AMBERLINE

Aluminum Installation Guide

2024

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The goal of this document is to provide clear guidance on how to handle and install Amberline products safely and efficiently. Failure to read, understand, and apply this guideline may void the warranty.

1. Requirements and warnings

You're receiving high-performance windows and doors with distinctive operational features. It's essential to understand that the instructions for handling, storing, and installing these products may require different procedures compared to other window and door products you've encountered. Please take the time to thoroughly review these instructions before receiving the products to ensure proper handling, storage, and installation of Amberline products.

Failure to read, understand, and apply this guideline may void the warranty, as improper handling, storage, and installation may result in reduced operation, performance, and longevity of Amberline products.

2. Receiving, handling, and storage.

2.1 Container and product inspection

Carefully inspect the products after receiving the container. Any visible defects to products and/or containers must be reported to Amberline LLC within 24 hours of delivery. Take photos of both unloaded products and the container.

Important!
If products inside the container are or appear damaged do not unload the container and contact Amberline LLC immediately for further assistance.

If no damages are present at this stage, you can proceed with unloading the products. Remember to take photos of the open container before unloading and continuously when unloading it. After unloading inspect the products for any damage marks that may have appeared during transportation. Check the completeness of the delivery against the transport list provided by our company to ensure you have received all the specified items. Any missing items must be reported to Amberline LLC immediately.

2.2 Best practices and safety remarks for unloading the products

Follow the tips given below to ensure a safe unloading process:

- Choose a secure place with an even surface for the unloading
- Assemble enough people to unload the biggest products manually
- Prepare enough indoor space to store all of the products
- Use equipment with the capacity to lift and/or support all the products and pallets
- Protect the accessories and small parts from getting lost or destroyed in the process
- You may need to support pallet legs with wooden blocks due to different product weights

Important!
Never place the pallets on muddy/sandy surfaces. Unloaded goods must be protected against hazards such as water, rain, sand, and sun.

A. Products on pallets
Remove wooden frames and airbags protecting goods against damages during shipment. Then carefully and gradually (pallet after pallet) remove the ratchet straps protecting the pallets in the container. Standard products, transported on wooden pallets, are prepared to be unloaded with a forklift. Never remove protective film or plastic tapes from the pallets before unloading them from the container.

B. Large products
Due to large dimensions, some products may be attached to the back of the pallet. These must be unloaded manually by a minimum of two people. To do this, they must be detached carefully from the pallet. After unloading, make sure they are placed in a secure place and protected from falling.
Extremely large products are often attached to the container wall during transportation. These should be carried out by more than two people and may need to be unloaded diagonally through the mouth of the container. To do that detach the ratchet straps carefully while protecting the product from falling manually. Make sure you can lift the product and equally/uniformly support the frame to protect it from falling, bending, or cracking. Check if you have enough space in the container to move and manipulate the product. After unloading the product must be placed in a secure place and again protected from falling.

Important!
Never leave products unsecured during unloading.

C. Glass in crates
Glass is always transported in wooden crates with a base prepared for unloading with a forklift. Follow the procedure described in point A (Products on pallets). Never leave glass in direct exposition to intense sunlight as it may cause thermal breaks.

D. Other items
Some products, like long profiles, small items, etc., may be transported separately or in carton boxes. All these products should be unloaded manually. Remember to always check the completeness and destination with the packing list.

Important!
Never use a forklift for products that are not well supported, such as long profiles or short items, as they may get damaged or lost during unloading with a forklift.

2.3 Best practices and safety remarks for storing the products.

Amberline products are transported on wooden pallets. When unloading or moving, always place the pallets with products on a level and even surface in a secure place. If the surface is not even, always use a shim to keep the products or the pallets in a vertical position and to protect them from tipping or falling.

All the products must be stored in a **vertical** position, preferably on the original pallets with protective foil and belts. They must be protected from direct sunlight, rain, dirt, and extreme temperatures. Do not leave the products and accessories unsecured.

Products are allowed to lean against each other if placed at the same angle, however, it is forbidden to stack more than eight frames of similar dimensions against each other. Additionally, make sure you never place a smaller product on a glazed part of a bigger product.

Make sure you maintain the distance between each frame. Amberline windows are always transported with foam distance block that creates a gap between the windows. It should not be removed for storage as it prevents close contact between windows and allows for ventilation.

Make sure to always protect stored windows from other building materials that may damage the profiles or the glass.

2.4 Best practices and safety remarks for handling and moving the products

A minimum of two people is needed to unload a product from the pallet. One person (or more people depending on the size) should hold the product still while the other one loosens and removes the protective elements.

Important!
Never leave detached or unprotected products as they may fall and consequently get damaged.
Never lay the products flat on a surface as it may cause bending of the product and/or cracks.

Fig. 2. Safe handling

The installers are responsible for the safe handling of the products, for the choice of means and equipment needed to carry or move them, as well as for the safety of workers.

Depending on the size and weight, product should be carried by a minimum of two people. Make sure to handle the windows and the products carefully to prevent them from cracking or bending. Always lift them gently in a vertical position with the sashes closed. Do not drop the products. All Amberline windows are provided with carrying handles to help you with moving them.

Fig. 3. Carrying handles:

All products have a grey sub-profile screwed to the bottom part of the frame to protect products from dirt and scratches. It should be removed only before placing the window/door in the rough opening.

A. Products with mullions and transoms

When lifting products with vertical mullions, always protect the joints between the mullion and the horizontal part of the frame. Never lift units by the top part of the frame or by a horizontal transom. Ensure the weight of the product is distributed and supported evenly, if you lift the frames by ends only, frames will get deformed.

B. Using vacuum cups

Many installers recommend the use of vacuum cups as the safest way to carry windows and doors with glass or the glass itself. To apply them correctly on the glass, remove any protective plastic film. Vacuum cups must be placed evenly at the corners of the product. The window frame has to be supported from the bottom. Partially glazed products can also be carried with the help of vacuum cups, but the unglazed part has to be supported and joints between mullion and frame protected to prevent deformation.

C. Products with nail flanges

Some products have nail flanges all around the frame. These will have two grey transport sub-profiles screwed to the bottom part of the frame to protect the bottom nail flange from breaking. Do not unscrew it unless you are preparing the window for installation. When handling and moving a window with nail flanges be extremely careful not to break or damage them.

3. Before you start the installation

Before commencing installation, please take the time to thoroughly review these instructions to ensure a successful installation process.

Installation tasks should be executed by qualified installers possessing at least a basic understanding of window structures and installation methods. They must be able to: use specified tools listed in the "Glossary" section, take precise measurements, and refer to the provided guidelines. On-site installation training by an Amberline LLC representative is required before starting the installation procedures.

Additionally, as glass is the most vulnerable part of the window, get familiar with potential glass-related issues that may arise at the job site and how to prevent them (see section 9.3).

Important!
Manufacturer does not take the responsibility for problems arising from improper installation.

3.1 Pre-installation work

3.1.1 Pre-installation inspection

As mentioned in the "Receiving, handling and storage" section make sure to conduct a thorough inspection of the windows and doors upon receipt. Any observable defects in the glass or framing must be reported to Amberline LLC within 24 hours of receiving the products.

Additionally, before installation perform another inspection to ensure that products haven't sustained any damage during storage on the job site and are in optimal condition before the installation. Do not install windows with visible defects but contact Amberline LLC. Installation of a defective window will void the warranty unless agreed otherwise with the manufacturer. Damage to Amberline products caused by inadequate clearances or building structure deformations is not covered by warranty.

Make sure to check:

- the profile structure on the inside and outside (if there are any scratches)
- the frame and sash (do not install if it is broken or badly damaged)
- the glass (do not install cracked/broken glass screens)

Additionally, make sure to check:

- window dimensions and window ID against the dedicated window opening
- if the window and rough opening match shops and architectural drawings (if provided; refer to the detailed explanation below)

Shop and architectural drawings:

Amberline products are designed according to the information provided when placing the order. You may have received shop drawings from Amberline LLC containing important installation information, emphasizing the specific installation system of the project you are working on. Refer to them and make sure you follow the instructions presented in that document.

Amberline windows and other products:

Our products guarantee very good performance and comfort of use. When choosing the installation method and the sealants always make sure these are suitable for our products and will not damage them in any way. Additionally, any other items installed around and/or in close contact with our products cannot interfere with their functioning and/or damage them in any way. It is the installer's responsibility to select compatible sealants and products.

Pressure equalization and drainage holes:

Our products have small holes in the outer horizontal parts of the frame and the transom. Never cover or seal them with any substances. They equalize pressure in frame chambers and are an essential part of the water drainage system.

3.1.2 Rough opening inspection & plumb, level, and square installation

Amberline products must be installed plumb, level, and square to operate properly. The installer must install them this way even if openings are not square, and walls are not straight or plumb. Therefore, you should first examine all rough openings to ensure they are perfectly square, with a level base and vertical sides. Use a long level vertically to check if the outer surface of the wall is both straight and vertical at the junctions of windows and doors. In the case of a rough opening not meeting these criteria make sure to adjust the thickness of the supporting shims to ensure that the window or door frame is installed in a square, level, and plumb way, regardless of any imperfections of the initial opening. Additionally, if the outer surface of a wall displays any bowing or tilting, position the window to be level.

Fig. 4. Square:

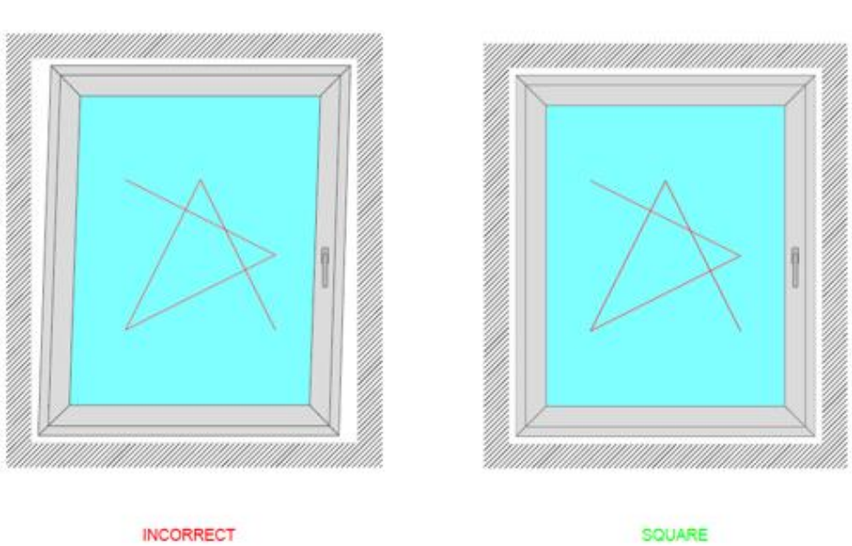


Fig. 5. Level:

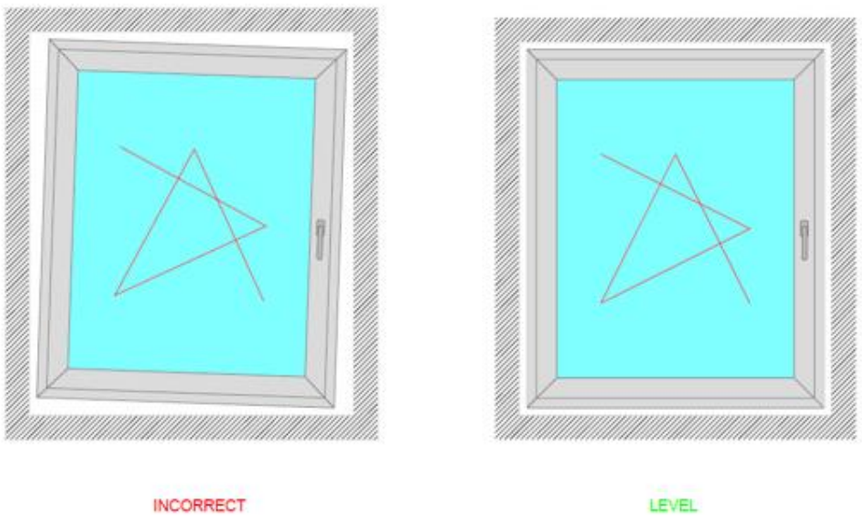
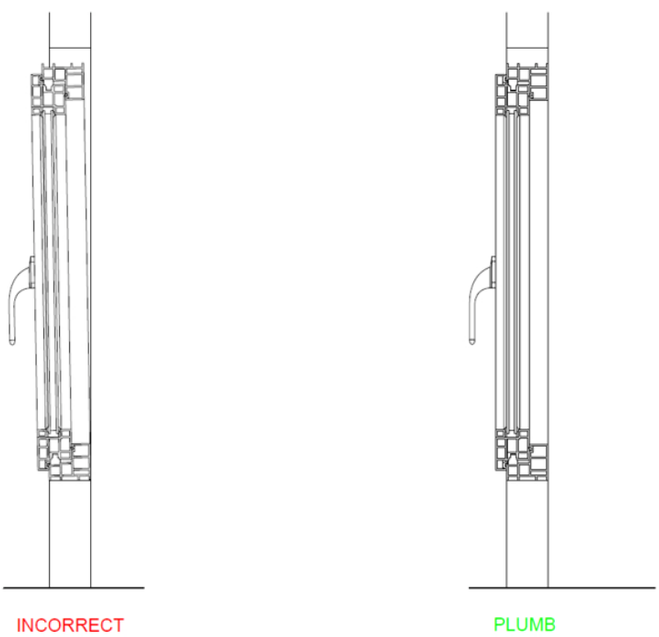


Fig. 6. Plumb:



In some cases, if the rough openings are visibly imperfect, they may need to be adjusted before the installation. In that case make sure to inform the general contractor or the party responsible for construction to correct it.

Additionally make sure you take into account possible discrepancies in size, level, and squareness of the rough opening. Aluminum profiles (especially in dark colors) are subject to thermal expansion of up to 1.5 mm (0,04'') per 1 m (39,37'') under the influence of temperature. This must be considered when estimating the rough opening for large products.

The easiest way to make the following estimations:

Windows/doors in light colors:

- up to 4.9ft (1.5m) – 0.4" (10mm) clearance per side;
- from 4.9ft (1.5m) to 6.56ft (2m) – 0.6" (15mm) clearance per side;
- from 8.2ft (2.5m) – 0.8" (20mm) clearance per side.

Dark-colored windows/doors and structures exposed to sunlight:

- add 0.2" (5mm) to the clearance

Important!
Always make sure the window is installed correctly, any deviations from this will affect its functionality and tightness.

3.1.2 Optional sash and glass removal for installation

Generally, aluminum windows/doors are shipped unglazed, but in the case of glazed products, we recommend removing the sash or the IGU glass (unopenable fixed windows) from the frame. It is not obligatory, but it is a common practice as it makes the window lighter and consequently easier to handle and move. Refer to the appendix (section 9.1) for detailed instructions on sash and glass removal.

3.1 Glossary

3.2.1 Materials provided by Amberline

PRODUCTS	ACCESSORIES
Window	Coupling Systems
Juliet Balcony	Installation Handles
Inswing Balcony Door	Screws for Straps
Outswing Balcony Door	Expanding Tape
Entrance Door	PU Sealant
Sliding Door	Gasket
Curtain Wall	Anchoring Straps
Double IGU	Water Weep Caps
Triple IGU	Aluminum Sill
	Gasket for Sill
	Screws for Aluminum
	Caps for Screws
	Fly Screens and Clips for Fly Screens
	Window Handles
	Caps for Hinges

3.1.2 Tools provided by installers

Impact Driver	Screw Driver
Laser Level	Spirit Level
Hex 4mm Key – 5/32 In	Measuring Tape
Vacuum Cups	Sill Suport Shims
Shim Blocks	Caulking and Backer Rod
Fasteners for Amberline Strap Anchors (2 per anchor)*:	
Wood substrates: #10-13 x 1-1/2" Pan head screws	
Steel studs: #10-13 x 3/4" pan head screws	

Concrete: 1/4" x 1-1/4" Kwik Con II or equal

**All fasteners to be corrosion resistant and selected for compatibility with the substrate.*

4. Installation

This manual will show you how to install Amberline windows and doors correctly. It describes two different installation systems:

1. Straps
2. Nail flanges
3. Through the frame screws.

The installation method has been chosen when placing the order, so make to follow the appropriate installation method (if you are unsure about the installation technique contact Amberline LLC).

Before proceeding with installation make sure that:

- The environment in which you will install the products is safe and clean.
- There is enough space to safely install the products (Large constructions require more space to safely handle and install them)
- The product you will be installing has not been damaged during storage and handling.
- That you have enough space to safely store the window/door you will be installing or to safely store the removed sash. Never leave the windows, frames or sashes unsecured.
- That you have people to help you with handling the products. Large products may require more than two people to handle and install.
- That the rough openings are prepared correctly for each weight and dimension of the product. Remember that each product requires a minimum 1/2" and maximum 5/8" clearance.
- That you have checked the barrier membranes' and flashings' installation. You can proceed with installation only if these are installed properly and according to local norms.
- That you have all the necessary tools and accessories to install a window at hand.

Important!

After placing a window in the rough opening and positioning it properly (plumb, level and square) it must be fixed to the wall as soon as possible.

The installation of window/door must be accomplished within one day and by the same workers from start to the end. Incomplete installation can lead to product damage.

If you are given shop drawings, make sure to read and follow them as they may contain additional information important for a specific project.

After you make sure that all the conditions specified above have been fulfilled you can proceed with the installation. Make sure to follow the appropriate installation method for a specific project (if you are unsure about the installation technique contact Amberline LLC).

Important!

It is recommended to remove sashes (operable windows) or glazing (non-operable windows) for the installation with straps and the frame screws as it helps to correctly fix the window/door frame in the rough opening, especially in the case of large windows/doors.

It is obligatory to remove the sashes (operable windows) or glazing (non-operable windows) for the through the frame installation for fixed windows. Sash removal/deglazing is also obligatory for large windows and coupled constructions to guarantee correct window positioning and smooth installation process. (In most cases, aluminum windows and doors are shipped without glass. This form of shipping reduces the possibility of damage during transport and makes installation easier.)

See the guideline how to do this correctly:

Sash installation and removal for surface hinges:

https://www.youtube.com/watch?v=7A1Zvs5knI8

Sash installation removal for concealed hinges:

https://www.youtube.com/watch?v=5NHoLF4k8KQ

Glazing and deglazing:

https://www.youtube.com/watch?v=XcbJ_oA3YZE

https://www.youtube.com/watch?v=gY2iD-EF2eo

Important!

Proper installation is essential for optimal window/door functioning in the future. When installing windows/doors you must check its positioning at each step to ensure the product will be installed in a plumb, level and square way. It is not always possible to achieve perfect conditions therefore small deviation from the plumb, level and square requirements is accepted.

The table below lists **the tolerances for window installation:**

Issue	**Details**	**Tolerance**
Window positioning	level	+/- 1/16" per 3'
	square	+/- 1/16" per 3'
	plumb	+/- 1/16" per 3'
Window sash overlap	5/16"	+/- 1/16" per 3'
Compression (sash to frame) 3/4"	sash gasket must be slightly squeezed	acceptable between 47/64" and 49/64" (between 18.5mm and 19.5mm)

4.1. Installation with straps

Tip: If possible, install windows with straps from the inside, it is safer and more comfortable.

Prepare selected window for installation:

a. Inspect the product for any damages and verify the dimensions of the product
b. Remove the grey transport profile from the bottom frame of the product
c. Remove the handling straps
d. Remove the sash from the frame of the product/ deglaze the fixed windows (Optional but advisable due to safety reasons and superior installation results).

