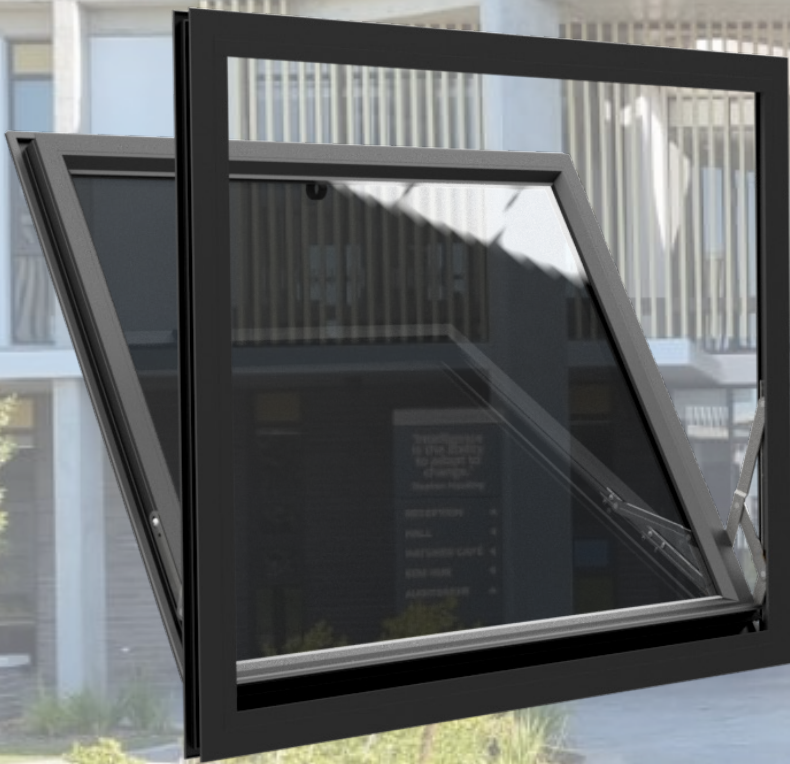


# Product Manual



from SKYSCRAPERS



to SHOWER DOORS

# EVOLUTION BOTTOM HUNG OPEN-IN WINDOW SYSTEM

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# EVOLUTION BOTTOM HUNG OPEN-IN WINDOW SYSTEM

## LEGAL DISCLAIMER

### *General Documentation Disclaimer*

This manual is intended as a manufacturing and installation advisory document. For correct specifications, sizing of profiles and structural information please consult the Starfront Application. If the information you require is not available through the Starfront Application, please contact your stockist before proceeding. It is advisable to have all sizing and performance criteria checked by a qualified structural engineer to ensure that the required criteria will be met.

All information, recommendations or advice contained in this documentation is given in good faith to the best of Wispeco's knowledge and is based on current procedures in effect.

Since the actual use of this documentation by the user is beyond the control of Wispeco, such use is within the exclusive responsibility of the user. Wispeco cannot be held responsible for any loss incurred through incorrect or faulty use of this documentation. Training of Wispeco systems is important for ensuring correct procedures in the manufacturing of products.

Great care has been taken to ensure that the information provided is correct.

Ensure that you have the latest available manual. The revision number and date can be checked on the latest Starfront version.

Wispeco will accept no responsibility for any errors and/or omissions, which may have inadvertently occurred.

This Guide may be reproduced in whole or in part in any form or by any means provided the reproduction or transmission acknowledges the origin, revision number and copyright date.

### *Specifications concerning products and applications*

This manual is based on standard configurations only. As there are many configurations not covered in this manual, contact your stockist with regards to a configuration not represented herein if required.

AutoDesk drawings (CAD Symbol Library) are available on request and can be issued with the consent of the Wispeco Technical Department.

All mechanical joints must be sealed with a **Crealco approved joint sealer**. Failure to correctly seal the joints can affect the performance of the system. Information on joint sealing can be found in the Cleaning & Maintenance Manual available for download from the Wispeco website or from Starfront.

All drawings in the Wispeco Documentation are shown NOT to scale and are used for illustrative purposes only.

Wispeco will not accept responsibility for the use of standard products since Wispeco does not know where these products are being installed.

The hardware recommended in this documentation is suitable for use in most atmospheric environments. When hardware is used in severe coastal environments the manufacturer of the hardware must be consulted.

The use of non-specified hardware or incorrect mechanical fasteners can adversely affect the mechanical and weathering performance of the system and we strongly advise against deviations. A Wispeco Consultant can advise you of any hardware issues and limitations with regard to this system.

The use of anti-magnetic stainless steel screws and aluminium pop rivets is recommended to reduce galvanic corrosion in harsh environments.

Fixing lugs on frames must be positioned as per the user manual and used in accordance to the AAAMSA specifications. When profiles are screwed together the screw centers must also be according to the user manual or as specified by an engineer.

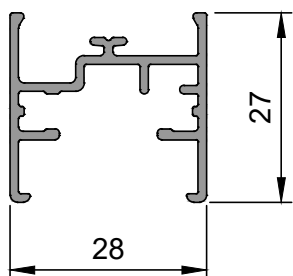
All glass used within Wispeco products must comply with SAGGA regulations. Laminated glass must not stand in water.

***By continuing to use this documentation you acknowledge that you understand and accept the legal disclaimer.***

This manual must be read in conjunction with the Installation, Cleaning & Maintenance Document and the Performance Certificates for the relevant system. The manual must also be used in conjunction with the design and cutting list from the latest version of StarFront.

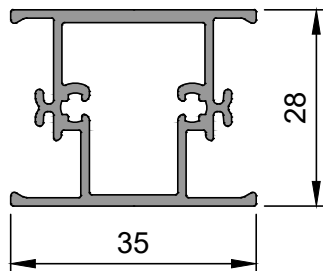
**PROFILE IDENTIFICATION**

## WINDOW PROFILES



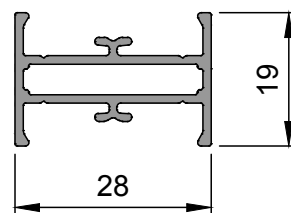
DIE No. 36276

Evolution Frame

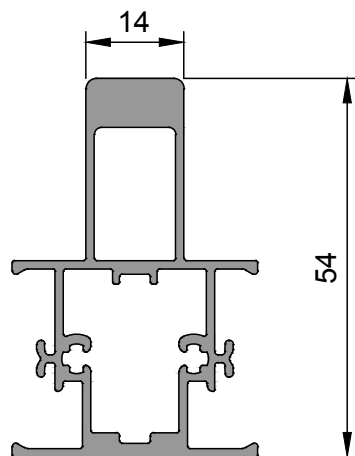


DIE No. 58086

Evolution Mullion 28 mm

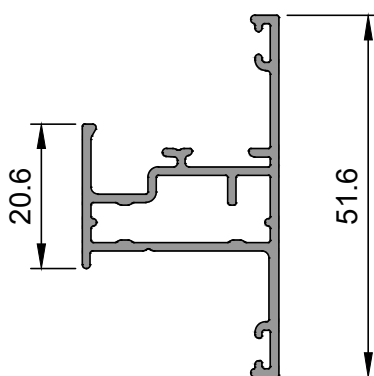


DIE No 58120

Evolution Mullion Cottage Pane  
Profile available from the Mill only.

DIE No. 58362

Evolution Mullion 54 mm



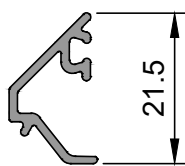
DIE No. 58087

Evolution Sash Bottom Hung Open-In



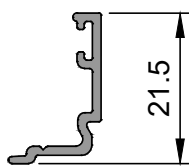
DIE No 18201

12.7 x 9.5 Angle



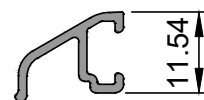
DIE No. 36274

Evolution Bead 13 mm Gap



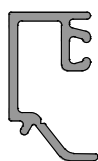
DIE No. 36275

Evolution Adaptor



DIE No.36480

Evolution Drip Rail



DIE No. 37099

Evolution Bead Square 13 mm Gap

Profile available from the Mill only.



