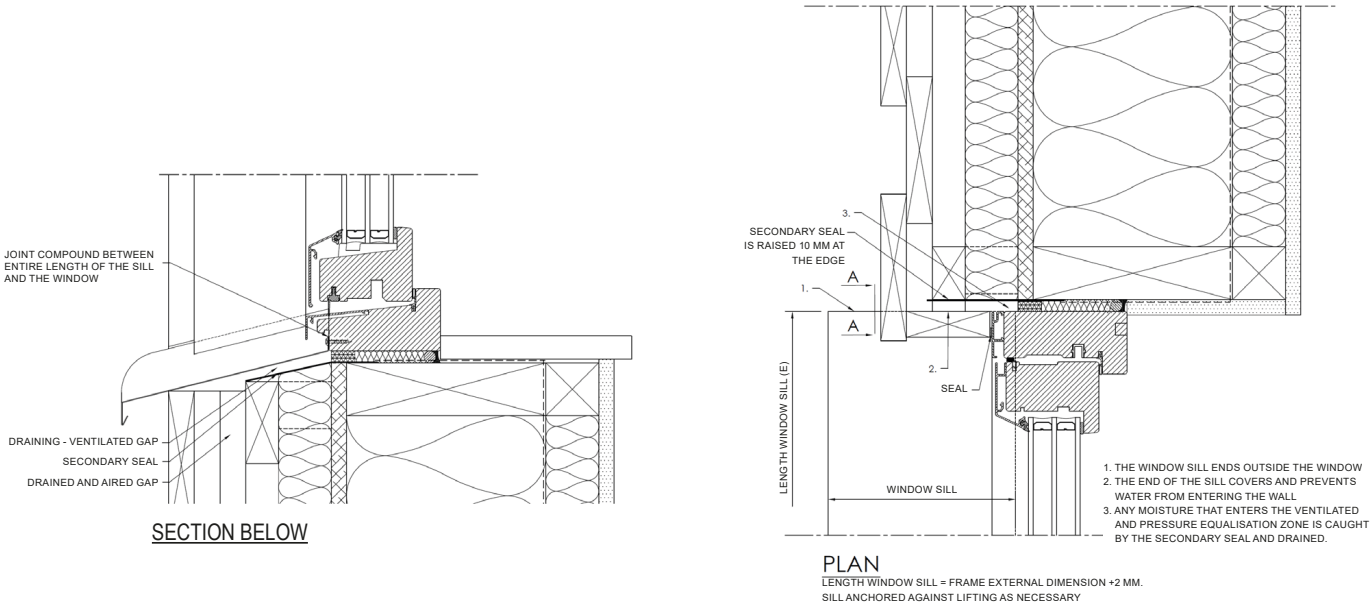


Fig 17. Wall and window with constituent parts.

Chap 6. General about installation

6.1 INSTALLATION-EQUIPMENT-AIDS

We recommend the following tools and mounting materials for best installation results:

6.11 Tools

- Hammer
- Screwdriver with bits for Torx
- Spirit level/long level
- Tape measure
- Key for frame sleeves
- Diagonal rod for measuring diagonal

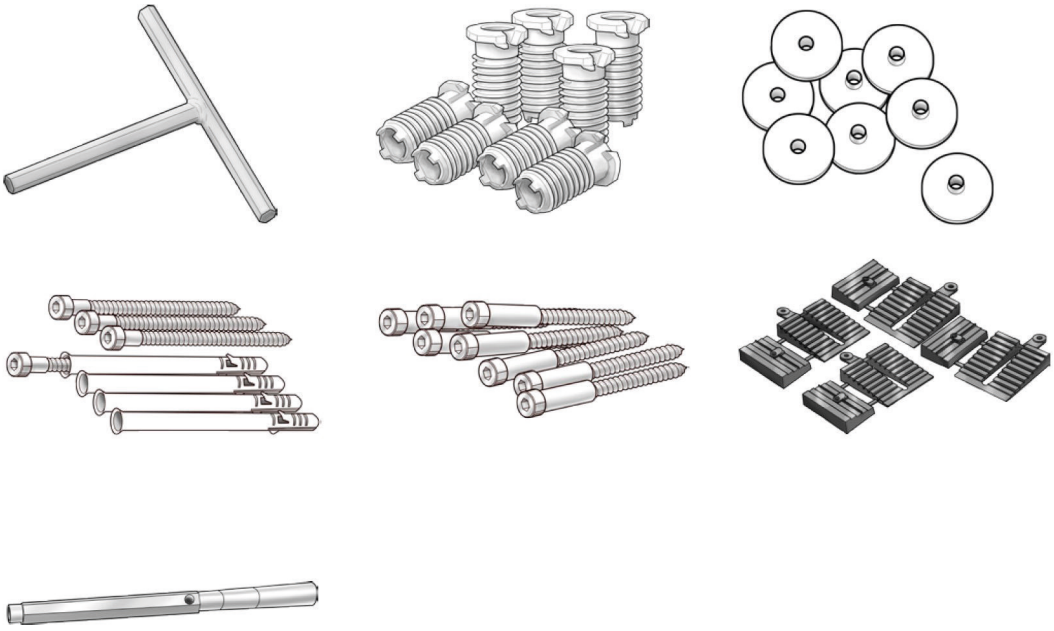


Fig 18. Examples of mounting material and aids for installation.

6.12 Mounting material

Type and number of following mounting materials depends on window type and wall material

- Levelling block
- Frame sleeves
- Mounting screw
- Weight distribution washer

The above mounting materials are options.

6.13 Aids

- For heavy lifts a lifting aid should be used.

Chap 7. Installing windows

To bear in mind:

- Pressure equalising, ventilated gap around the window
- Secondary seal in the lower edge of the window opening
- Building that can handle the loads of a rigid installation
- Positioning of frame screws in height and sideways differs between the products
- Sufficient angle and correct design of the window sill
- Flexible outer seal against the widow
- Adjustment is required to ensure correct function

7.1 WEDGING THE BOTTOM

Screw the wedges into place in the lower edge of the wall opening. Ensure that a wedge is placed under each frame side (the outer edge of the wedge may be a maximum of 100 mm in from the outer edge of the frame) and under any frame posts. If the window is wide further wedges maybe needed, that are then distributed evenly. The wedges shall be horizontal.

The product's actual measurements are usually 20 mm smaller than the module size. This is to leave room for caulking (sealing) between the frame and the wall of at least 10 mm around the whole frame (for example size 9/13 means that frame outer width is 880 mm and the frame outer height is 1280 mm).

If another wedge than a levelling block is used it must be of hard, water repellent material, for example, hardwood or plastic. Note that the blocks must be 20 mm narrower than the frame to allow and unbroken caulk and seal joint.

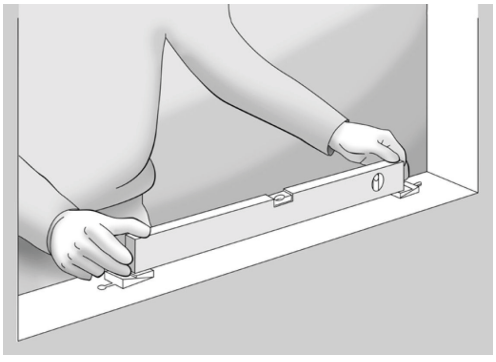


Fig 20. Check that the window is level horizontally using the spirit level. Adjust this as necessary by raising or lowering the wedges.

7.2 WEDGING THE SIDE

If the product is security classified extra importance is placed on the installation, see the supplier's instructions. In general. all locking points must be secured using wedging or frame sleeves.

Fig 19. Secondary seal runs the full width of the window opening and 100 mm up at the sides. The seal prevents water from penetrating further into the construction.

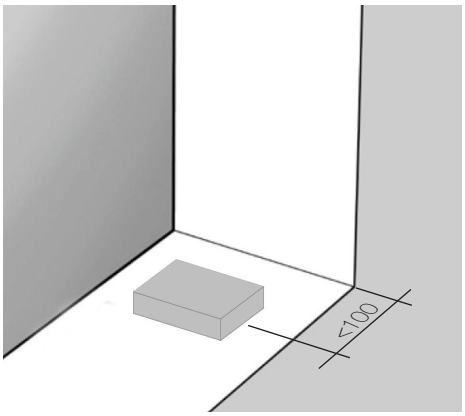


Fig 21. Wedges must at least be located beneath all vertical parts of the window or door. Wedges are positioned max 100 mm from the edge.

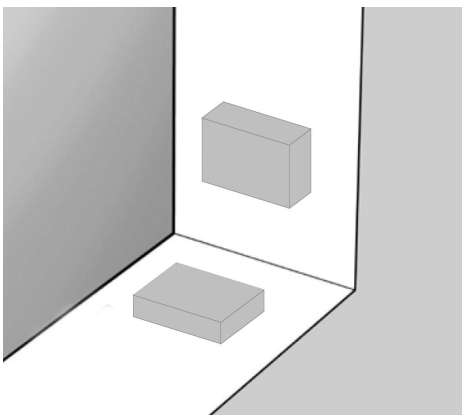
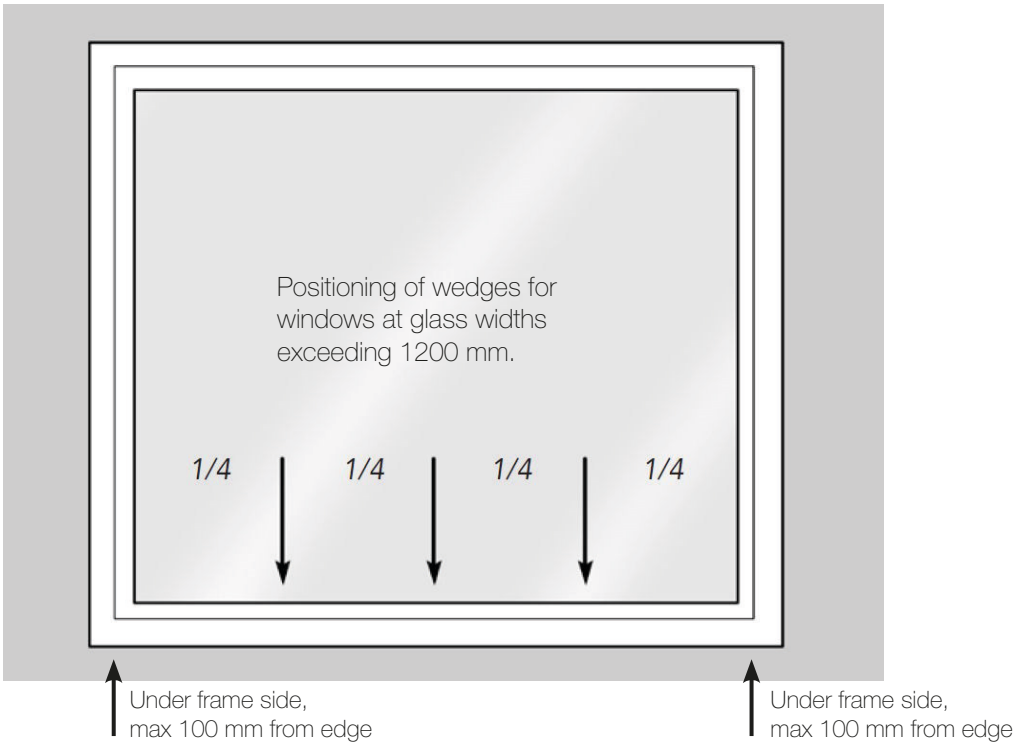


Fig 22. "Wedging" on the sides adjacent to hinges and locking points increases security against break ins.