4.1.1 Strap Installation

Steps to follow in this type of installation:

1. Removing grey transportation profile
2. Removing glass and/or sashes
3. Placing straps on the window frame
4. Placing the window in the opening
5. Shimming and positioning the window in the rough opening
6. Fixing window to the wall with straps
7. Glazing and/or placing sash (look point 4)
8. Checking window functioning

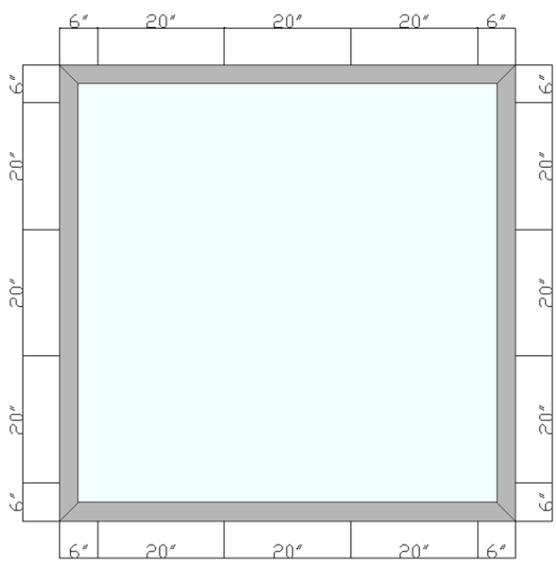
The first step of the installation is to screw the anchors to the product in the correct places. The distance between anchors should be 20" or less but make sure you place them correctly next to corners or mullions. You should have:

- two anchors installed 6" from each corner
- two anchors installed 6" from the corner around the mullion or coupling profile

Tip: Always start to place the straps from corners or mullion

Important!

Examine shop drawings provided by Amberline LLC to verify the anchor placement, it may be the case that certain constructions have specific anchoring requirements or anchoring requirements where the additional anchors can be placed further than 20" apart!

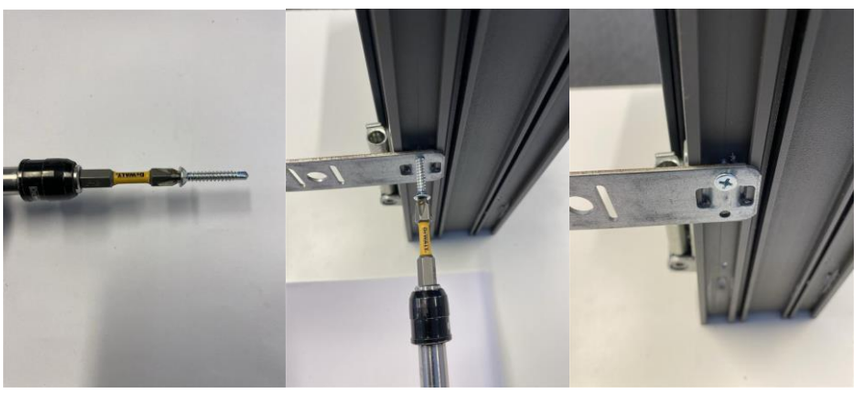


After you have located the correct placement points for the anchors, you can install them. Follow the steps below for each strap you need to attach to ensure a correct installation:

a. Attach the strap to the edge of the frame. To do that first look at the indoor side of the frame and locate the groove. Then place the straps in the groove as shown in the picture.

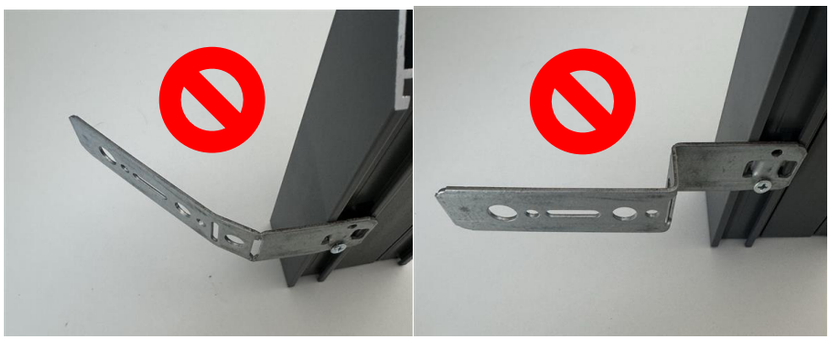
b. Then rotate the strap clockwise by 90 degrees. The longer part of the anchor must be pointing towards the inside of the building.

c. Use screws (provided with the straps) to secure the position of the strap. Then bend the strap in towards the center of the window or door by 1”. Do not bend the straps by over-drive the screw. The strap must remain flat.

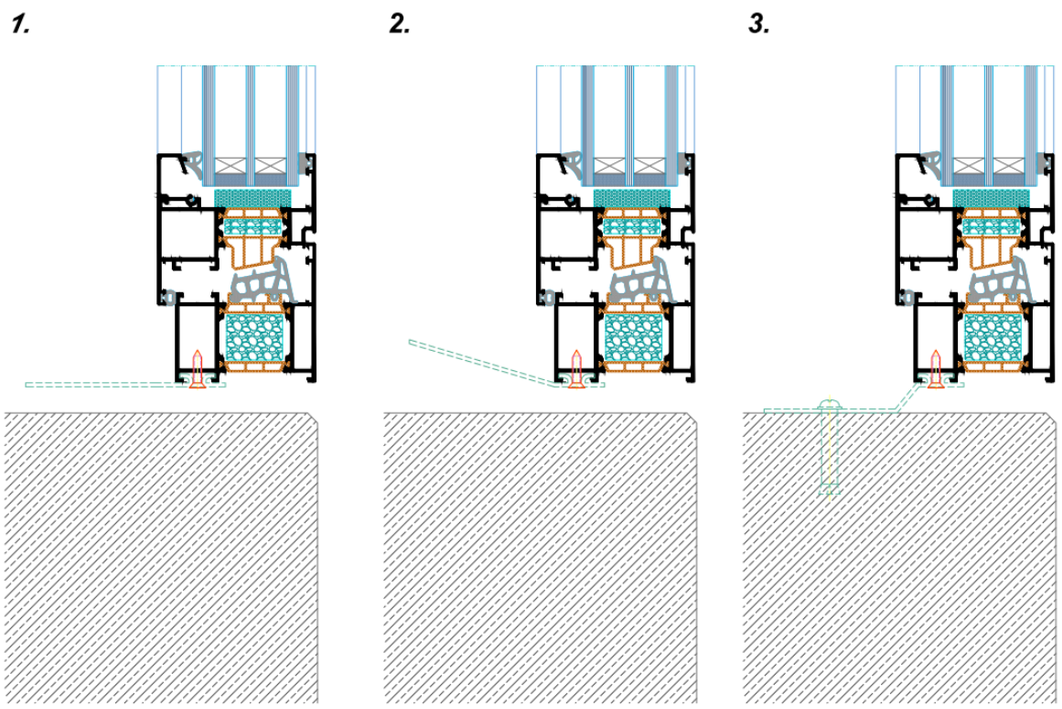


Important!

Do not bend the strap in by more than 1" as this may cause problems in the later stages of the installation as well as bowing of the frame. The pictures below show unacceptable straps bending!

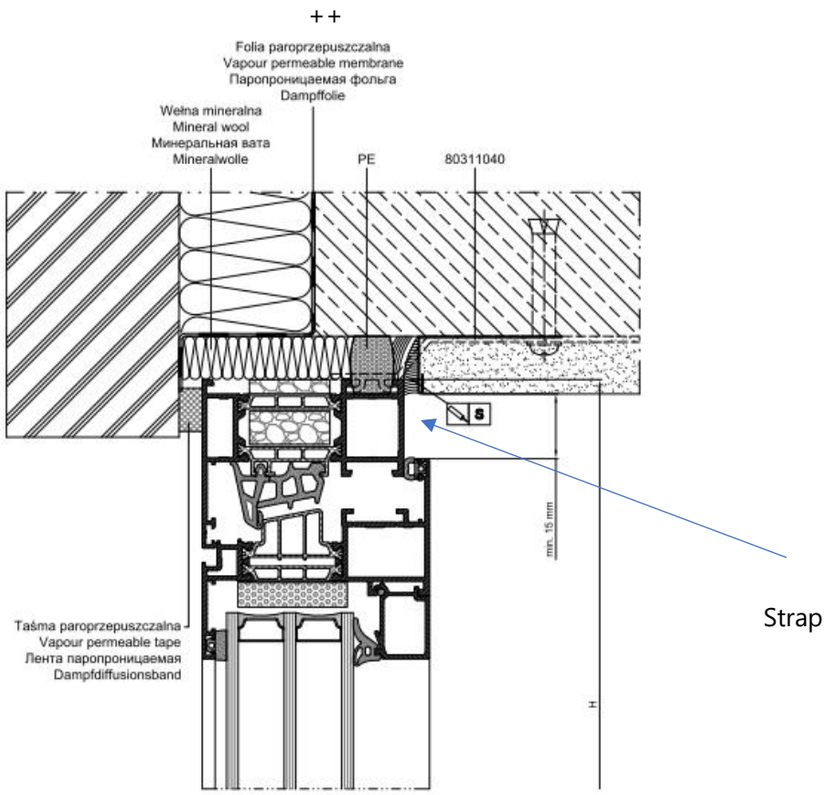


Correct straps bending:

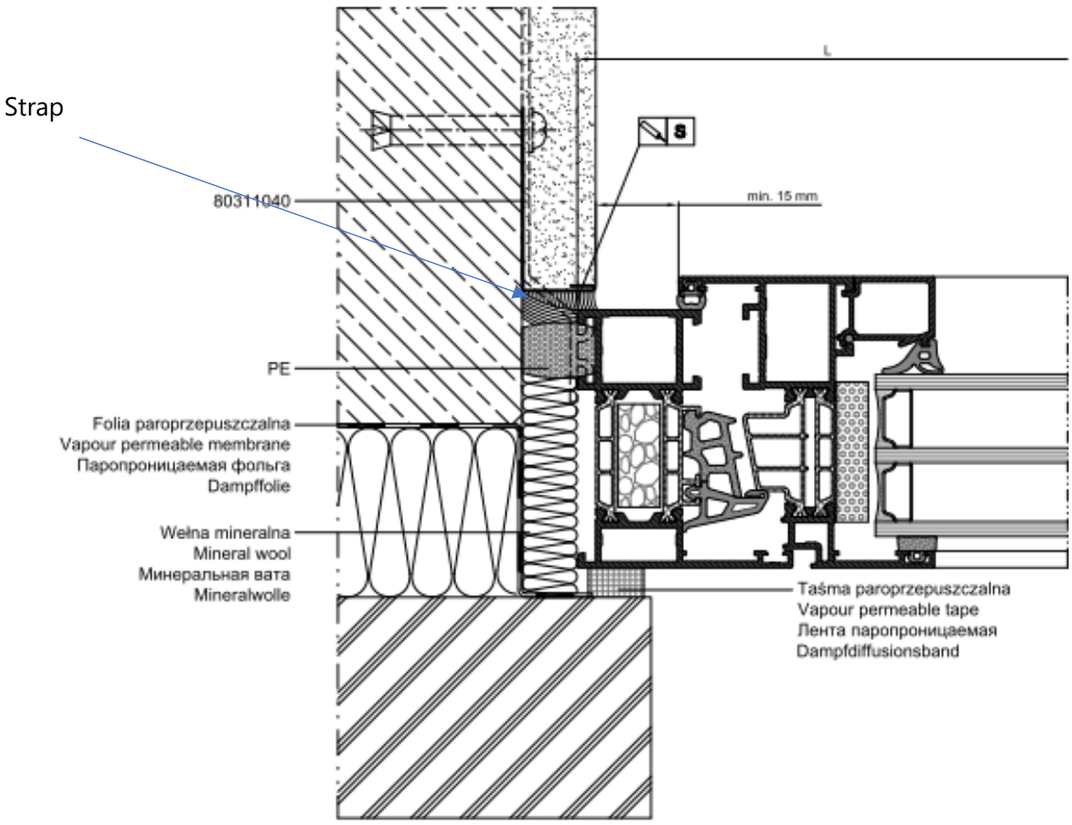


Example of assembly:

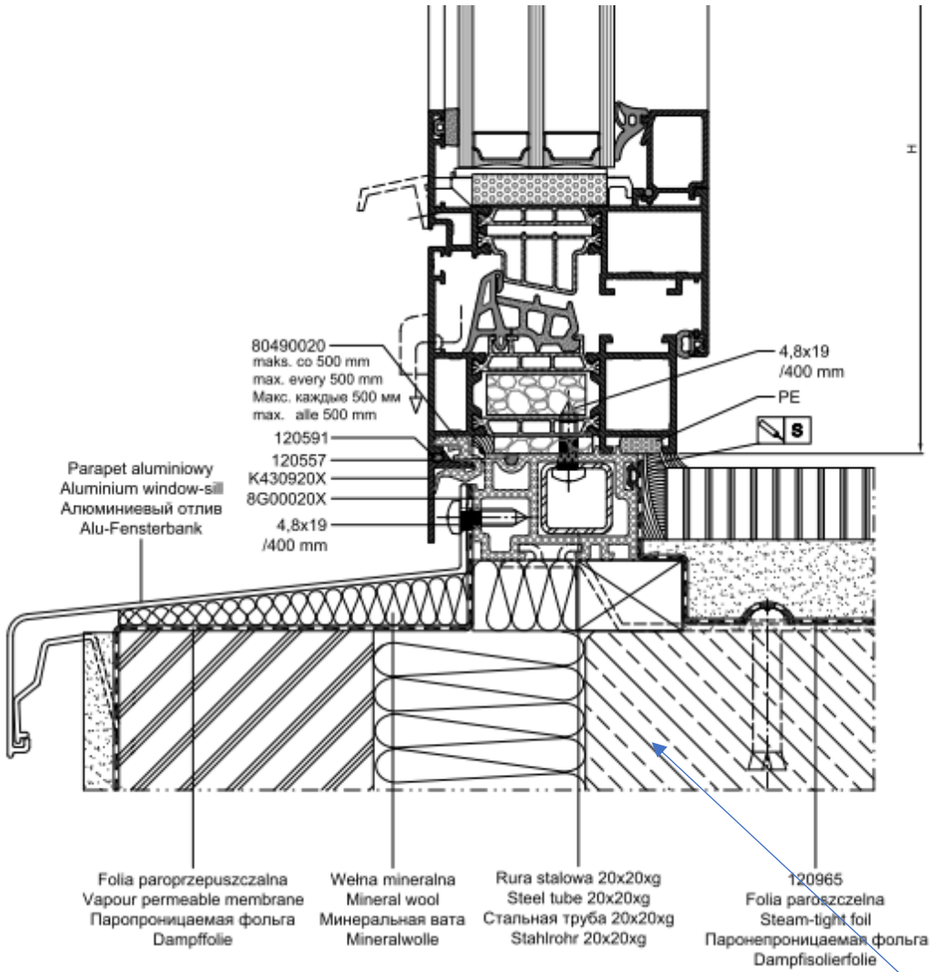
Upper setting of window



Lateral setting of window

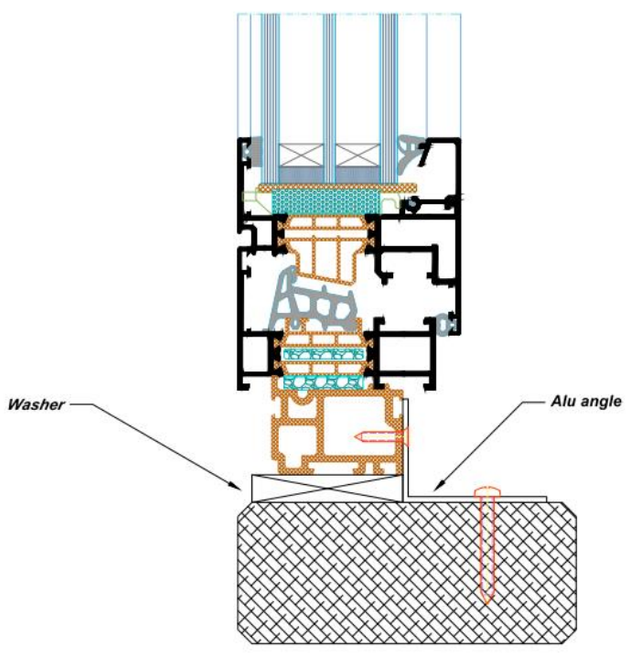


Bottom setting of window



Strap

Alternative mounting of the lower profile using an angle bracket



Refer to the video below for a visual representation of the process:

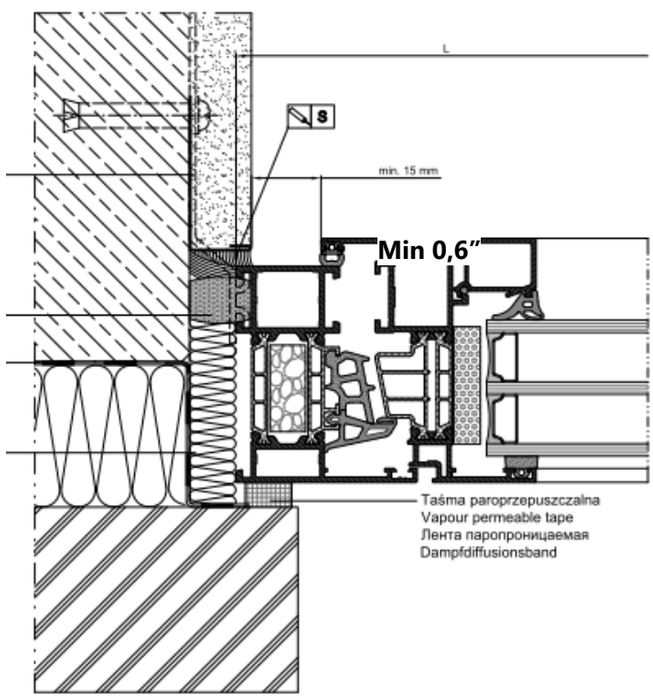
https://www.youtube.com/watch?v=LtAAs0sax-Q

4.1.2 Window positioning

After you have fixed the straps to the window frame you can now insert the frames into the rough openings. First, using laser or spirit level check if the window is level, plumb and square. Additionally make sure that the window is placed in the center of the opening. Even if the rough opening is not level and plumb, always make sure the window is level, plumb and square. Use shims to keep it in the right position.

If you are installing a frame with hinges, you must maintain an appropriate clearance between hinges and finished wall for window to operate correctly. The minimum distance between finished material and the hinges should be 1/3". If the distance is shorter you will have to move the frame to the side.

Hinge clearance for inside opening windows:



Tip: Refer to the shop drawings (if provided) to see the details of the finished materials.

4.1.3 Shimming

It is necessary to place support shims under the installed products and to adjust their thickness to ensure that the product will be installed in a level and straight manner. When adjusting the thickness of the support shims check if the product is level and straight and if there is a minimum ½" gap between the top of the product and the rough opening. The minimum shim size should be 2" x 1-1'2". Remember never to place shims under strap anchors.

Make sure to handle the frames with caution when inserting the supporting shims, the use of excessive force may cause the frames to bend or get damaged.