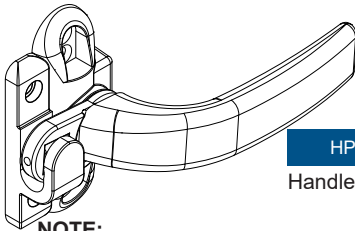
DIE No. 37100

Evolution Bead Inner 13 mm Gap

Profile available from the Mill only.

**NOTE:**

The Inner bead to be used on projects when glazing from the inside is required.

**HARDWARE IDENTIFICATION****COMPONENTS****ACCESSORIES****HPT-EVOL**

Crealco Evolution Handle

Handles recommended for Low Level windows

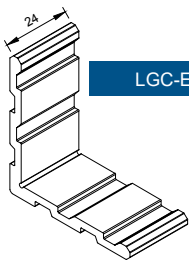
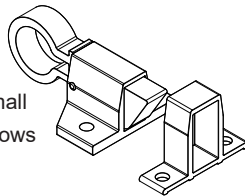
**NOTE:**

The PT handles are available only in black, & can be only be ordered in a right hand.

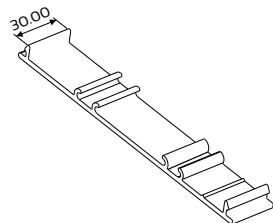
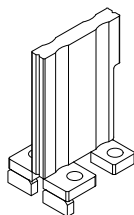
**HCC-FCB-BLK**

Finger Catch Black Small

Handles recommended for High Level windows

**LGC-EVO**

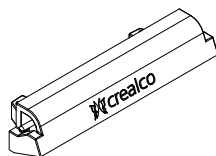
Crealco Evolution Corner Cleat

**LGR-CCEVO**

Evolution Cross Connector

**LGF-MULTI**

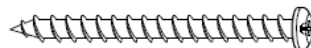
Multi Fixing Lugs

**PEX-WDC**

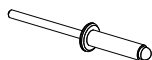
Drainage Cover

**FSP-089PP-SS**

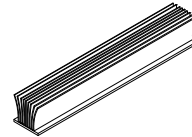
8x9 P/Head Screws

**FSP-0830P-SS**

8x30 P/Head Screws

**FRC-4810**

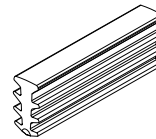
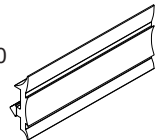
Pop Rivets 4.8 x 10

**GASKETS & SETTING BLOCKS****GFP-4850**

Finpile 4.8x5mm

**GBF-ORG**

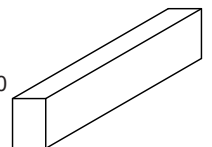
Butterfly Orange H500

**GWG-01G**

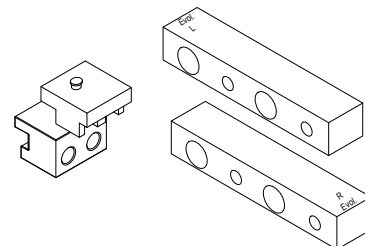
Wedges

**GSL-ST17X10**

Sondor Strip 17 x 10

**FSN-GSB**

Glass Setting Blocks

**TLP-EVO**

Evolution Tooling &amp; Support Block

**STAYS**

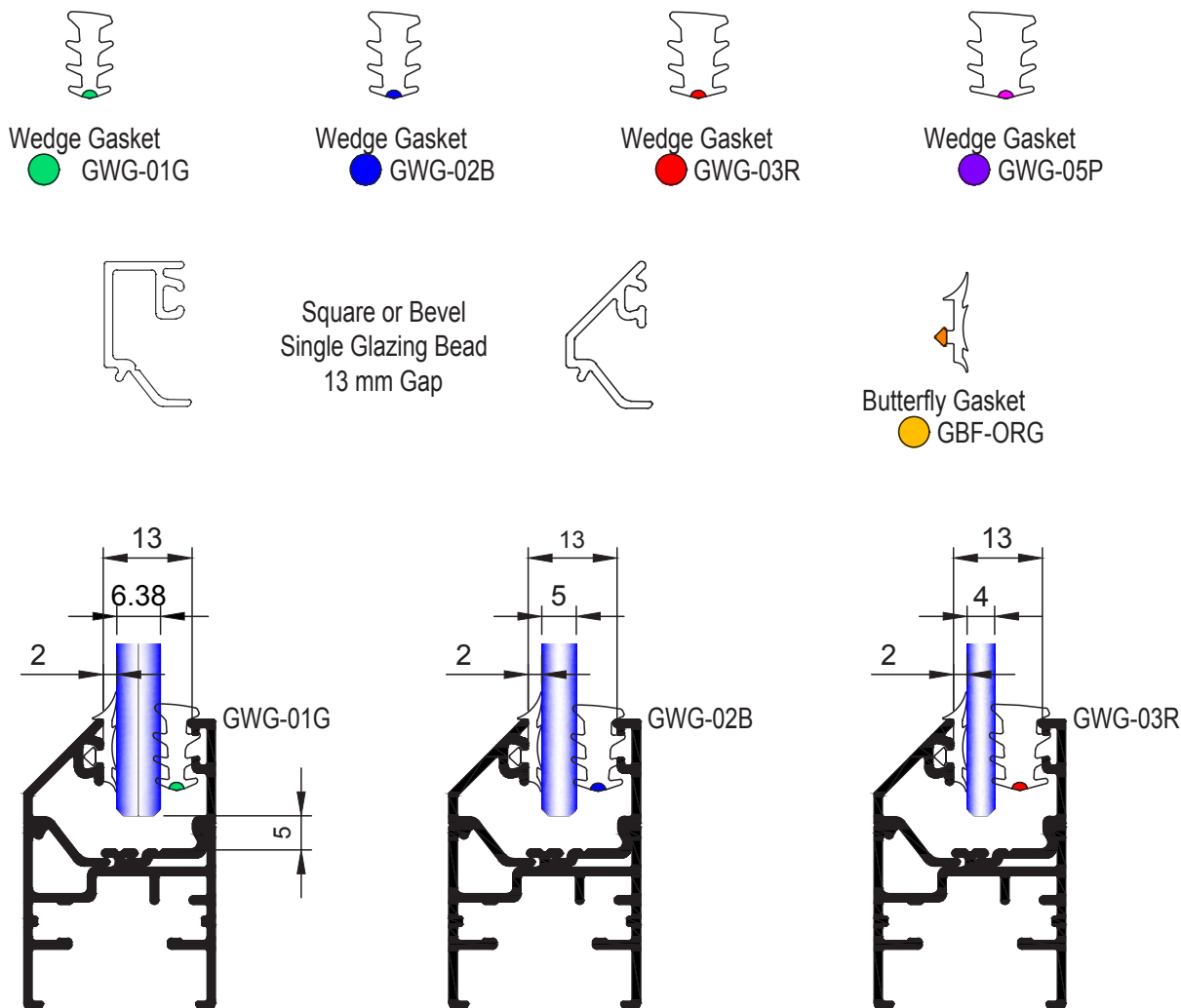
Friction Stays



See Friction Stay Chart further on in the manual



**Note:** For ease of fitting the gaskets, it is recommended to apply vaseline to the gaskets before inserting into the relevant profiles.