7.21 WEDGING WIDE WINDOWS AND STATIC WINDOWS

If the width of the glass surface exceeds 1200 a further three wedges must be placed on the window's quarter width points.

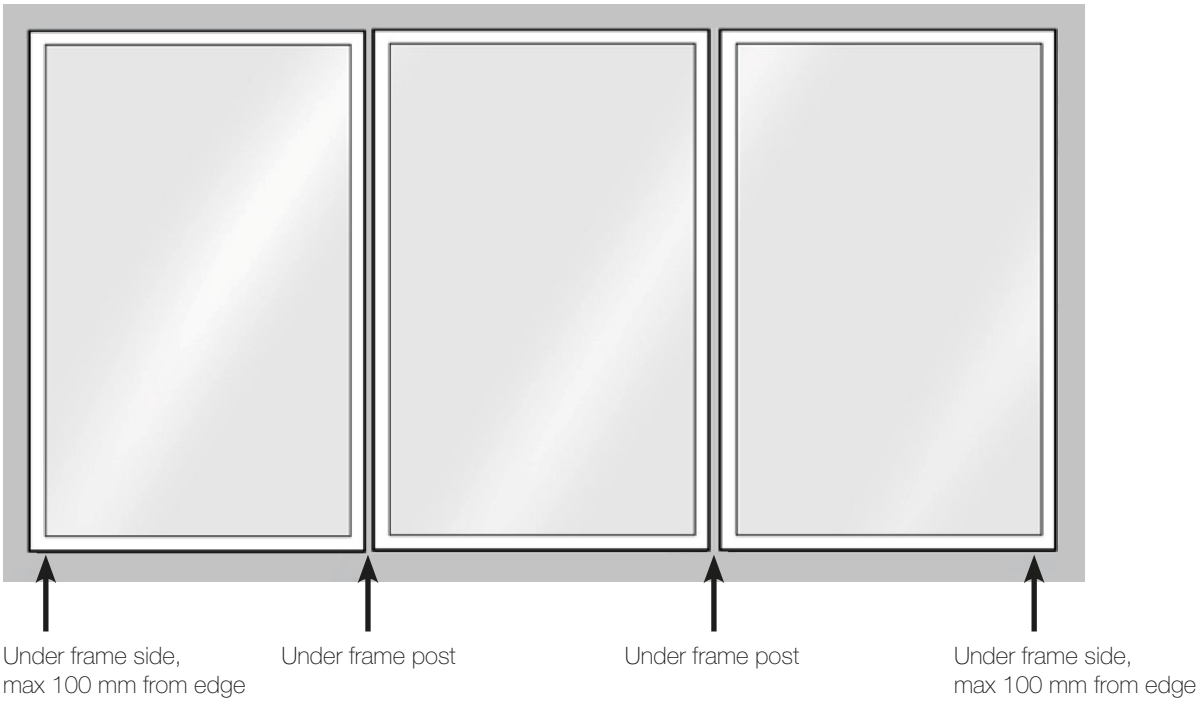


Fixed windows

On wide fixed windows there are markings on the product to show where wedges must be located. Note that the frame sides must always be wedged.

7.22 WEDGING COMBINATION WINDOWS AND MULTI-PANE WINDOWS

If the windows is a combination window (for example opening and fixed parts within the same frame), or has two or more casements, wedges are installed under all vertical sides, posts etc. If the width of the glass surface in the casement exceeds 1200 mm more wedges must be installed on the quarter width points of the glass.



7.3 SEALING TAPE

Any sealing tape is installed before frame sleeves are inserted. The sealing tape installation must be carried out according to the supplier's instructions. Take care to adjust the tape around the sleeves so that the tape's expansion is not prevented.

7.4 FRAME SLEEVES

Screw the frame sleeves int the frame from the outside in all the pre-drilled holes using an Allen key or installation tool, (frame sleeves can also be ordered pre-installed from the manufacturer). A pressure distribution washer must be used if necessary, for example on porous surfaces. The sleeve length is adapted as necessary based on the width of the caulking gap.

Fig 23. Sleeve with pressure distributing washer

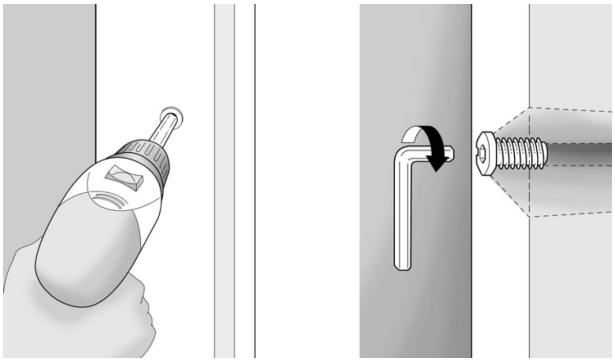


Fig 24. If the frame does not have pre-drilled holes for the frame sleeves: measure out the location of the holes and drill from the inside of the frame straight through the frame using a 14 mm drill bit. For positioning of the frame sleeves refer to the following Swedish standards: Windows and french windows SS 81 73 32 and exterior doors SS 81 70 52.

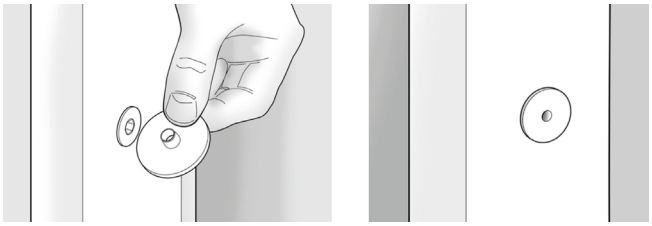


Fig 25. The pressure distribution washers are pressed into place on the frame sleeves from the outside.

7.5 POSITIONING THE WINDOW IN THE WINDOW OPENING

Secure the wedges on the outside of the wall opening so that the window does not fall out. Then loft the window into place in the wall opening from the inside and position it on the levelling blocks.

If necessary the bays can be dismantled before lifting the window.
Any transport wedges can be removed.

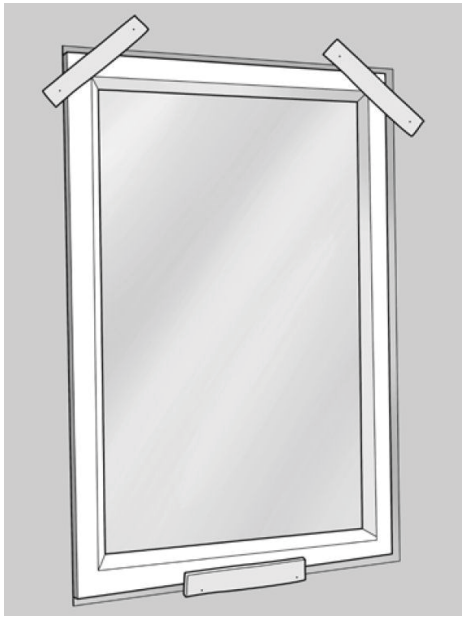
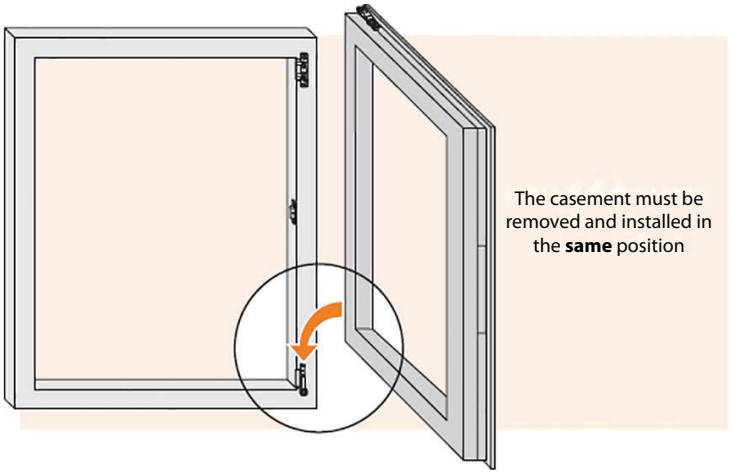


Fig 26. Safety blocks on the outside to secure the window installation

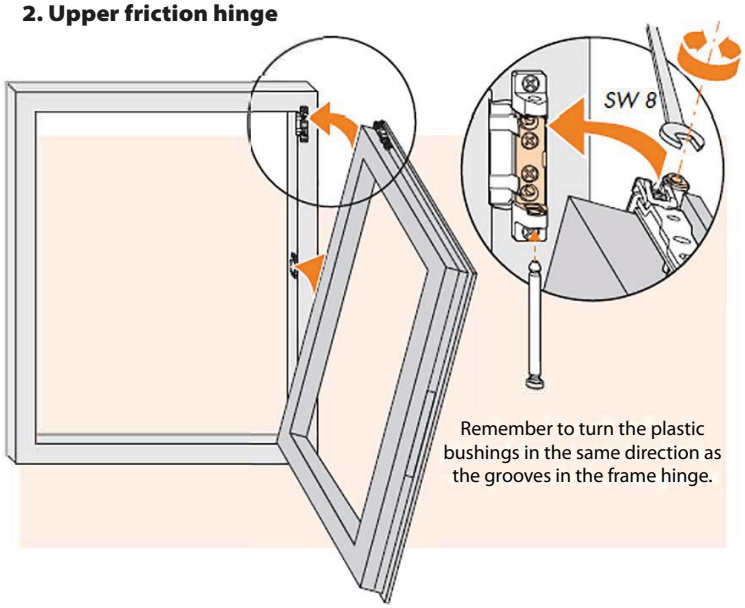
The casement's removal and installation in side hung window

with concealed centre interlock

1. Lower hinge mounting

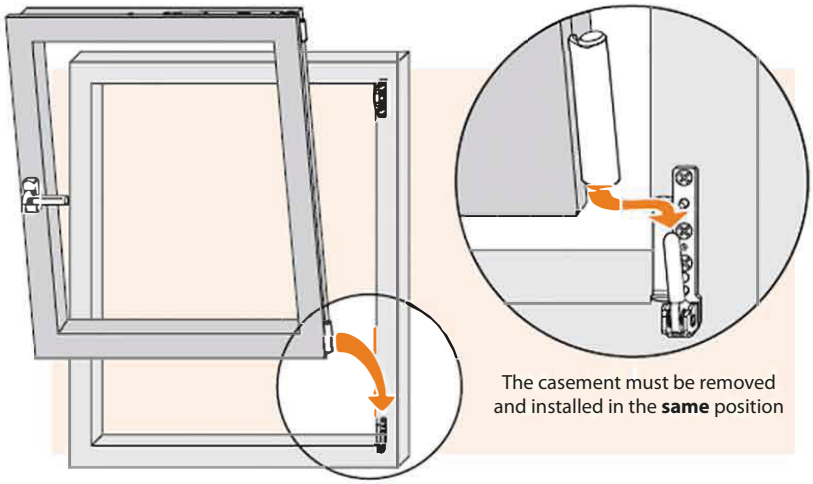


2. Upper friction hinge



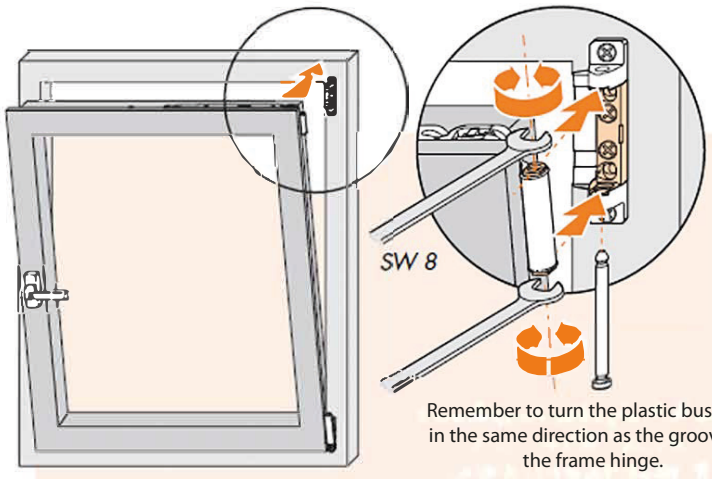
The casement's removal and installation in window

1. Lower hinge mounting



The casement must be removed and installed in the **same** position

2. Upper friction hinge



Remember to turn the plastic bushings in the same direction as the grooves in the frame hinge.