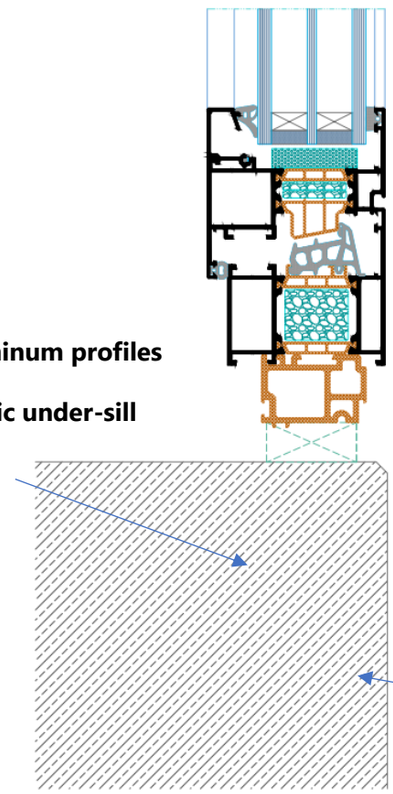
Important!

Lack of shimming may permanently damage the product and/or cause operational issues.

Tip: It is strongly recommended to place shims under the frame to support it equally at each point.

Tip: Make sure to use composite or plastic shims, using wood pr plywood shims is strictly forbidden.

Windows/doors made of aluminum profiles should be mounted on a plastic under-sill profile that prevents frost.

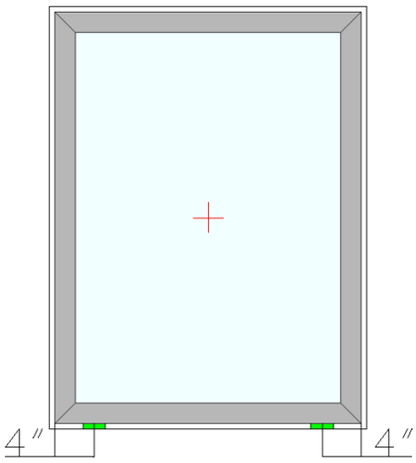


The washers should be wide enough to provide support across the entire width of the profile.

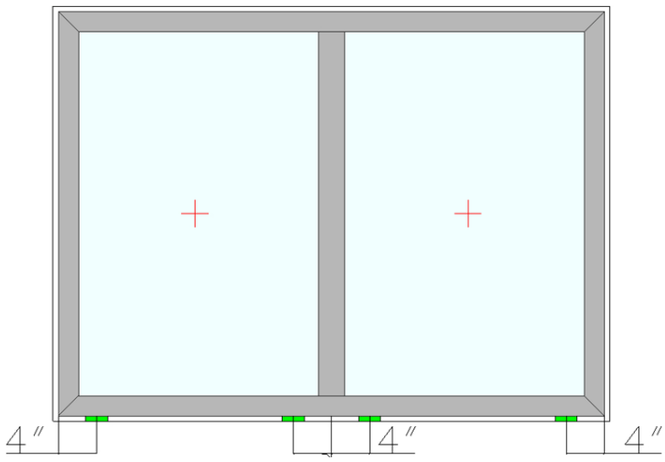
Fixed windows

Fixed products, make sure to place shims 4" away from each corner and 4" away from the center of the mullion. These shims provide extra support for the weight of the glass and align with the glass supports installed inside the frame of the product. Make sure that the shims are placed a maximum of 1" away from the perfect placement to prevent bending of the sill. In wide structures, intermediate shims are used to compensate for the deflection of the lower frame.

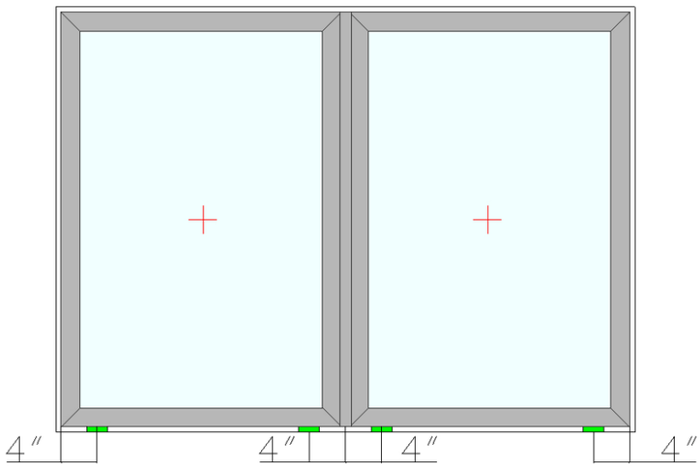
Fixed window



Fixed window with mullion

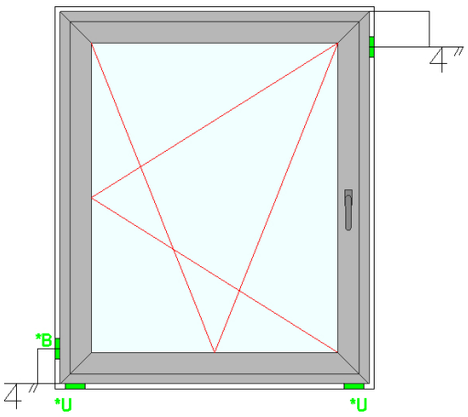


Fixed window with coupling

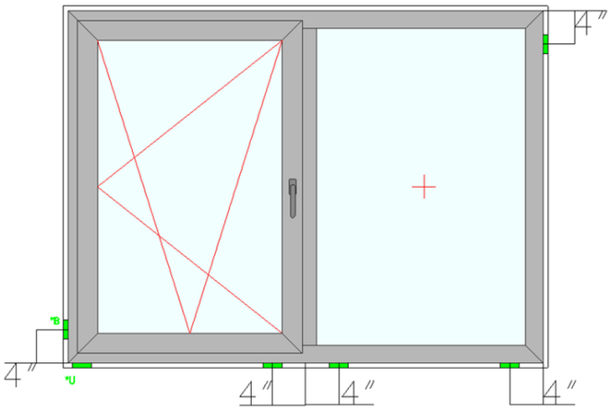


Operable units

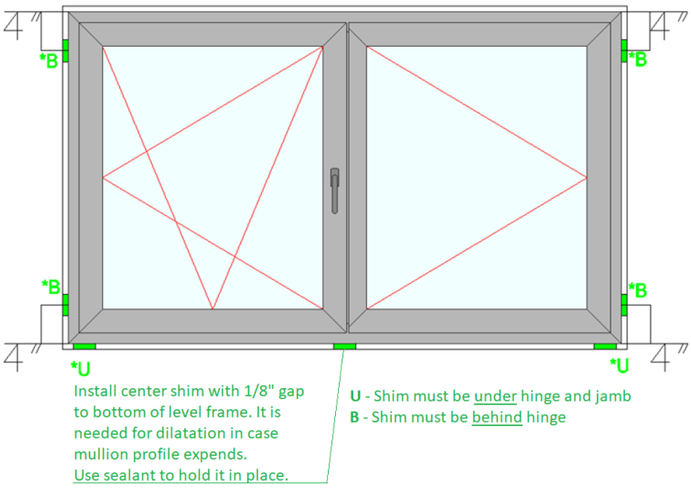
Products with hinges, first put shims under the vertical jambs to support the weight of the glass. Then place shims at the jambs (at the level of the top hinges) to prevent the frame from bending sideways. If the window is operable on one part and fixed on the other, the shims will be also needed at the jamb of the fixed part. This is because the weight of the sash can cause the frame of the product to move sideways.



U - Shims must be under hinge and jamb
B - Shim must be behind hinge



U - Shim must be under hinge and jamb
B - Shim must be behind hinge



Important!

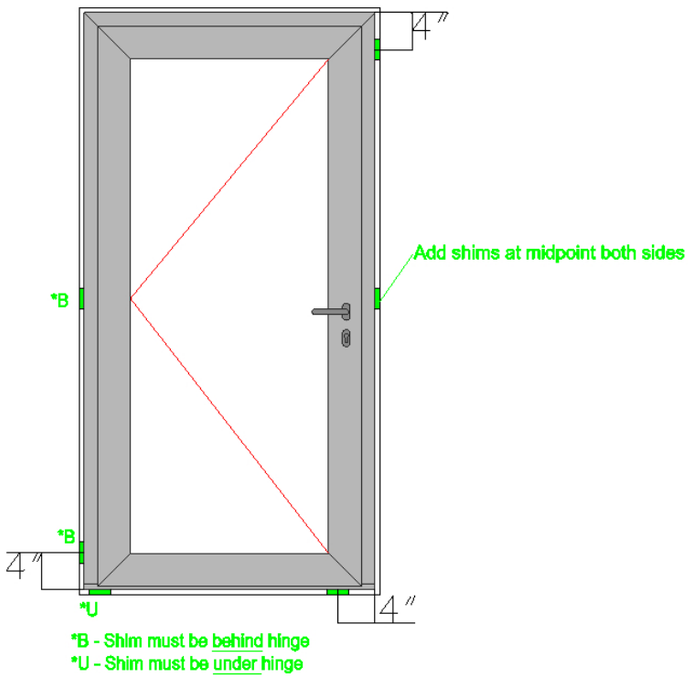
When the window/door is placed in the rough opening and is level, plumb and square, screw the straps to the wall. It is necessary if you want to continue to work on the window with an open sash. If you remove the sash for installation, make sure the window frame is screwed to the wall before placing the sash.

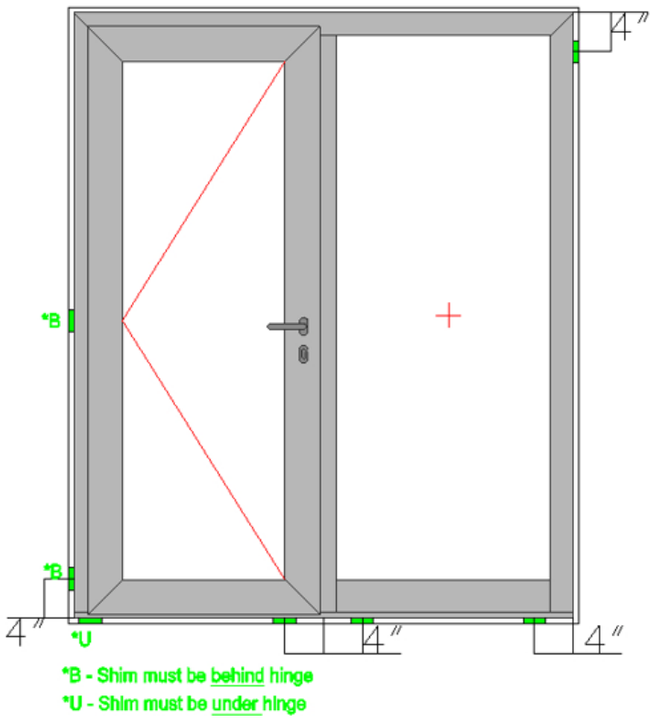
Incorrectly shimmed window:

Shimming entrance doors and balcony doors with a low threshold

Low threshold is the most **exploited and vulnerable** part of the product. Therefore, it must be well supported during the installation to avoid problems related to the lack of tightness or scratches in the future. The figure below shows the shimming system for these doors.

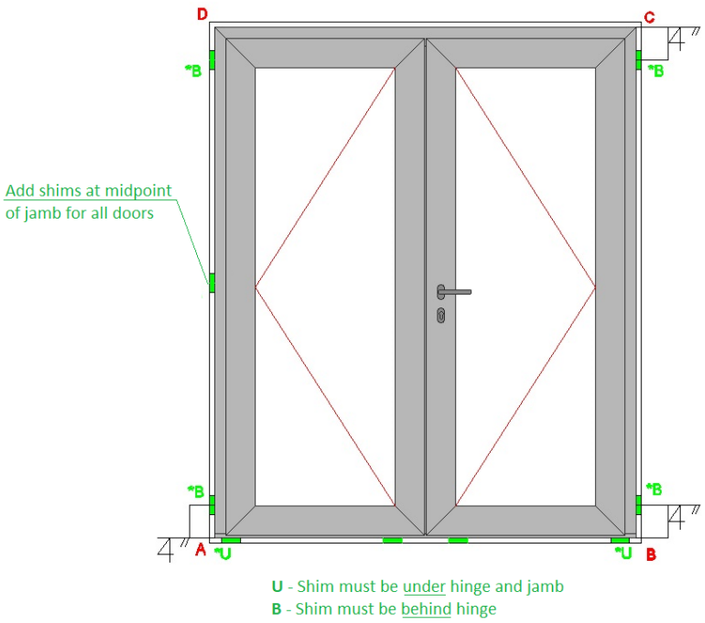
For doors first put shims under the vertical jambs to support the weight of the glass. Only then place shims at the jambs to prevent the frame from bending sideways. Make sure that the shims are placed a maximum 1” away from the perfect placement to prevent bending of the sill and jambs. Additionally, you are required to place shims behind hinges and at the midpoints due to the weight of the sash and its frequent operations.





Tip: It is strongly recommended to use additional shims in the middle of the door jambs. It will make the connection stronger and more secure preventing break-ins and future operational problem due to building settlement.

When shimming the patio doors with two operable sashes, make sure that the bottom part of the frame is also supported in the middle with an additional shim:



When you are installing a door always make sure you start by fixing the bottom part horizontally. Only then you can start shimming the door. After shimming one the bottom corners proceed with shimming the opposite top corner, then repeat the process for the remaining corners (the order should be ACBD or BDAC).

Important!

When the door is fixed to the wall always check the sash overlap and the adherence of the sash to the frame. If the sash overlap is uneven and the adherence is imperfect, you will have to correct the installation to make the sash adheres to the frame evenly and correctly.

4.1.4 Bending and fastening the straps to the rough opening

Requirements before fastening the straps

Our products must be installed in a plumb, level and square way regardless of any wall imperfections. Make sure you check that the product is placed this way with a laser or spirit level before fastening the straps.

After the frame is shimmed, you can proceed. Make sure window is secured and stationary before you start bending the straps. Each strap should first be bent towards the center of the window and then towards the wall so that it can lay flat to the wall. See below

Important!

Correctly bent strap should lay flat on the rough opening, look at point 4.1.1.

In case you face different width of the gap you will need to adjust the straps to make sure that you anchor the product correctly and safely. You need to make sure that before you screw the strap in it is perfectly flat and adjacent to the side of the rough opening to avoid twisting of the frame.

Important!

The type and size of the screws/nails/fasteners are selected individually for the project by an authorized designer. This is due to the different dimensions of windows/doors, wind conditions, installation method and material to which the windows/doors are mounted.

The picture below shows incorrectly installed straps:

4.2. Installation with nail flanges

Steps to follow in this type of installation:

1. Removing two grey transportation profiles
2. Removing glass and/or sashes
3. Placing the window in the opening (Remember to always use a laser or a level to check the correct installation)
4. Shimming and positioning of the window in the rough opening
5. Fixing window to the wall with straps
6. Glazing and/or placing sash (look point 4)
7. Checking window functioning

This installation type must always be done from the outside of the building. Amberline nail flanges are installed to the outer edge of the window or door frame at the factory. They work as a weather resistant barrier as they prevent wind and water infiltration. Nail flanges ensure proper alignment of the window to the wall and make the window installation quicker and safer. The holes in them are also intended to make the installation easier.

Before you proceed with the installation make sure to review the rough opening according to rules from point 3. Additionally, always make sure that the external wall around the rough opening is clean, flat and even.

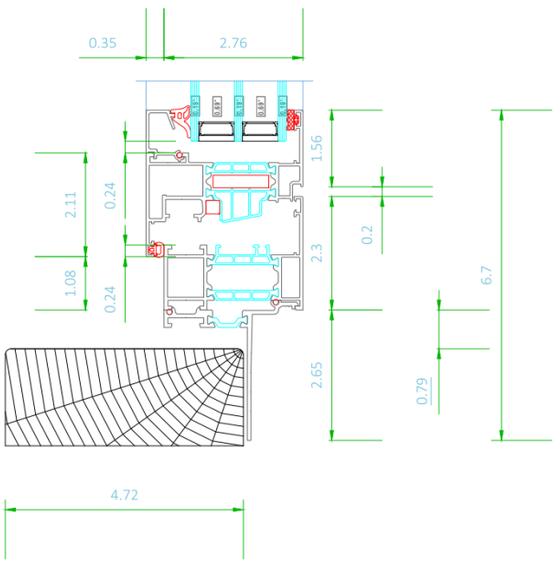
Tip: For safety and convenience during installation it is recommended to remove the sash or deglaze non-operable windows.

Tip: Be very gentle with the nail flanges as they can bend easily (if treated with too much force). They are difficult to repair because the wavy flange does not guarantee tightness. To protect the bottom nail flange, keep the protective profiles on until everything is ready for installation.

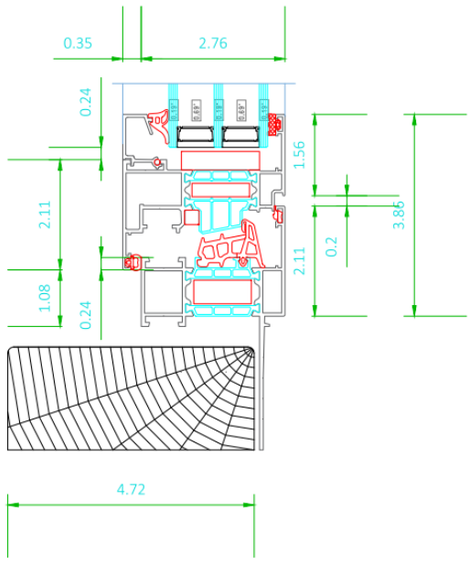
The Aluprof MB-79N nail flange system comes in two variants:

1. As an added element (can be replaced on site)

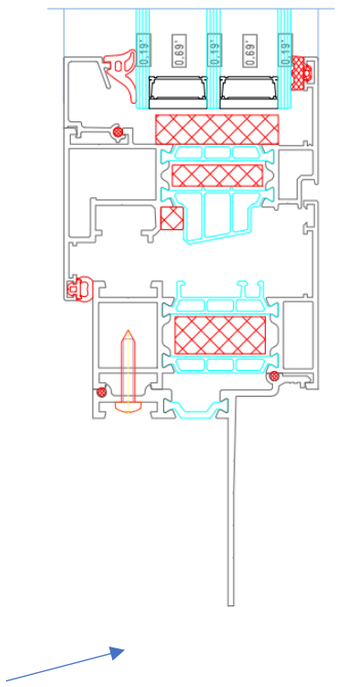
2. As a ready-made frame with integrated nail flange.



1.

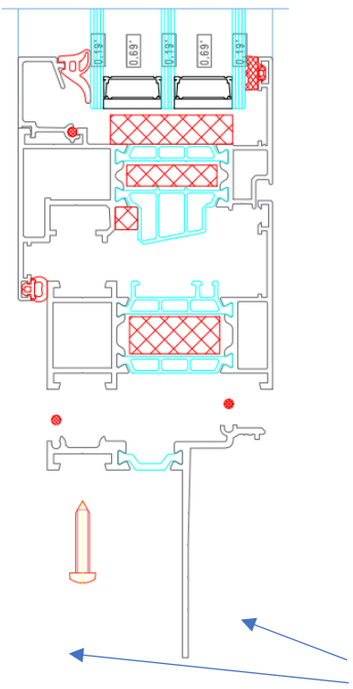


2.