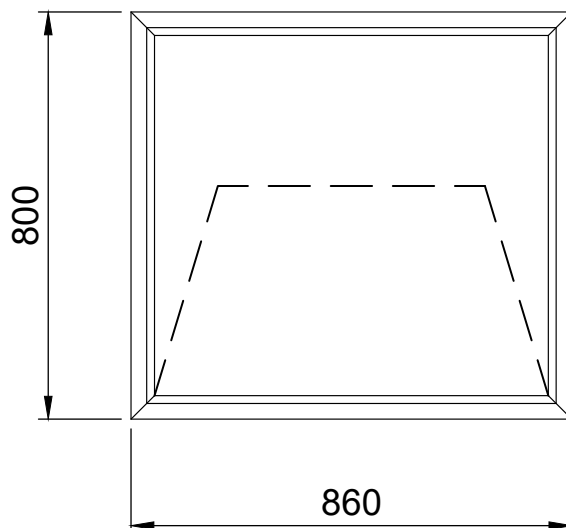


**Max. Glass Thickness = 6.38 mm**

### Wedge Gasket Chart

Code	Description	Wedge Gap To Fit
GWG-01G	Wedge 01 Green 6mm & 6.38mm Glass	4.10mm To 5.50mm
GWG-02B	Wedge 02 Blue 5mm Glass	5.60mm To 6.70mm
GWG-03R	Wedge 03 Red 4mm Glass	6.80mm To 7.50mm
GWG-05P	Wedge 01 Purple 20mm Double Glazing	7.60mm To 8.80mm

## Max. Sash



Sash weight with 6.38 mm Safety Glass = 11.8 kg

## Crealco Stays-Top Hung Friction Stays

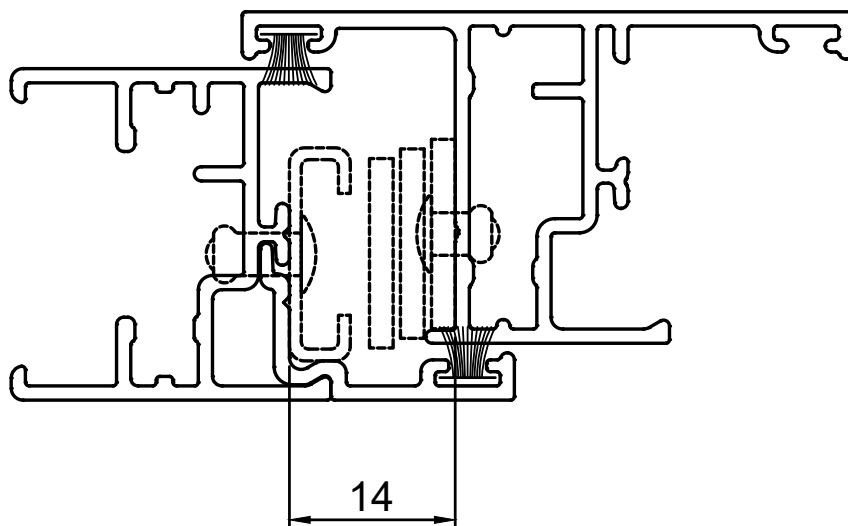
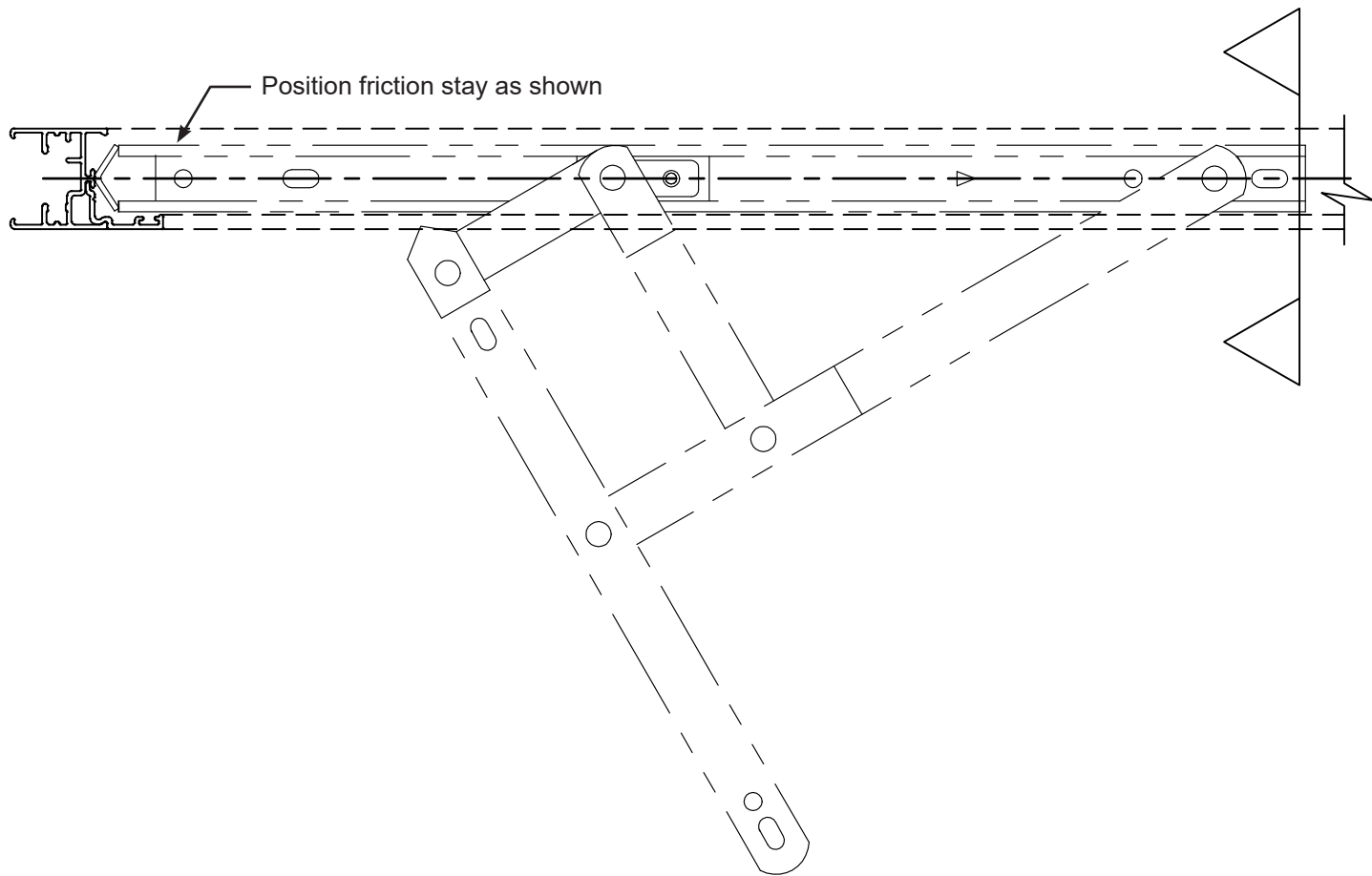
(13 mm Stack Height)

Friction Stay Code & Description	Stay Size	Maximum Vent Height	Maximum Vent Weight
STF-TH200S-304 (200x18x13 T/H 304 Sq Groove)	200 mm	300 mm	7 kg
STF-TH300R-304 (300x18x13 T/H 304 Rnd Groove)	300 mm	600 mm	11.8 kg
STF-TH300S-304 (300x18x13 T/H 304 Sq Groove)	300 mm	600 mm	18 kg
STF-TH300R-430 (300x18x13 T/H 430 Rnd Groove)	300 mm	600 mm	11.8 kg
STF-TH400S-430 (400x18x13 T/H 304 Sq Groove)	400 mm	600 mm	21 kg
STF-TH500S-304 (500x18x13 T/H 304 Sq Groove)	500 mm	700 mm	28 kg
STF-TH600S-304 (600x18x13 T/H 304 Sq Groove)	600 mm	900 mm	30 kg

## Defender Stays-Top Hung Friction Stays

(13 mm Stack Height)