7.6 FIXING

If necessary, open the window so that the lower frame sleeves are accessible from the inside. Screw out the frame sleeves on each side, so that they are against the sides of the wall opening.

Check with a spirit level that the frame is straight and does not lean into the room or out towards the exterior.

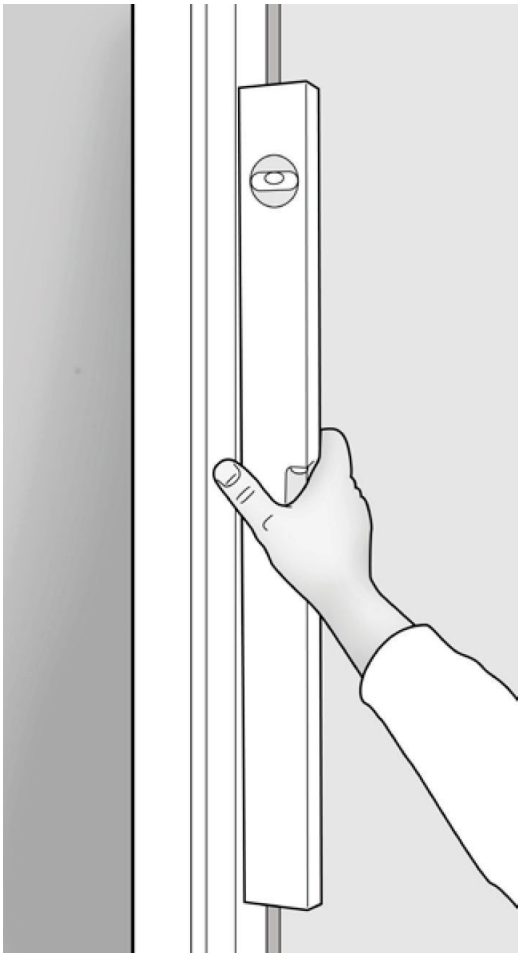


Fig 28. Check with spirit level

Open the window further so that the upper frame sleeves are accessible from the inside and screw these out on each side, so that they are against sides of the wall opening.

Use the spirit level again to check that the frame is straight and does not lean into the room or out towards the exterior. Adjust as necessary by slackening off the frame sleeves, straightening the frame and then screwing the sleeves out again.

Check with diagonal rod that the diagonal measurements are equal. Adjust if necessary by screwing the frame sleeves out or in, so that the frame is moved sideways.

Finally screw out the other frame sleeves (if there are any) so that they are against the sides of the wall opening.

Screw the frame to the wall using screws suitable for the wall material. NOTE! All mounting holes must be used! Check with a spirit level that the frame is straight on all sides and does not lean into the room or out towards the exterior. Check also that the frames sides are straight and do not bow in the middle. If the installation needs further adjustment, the first screw is slackened and the frame sleeve is then adjusted. Finally tighten the screw.

NOTE! The installation of the frame is vital for seal and function.

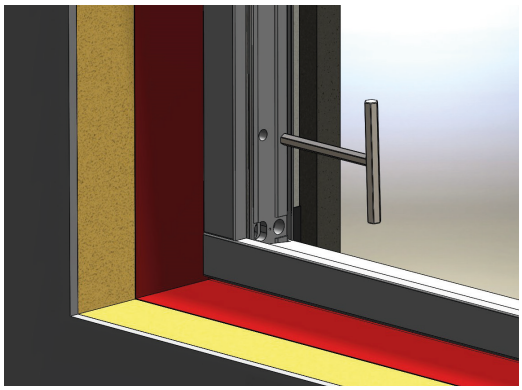


Fig 27. Screwing out the frame sleeve

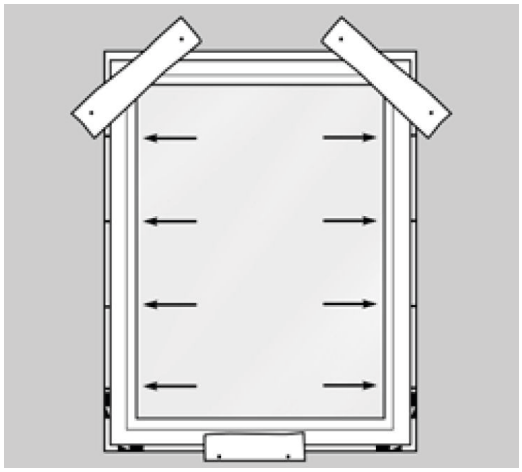


Fig 29. All sleeves must be screwed out with installed screws

Fig 30. Diagonal measurements must be the same which guarantees good assembly

7.7 ADJUSTING

ALWAYS check the diagonals. With settling in the building the frame may be need to be adjusted. This occurs using the frame sleeves. Slacken off the screws before adjustment and tighten them after adjustment. The frame sleeves are adjusted using an Allen key or installation tool.

7.71 OUTWARD OPENING WINDOWS

7.711 TWIST WINDOWS

Adjustment is by adjusting the frame sleeve.

7.712 Side-hung window

Adjust the height of the hinge using the adjustment screw in the hinge (not MF and Retro).

- Open the hinge cover by screwing anti-clockwise.
- Turn a 5 mm Allen key under the cap. The casement/door leaf moves up when you screw clockwise, down when you screw anti-clockwise.
- Make the same change to all hinges.
- Reinstall the covers on the hinges.

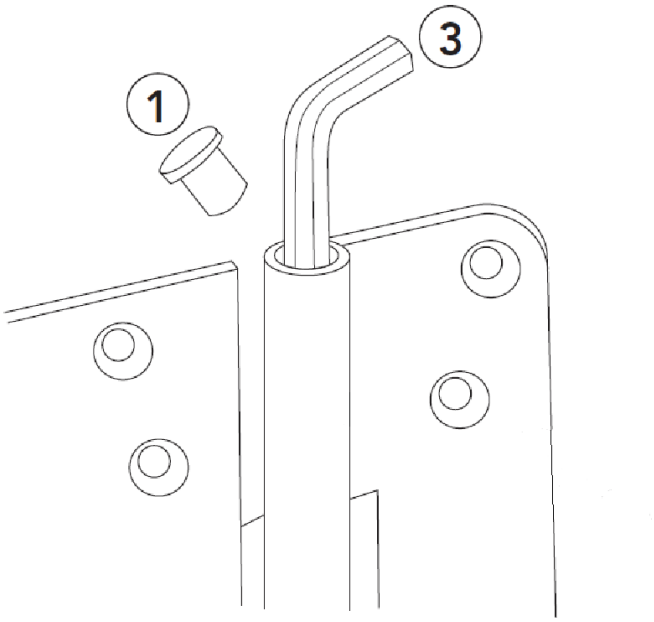


Fig 32. The hinges are adjusted for height using an Allen key (5 mm).

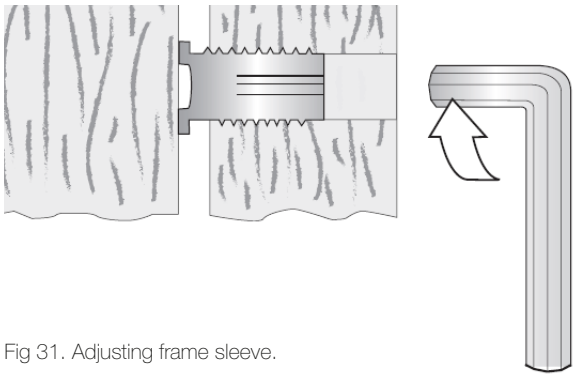


Fig 31. Adjusting frame sleeve.

Fig 33. Removed cover for adjustable hinge.

7.72 INWARD OPENING SIDE-HUNG WINDOWS

7.721 Bolt hinge

1 Remove the hinge pin and release the hinge.
2 Turn the cylindrical section of the hinge. A half turn gives approx. 1/2-1 mm adjustment of the casement position in relation to the frame.
3 Reinstall the pin

7.722 Tilt-Swing hardware

To operate the misuse inhibitor catch, see end of paragraph.