Screw 5.9" from the corner and every max 11.8"

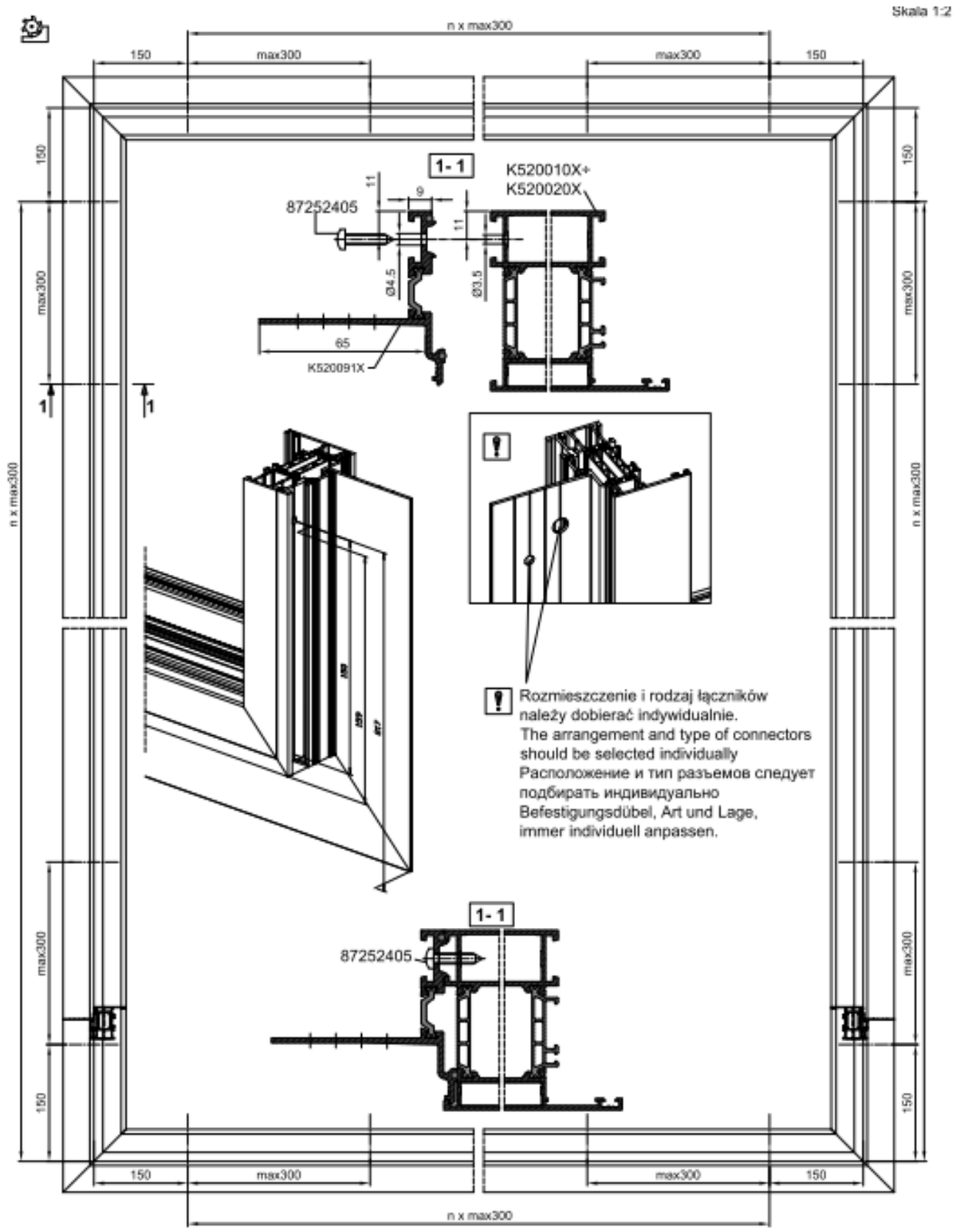
.



Gasket along the entire length of the connection

Detail of the frame connection with the nail flange profile.

Scheme of arrangement of mounting screws



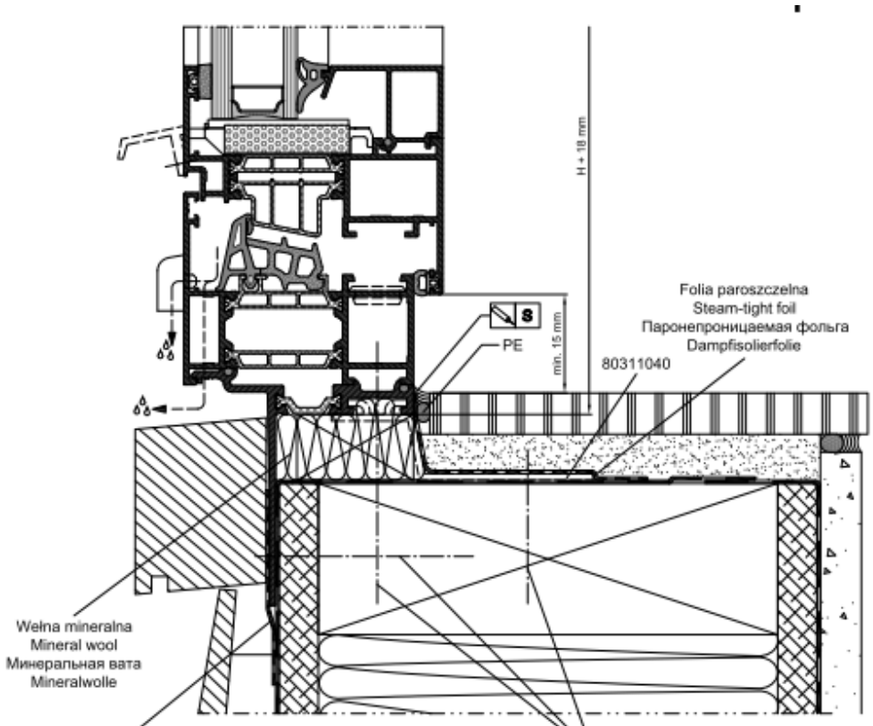
Nail flanges overlap with the wall around the rough opening has to be minimum ½" to ensure that the screws or nails can be fastened to the building. If this condition is not met ask the General Contractor to adjust the rough opening.

Before every installation with nail flanges, check whether the bottom nail flange is used as a drainage method or not. This should be defined in project specification or confirmed by General Contractor.

If the bottom nail flange is used as drainage method, you must nail bottom flange to the building but do not tape or seal it. It must allow for water drainage.

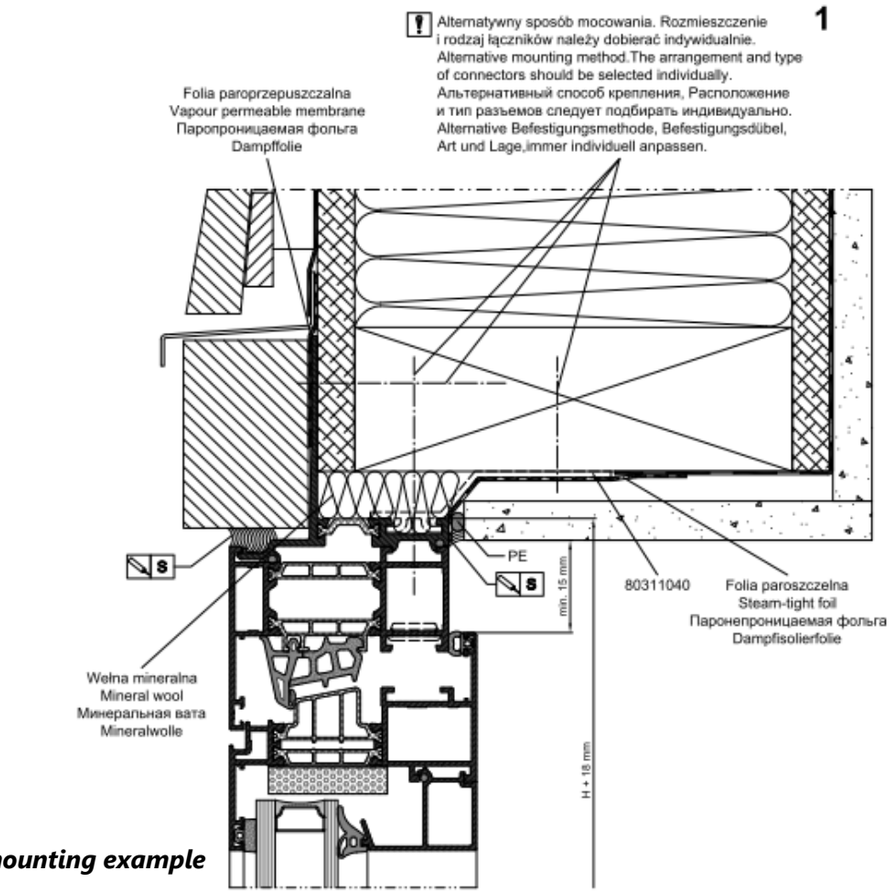
If the bottom nail flange is not used as drainage system, you can seal, tape and nail it tightly, similarly to head and jambs of the window.

Example of lower mounting



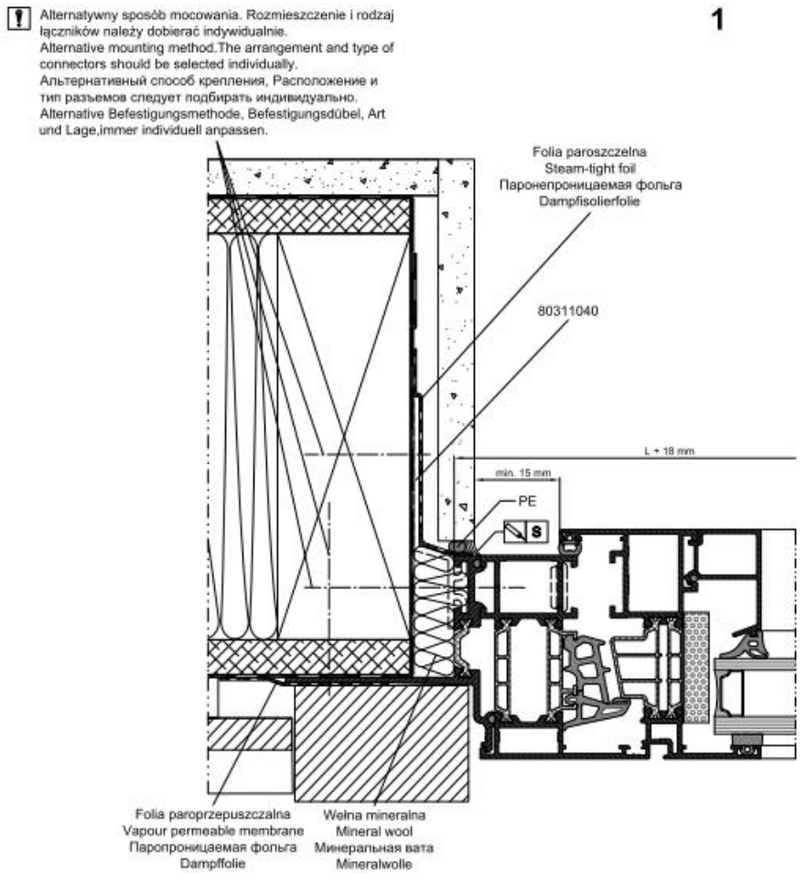
Przykład dolnego osadzenia okna otwieranego w ścianie drewnianej szkieletowej. Analogicznie osadzić okno stałe.
An example of bottom setting of an opening window in a wooden wall. Similarly assemble a fixed window.
Пример нижней застройки открываемого окна в деревянной стене. Глухое окно установить аналогично.
Beispiel des unteren Anschlagens von öffnendem Fenster in einer Holzwand.

Top mounting example



Side mounting example

Przykład górnego osadzenia okna otwieranego w ścianie drewnianej szkieletowej. Analogicznie osadzić okno stałe.
An example of upper setting of an opening window in a wooden wall. Similarly assemble a fixed window.
Пример верхней застройки открываемого окна в деревянной стене.Глухое окно установить аналогично.
Beispiel des oberen Anschlagens von öffnendem Fenster in einer Holzwand. Das Festfenster analog anschlagen.



Przykład bocznego osadzenia okna otwieranego w ścianie drewnianej szkieletowej. Analogicznie osadzić okno stałe.
An example of lateral setting of an opening window in a wooden wall. Similarly assemble a fixed window.
Пример боковой установки окна открывающегося в деревянной стене. Глухое окно установить аналогично.
Beispiel des seitlichen Anschlagens vom öffnenden Fenster in einer Holzwand.

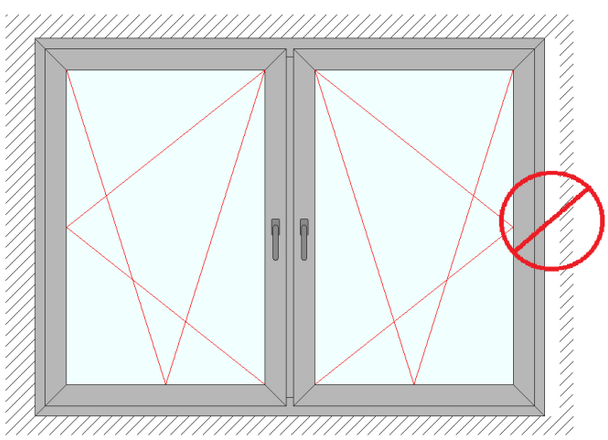
Important!

The type and size of the screws/nails/fasteners are selected individually for the project by an authorized designer. This is due to the different dimensions of windows/doors, wind conditions, installation method and material to which the windows/doors are mounted.

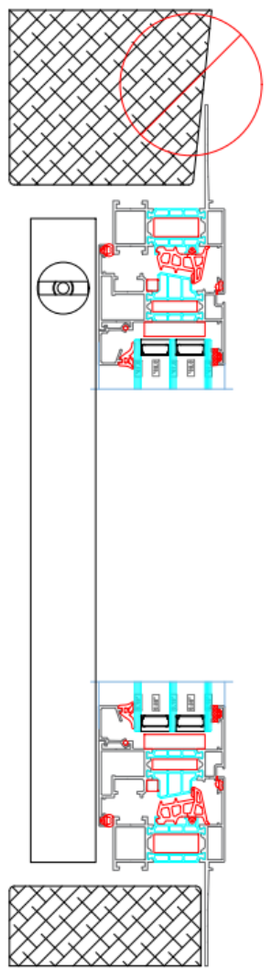
Important!

The pictures below show common mistakes that must be fixed before installing the door or window.

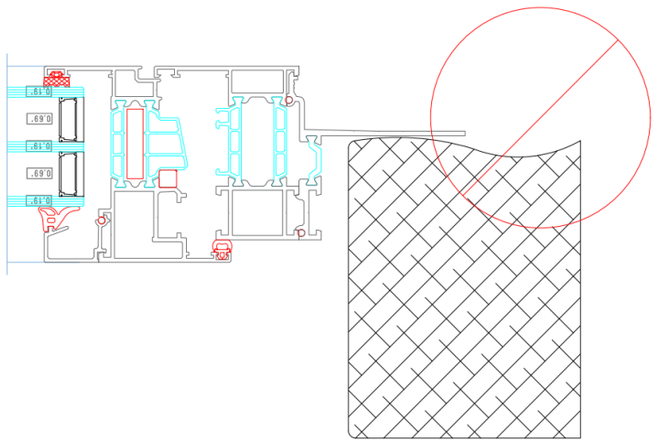
Mistake 1: Nail flange does not overlap the wall and there is a gap in the rough opening – screws do not enter into the wood



Mistake 2: Nail flange does not fit tightly to the wall because the wall is not even



Mistake 3: Wall is not plumb and so the window cannot be plumb either



4.3. Installation with through frame screws

Steps to follow in this type of installation:

1. Removing glass and/or sashes
2. Placing the window in the opening (Remember to always use a laser or a level to check the correct installation)
3. Shimming and positioning of the window in the rough opening
4. Fixing window to the wall with screws
5. Glazing and/or placing sash (look point 4)
6. Checking window functioning

You will be installing Amberline windows with "a through-frame screws" system. This system entails fixing the window to the wall with long screws provided by the manufacturer that go through the frame, and it can be done from the outside and inside of the building. All the windows are produced with holes of a ¼" of diameter drilled around the frame in which you will place long screws and fix the window to the frame of the rough opening.

This type of installation can also be used with nail flanges as an alternative method to mechanically connect the window to the wall.

Important!

Make sure the rough opening is prepared correctly and the screws are strongly held in the wooden elements of the frame of rough opening. See point 3.1.2.

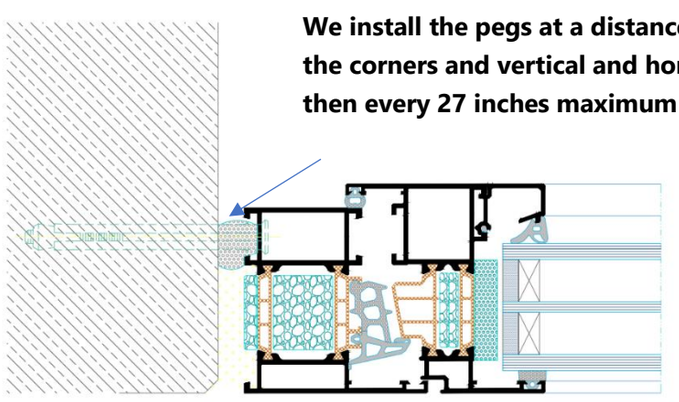
Tip: For safety and convenience during installation it is recommended to remove the sash for operational windows. You will need to deglaze the non-operable windows to get access to the drilled holes in the frame.

Before you proceed with the installation make sure to review the rough opening according to rules from point 3.

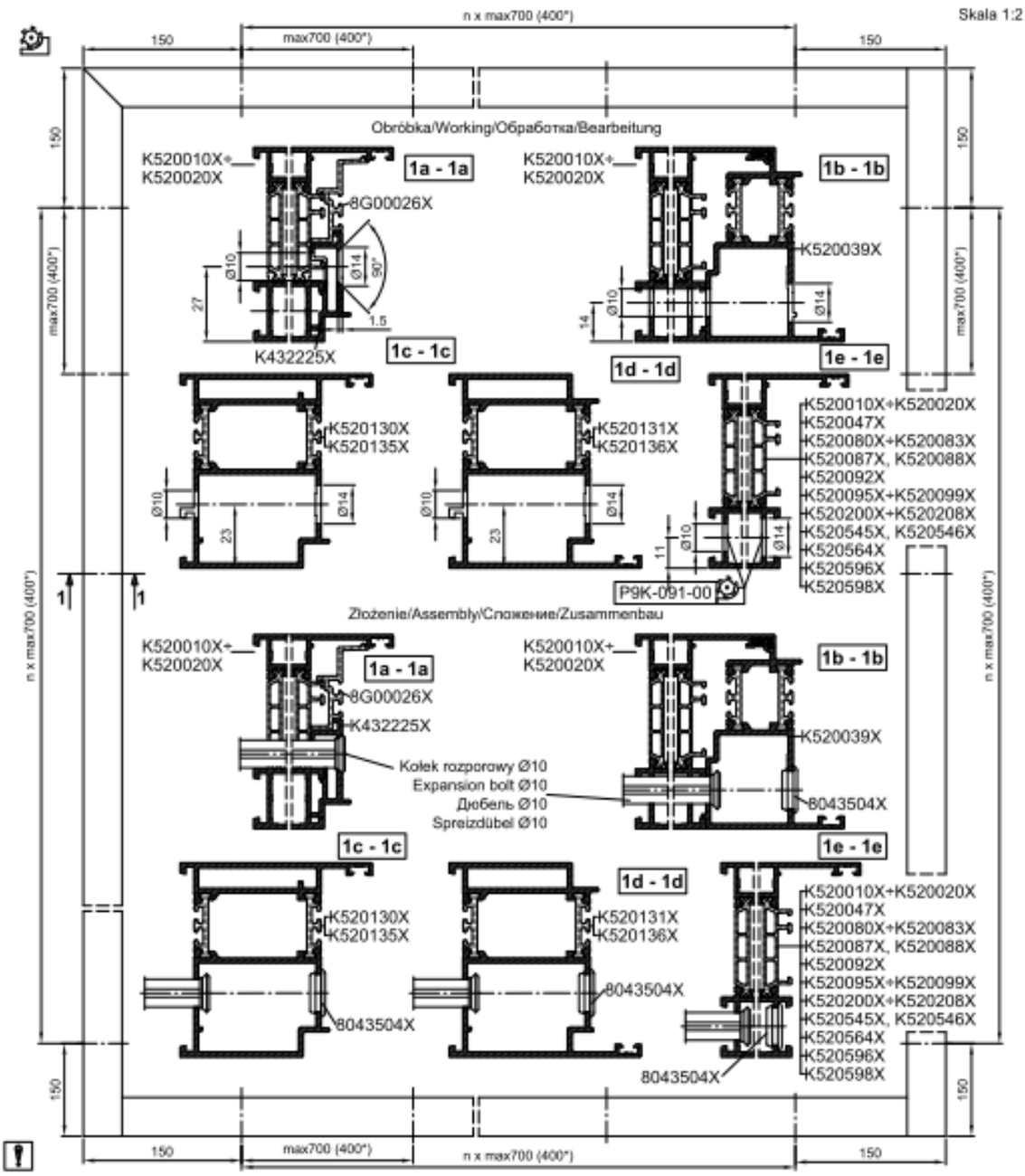
- Install the hard plastic shims in the designated places (see Step 3. Shimming).
- Using a laser or spirit level determine if the window in the rough opening is square, level and plumb.
- If the position of the window is correct, you can proceed to screw the window to the wall with provided screws.