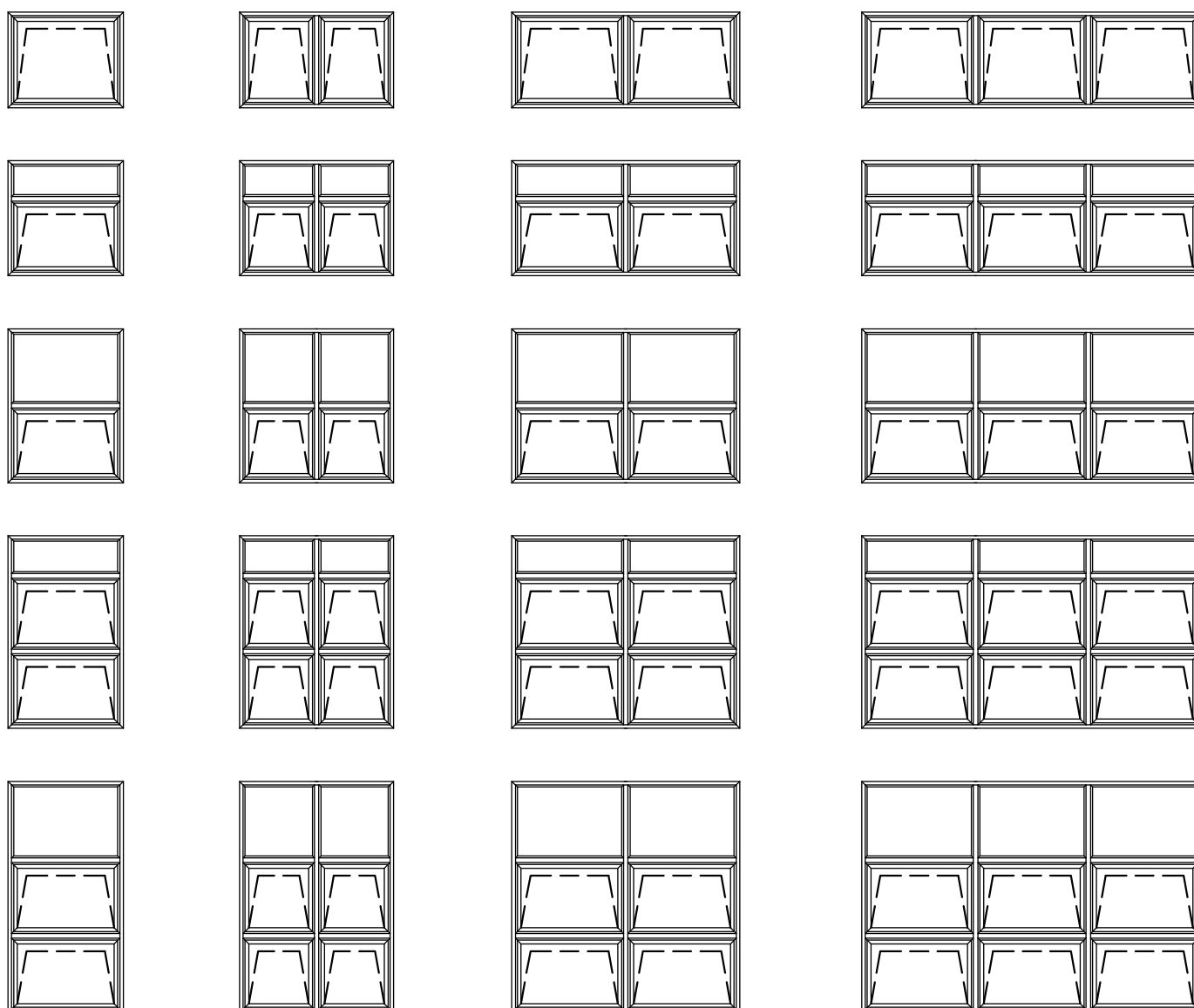
Friction Stay Code & Description	Stay Size	Maximum Vent Height	Maximum Vent Weight
STF-TH300DE-304 (300 Crealco H/D Stay T/H 304)	300 mm	550 mm	20 kg
STF-TH400DE-304 (400 Crealco H/D Stay T/H 304)	400 mm	780 mm	21 kg
STF-TH500DE-304 (500 Crealco H/D Stay T/H 304)	500 mm	1100 mm	26 kg
STF-TH600DE-304 (600 Crealco H/D Stay T/H 304)	600 mm	1300 mm	40 kg

**POSITIONING OF FRICTION STAYS - STANDARD SASH****OUTSIDE**



TYPICAL CONFIGURATIONS

**REFER TO NODDY CHARTS FOR STANDARD CONFIGURATIONS ON STARFRONT  
 FOR BOTTOM HUNG - OPEN IN WINDOWS**

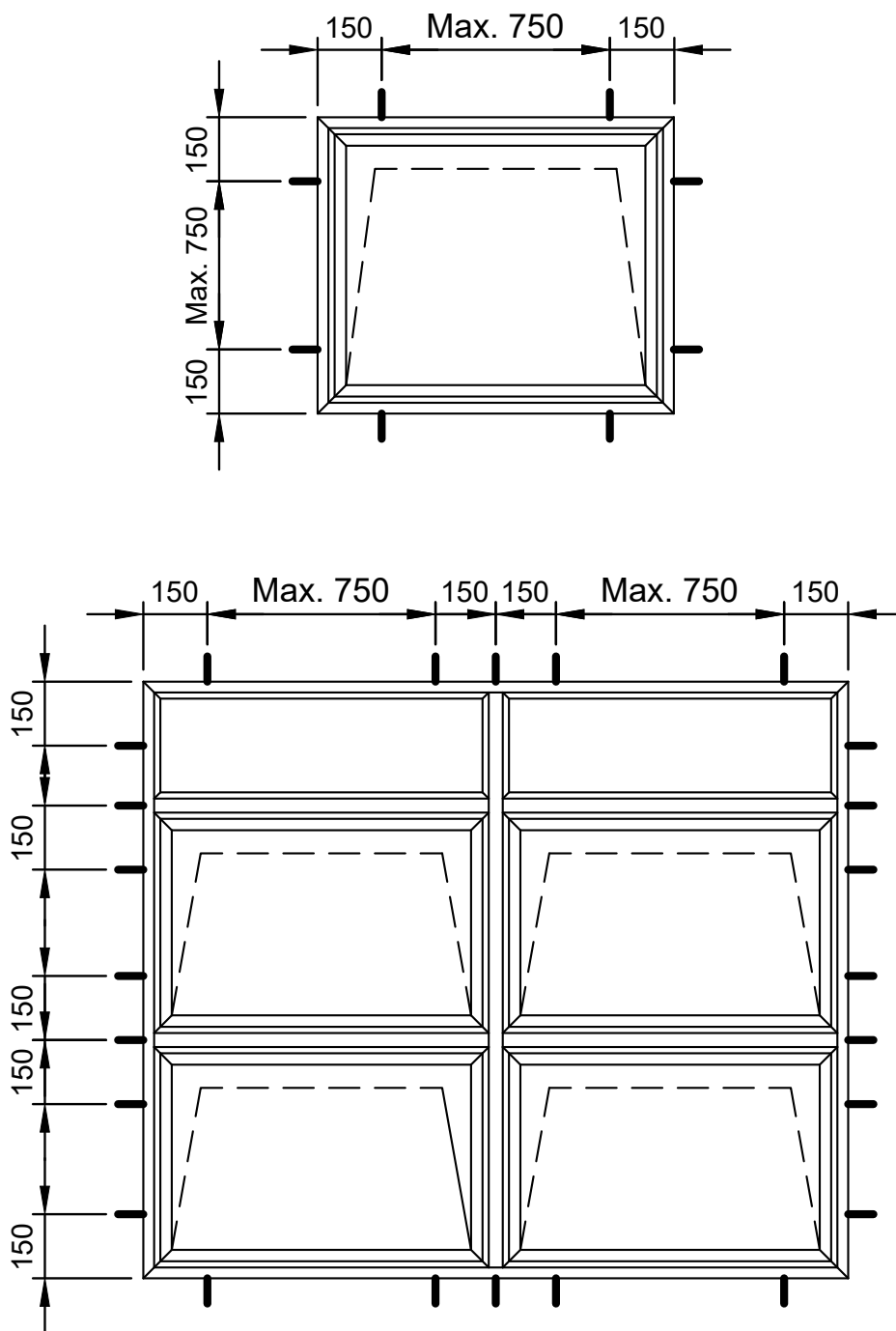


**NOTE:**

The max. transome width allowable is 980 mm.