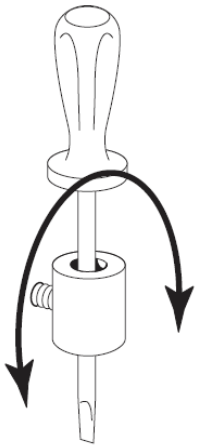
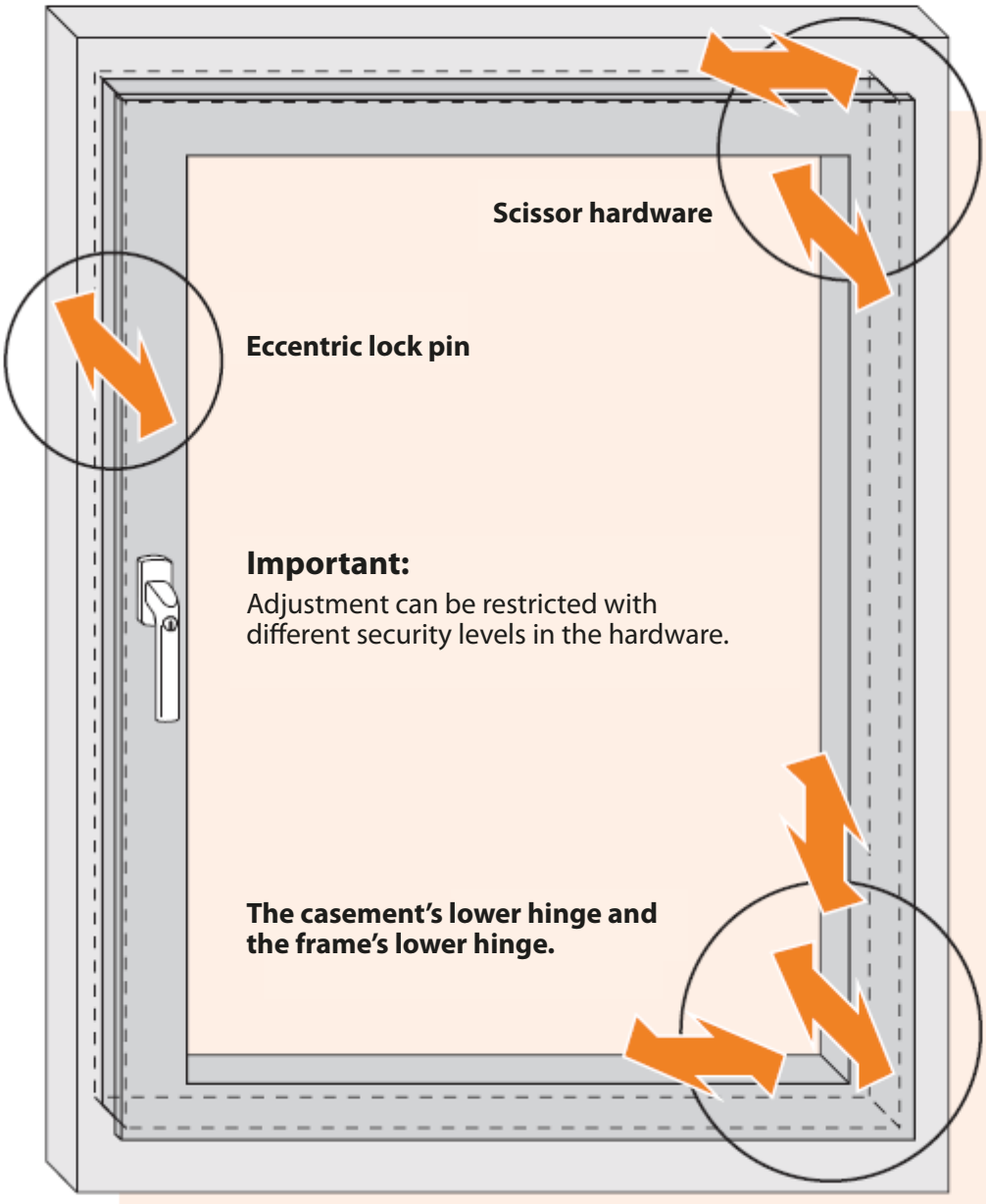


Fig 34. Adjusting bolt hinge

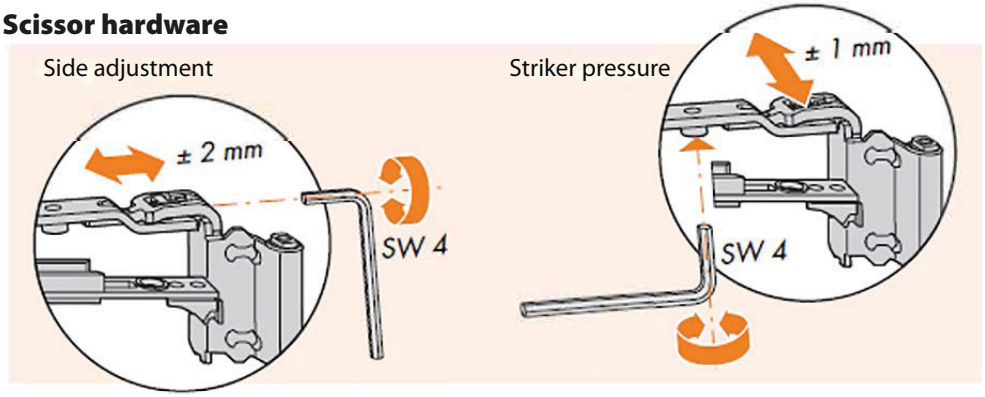
Adjustment options

The following adjustments may **only** be carried out by a specialist window company.

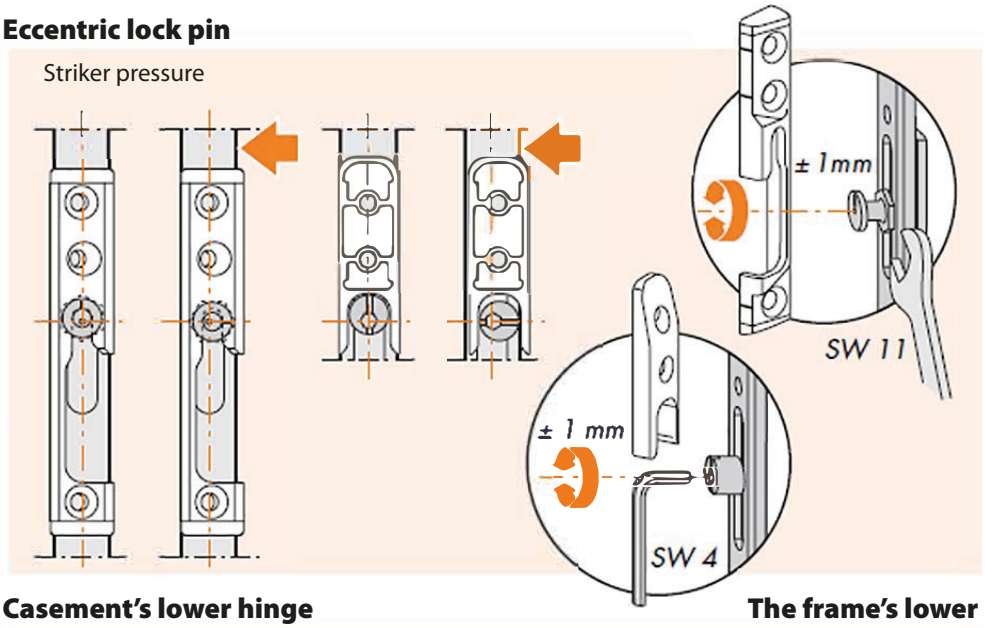


Adjustable hardware components

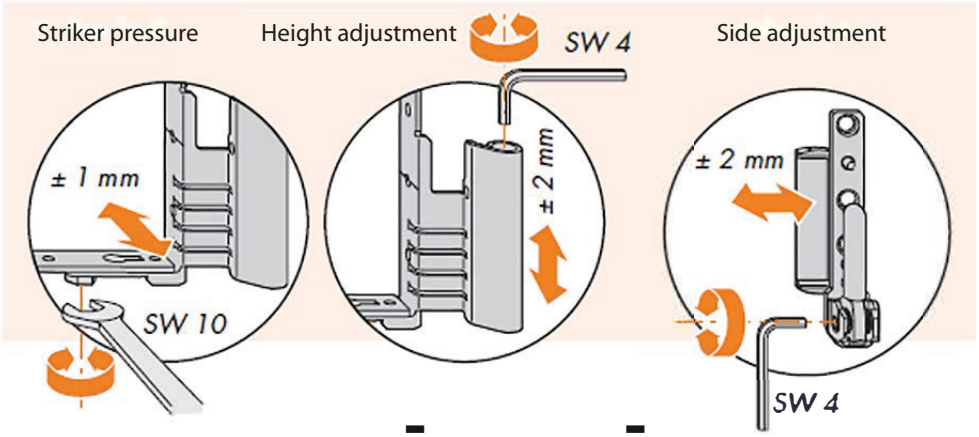
Scissor hardware



Eccentric lock pin



Casement's lower hinge **The frame's lower hinge**



Operating the misuse inhibitor catch
The hardware for tilt swing makes the casement or french widow both side hung and bottom hung. This is called (airing mode).
When installing the product, operation of the handle when the casement is open may be necessary. In conjunction with this the "misuse inhibitor catch" must be pressed in. This is to prevent damage to the hardware.
The inhibitor catch is located at handle height on the concealed side of the casement, see fig 35a.

The inhibitor catch is to prevent incorrect operation during normal use that could lead to the casement ending up in a incorrect position.

Fig 35a. Misuse inhibitor catch on tilt swing hardware

7.8 FUNCTION TEST

A function test must be carried out in conjunction with installation of the window before the installation is approved. The following are included in the test:

- Operation, the casements must move freely.
- Operation of the handle and lock must be easy. Functions must be present.
- Security device functions
- Check the window brake and cleaning the brake box when necessary

Function test, see respective window type.

7.9 FINAL CHECK

Retighten all screws and cover the mounting holes with the cover plugs.

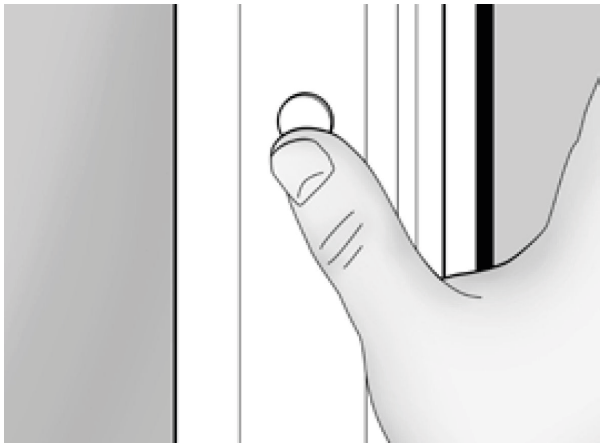


Fig 35b. Cover plug

Chap 8. Special installation torque windows

8.1 TWIST WINDOWS

8.11 OPERATION

The twist window is secured so that children cannot open the window more than 10 cm. The fall safety device takes effect automatically. The safety device is located on the right side of the frame, on the hardware. The safety device is accessible by opening the ajar and then the casement is released by moving the moveable black component in towards the room, see fig 36. The casement is also automatically restricted when the casement is opened to washing position. Releasing the casement in washing position using the safety device. If the child safety device is installed press the catch towards the frame and then move the catch into the room.

Fig 36. The catch for the hardware is moved towards the room to open the window.

8.12 FUNCTION TEST

A function test must be carried out in conjunction with installation of the window before the installation is approved. The following must be tested:

- Fall safety device, must lock automatically and the gap between the casement and the frame may not exceed 10 cm.
- Window washing position. The catch must lock automatically.
- The catch should be easy to operate.
- It should be easy to turn the casement approx 170 degrees.
- The child safety device must be located with the correct function (installed because of the child safety requirements according Boverket's Building Regulations).

Fig 37. The fall safety device must lock the casement so that free movement does not exceed 10 cm.