All the screws have caps (the color is similar to the core of the frame) that must be placed on them:

We install the pegs at a distance of 6 inches from the corners and vertical and horizontal posts, and then every 27 inches maximum



Screw placement around the frame



Tip: It is recommended to apply a drop of sealant to the frame before putting in the screw to ensure proper watertightness of the window as well as to the top of the screw before covering with cap.

Important!

When screwing the frame to the wall make sure to be gentle. Applying too much force can cause the bending or damage of the frame.

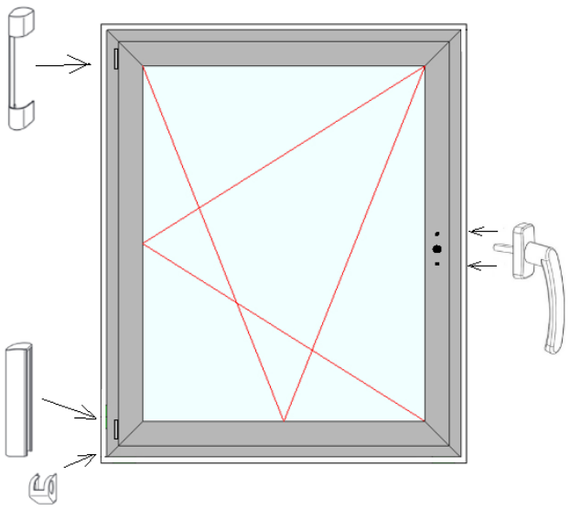
Important!

The type and size of the screws are selected individually for the project by an authorized designer. This is due to the different dimensions of windows/doors, wind conditions, installation method and material to which the windows/doors are mounted.

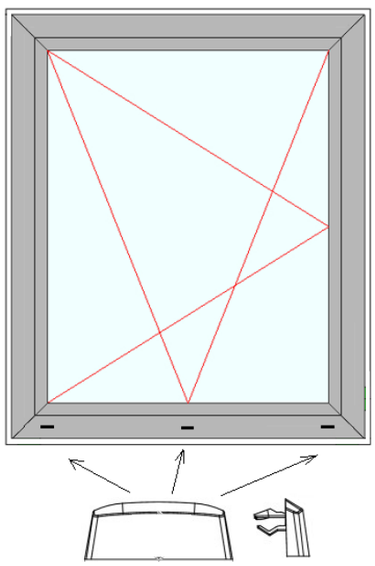
4.4 Window accessories installation

When the window is installed, you can start installing accessories like handles, hinge covers, and water drainage holes covers.

Accessories inside:



Accessories outside:



Tip: If you think that these accessories can be damaged at the construction site by other teams, install them after all of the work is finished.

Handle installation

https://www.youtube.com/watch?v=f_fq-j0TePY

Window covers

https://www.youtube.com/watch?v=srPJ99EsU10&list=PLU8OMhlprNYX92p7OiSI98jBXMqJkndas&index=7

Weep caps:

4.5. Inswing and outswing balcony door installation and entrance door

Important!

Entrance and balcony doors can have sidelights that can be connected with different types of couplings. Check the type of connection you are dealing with and follow the right coupling installation described in point 4.6.

The system of installation for balcony door depends on the system chosen when placing the order. These can be installed in three different ways described above:

- with straps

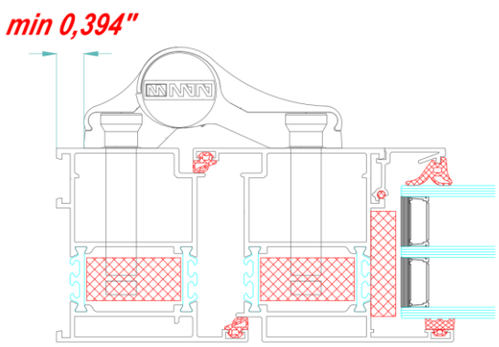
- with through frame screws

The descriptions provided for each of these methods are also applicable in the case of balcony/entrance doors. The only difference is the shimming of the threshold and the clearance needed for the hinges in outswing doors.

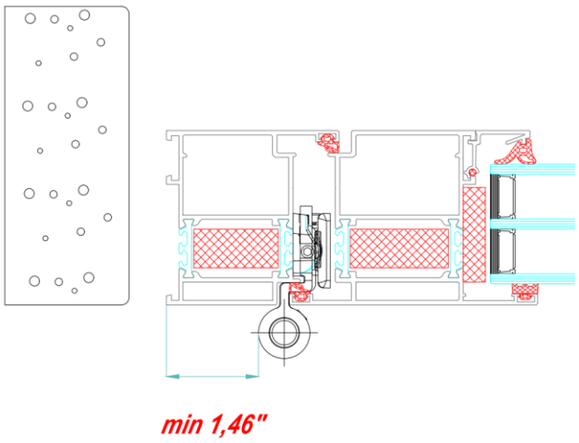
Refer to the installation instructions described in the above points.

The figure below shows the required hinge clearance for inswing balcony/patio/regular doors.

Surface hinge:



Roller hinge:



4.6. Entrance door

Entrance doors need very precise and careful installation along with correct levelling to guarantee its long-term functioning. Proper levelling, shimming and fixing to the wall are essential here. It is very important to use strong and dedicated support system for the threshold. Our doors are always equipped with subprofiles. If you remove this profile for any reasons, always make sure that the surface under the threshold is stable, secure, flat and even. Make sure that the whole threshold is supported.

Door has to support dynamic loads when the door is shut. Therefore, we recommend the installation to be either through frame with the holes pre-drilled at the factory (see point 4.3) or with straps (point 4.1). Follow the steps given there.

Door shimming

Special care must be paid to the door shimming, for specific instructions check point 4.4.1

When the door is fixed to the wall, check if:

- The door sash opens and closes without and problems
- You can lock the door without any problems
- The sash overlap is exactly 1/3”
- The gap between sash and threshold is equal at all points

If any of these conditions are not fulfilled the door installation will need to be corrected.

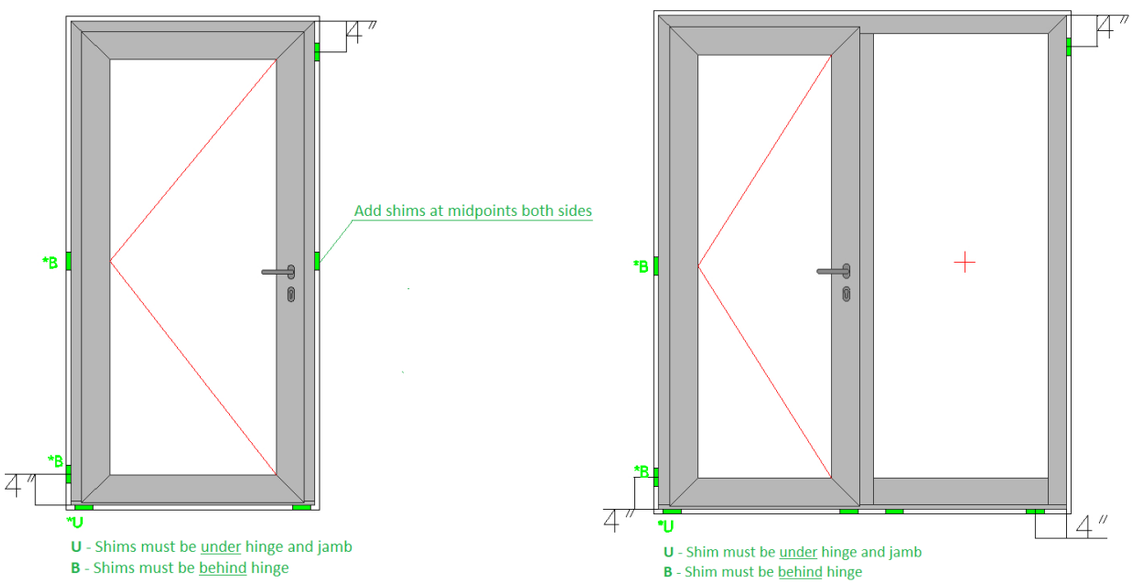
Tolerances for entrance and patio doors installation:

Issue	Details	Tolerance
Door positioning	level	+/- 1/16" mm per 3'
	square	+/- 1/16" mm per 3'
	plumb	+/- 1/16" mm per 3'
Door sash overlap (top, bottom, side)	5/16""	+/- 1/16" mm per 3'
Bottom sash overlap (low threshold)	25/64"	max. 7/16"
Threshold	brush floats easily on the threshold	No gap or brush deformation
	no deformation on threshold	Straight line in level
Compression (sash to frame) 3/4"	sash gasket must be slightly squeezed	acceptable between 47/64" and 49/64" (between 18.5mm and 19.5mm)

4.6.1 Shimming entrance doors and balcony doors with a low threshold

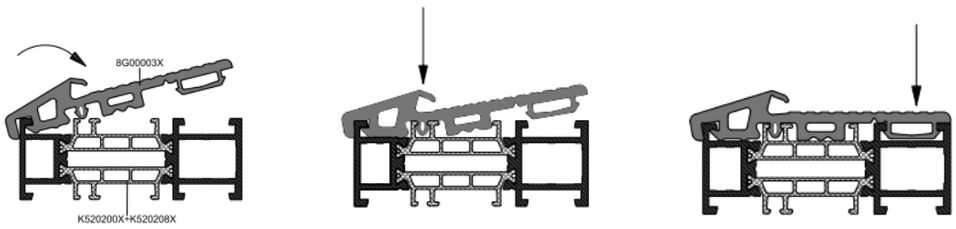
Low threshold is the most **exploited and vulnerable** part of the product. Therefore, it must be well supported during the installation to avoid problems related to the lack of tightness or scratches in the future. The figure below shows the shimming system for these doors.

For doors first put shims under the vertical jambs to support the weight of the glass. Only then place shims at the jambs to prevent the frame from bending sideways. Make sure that the shims are placed a maximum 1" away from the perfect placement to prevent bending of the sill and jambs. Additionally, you are required to place shims behind hinges and at the midpoints due to the weight of the sash and its frequent operations.



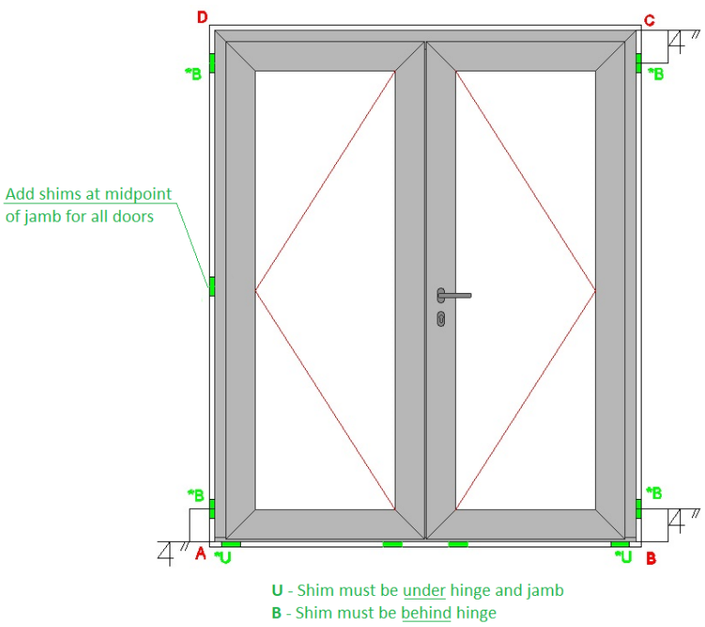
Tip: It is strongly recommended to use additional shims in the middle of the door jambs. It will make the connection stronger and more secure preventing break-ins and future operational problem due to building settlement.

Tip: Proper installation of the gasket on a low threshold.



1. ***2.*** ***3.***

When shimming the patio doors with two operable sashes, make sure that the bottom part of the frame is also supported in the middle with an additional shim:



When you are installing a door always make sure you start by fixing the bottom part horizontally. Only then you can start shimming the door. After shimming one the bottom corners proceed with shimming the opposite top corner, then repeat the process for the remaining corners (the order should be ACBD or BDAC).

Important!

When the door is fixed to the wall always check the sash overlap and the adherence of the sash to the frame. If the sash overlap is uneven and the adherence is imperfect, you will have to correct the installation to make the sash adheres to the frame evenly and correctly.

Incorrectly shimmed door:

4.7. Coupled windows and doors

Couplings are required either when windows or doors exceed maximum dimensions established by the profile and fitting suppliers or to help with installation of large or heavy products. The choice of the coupling depends on the overall area of the construction and is very precisely described by the suppliers. Only correctly installed couplings will guarantee the watertightness of the product.

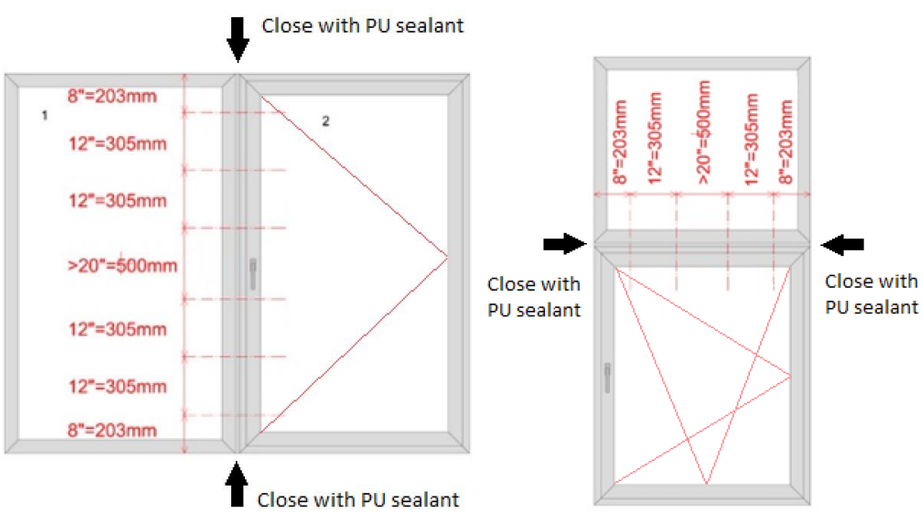
To couple two frames together you must start by deglazing the window or door and removing the sash (look point 4). Then put two frames flat to couple them together. After coupling proceed with installation. Only when the coupled frames are correctly installed and fixed to the wall with straps you can install glazing and sashes. Make sure to always check the alignment of the coupled elements.

Important!

It is forbidden to lift and move coupled windows and doors with sashes or glazing, as you risk destroying them.

Important!

The coupling/mulled connection must be closed on both sides to avoid water or bugs to penetrating it. Some connections have included closing system with foam sealing plugs and cups, but others may need to be closed by installers. Always make sure this is done correctly. It is essential for watertightness of the whole coupled construction.

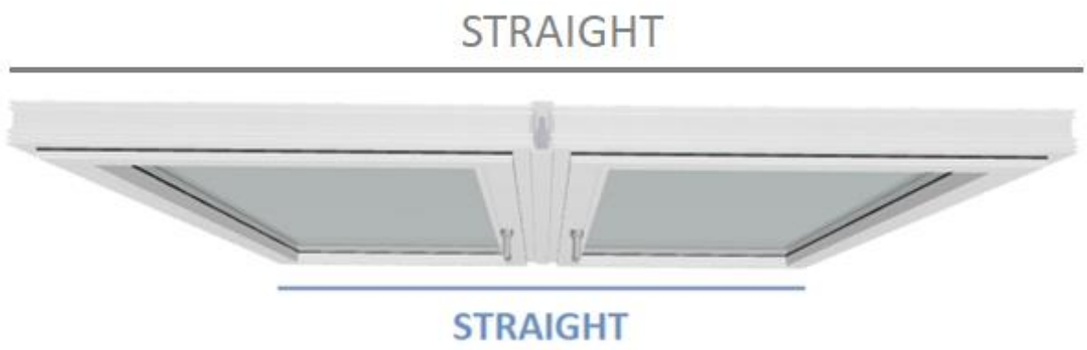


Tolerances for connections

Connected windows or doors always must be checked to ensure perfect straightness:

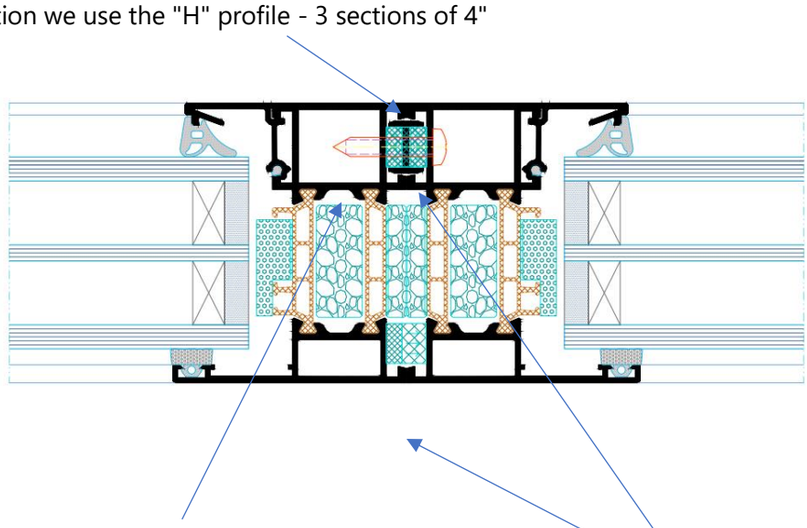
- on the bottom and top part from left to right corner for vertical connection

- from top to bottom edge for horizontal connection



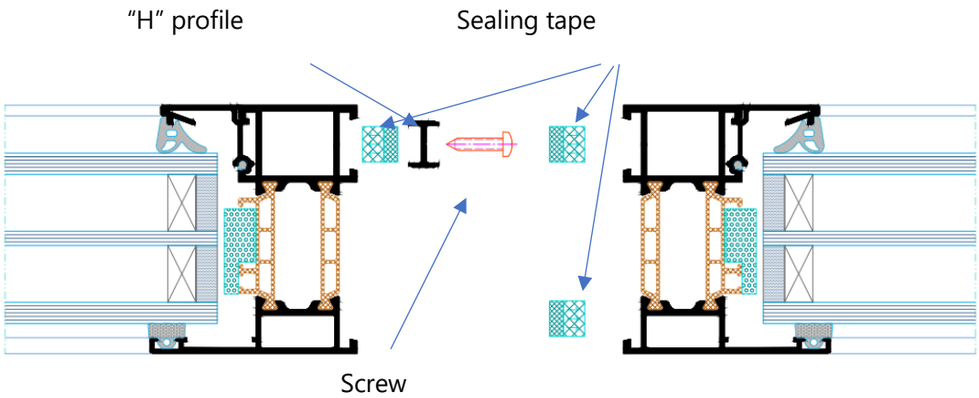
Frame to frame connection – with “H” profile

At the connection we use the "H" profile - 3 sections of 4"

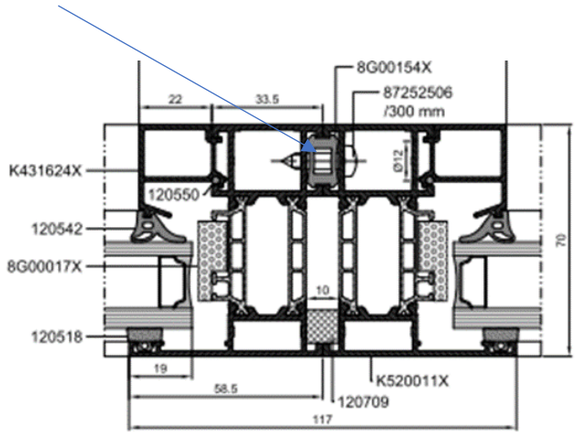


We screw the profiles at a maximum distance of 12"

Foam seals are installed in the spaces outside and inside the window.