The heavy duty mullions are not designed to be suitable as transomes due to sash handle interferences.

Max. sash size is 860 mm wide x 800 mm high.

**TYPICAL FIXING POSITIONS**

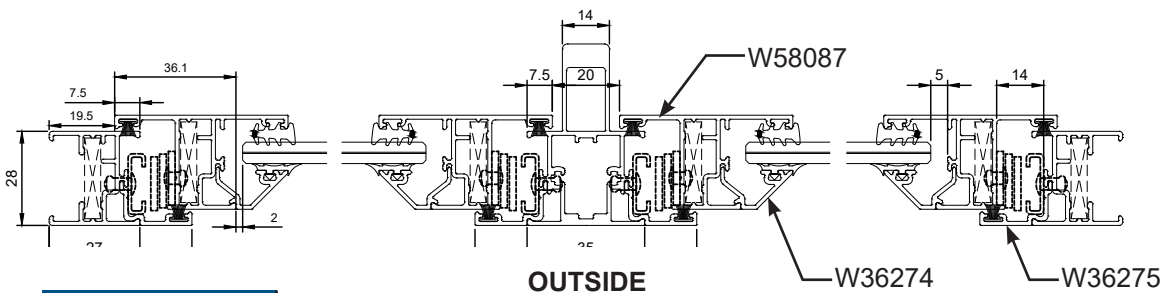
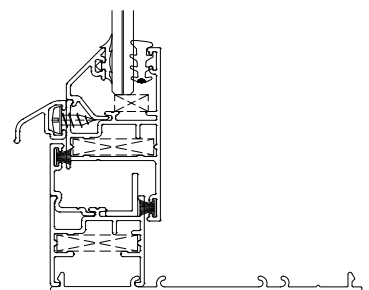
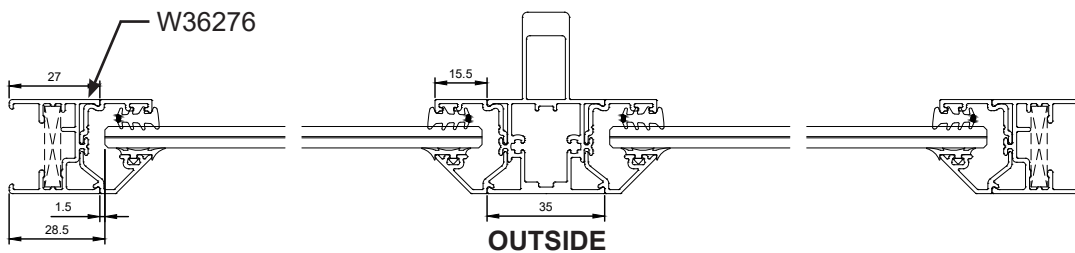
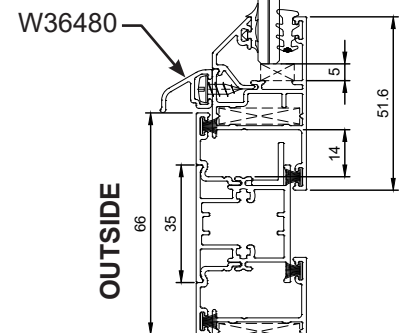
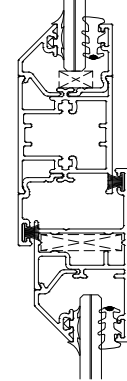
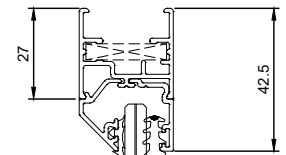
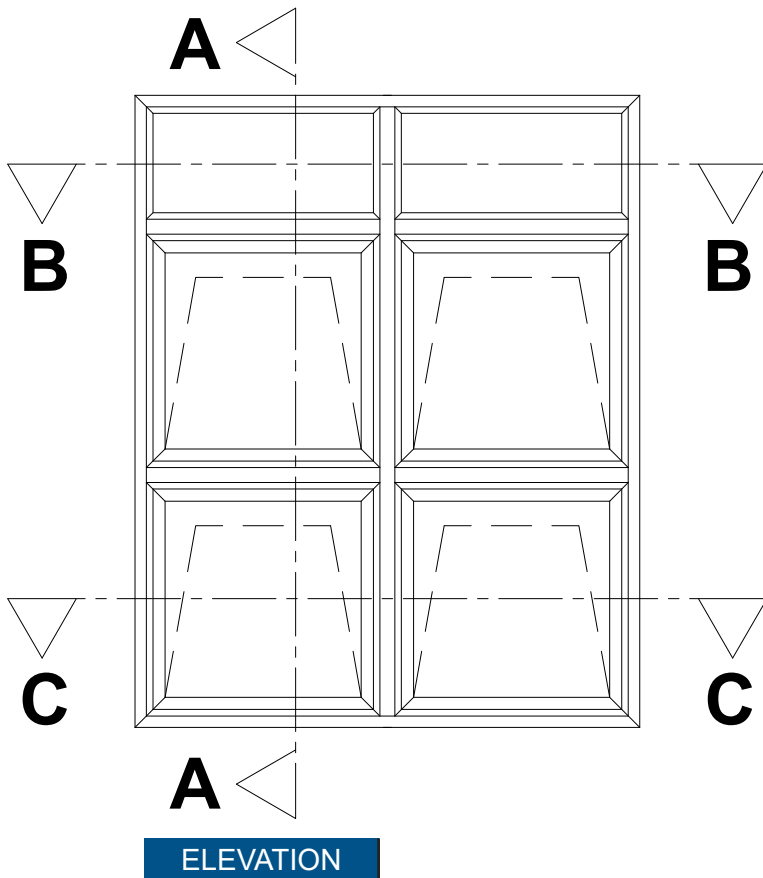
**IMPORTANT:** As there are many different methods of fixing the door to the structure, the illustration is a general fixation detail. The illustration defines the general method and hole fixings. Before installation or machining of the holes, please ensure that you have checked the required fixing method with the appropriated building engineer and that your chosen methods meets their specifications.

Failure to fix the door to correct building or engineer specifications will result in the door not meeting the required specifications.

**DISCLAIMER:** Please note that fixation of the frame to the structure is an element which **MUST** be specified and certified by an appropriate engineer and is not the responsibility of Wispeco.