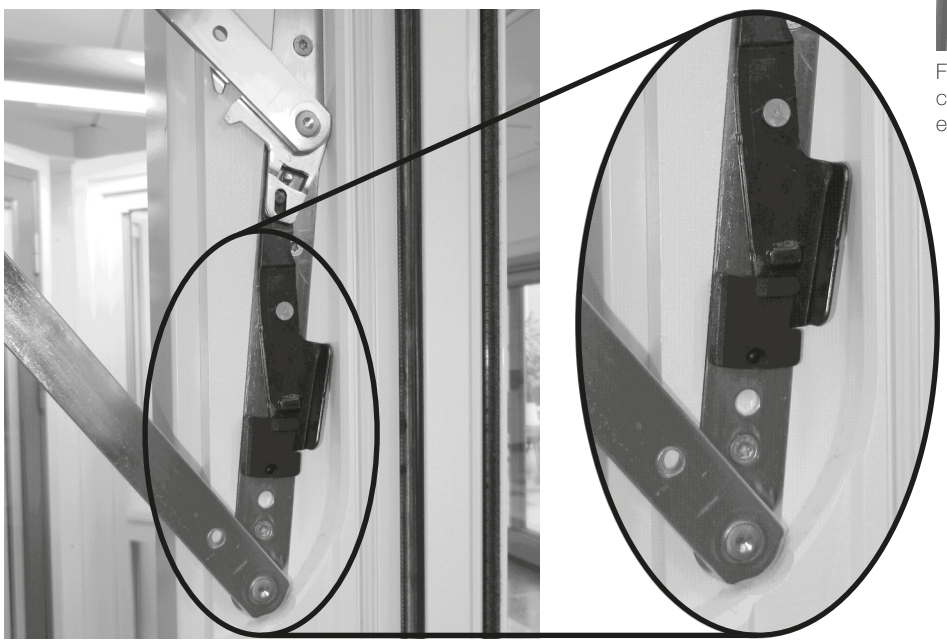


Fig 38. The child safety catch must be installed on windows that fall within the requirements for child safety in BBR.

8.2 MF RETRO AND MF

8.21 INSTALLING WINDOW LOCKS, Fig. 39

For non-installed hardware the instruction must be followed:

- Casement - Lock
  Install the locks in the pre-drilled holes in the casement.

- Frame - Hook
  Screw the hooks into the two pre-drilled holes in the frame with the screws supplied.

Fig 39. Installed lock and hook

8.22 INSTALLING VENTILATION HARDWARE, Fig. 40

For non-installed hardware the instruction must be followed:

- Casement – Hook
  Install the hook in the pre-drilled hole.

- Frame – Mounting
  Guide the mounting into the pre-drilled hole and centre over the hole. Carefully tap the cap for the mounting. Use protection when you tap the mounting down. Install the screws supplied.

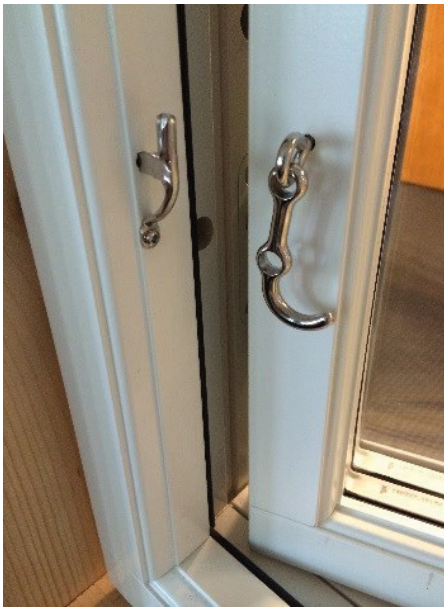
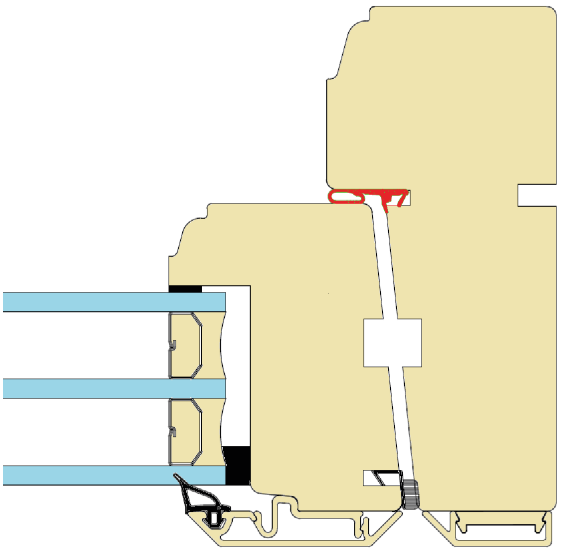


Fig 40. Installed airing hardware

8.23 INSTALLING SEALING TRIM

The seal trim must be removed before apply any surface treatment to the window. The trim is marked in red in the sketch below. After the surface treatment the trim is reinstalled in the mounting groove.



The seal trim that is removed in conjunction with painting

Chap 9. Installing french windows

To bear in mind when installing french windows:

- That the wall that the french window will be installed in is of a sufficiently strong type for the french window's weight and rigid installation.
- All frame screw holes are used during installation. Important that the mounting device is adapted to the wall material and that all sleeves are against a rigid surface.
- Wedging reduces the possibilities of adjusting the door afterwards.
- Adjustment is required to ensure correct function.
- Pressure distribution washer must be used.

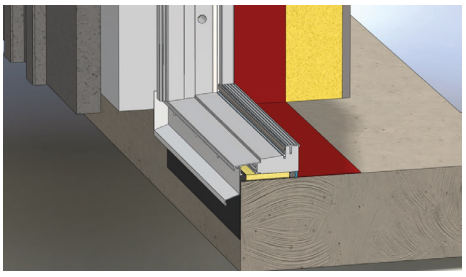


Fig 41. Secondary seal is drawn along the full width of the door opening and 100 mm up at the sides. The seal prevents water from penetrating further into the construction.

9.1 WEDGING THE BOTTOM

Screw the wedges into place in the lower edge of the wall opening. Ensure that a wedge is placed under each frame side (the outer edge of the wedge may be a maximum of 100 mm in from the outer edge of the frame). If the door is wide further wedges maybe needed, that are then distributed evenly. The wedges shall be horizontal.

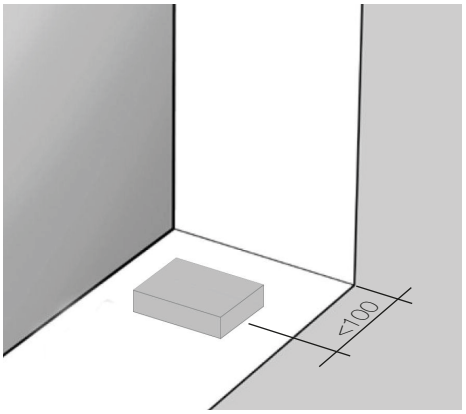


Fig 42. Wedging must at least be carried out under all vertical parts. Wedges are positioned max 100 mm from the edge.

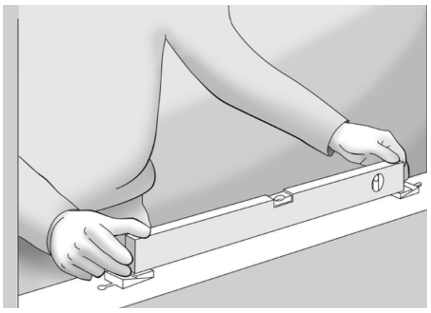


Fig 43. Wedging must be horizontal.

The product's actual measurements are usually 20 mm smaller than the module size. This is to leave room for caulking (sealing) between the frame and the wall of at least 10 mm around the whole frame (for example size 10/21 means that frame outer width is 980 mm and the frame outer height is 2080 mm).

If a wedge other than a levelling block is used, it must be of hard, water repellent material, for example, hardwood or plastic. Note that the blocks must be 20 mm narrower than the frame to allow and unbroken caulk and seal joint.

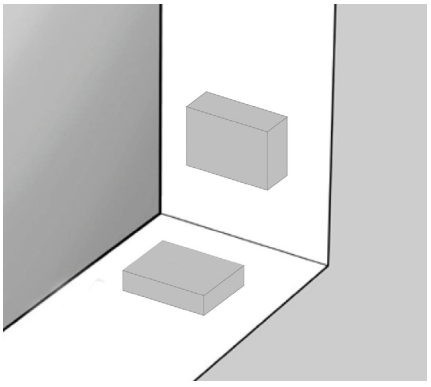


Fig 44. Wedging on the sides adjacent to locking points and hinges increases security against break ins.

It is recommended that the threshold is always wedged in the middle. If the surface of the glass exceeds 1200 mm, a further three blocks must be installed at the quarter width points of the threshold.

The centre of the threshold for double french windows should be lowered 1-1.5 mm in relation to the frame sides.

9.2 WEDGING THE SIDE

Screw further blocks into the side of the door opening at the height of the espagnolette's locking points and hinges. Frame sleeves i.e. Adjufix, replace the normal blocks on the sides. If the product is security classified extra importance is placed on the installation, see the supplier's instructions. In general. all locking points must be secured using wedging or Adjufix for example.

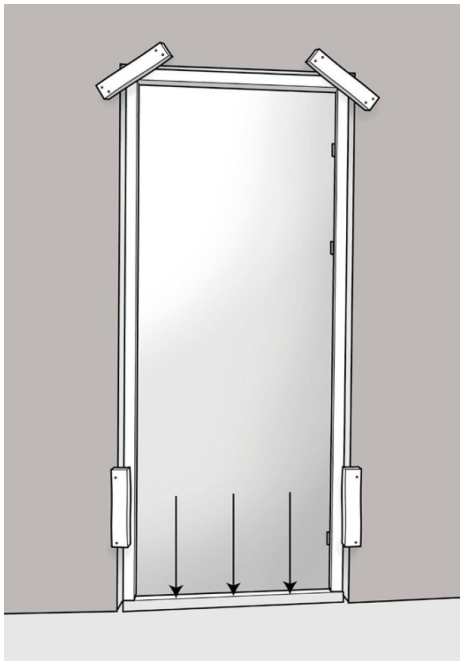


Fig 45. Wedging wide doors. It is recommended that thresholds are always wedged in the middle.

9.3 LIFT OFF THE DOOR LEAF

Open the door. First release the window brake from the frame by pulling the arm down carefully! Lift the casement off the frame. The door leaf must be placed on a soft surface to prevent damage to the bottom edge of the door leaf. Any transport wedges can be removed.

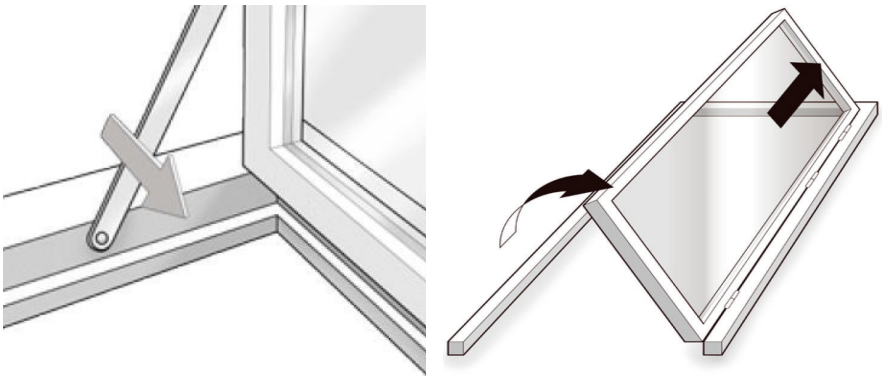


Fig 46. Release the door brake before lifting the door leaf off. Place the door leaf on a soft surface to avoid damage.

9.4 SEALING TAPE

Any sealing tape is installed before frame sleeves are inserted. The sealing tape installation must be carried out according to the supplier's instructions. Take care to adjust the tape around the sleeves so that the tape's expansion is not prevented.

9.5 FRAME SLEEVES

The frame sleeves are screwed into the frame from the outside in all the pre-drilled holes using an Allen key or installation tool, (frame sleeves can also be ordered pre-installed from the manufacturer).