Alternative connection with a gasket



Connecting frames using an "H" profile is the most common.

To connect you need:

1. "H" profile;

2. Sealing tapes;

3. Screws for connecting frames.

We screw the frames lying down (on a flat, even surface) or standing up, remembering to maintain a plane between the screwed structures.

The "H" profile will be mounted in the factory, the sealing elements must be installed on the construction site and then the frames must be screwed together. The holes are usually made in the factory.

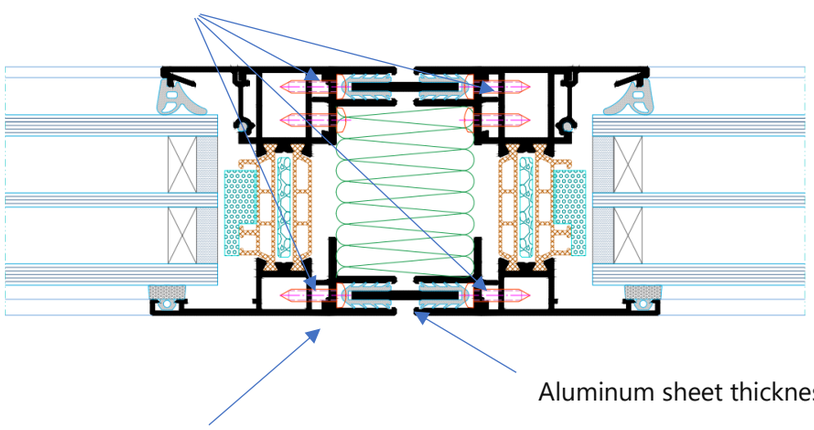
Particular attention should be paid to transporting screwed together structures. Therefore, it is recommended to connect them in close proximity to the target installation location of the window/door.

Expansion joint

Expansion joints are used in long structures. According to the manufacturer's guidelines, this connection should be made every 19.7 feet. This prevents the elements from warping as a result of the thermal expansion of aluminum.

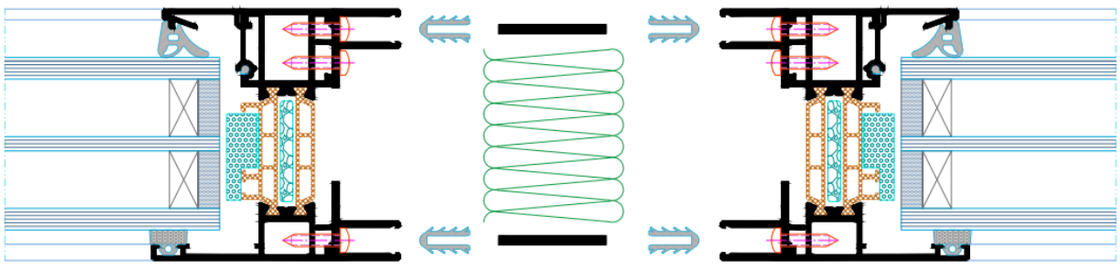
Connection of a standard frame using an "F" profile

Sealing the structure with sealing compound at the bottom and top.

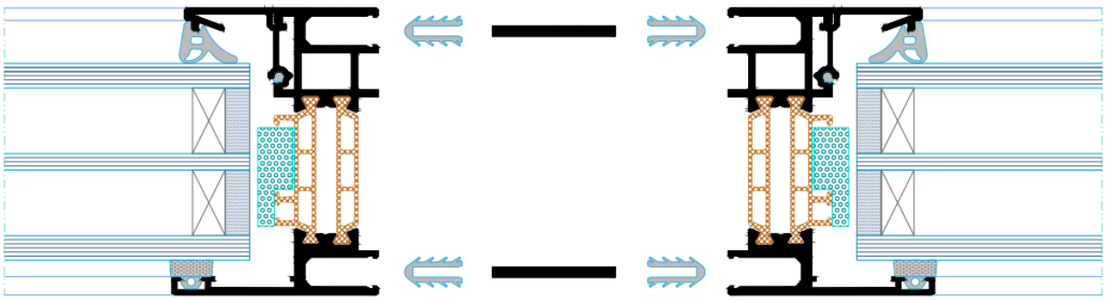


Aluminum sheet thickness 2-2.5mm

"F" profiles are screwed at the factory



Connection with expansion frame



Corner connection

To connect you need:

1. "Corner" profile;

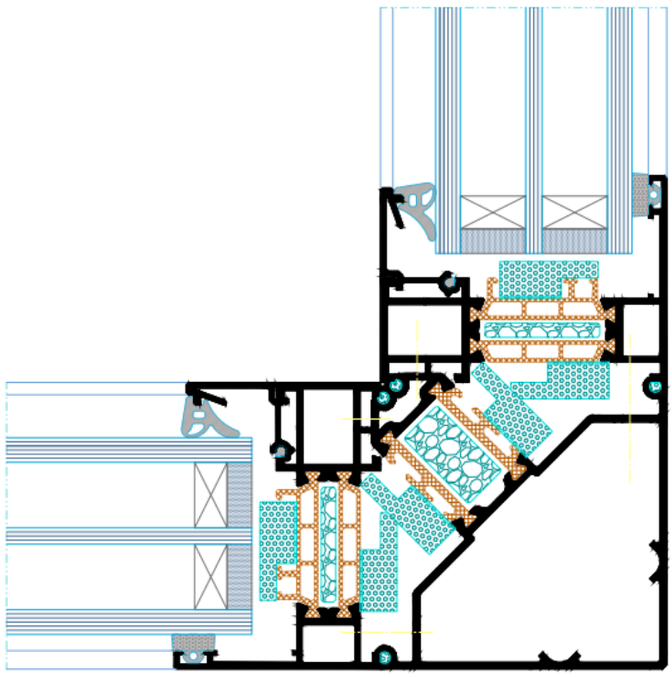
2. Sealing tapes;

3. Screws for connecting frames.

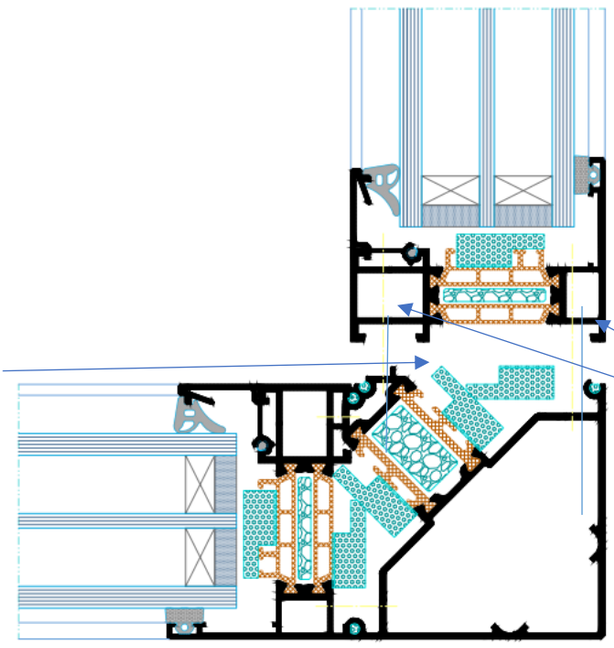
The frames are screwed in a lying position (on a flat, even surface) or standing upright, remembering to maintain the plane and the specified angle between the screwed structures.

The "Corner" profile will be mounted in the factory for one part of a corner window/door , the sealing elements must be installed on the construction site and then the frames must be screwed together. The holes are usually made in the factory.

Particular attention should be paid to transporting screwed together structures. Therefore, it is recommended to connect them in close proximity to the target installation location of the window/door.



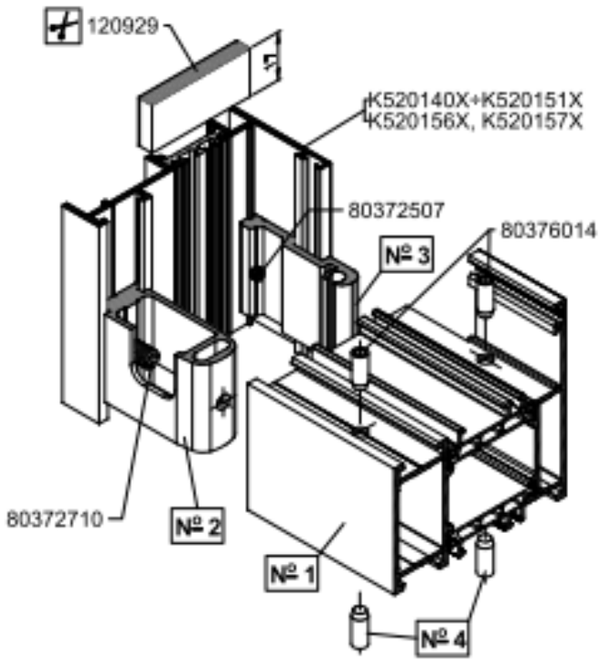
Correctly connected corner



4.7.1 Joint of frames “T” connection

In the case of large structures that do not fit entirely into the container and it is not possible to connect these parts using frame joints, it may be necessary to send it to the construction site in parts separated at the corners near the posts.

In this case a "T" connection is used.



To connect you need:

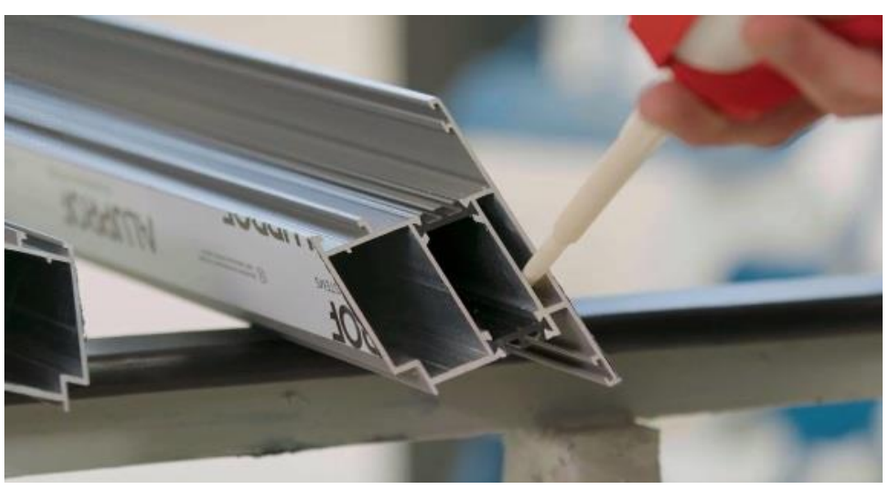
1. glue for bonding aluminum;

2. pins;

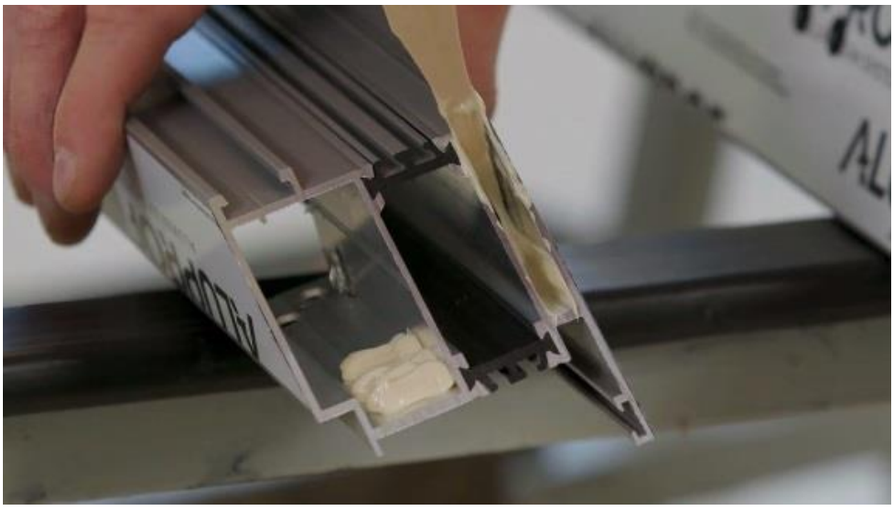
3. silicone sealant;

We start the connection by applying glue to the chambers of the outer and inner parts of the profile.

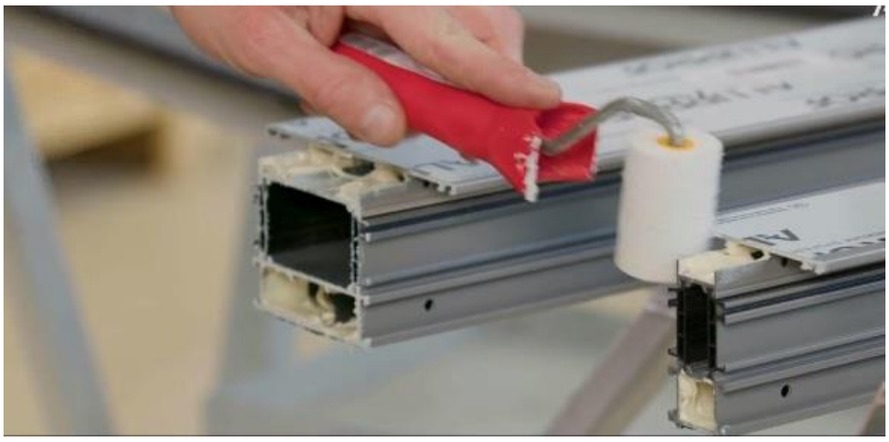
Applying glue to the profile chambers



To ensure a better connection, you can spread the glue with a wooden spatula.



Then we apply sealant to all edges of the profile that will be connected.

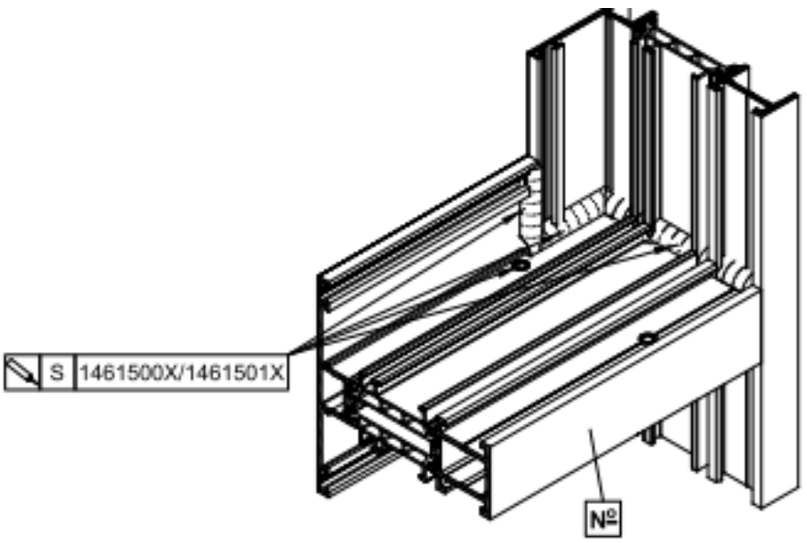


Now you can connect both profiles together.

And then pin the connection to immobilize it.

After these activities, clean the connection of excess glue and sealant.

To ensure full tightness, additional sealant should be applied in the places shown in the drawing.



4.7.2 Other couplings

If the coupling system specified in your order has not been covered in this manual, contact Amberline LLC for detailed instructions.

In case of questions related to the installation of the received products contact Amberline LLC.

4.8. Amberline windows and doors and other products

Installing a product according to this manual guarantees its proper functioning and longevity. Installation and finishing works must be done in a way that will not impact the proper functioning of Amberline products.

It is strictly forbidden to cover the draining holes with any finishing materials or windowsills. Inside and outside wall development cannot cover the window frame by more than it has been specified in this manual to avoid blocking the window/door hinges' proper operations. It is strictly forbidden to block the window/door sashes with any finishing materials that impact their proper functioning and that could damage the product in case of closing it abruptly. It is strictly forbidden to use windows/doors and their elements to support or protect the installation team. Windows should be treated with care after the installation and therefore it is forbidden to put support ropes, cables etc. on the frame.

Amberline uses a PU sealant that should not interact with other sealants, tapes and sealing foils commonly used by installation teams.

Important!

The type and size of the screws are selected individually for the project by an authorized designer. This is due to the different dimensions of windows/doors, wind conditions, installation method and material to which the windows/doors are mounted.

5. After Installation

5.1 Removing tapes from the profiles

Our products usually come with protective tape on the outside and inside surfaces that ensures the surfaces are protected from scratching during manufacturing, shipping and handling. We recommend removing the exterior and interior **profile protective tapes immediately** after installing them as high temperatures and sun exposure can bind the tape to the profile and cause permanent damage to the product surface. On the other hand, **glass protective tapes** can be removed **within 12 months**. Removing glass protective tapes must be done carefully and slowly to avoid creating sparks of electricity.

5.2 Removing sash spacer shims

Spacer shims are usually not used in aluminum products but in case they have been used make sure to remove them from the inside of the frame immediately after installation.

Fig. 7. Sash spacer shims:

5.3 Cleaning Amberline products

Make sure to clean Amberline products and protect them from any building materials after installation. Failing to protect the windows from building materials and not cleaning them properly at the construction site may void the warranty.

Cleaning Aberline products has to be done with caution as the use of unsuitable cleaning products or devices can permanently damage the profiles, glass, and other components of our products. For the first cleaning, we recommend using clean water with mild soap with a neutral pH. **Any impurities from building materials (mortar, dust, gypsum, cement, etc.) can destroy the product. They have to be removed immediately with water and soft cloth to avoid buildup and surface damage.** Once debris is removed, specially designed window cleaning products may be used. **Detailed cleaning instructions for each component of the window are available in section 6.1.**

If you want to minimize the risk of building materials damaging Amberline products you can cover them with UV-resistant transparent foil while other construction works are in place.

Important!

Never scratch solid debris from the surface of the window. Always use clean, soft cloth, non-abrasive cleaning accessories such as gentle sponges, or cotton/microfiber cloth.

Any abrasive cleaners, chemical solvents, acid or alkaline solutions, petroleum-derived compounds, or concentrated alcohol (for profiles) can permanently damage the product surface.