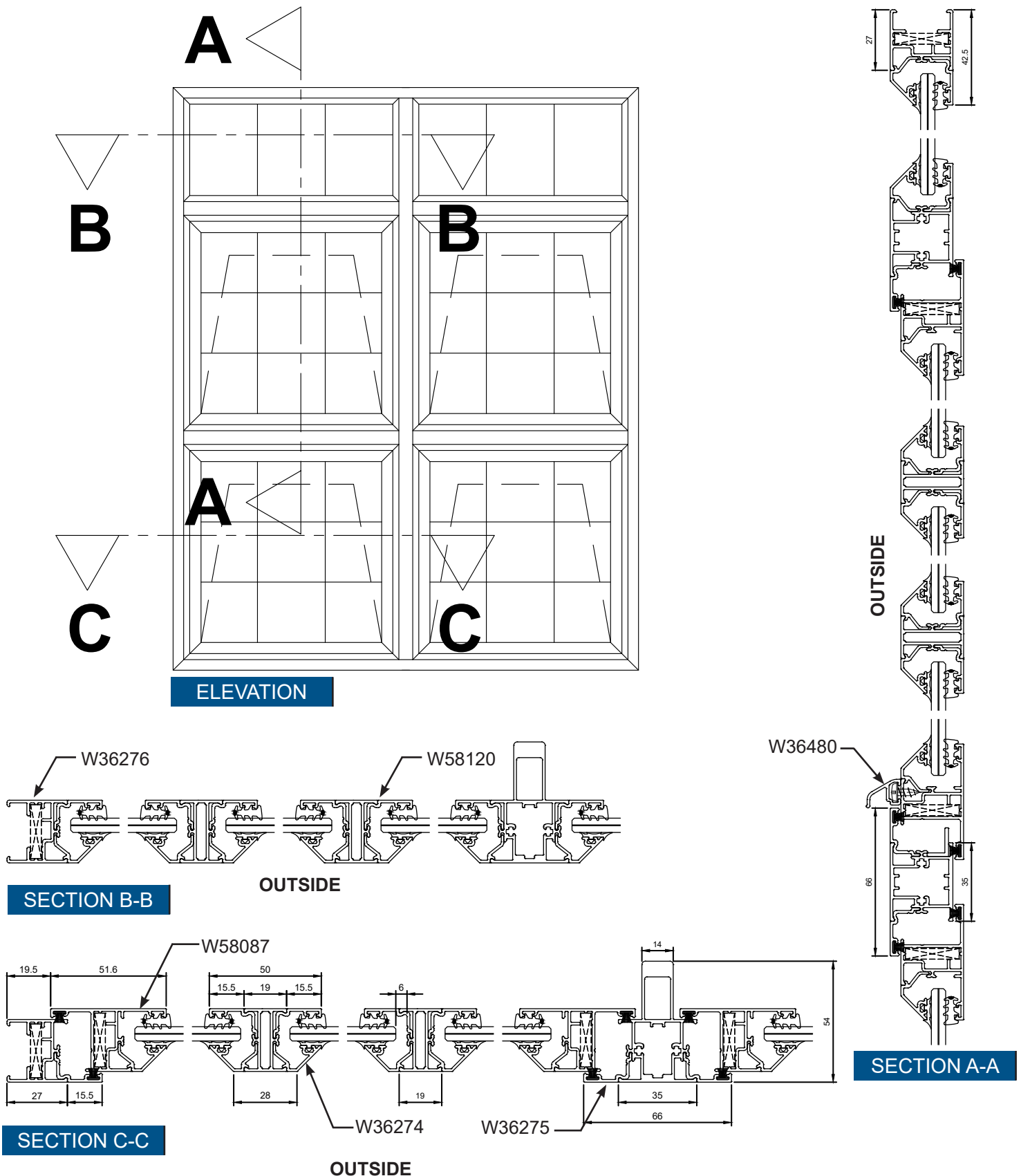
## CROSS SECTIONAL DETAILS

### TYPICAL BOTTOM HUNG-OPEN IN

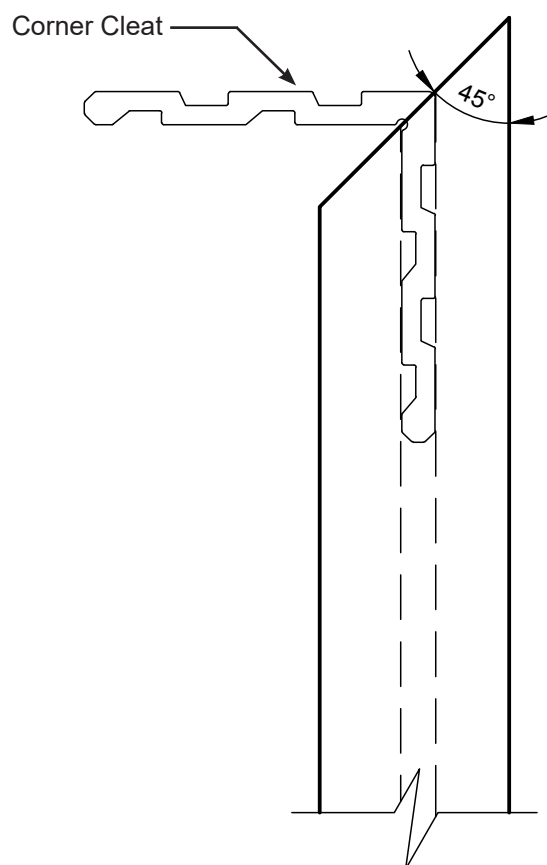
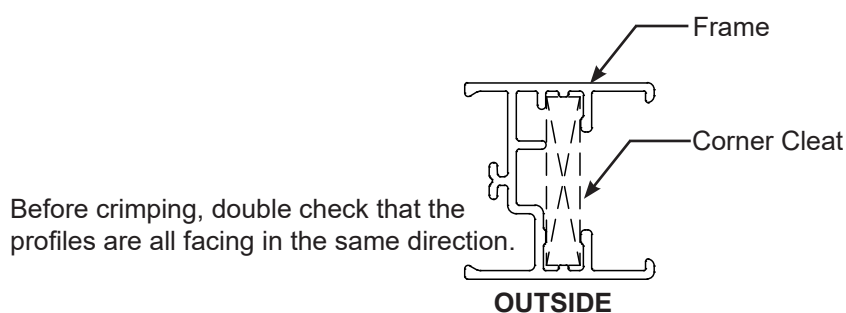


### SECTION A-A

### SECTION C-C

**CROSS SECTIONAL DETAILS****TYPICAL BOTTOM HUNG-OPEN-IN WITH COTTAGE PANE**

**NB:** Where a sash is required, the bottom outer frame profile is to be machined for the relevant drainage holes before assembly/crimping of all the outer frame profiles. See details further on in the manual for the position of the drainage holes.