Fig 47. Sleeve with pressure distributing washer

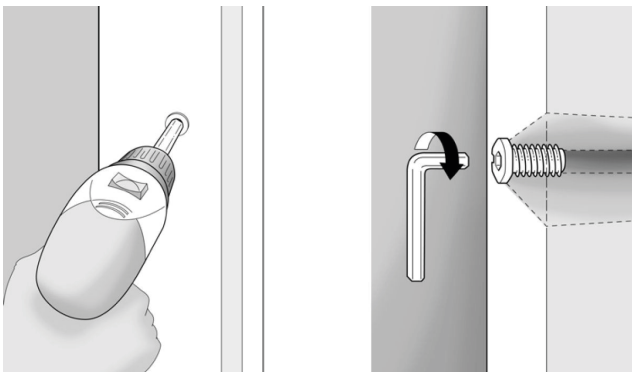


Fig 48. If the frame does not have pre-drilled holes for the frame sleeves: measure out the location of the holes and drill from the inside of the frame straight through the frame using a 14 mm drill bit. For positioning of the frame sleeves refer to the following Swedish standards: Windows and french windows SS 81 73 32 and exterior doors SS 81 70 52.

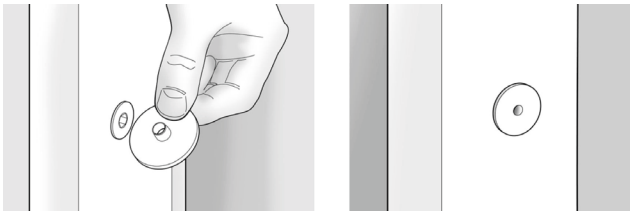


Fig 49. The pressure distribution washers are pressed into place on the frame sleeves from the outside.

Pressure distribution washer must be used. The sleeve length is adapted as necessary based on the width of the caulking gap.

9.6 POSITIONING THE DOOR IN THE WALL OPENING

Secure the blocks to the outside fo he wall opening so that the door does not fallout. Then lift the frame into the wall opening from the inside and position the frame on the blocks.

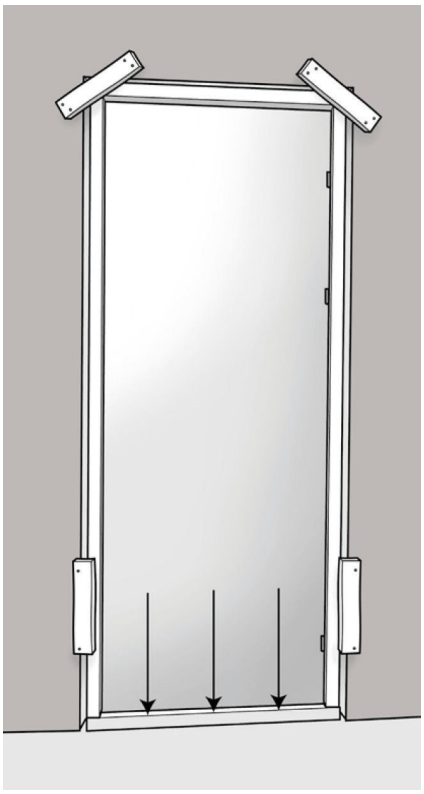


Fig 50 Safety blocks on the outside to secure the window installation.

9.7 FIXING THE DOOR

RIGID INSTALLATION—Extra important that all frame screws are mounted correctly, both support and screw mounting. This is required to achieve rigid installation.

Screw out the upper and lower frame sleeves on each side, so that they are against the sides of the wall opening.

Check again with a spirit level that the frame is straight on all sides and does not lean into the room or out towards the exterior. Adjust as necessary by slackening off the frame sleeves, straightening the frame and then screwing the sleeves out again.

Check with diagonal rod that the diagonal measurements are equal. Adjust if necessary by screwing the frame sleeves out or in, so that the frame is moved sideways.

Finally screw out the upper frame sleeves so that they lie against the sides of the wall opening.

Screw the frame to the wall using screws suitable for the wall material.
NOTE! All mounting holes must be used!

Check again with a spirit level that the frame is straight on all sides and does not lean into the room or out towards the exterior. Check also that the frames sides are straight and do not bow in the middle. If the installation needs to be further adjusted, first screw out the screw and then slacken off the frame sleeve.

NOTE! The installation of the frame is vital for seal and function.

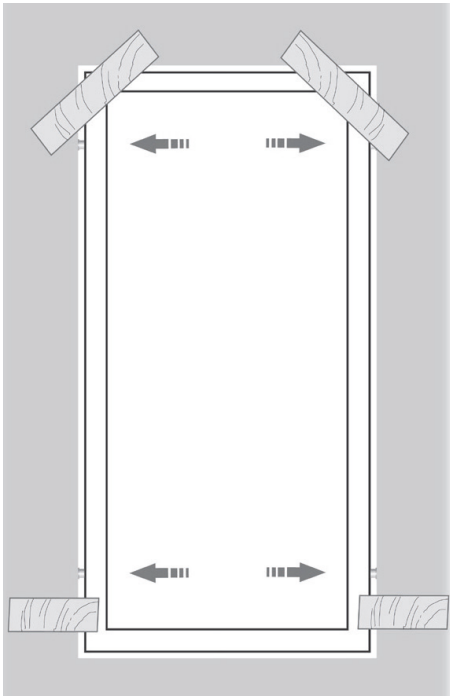


Fig 51. Start with the upper and lower sleeves.

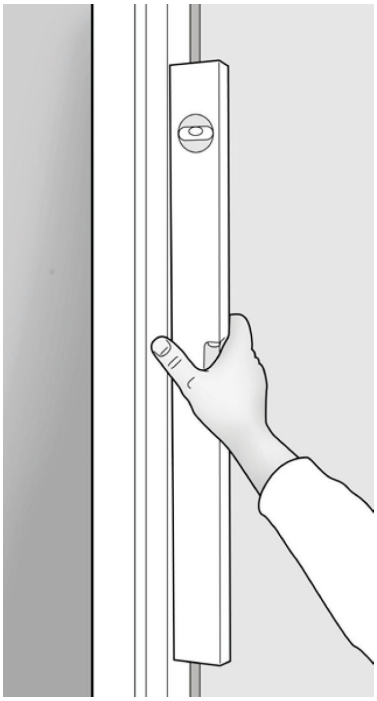


Fig 52. Check with spirit level.

Fig 53. Diagonal measurement is important for the function of the door. The diagonal measurements must be equal.

9.8 ADJUSTING

9.81 Adjusting the frame

ALWAYS check the diagonals. With settling in the building the frame may be need to be adjusted. This occurs using the frame sleeves. Slacken off the screws before adjustment and tighten them after adjustment. The frame sleeves are adjusted using an Allen key or installation tool.

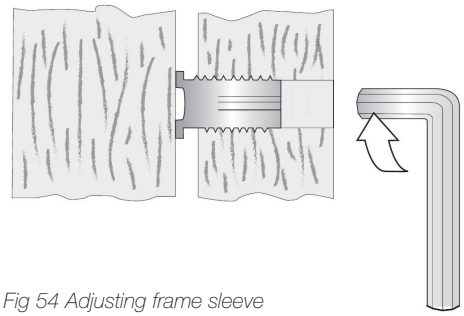


Fig 54 Adjusting frame sleeve

9.82 Adjusting the door leaf (single casement 3-glass)

1. Adjust the number of shims under the hinge.
2. Adjust the height of the hinge using the adjustment screw in the hinge. The door leaf must be adjusted in height until the gap between the frame and the door leaf is approx 2.5 mm. Height adjustment is done with the level screw in the hinge.

- Open the hinge cover by screwing anti-clockwise.
- Turn a 5 mm Allen key under the cap. The door leaf moves up when you screw clockwise, down when you screw anti-clock-wise.
- Make the same change to all hinges.
- Reinstall the covers on the hinges.

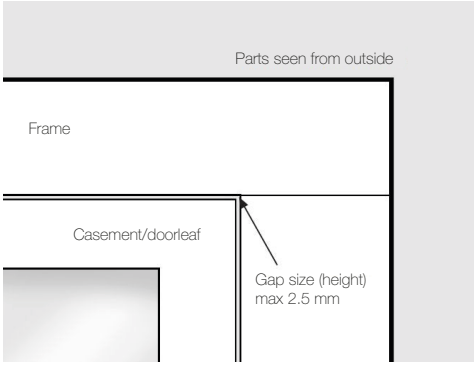


Fig 55. Adjusting casement height is done with the setting screw in the hinge.

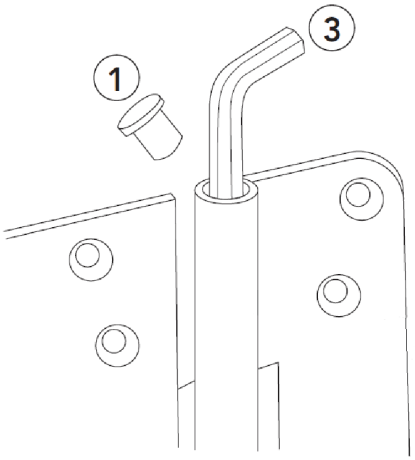


Fig 57. The hinges are adjusted for height using an Allen key (5 mm).

Fig 56. Removed cover for adjustable hinge.

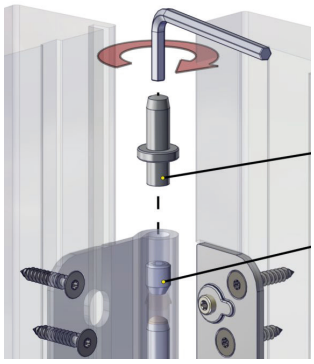
9.83 Adjusting the door leaf (coupled 2+1)

This instruction covers outward coupled french windows

When adjusting height – start by separating the inner- and outer casement by opening the closing hardware (see image to the right) the outer casement can then be unhung. Then follow the instructions beside the images below.

Closing hardware

Adjusting height



Adjusting height

1 Uncouple the outer casement
2 Remove the screw pin/screw cover

3 Screw for height adjustment

Adjustment sideways, in

1 Slacken off the adjustment screws
2 Tighten the adjustment screws

Adjustment sideways, out

1 Slacken off the mounting screws
3 Tighten the mounting screws
2 Tighten the adjustment screws

9.9 FUNCTION TEST

A function test must be carried out in conjunction with installation of the door. The following must be tested:
Function of the safety hardware and inhibitor device must lock automatically and the gap between the door leaf and frame must not be more than 10 cm in unloaded position.
Operation, door leaf must go free.
Operation, the door leaf must run freely.

9.10 FINAL CHECK

Retighten all screws and cover the mounting holes with the cover plugs.