Never use metal scrapers, metal or harsh sponges, etc.

5.4 Basic adjustments

To best understand how to perform basic adjustments and fitting maintenance get familiar with video guides produced directly by our fitting supplier Winkhaus. The links are provided below:

Winkhaus active pilot:

http//www.youtube.com/watch?v=UqirOXj24UY&list=PL9v2qTVq71CaGDAsNK-wmtZF_8pmaTeTJM&index=2

Winkhaus activ pilot select concealed hinges:
https://www.youtube.com/watch?v=OLuPetRLpyQ&list=PL9v2qTVq71CaGDAsNKwmtZF_8pmaTeTJM&index=3

Maintenance of Winkhaus fittings:
https://www.youtube.com/watch?v=RmFr9Rpo1r4&list=PL9v2qTVq71CaGDAsNKwmtZF_8pmaTeTJM&index=1

Patio Door Hinges SIKU RB:
https://www.youtube.com/watch?v=tWnqZHZjnFA&list=PLU8OMhlprNYX92p7OiSI98jBXMqJknd as&index=3

5.5 Potential problems and solutions

After installation, check if all the windows work correctly. The majority of the problems are caused by improper installation, building settlement in time, etc. This section describes the most common problems and solutions.

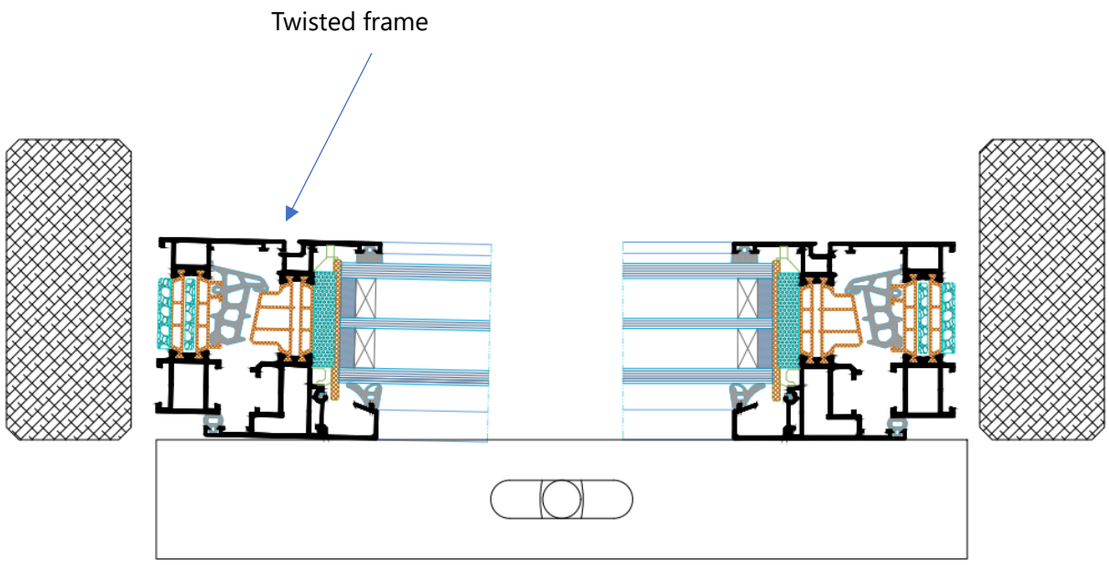
5.5.1. Difficult opening or closing the windows

Do not make any hardware adjustments before determining the cause of the operating problems. Open and close the sash several times. If it doesn't work properly, most likely the window was not installed in a level, plumb, and square way, or the frame and sash are not straight. To check if the window was installed properly, check all the points below:

Important!
Do not apply any sealant before sash operating problems are corrected.

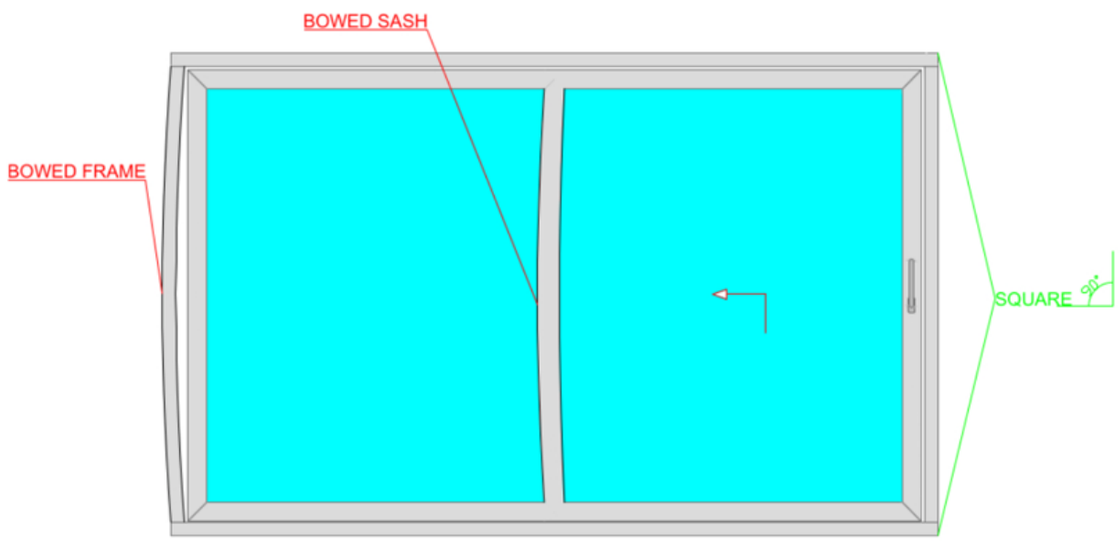
5.5.1.1 Twisted and bowed frame

Fig. 8. Twisted frame:



Check the edge of the frame with a long straight level. If the frame is twisted towards the side, you must loosen the anchor screws, correct the frame position by placing shims between the window frame and rough opening and re-tighten the anchor screws. If the frame is twisted toward the center of the window try to twist it into position or, if it is not possible, replace and re-bend the anchors as it may cause the deformation of the frame.

Fig. 9. Bowed frame and sash

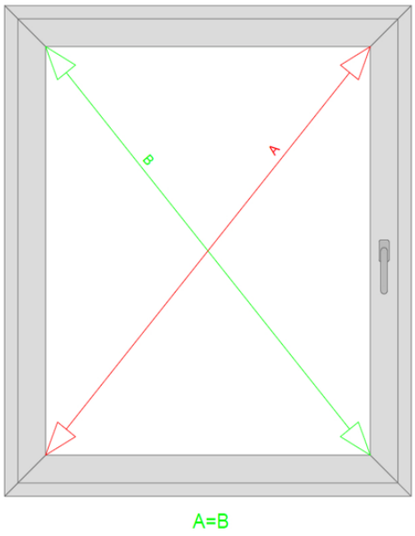


Inspect the straightness of the frame to locate the bowing. Unscrew the anchors in the problematic area, straighten the frame with a wooden block and a hammer, and refasten the anchors. To straighten the frame, place the block on the top of the bow and try to tap it back to the right place.

Important!
Be gentle when tapping the frame to avoid brakes or damage to the frame or glass.

5.5.1.2 Out of square sash

Fig. 10. Measuring diagonals:



To determine if the sash is square, check if the diagonals are of the same length. If they are not, check if the frame is square, plumb, and level with laser. The frame may need to be corrected according to points 5.5.1.1 and 5.5.1.2.

5.5.1.3 Bowing sash (see Fig. 9)

Use a level to locate the bowing. If the sash bows toward the glass, the glazing shims may have slipped. In that case you must remove glazing beads and place shims correctly according to the video (QR code in point 4). If the sash bows toward the frame, first remove glazing beads and check shimming – the shims might have moved from their original position, if so fix their placement. If the shims are okay, the sash may be stretched. In this case, use the composite hammer and wooden block and tap gently on the top of the bowing till the sash is straight.

5.5.1.4 Sash overlap

To check the placement of the sash against the frame close the window, take a pen or pencil, and draw a line on the frame all around the sash. Then open the window and measure the distance of that line from the inner frame edge of the frame, the distance should be between 6mm (1/4"). If the distance is larger, you will have to adjust the hinges – see point 5.9 hinge adjustment.

5.5.1.5 Locking points don’t engage

You can check it by closing the window and operating the handle. If the handle works too easily, the locking points probably don’t meet the keeps. To be sure apply putty to the keeps where the locking points should engage and close the sash with the handle. Open it and check for the traces in the putty. If they don’t engage correctly, contact Amberline LLC.

Important!

Don’t adjust fitting elements on your own but contact an Amberline LLC representative.

5.5.1.6 Incorrect handle operation

This issue may appear for different reasons:

a. Locking points don’t engage properly

If they don’t meet keeps correctly, the fittings may be blocked, and the handle can’t turn to the final closing position. Never push the handle too strong as it may break. Apply putty on keeps (see point F), to check if it is the issue. Contact an Amberline LLC representative before making any hardware adjustments.

b. DFE element may need to be adjusted

You have received windows with DFE element that prevents windows from malfunctioning when you change the handle position from turn to tilt. Always make sure the window leans equally on the frame before changing the handle position. In some cases, the DFE element may need adjustment ((in case it doesn't open properly contact Amberline LLC for assistance).

c. Handle stops at the turn position

Your windows may have a tilt lock element that limits the operation to turning. Check the shop drawings to determine if the tilt lock element is present in a particular window.

d. Horizontal handle position tilts the window and you can't rotate the handle upwards

The window you are installing may have the "tilt first" hardware (this means that the handle works in reverse order, the horizontal handle position – window tilts, handle rotated upwards – window turns). This type of hardware always has a TBT handle with a key. Turning the handle horizontally is blocked by that key. Turn the key to go from tilting to turning the window.

5.5.1.7 Dirt and debris

Carefully clean the window frames and hardware using warm water and soft cloth. Then spray a non-silicone, solvent-free lubricant into the holes on the hardware (don't forget the hinges) while opening and closing the window to let it fully spread.

5.5.1.8 Damaged hardware

If you discover any damages to the hardware contact Amberline LLC for replacement parts.

5.5.1.9 Too tight locking points

The fittings around the window sash have several locking points that have 3 settings: "neutral", "winter", and "summer" positions. These locking points may get too tight if they are left in the "winter" position in warmer periods due to the thermal expansion of the aluminum profiles. Change the locking points positions as the seasons change.

5.5.1.10 Building settlement

Every new building settles with time. This is a natural process that may have an impact on the functioning of the window as it changes its position when the building settles. If you suspect this has happened to your windows, contact Amberline LLC and the General Contractor.

Important!

Amberline is not liable for defects in products resulting from the settlement of the building.

5.5.1.11 Window size and weight

Heavy sashes may need more physical strength for operation. This is not considered as malfunctioning. To make operating easier keep them clean and lubricate regularly.

5.5.2. The handle side of the sash and frame are not parallel when put close to each other

This is mostly caused by improper window positioning. Check if the window is level, plumb and square.

5.5.3. The sash is binding in more than one place

Check the sash overlap. See point 5.5.1.4, Sash Overlap.

5.5.4. Air is passing between closed sash and frame

Lack of tightness in the window may result from different reasons. See the points below to diagnose the source of the problem:

- Worn-out or damaged gasket

Check if the gasket around the sash and frame is not twisted or damaged. If it is, the gasket must be replaced to maintain window performance.

- The window frame was stretched during installation.

Check the window width at the top, middle, and bottom and the window height on the right and left sides and in the middle of the window. If the window width or height differs between measurements, the window may have been fixed too strongly during installation and it will have to be corrected. Unscrew straps, and correct the frame, you may use shims and re-tighten the straps.

- Sash overlap

Check the sash overlap all around the window. See point 5.5.1.4, Sash Overlap.

- Locking points need adjustment.

This is especially important as the seasons change. See point 5.5.1.9, Too tight locking points.

5.5.5. Water leaks between glazing beads

Water leaks may result from a blocked drainage system or from strong wind pushing the water inside the frame when weep caps are not installed. Make sure to:

- Check if all the drainage holes on the bottom part of the frame have correctly installed weep caps (always turned towards the ground)

- Check if the drainage system is not blocked by pouring water into holes inside the bottom window frame. Water should flow out through drainage holes outside the window frame. If it doesn't, the drainage holes may have been blocked with building materials or dirt. Use compressed air to remove any dirt from the drainage system. The air should go from inside the frame toward drainage holes on the outer side of the frame. After this operation check if the water can drain out freely through drainage holes.

Important!

Weep caps are very important for window tightness and must be installed correctly.

5.5.6. Condensation

Steam on the glazing may appear for two reasons:

A. On the inside

When there is not enough ventilation in the building, the humidity can cause fog/steam on the inside surface of the glass.

B. On the outside

Haze and even ice can appear on the triple-glazed glass in the colder periods. This process is reversible, the haze and the ice will disappear as it gets warmer outside. It is a normal physical process and cannot be reported as a claim.

C. Between the glass

Steam in insulating glass units can only appear in the case of large temperature differences between the interior of the house and the conditions outside. The spaces between the panes are filled with a mixture of noble gases and air, which may contain a trace amount of moisture and it can condense in the above conditions, this is not subject to warranty claims.

5.5.7. Glass standards

Glass is the most vulnerable part of the window and must be treated with special care during the installation process. In case you notice breaks, scratches on the surface, chipping, etc., it will most likely need to be replaced. Contact Amberline LLC representative to discuss the details.

For any other problem or if the problem continues despite following the solutions suggested above, contact the manufacturer.

5.6 Installing screens

Refer to the appendix (section 9.2) for detailed instructions for installing screens.

5.7 Installing weep caps

Install the water drainage weep cups is essential for the proper functioning of the window. Make sure to install them **before** you finish the installation. Follow the steps shown in point 4.4 to install them properly.

Important!

Do not leave water drain holes on the bottom frame not covered with water drain caps!

5.8 Temporarily detaching restrictors

FSR Restrictor:

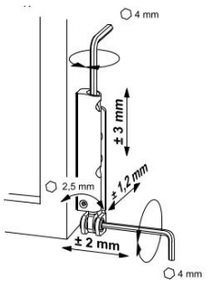
WOCD Restrictor:

SDR 4/SDR 6 for NY:

5.9 Adjusting gasket pressure by adjusting locking points

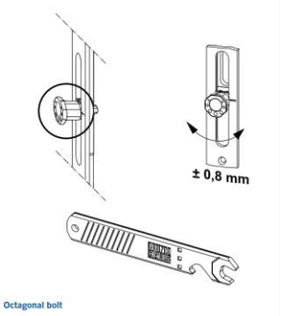
- Corner hinge/sash hinge

Sash hinge height can be adjusted by ±3mm (±1/8") and corner hinge adjustment by ±2mm (±5/64") using a 4mm (5/32") Allen Key. For sash hinge adjustment of the contact pressure between sash and frame (±1.2mm; ±3/64") use a 2.5mm (3/32") Allen key.



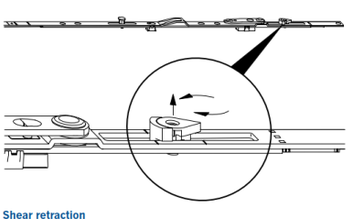
- Octagonal bolt

Regulate the contact pressure between the sash and the frame (±0.8mm; ±1/32") by turning the octagonal bolt. The adjustment can be carried out using the Winkhaus adjustment key (V.SCH.ACP-S).



- Shear retraction

The progressive shear pull-in is adjustable from 18 (45/64") to 28 mm (71/64"). Release the catch by pulling up to the adjustment latch then pivot the adjustment latch away from the overlap. A variable tilt device, MSL.OS can be used as an alternative to the progressive sear pull-in.



Source: Winkhaus

6. General Rules and Safety

These general safety rules apply to all our products, please get familiar with them to avoid any accidents.

6.1 Safety while Cleaning

- Make sure you are uninterrupted while opening, closing, and cleaning the products.
- It is best to choose a calm and dry day.
- Refrain from climbing on steps or furniture while cleaning the windows to avoid falling. If you cannot reach the top of the window, use a long squeegee to reach the top parts.
- Do not lean out of a window to avoid falling.

6.2 Safety while Operating

- Make sure to firmly hold the handle when opening the windows and doors in case of unpredicted strong winds.
- Close the windows and doors on windy and rainy days to avoid damage by airborne debris.
- When opening and closing the windows and doors make sure only to use the designated handle and keep your hands away from other sides of the product to avoid trapping or slamming them.
- With outward opening windows on the ground level, it is best not to open them fully to avoid people walking into them.
- Do not leave the windows fully open when unsupervised to avoid potential break-ins and kids falling out. If you want to ventilate the room, leave the windows tilted in the day-to-day ventilating position.

- In the reversible outward opening windows, the ironmongery has a “scissor” type action. Do not put your fingers in it to avoid injury!

7. Cleaning and Maintenance

7.1 Cleaning

To preserve Amberline products’ quality they should be cleaned and maintained regularly. This ensures better durability, performance, and appearance. Refer to the detailed cleaning instructions provided below.

7.1.1 IGU Glass Cleaning

- The IGU glass should be cleaned regularly using specially designated glass cleaning products.
- Oil stains should be removed using acetone (make sure to adhere to the instructions provided by the acetone producer)
- The reflective glass should be cleaned using a cerium oxide suspension (50÷160 g/l of water)
- For glass with a self-cleaning coating please contact our Amberline representative in the US to receive detailed cleaning instructions
- In case of solid contaminants on the glass surface, make sure to soak them generously in clean water before removing them gently to avoid surface damage.
- Grease and residues of sealing compounds can be removed with alcohol or isopropanol and thoroughly rinsed with water.
- Refrain from using any abrasive or alkaline substances (fluorine, chlorine) as well as cleaning powders on reflective coatings as they may damage the coating.
- Do not use any abrasive cleaning accessories such as harsh sponges, metal scrapers, metal sponges, etc.

7.1.2 Aluminum Profile Cleaning

- Clean aluminum profiles with gentle detergent with neutral pH diluted in clean water and soft cloth.
- Avoid using corrosive liquids, chemical solvents, acetone, abrasives, powders, creams, or any alkaline or acidic cleaning agents as these can permanently damage the profile surface.
- Avoid harsh cleaning accessories (harsh sponges, metal scrapers, metal sponges, etc.), and scrubbing the profiles, as well as steam cleaners.
- Make sure you always use clean water! If during cleaning you notice the water getting dirty, make sure to change it immediately! Dirt particles can damage or scratch the window.

7.1.3 Hardware Cleaning

- Clean hardware (stainless-steel, powder-coated, and plated finish) using gentle soap dissolved in clean warm water or a mild detergent and a soft cloth. Then rinse them with clean water and dry them to avoid water marks.
- Make sure you always use clean water! If during cleaning you notice the water getting dirty, make sure to change it immediately! Dirt particles can damage or scratch the window.
- Tea staining (brown discoloration) is not a defect, it will occur naturally in coastal and industrial environments. Regular cleaning will reduce this issue. Tea staining can be removed with Ajax, warm water, and baking powder, and a toothbrush.

Amberline is not liable for defects resulting from improper cleaning, the use of improper cleaning agents, the influence of external pollutants (atmospheric and other), and the use of tools/items that may damage the glass, such as a metal scraper.

7.2 Maintenance

As mentioned before, you should perform maintenance of our products to ensure good durability and performance in the long term. This should be done 1 to 2 times per year. Failure to perform maintenance on our products may void the warranty.