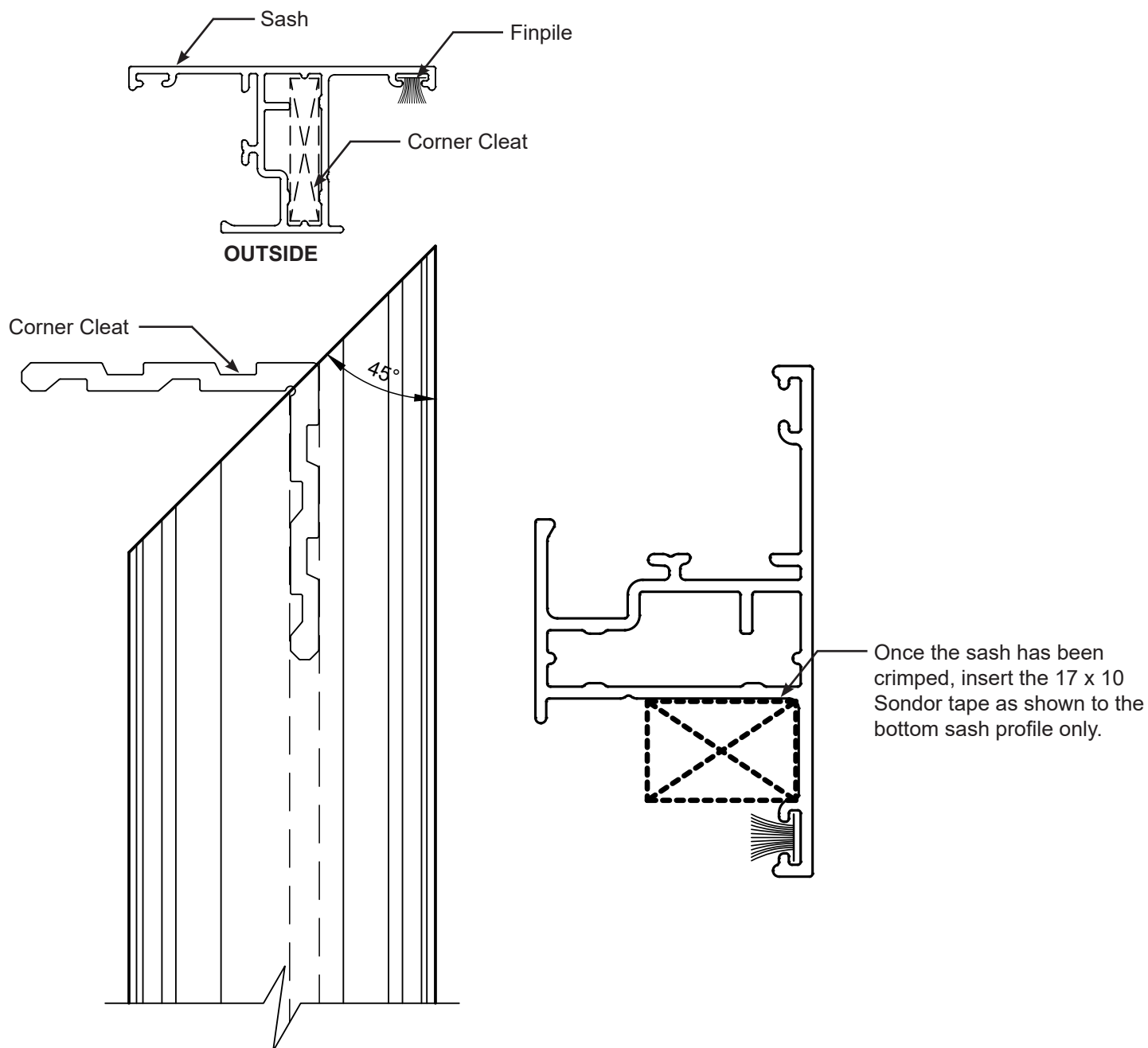
**Note:**

All mechanical joints to be sealed with Crealco silicone sealer.

This manual must be read in conjunction with the Installation, Cleaning & Maintenance Document and the Performance Certificates for the relevant system. The manual must also be used in conjunction with the design and cutting list from the latest version of StarFront.

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**NB:** Before crimping the sash together, remember to insert the Finpile as shown.

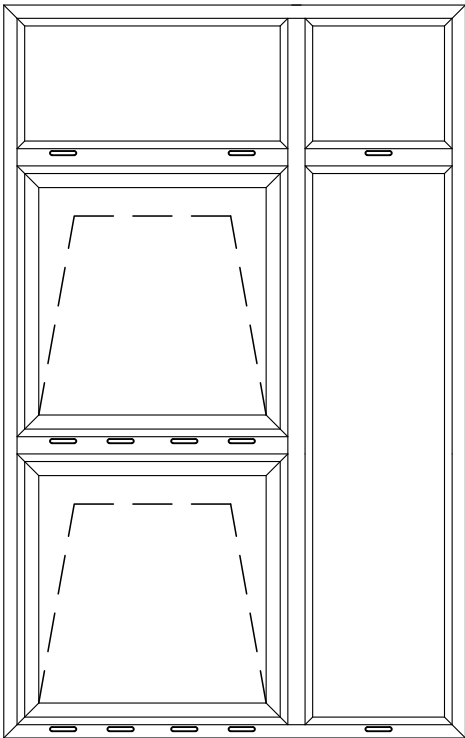
**Note:**

All mechanical joints to be sealed with Crealco silicone sealer.

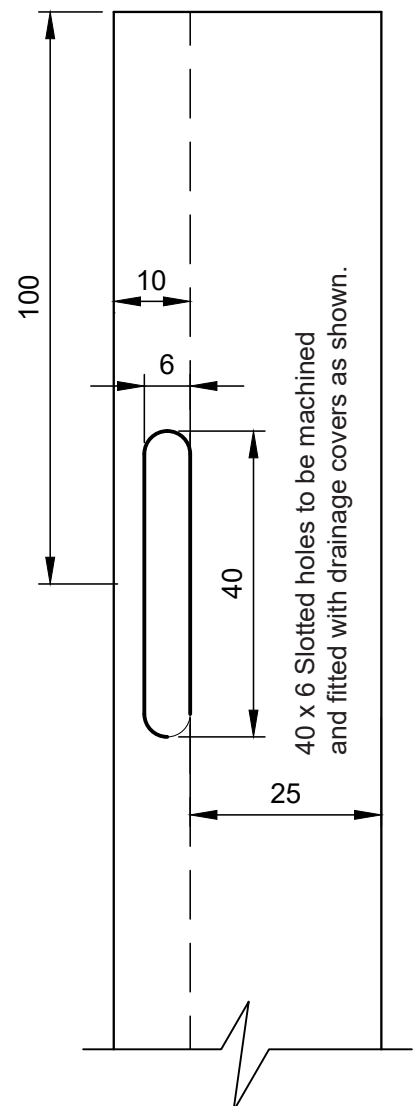
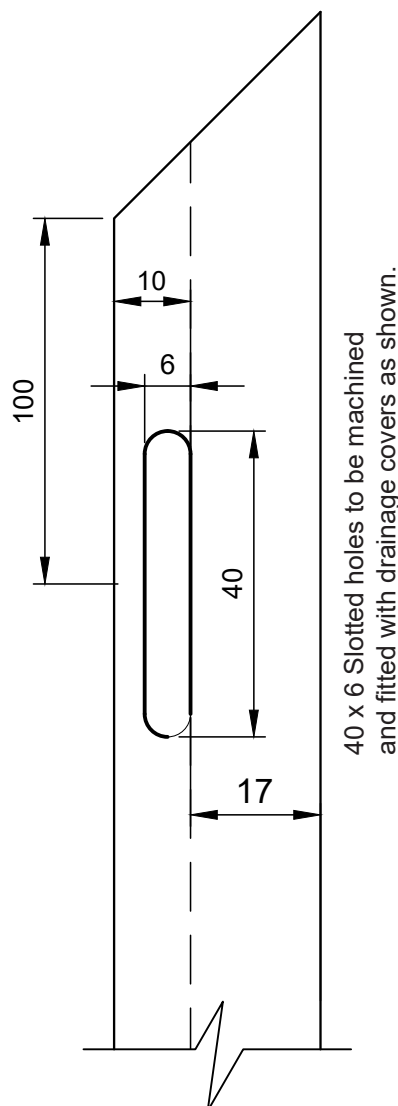
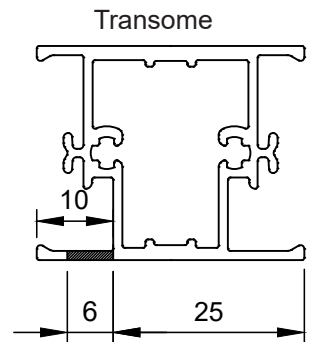
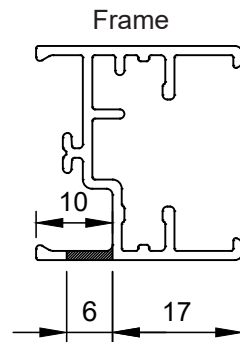
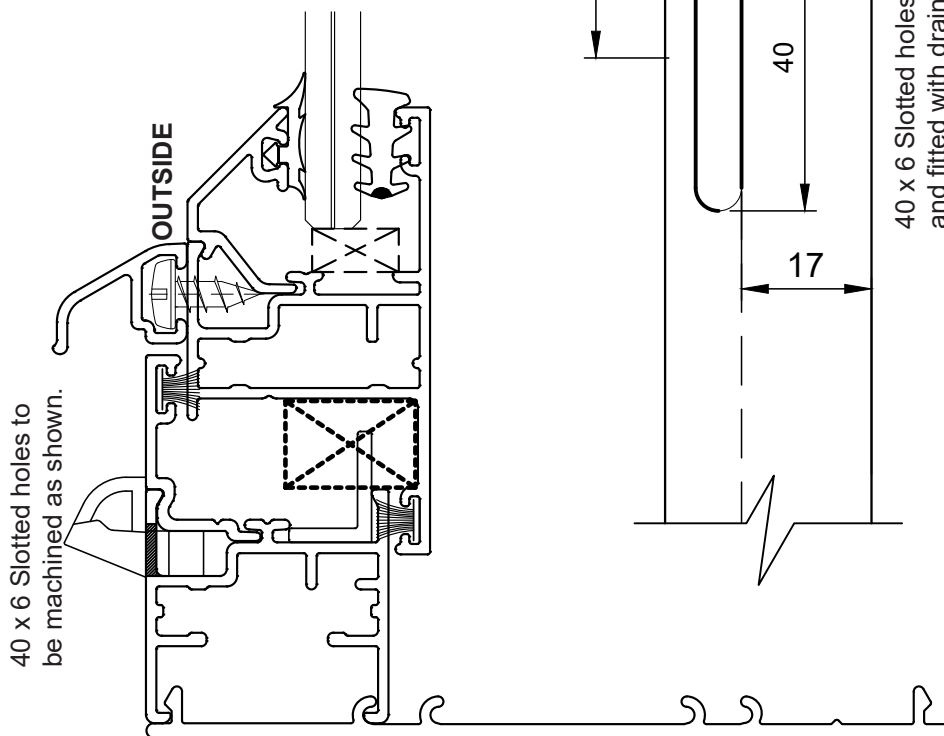
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**MACHINING DETAILS****FRAME/TRANSCOME DRAINAGE DETAIL**