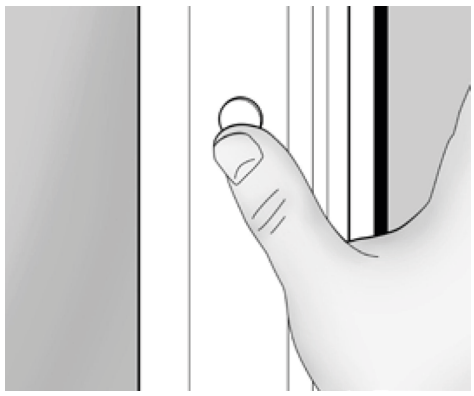


Fig 58. Cover plug

Chap 10. Installing External door

To bear in mind when installing external doors:

- That the wall that the door is to be installed in is of a sufficiently strong type for the door's weight and rigid installation.
- All frame screw holes are used during installation. Important that the mounting device is adapted to the wall material and that all sleeves are against a rigid surface.
- Wedging reduces the possibilities of adjusting the door afterwards.
- Adjustment is required to ensure correct function.
- Pressure distribution washer must be used.

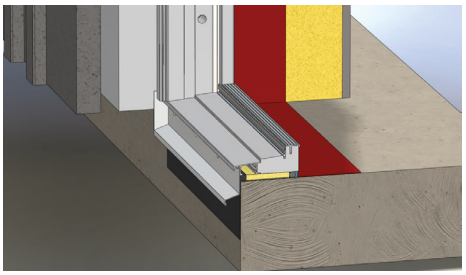


Fig 60. Secondary seal is drawn along the full width of the door opening and 100 mm up at the sides. The seal prevents water from penetrating further into the construction.

10.1 WEDGING THE BOTTOM

Screw the wedges into place in the lower edge of the wall opening. Ensure that a wedge is placed under each frame side (the outer edge of the wedge may be a maximum of 100 mm in from the outer edge of the frame). If the door is wide further wedges maybe needed, that are then distributed evenly. The wedges shall be horizontal.

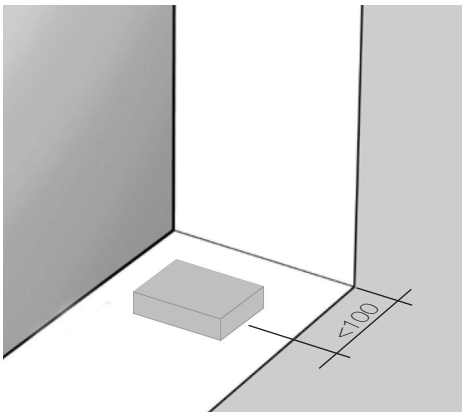


Fig 61. Wedging must at least be carried out under all vertical parts. Wedges are positioned max 100 mm from the edge.

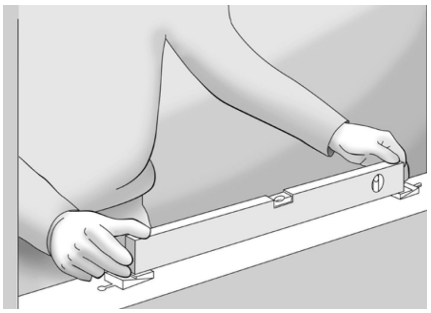


Fig 62. Wedging must be horizontal.

The product's actual measurements are usually 15 mm smaller than the module size. This is to leave room for caulking (sealing) between the frame and the wall of at least 10 mm around the whole frame (for example size 10/21 means that frame outer width is 980 mm and the frame outer height is 2080 mm).

If a wedge other than a levelling block is used, it must be of hard, water repellent material, for example, hardwood or plastic. Note that the blocks must be 20 mm narrower than the frame to allow and unbroken caulk and seal joint.

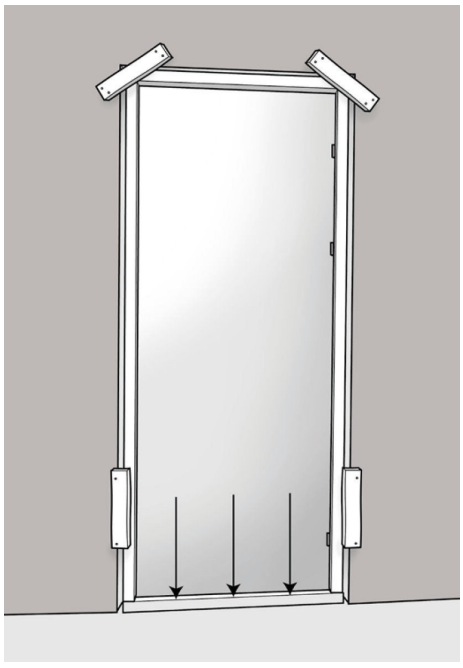


Fig 63. Wedging wide doors. It is recommended that thresholds are always wedged in the middle.

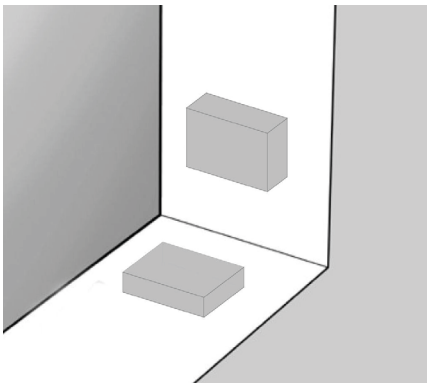


Fig 64. Wedging on the sides adjacent to locking points and hinges increases security against break ins.

It is recommended that thresholds are always wedged in the middle. If the surface of the glass exceeds 1200 mm, a further three blocks must be installed at the quarter width points of the threshold.

The centre of thresholds for double french windows should be lowered 1-1.5 mm in relation to the frame sides.

10.2 WEDGING THE SIDE

Screw further blocks into the sides of the door opening at the height of the locking points and hinges. Frame sleeves replace the normal blocks on the sides. If the product is security classified extra importance is placed on the installation, see the supplier's instructions. In general. all locking points must be secured using wedging or Adjufix for example.

10.3 LIFT OFF THE DOOR LEAF

Lay the door down. Opening the lock carefully using a key or screw-driver.

Lift the door leaf off the frame.

The door leaf must be placed on a soft surface to prevent damage to the bottom edge of the door leaf.

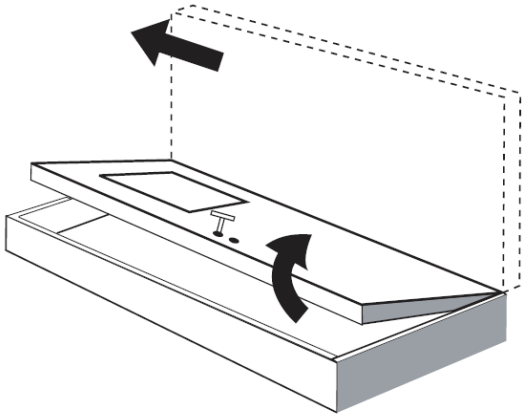


Fig 65. Lifting out the door leaf

10.4 INSTALL ANY SIDE LIGHTS

Assemble the frae with any side lights. Side lights are installed like windows.

10.5 SEALING TAPE

Any sealing tape is installed before frame sleeves are inserted. The sealing tape installation must be carried out according to the supplier's instructions. Take care to adjust the tape around the sleeves so that the tape's expansion is not prevented.

10.6 FRAME SLEEVES

Screw the frame sleeves int the frame from the outside in all the pre-drilled holes using an Allen key or installation tool, (frame sleeves can also be ordered pre-installed from the manufacturer).

Pressure distribution washer must be used. The sleeve length is adapted as necessary, based on the width of the caulking gap.

Fig 66. Sleeve with pressure distributing washer

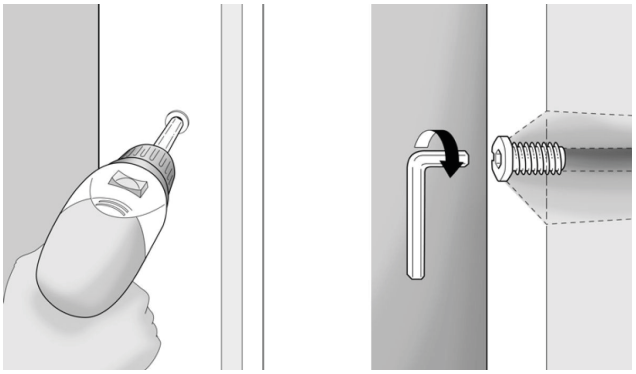


Fig 67. If the frame does not have pre-drilled holes for the frame sleeves: measure out the location of the holes and drill from the inside of the frame straight through the frame using a 14 mm drill bit. For positioning of the frame sleeves refer to the following Swedish standards: Windows and french windows SS 81 73 32 and exterior doors SS 81 70 52.

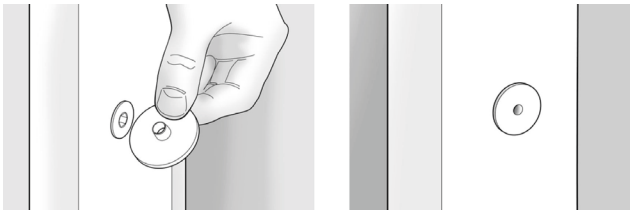


Fig 68. The pressure distribution washers are pressed into place on the frame sleeves from the outside.

10.7 POSITIONING THE DOOR IN THE WALL OPENING

Secure the blocks to the outside fo he wall opening so that the door does not fallout. Then lift the window into place in the wall opening from the inside and position it on the levelling blocks.

10.8 FIXING THE DOOR

RIGID INSTALLATION—Extra important that all frame screws are mounted correctly, both support and screw mounting. This is required to achieve rigid installation.

Screw out the upper and lower frame sleeves on each side, so that they are against the sides of the wall opening.

Check again with a spirit level that the frame is straight on all sides and does not lean into the room or out towards the exterior. Adjust as necessary by slackening off the frame sleeves, straightening the frame and then screwing the sleeves out again.

Check with diagonal rod that the diagonal measurements are equal. Adjust if necessary by screwing the frame sleeves out or in, so that the frame is moved sideways.
Finally screw out the upper frame sleeves so that they lie against the sides of the wall opening.

Screw the frame to the wall using screws suitable for the wall material.
NOTE! All mounting holes must be used!

Check with a spirit level again that the frame is straight on all sides and does not lean into the room or out towards the exterior. Check also that the frames sides are straight and do not bow in the middle. If the installation needs to be further adjusted, first screw out the screw and then slacken off the frame sleeve.

NOTE! The installation of the frame is vital for seal and function.

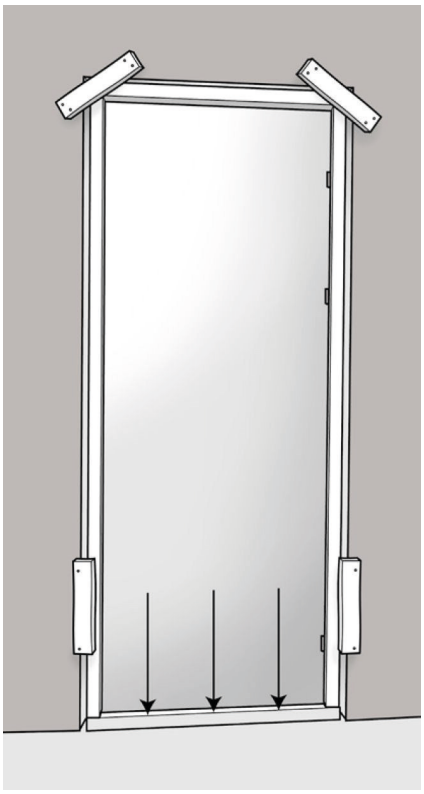


Fig 69. Safety blocks on the outside to secure the door installation.