7.2.1 Hardware Maintenance

Hardware elements of Amberline products must be lubricated at least once a year to operate properly. Use a spray silicon or a few drops of oil (free of resin and acid) to lubricate the hardware. The fittings must be adjusted with the same frequency. Check, and if needed tighten, the screws in the fitting so that the position of the fitting is correct.

Detailed instructions on how to perform these actions are provided in the appendix (see 9.4).

7.2.2 Aluminum Products Maintenance

Apart from the hardware maintenance listed in point 7.2.1 aluminum products require additional maintenance actions. Detailed guidelines are provided in the appendix (see 9.5).

7.2.3 Additionally!

For construction elements such as facades, windows, doors, and roof glazing elements, ensure that the draining holes are unclogged, the glass seals and rubber seals are tight in the corners, the opening parts are supported correctly, and the covering profiles are fastened.

8. Field tests

For Amberline to honor the field test results, performed both at the job site and in the lab setting, they have to be performed by a qualified and certified party. The tests must be carried out according to the existing norms and standards **(AAMA 502 – 21).** Amberline LLC representative must be present during these tests and therefore Amberline LLC has to be given a prior notice of the field and lab tests.

Our windows are produced according to very strict norms to comply with the water-tightness level requested by the customer. No modifications to the window fittings can be done unless advised by the window producer.

Before starting tests, always ensure:

- the window is correctly closed

- the drainage system is clean

- the weep caps are put correctly in the drainage holes

- the gaskets have been inspected and are damage free and clean

IMPORTANT!

Installation and sealing materials are the General Contractor’s/Installer’s responsibility. The window manufacturer is not responsible for any leakage due to the sealing system or poor connection of the window to the wall.

9. Appendix

9.1 Optional sash and glass removal for installation

Sash and glass removal (fixed windows) before installation makes the window lighter and easier to handle.

Required tools: protective gloves, glazing spatula, hammer for window molding, putty knife for removing window molding, Winkhaus service handle (provided with the product)

Important! Two people are needed to safely remove the sash and/or glass!

Sash installation and removal for surface hinges:

https://www.youtube.com/watch?v=7A1Zvs5knI8

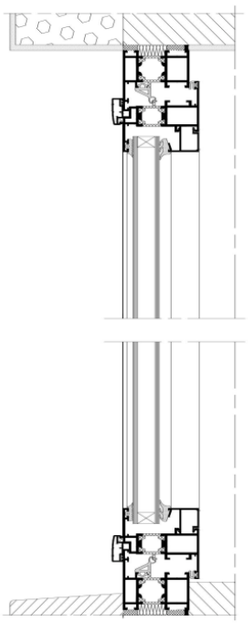
Sash installation removal for concealed hinges:

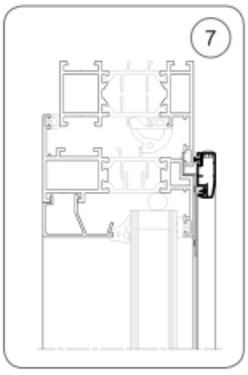
https://www.youtube.com/watch?v=5NHoLF4k8KQ

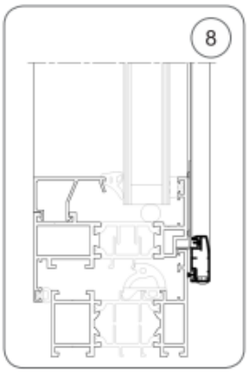
Glazing and deglazing:

https://www.youtube.com/watch?v=XcbJ_oA3YZE
https://www.youtube.com/watch?v=gY2iD-EF2eo

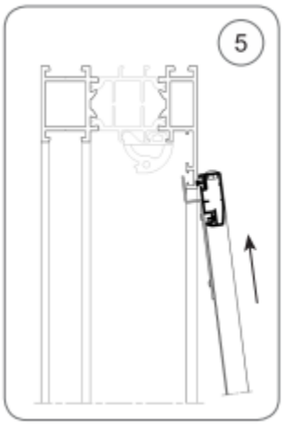
9.2 Installing screens



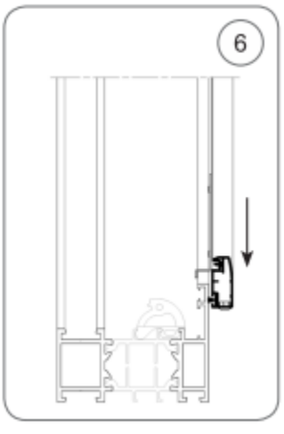




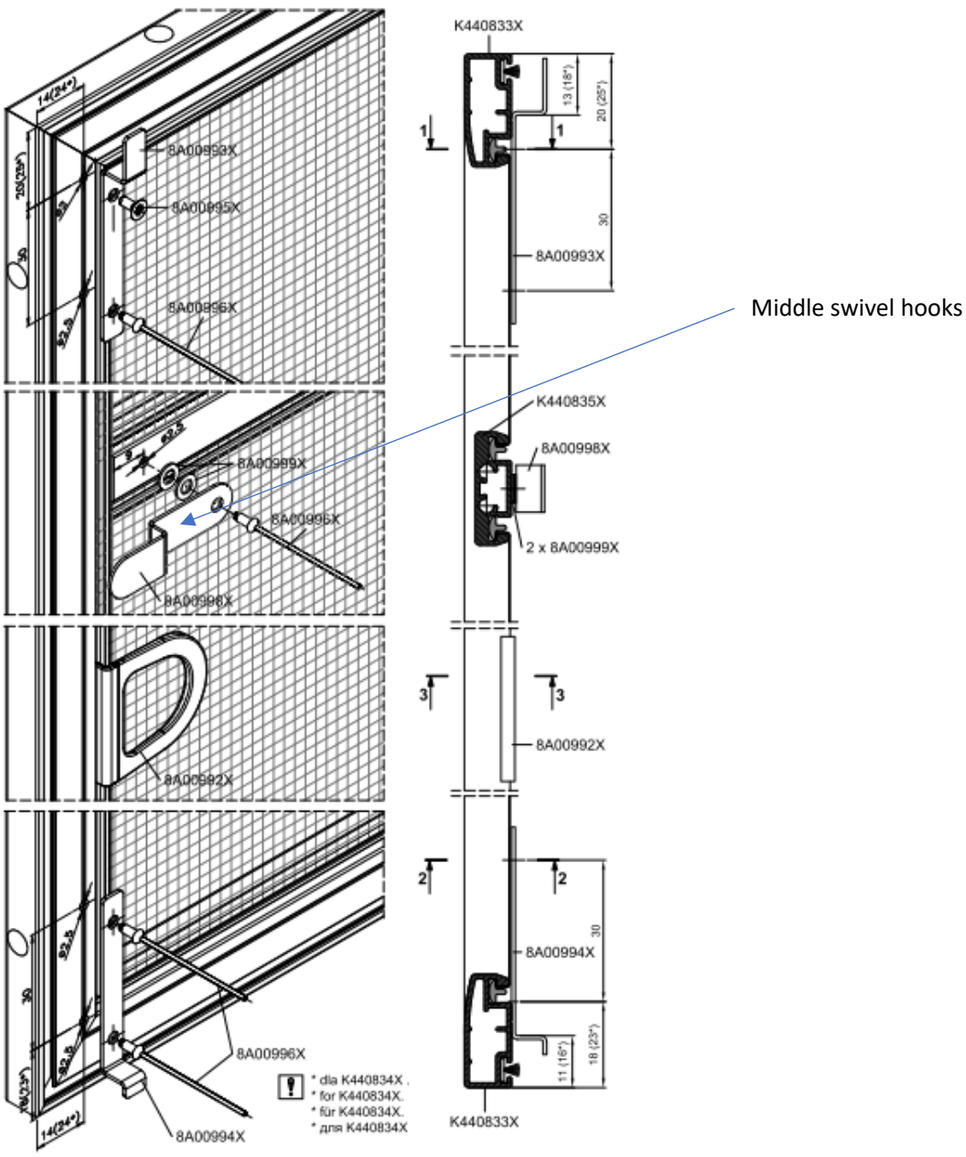
To install the mosquito net, start by inserting the upper hooks behind the top of the window.



We move them as far up as possible, then we hook the lower hooks and lower the mosquito net.



In the case of high windows, there may also be intermediate hooks, halfway up the window. These hooks are rotatable, so we turn them so that they hook onto the profile.



9.3 Protecting the glass during installation and at the job site

See the list of the most common glass-related problems that can appear after installation and what to do to prevent them:

A. Breaks

Always treat the glass with particular attention. Never approach it with long, hard items to prevent accidental breaks.

Never put any heavy objects on the glass or windows.

B. Scratches on the surface

Gently clean the debris from building materials with clean water. Never scratch it, try soaking the debris first and then try to remove it gently. Make sure to use a wet, clean, soft cloth to avoid scratching the glass.

C. Metal particles

Never cut the aluminum profile or steel elements close to the glass. Small hot particles will blend into the glass surface.

D. Chipped glass

Lift and put the glass gently. Be particularly careful when removing bows from glazed parts of the window.

Keep the glass far from any hard objects such as stones that may be blown by the wind and cause damage.

E. Thermal breaks

Exposure to strong, direct sunlight may cause thermal breaks. Additionally, if the glass is only partially exposed it increases the chances of experiencing such breaks. This is because heat expands the glass while cold has the opposite effect. It's a physical phenomenon and is not covered by warranty.

A. Avoid the partial shading of the glass from the outside with roller shutters, blinds, parts of the roof, etc.
B. Remove stickers from the glass – the temperature under stickers is different which may cause thermal breaks.
C. Don't put dark objects close to the glass inside the building – the part of the glass with a dark object next to it will heat up faster and may cause a thermal break.

9.4 Hardware maintenance

Hardware needs regular lubrication to guarantee its proper functioning, the recommended lubrication frequency is twice a year. If the window is covered in sand, dusty or any other dirt, first clean the hardware, let it dry and only then lubricate it. Recommended lubrication products:

a. Blaster 16-SL Lubricant
b. WD-40 with silicone
c. DuPont Lubricant

a. 

b. 

c. 

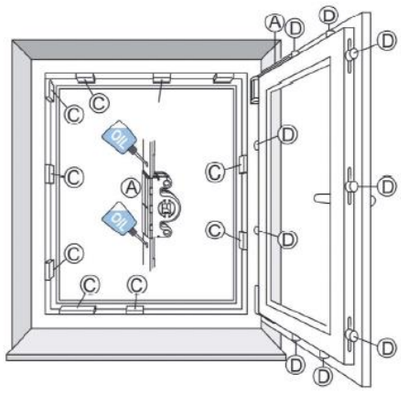
Maintenance

Lubrication points

See figure: Overview of lubrication points

The figure shows the location of possible lubrication points which should be lubricated at least once a year.
Positions A, C, D = lubrication points relevant to function.

Please note: The fitting schematic shown adjacent does not necessarily match the existing fitting. The number of locking positions will vary depending on size and type of the window sash.



Overview of lubrication points

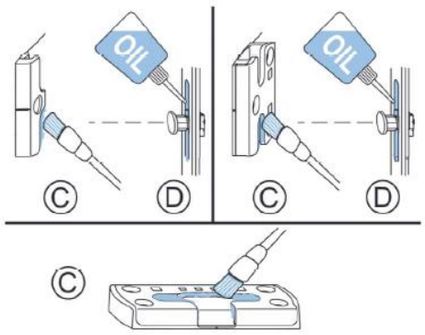
Attention! Risk of injury. The window could fall on removal and thus injure persons. Do not remove the window for maintenance.

Keeps

See figure: Lubrication points

To keep fittings running smoothly, you must lubricate the keeps at least once a year.

- Lubricate the keeps (C) at the run-in side with technical Vaseline or any other suitable grease.
- Coat the running surfaces of the locking bolts (D) with an oil that is free of resins and acids.

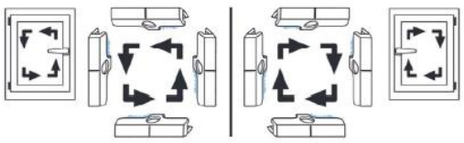


Lubrication points

Ascertaining the run-in sides

See figure: Run-in sides

- Left-handed window; handle right
- Right-handed window; handle left



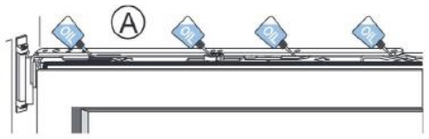
Run-in sides

Shears

See figure: Shears

All of the shear's contact points with the top rod should be oiled at least once annually.

Note: The shear hinge must not be oiled or greased.



Shears

Source: Winkhaus

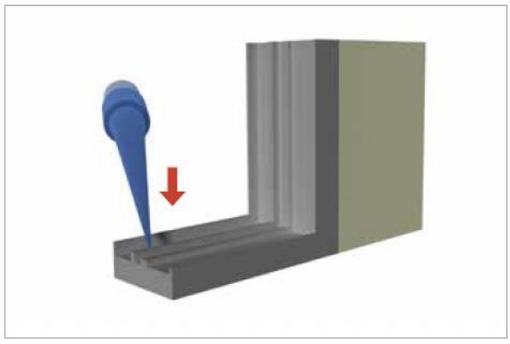
9.5 Aluminum products maintenance

CARE & MAINTENANCE GUIDE FOR HARDWARE

Maintenance and adjustment of the system fittings must be carried out in accordance with the recommendations and at a frequency mentioned in the maintenance & adjustment manuals provided by their manufacturers.

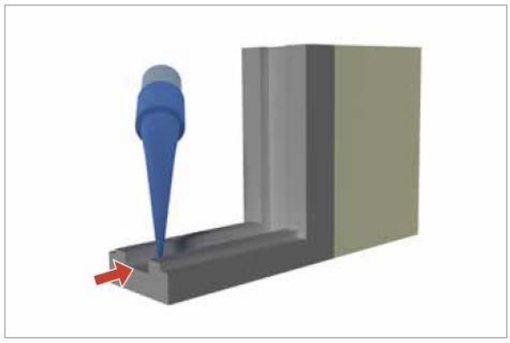
SYSTEM MAINTENANCE FOR WATER DRAINAGE

Check for weephole blockages and clear them if necessary. Remove all dirt, sand and solids with a vacuum cleaner. Repeat it every 6 months or more frequently if necessary.



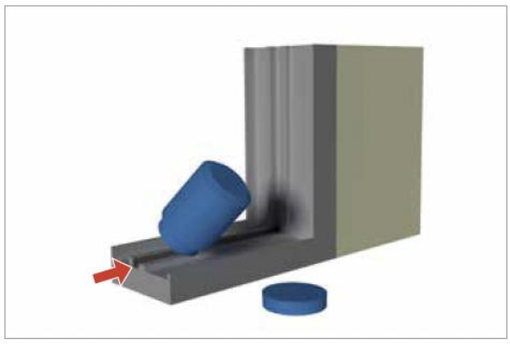
MAINTENANCE OF THE LOWER FRAME AND GUIDE TRACKS IN SLIDING DOOR, LIFT & SLIDE DOOR AND FOLDING DOOR

All soilings such as dirt, sand, gravel, solids, etc. should be removed with a vacuum cleaner from the lower frame and guide track. This must be done at least once a month. Once a year, clean the whole, i.e. the frame and the guide track, with a cloth.



MAINTENANCE OF SEALS AND GASKETS

Check the condition of seals and gaskets. Replace if damaged. To ensure that the gaskets remain soft and do not stick to the frame, a small amount of talcum powder or liquid silicone should be applied.



MAINTENANCE OF HARDWARE

IMPORTANT!

Danger of injury from improperly performed maintenancework! Improper maintenance can lead to severe body injuries or damages to objects.

- before starting maintenance work, provide sufficient space for installation work.
- maintain order and cleanliness at the installation site.
- during maintenance, secure windows and balcony doors against unintentional closing or opening.
- the adjustment of hardware components, replacement, removal and installation of the leaf must be carried out by qualified service personnel.
- leaf should not be removed for maintenance work.

CONTROL

At least once a year, In hotels and schools – every six months:
Check the stability of the fastening of safety-relevant hardware components.
Check the wear and tear of safety-relevant hardware components.
Check the correct operation of all movable hardware components.
Check the correct operation of all locking points.
By operating the window handle, you can verify if the multi-point locking system works smoothly. – Locking and unlocking moment in accordance with DIN 18055: max. 10 Nm. – A torque wrench can be used for verification purposes. – The operation of locking mechanism can be greatly improved by lubrication, oiling or readjustment of the hardware.

PLEASE NOTE

Observe the following environmental precautions during maintenance:

- clean the lubrication points of excess oil and dispose of it in accordance with environmental regulations.
- pour the replaced oil into suitable containers and dispose of it in accordance with environmental guidelines.

MAINTENANCE OF WINDOWS AND DOORS

GENERAL RECOMMENDATIONS

At least once a year, in hotels and schools – every six months:
Check all elements for correct operation.
Check all screws and handle stability, tighten the fixing screws if necessary.
Replace damaged screws. If necessary, replace worn/damaged parts with original ones and adjust the hardware in order to restore proper operation of the leaf/casement.
Only use cleaning agents that are free of corrosive substances.
For cleaning window elements, use mild, pH-neutral, diluted cleaning agents. Never use cleaning agents and scouring agents containing acids. They may affect the protective layer.

MAINTENANCE OF WINDOWS

Lubricate all moving parts with machine oil or grease free of resins and acids, available from specialised retail outlets.
Lubricate steel strikes with machine oil or grease without resins and acids, available from specialist dealers.
Lubricants (preferably sprayed) should be introduced into each aperture of the hardware. After lubrication, open/operate the window several times until the grease is distributed and wipe off any excess grease. Lubricate the strikes on the frame, at the point of entry of the hardware bolt, using a constantconsistency grease.
The corner transmission, handle and mishandling device are greased during manufacture and therefore no additional lubrication is necessary.
The (pushed) connection rods should not be lubricated in the groove.
Pivot bearings MUST NOT be lubricated or oiled – this applies to the maintenance of pivot windows.

MAINTENANCE OF SINGLE AND DOUBLE DOOR

All moving parts and locking elements must be oiled regularly.
Lock cylinder should be maintained only with graphite powder.
Door hinges do not require maintenance or oiling.

Maintenance must be carried out by qualified service personnel.

SELF-CLOSER

Check the wear and tear of the components regularly for proper operation. If irregularities are found, tighten the mounting screws or replace defective parts.

At least once a year:

Oil all parts of the self-closer arm.

Check the self-closer adjustments.

CORROSION PROTECTION

Avoid contact with aggressive vapours (e.g. formic or acetic acid, ammonia, reaction of amines and ammonia, aldehydes, phenols, tannic acids, etc.).

In addition, do not use seals containing acidic or acetic substances or the components mentioned above, as both direct contact with the seal and its vapours can cause corrosion of the hardware surface.

HARDWARE FOR LIFT & SLIDE DOORS AND SLIDING DOORS

Remove dirt, dust, sand, etc., which may adversely affect the functioning of the door.

Lubricate or oil all moving parts and locking points.

Use only grease or oil without acid and resins.

To prevent alterations to the hardware surface, we recommend using protective agents.

PROTECTION AGAINST (CONSTANTLY) HUMID AIR PRESENT IN THE ROOM

In the construction phase, hardware and notches must have access to air, especially during installation, so that they are not directly exposed to moisture or condensation.

Ensure that there is no permanent condensation of water vapour in the space between the leaf and the frame:
– Air intensively several times a day (open all windows for about 15 minutes).
– Ensure sufficient air exchange, also during holidays and public holidays.

IMPORTANT!

These should be carried out exclusively by the maintenance:

- replacement of hardware
- installation / removal of casements/leaves
- hardware adjustment

DUST PROTECTION

Do not let the dust from building materials gather on the hardware.

Source: Aluprof