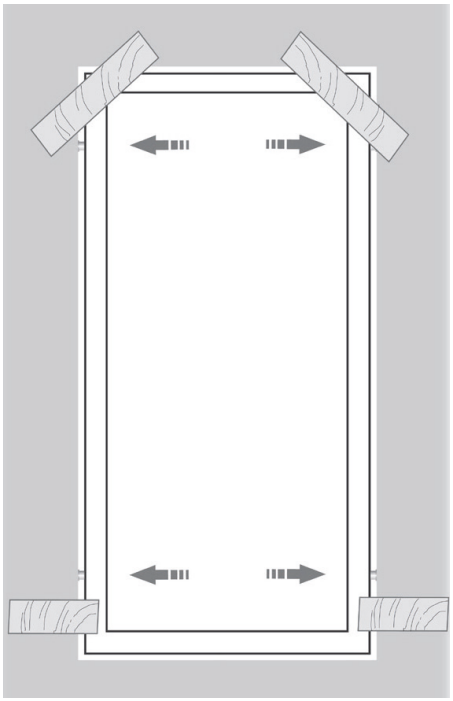


Fig 70. Start with the upper and lower sleeves.

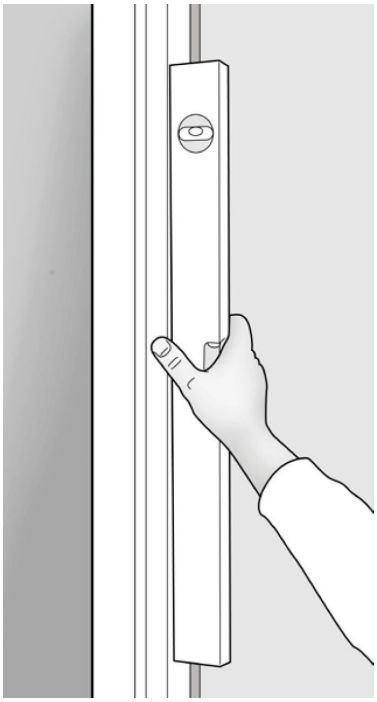


Fig 71. Diagonal measurement is important for the function of the door. The diagonal measurements must be equal.

Fig 72. Check with spirit level.

10.9 ADJUSTING

10.91 Adjusting the frame

ALWAYS check the diagonals. With settling in the building the frame may be need to be adjusted. This occurs using the frame sleeves. Slacken off the screws before adjustment and tighten them after adjustment. The frame sleeves are adjusted using an Allen key or installation tool.

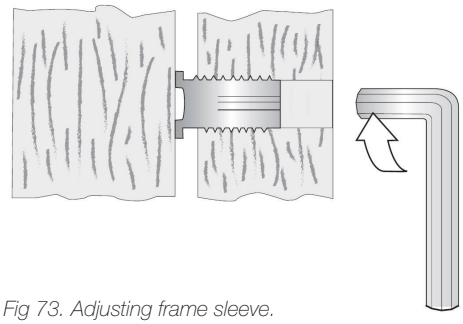


Fig 73. Adjusting frame sleeve.

10.92 Adjusting the door leaf

Adjust the height of the hinge using the adjustment screw in the hinge. The door leaf must be adjusted in height until the gap between the frame and the door leaf is approx 2.5 mm.

- Open the hinge cover by screwing anti-clockwise.
- Turn a 5 mm Allen key under the cap. The door leaf moves up when you screw clockwise, down when you screw anti-clockwise.
- Make the same change to all hinges.
- Reinstall the covers on the hinges.

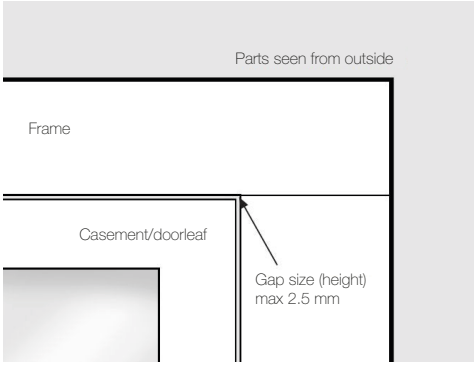


Fig 74. Adjusting casement height is done with the setting screw in the hinge.

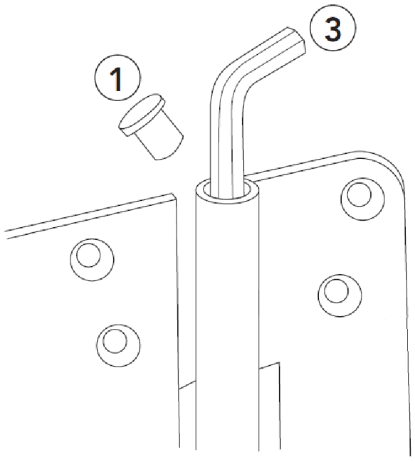


Fig 75. The hinges are adjusted for height using an Allen key (5 mm).

Fig 76. Removed cover for adjustable hinge.

10.10 FUNCTION TEST

A function test must be carried out in conjunction with installation of the door. The following must be tested:
The gap between the leaf and the frame must be even around the whole door
Operation, door leaf must go free.
Operation, the door leaf must run freely.

10.11 FINAL CHECK

Retighten all screws and cover the mounting holes with the cover plugs.

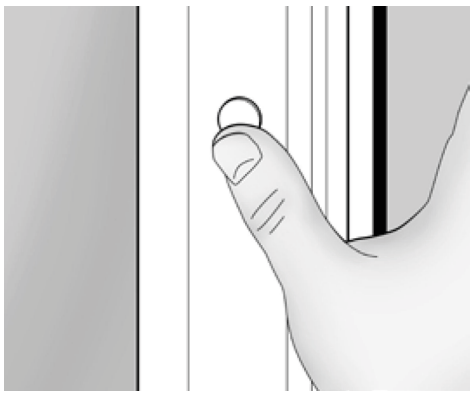


Fig 77. Cover plug

Chap 11. Special installation

In order for the products to manage all unwanted functions, installation must be carried out according to the installation instructions. Incorrect installation can mean that after installation the product does not meet the requires standards, for example sound, security and fire requirements.

11.1 FIRE

Installation of fire products must follow according to the product's installation instructions provided.

When installing fire classified windows the material for heating and sound insulation must be documented with a fire classification of at least A2-s1, d0 according to EN 13501-1.

Material used as air and moisture sealant must be documented to at least E-class according to EN 13501-1.

Installation is shown in the following figures:

1. Window frame

2. Heat insulation/sound insulation (caulking). Carried out using non-absorbent insulation material, such as mineral wool, rock wool or equivalent.

3. Sealant of fire retardant material must have good adhesive capacity against relevant material in the frame and wall.

4. Internal concealed trim.
   Used where there is a risk of mechanical impact on the visible joint or where a concealed joint is desirable.

5. External concealed trim.
   Wood trim can be replaced by concealed plate or similar.
   The trim prevents torrential rain from penetrating.

6. Mounting device.

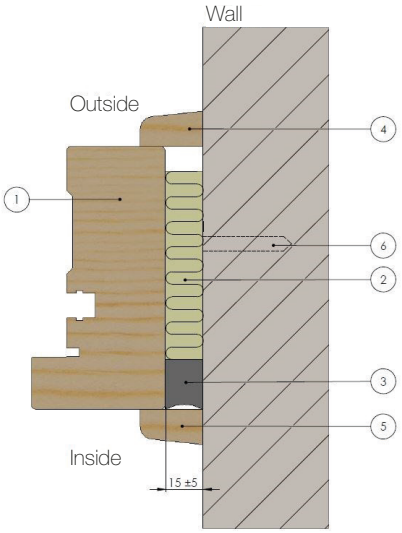


Fig 78. Diagram showing installation of fire classified products.

11.2 SECURITY

Installation of security products must follow according to the product's installation instructions provided.

11.21 Reinforcement against break-ins

If the installation is to be reinforcement against break-ins, the locking points, for example end plate and hinges are reinforced by wedging in the caulking gap. If adjustable frame sleeve with screws 8 x 64 mm and pressure distribution is used that meets installation class 4 "Break-in preventative windows" according to SS 81 73 32. The recommendation is that this installation method is always used for products where reinforcement against break-ins is desired.

Fig 79. Sleeve with pressure distributing washer

Wedging the locking points for the twist window.

Wedging the locking points for the side hung window.

Example of wedging of locking points for doors.

Fig 80. Examples of wedging of lock and hinge points for windows and doors.

11.3 SOUND

Good sound values are achieved when the seal between frame and wall is good. It must be properly sealed and caulked all the way round so that it i sealed. A concealed trim gives a visual seal but not a sound seal. It is a good idea to carry out a trial installation in the room most exposed to noise. Before changing windows in a whole building measure the test installation and make a suitable evaluation of the results.

A normal installation fault for products that open are incorrect installation of the frame (the frame is mounted crooked ad warped). This fault means that the seal between casement and frame is not adequate. The result is lower sound performance on the product.

Chap 12. Protecting the installed product and glass

12.1 Protecting the installed product

1. During the construction period all installed products must be well protected from all forms of external influence.

2. Hardware must not be exposed to paint, render or cement, concrete water or other corrosive substances. Paint must not get onto the seals, the moving parts of the hardware or sliding rails.

3. If plastic film and tape are used to protect the product, not the risk of discoloration and the risk of paint removal when removing the film and tape.

4. Ensure that the moisture in the building is evaporated through forced ventilation and a good heat supply. Because windows and doors are kept open to ventilate construction moisture, note that the interior surface treatments can be damaged by rain water or condensation.

12.2 Protecting glass

1. Glass must be protected from all impurities caused by both building materials and construction methods during the construction period.

2. Tradesmen and construction workers at a building site must be informed of the risk of the damage to the glass and windows.

3. Construction dust, concrete leaching, rust from steel etc, can contribute to the creation of chemical reactions or stains, that can result in damage to the glass surface.

4. Protection/screens must be set up in front of glass during welding and grinding work, sand blasting, spray painting or similar close to the glass.

5. All protection must remain in place throughout the construction period.

Chap 13. Removing windows and doors

If the product will not be reused, remove the glass, hardware, rubber trims etc and take to recycling or energy recovery. Contact local waste processors for more information.

For studies of the window's environmental impact refer to the supplier's building material declarations. The declarations can be obtained from the supplier. They are also available on the internet via Byggtjänsts miljövarubas, www.byggtjanst.se. Window timber may be impregnated to prevent rot.

13.1 Instructions for dismantling

The procedures below vary depending on the type of product. The relevant fractions are sorted according to the local waste processors.

Action	Comments
Casement/door leaf is unhooked from the frame	The hinge pins are tapped out using a hammer
The casements are uncoupled	The pins in the coupling hinges are removed
Glass cassettes are removed from the casement/frame	Glazing strips are removed using a chisel/knife
All sealing strips are removed	Also covers rubber glazing strips (the strips are pinned, groove mounted or self adhesive)
Aluminium profiles are removed	
Hardware is unscrewed	Profiles that are installed with clips are bent/twisted loose from the clip
Wood components of frame and casement	Refers to espagnolette, end plate, hinges, handle, aluminium clips

Take care when dismantling to avoid injury!

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