Slotted holes to be machined as shown. For windows wider than 480 mm, 3 slotted holes required, & for windows wider than 700 mm, 4 slotted holes are required.



**MACHINING DETAILS****BOTTOM ADAPTOR DETAIL**

DIE No. W36275

Evolution Adaptor

Machining of the bottom Adaptor (which is located on the outside of the window) need only be done where there is a sash. Remember to fit the Adaptor with the finseal as shown before fitting the friction stays.

Note where silicone needs to be applied before fitting the Inner beads.

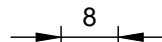
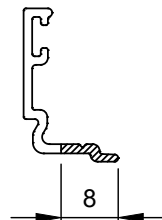
**OUTSIDE****OUTSIDE**

Slotted hole on the frame

Cut-out on Adaptor

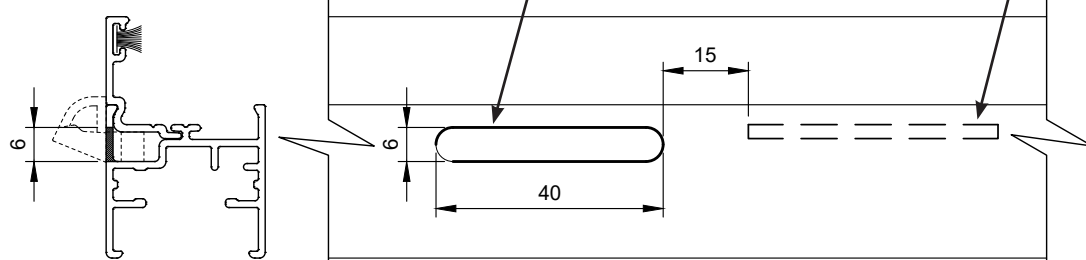
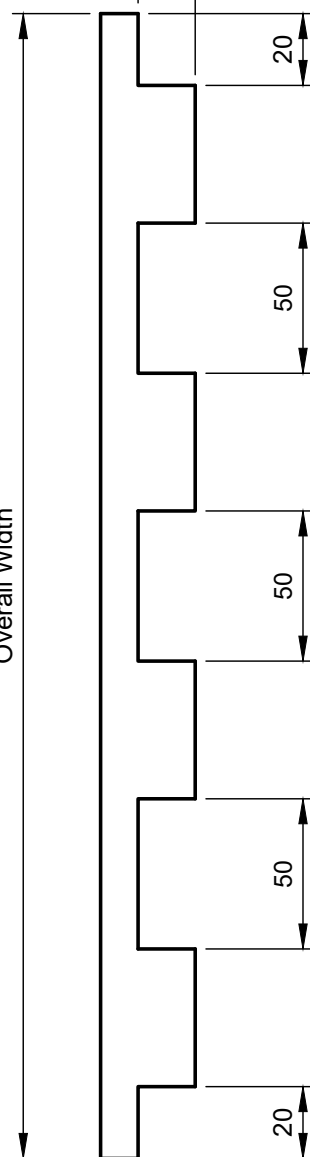
Ensure that the cut-outs in the bottom Adaptor do not line up with the slotted holes in the outer frame or transome where the sash is located.

The Adaptors are never mitred, only square cut. The horizontal Adaptors are fitted across the full daylight opening, & the vertical Adaptors are cut 31 mm shorter than the daylight opening.

**Bottom Adaptor**

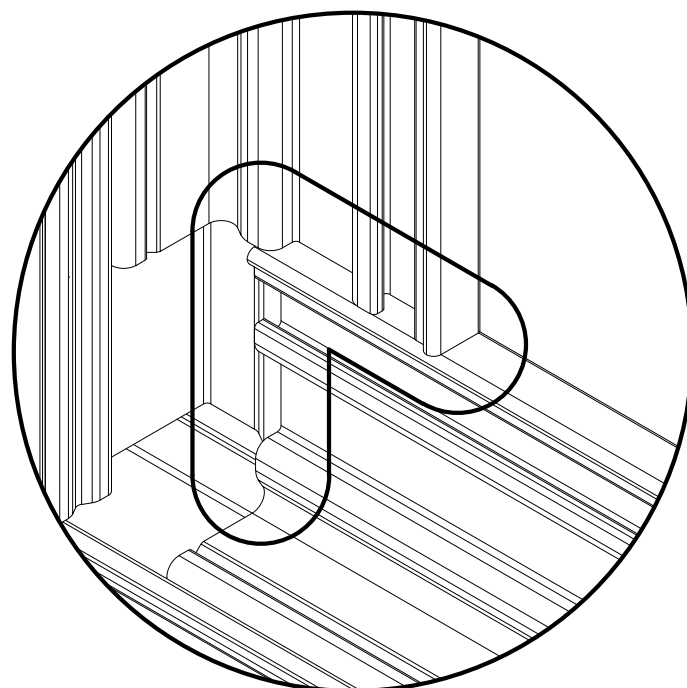
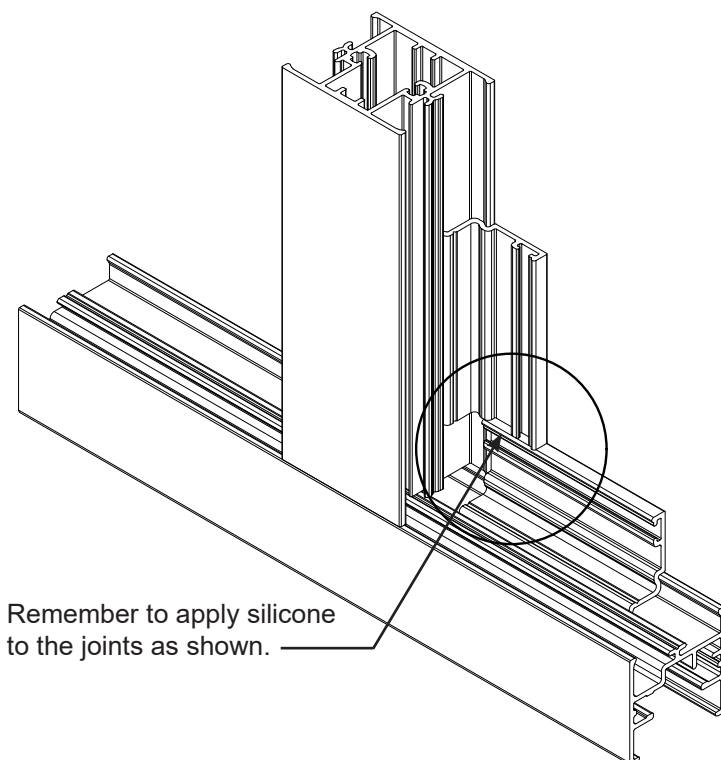
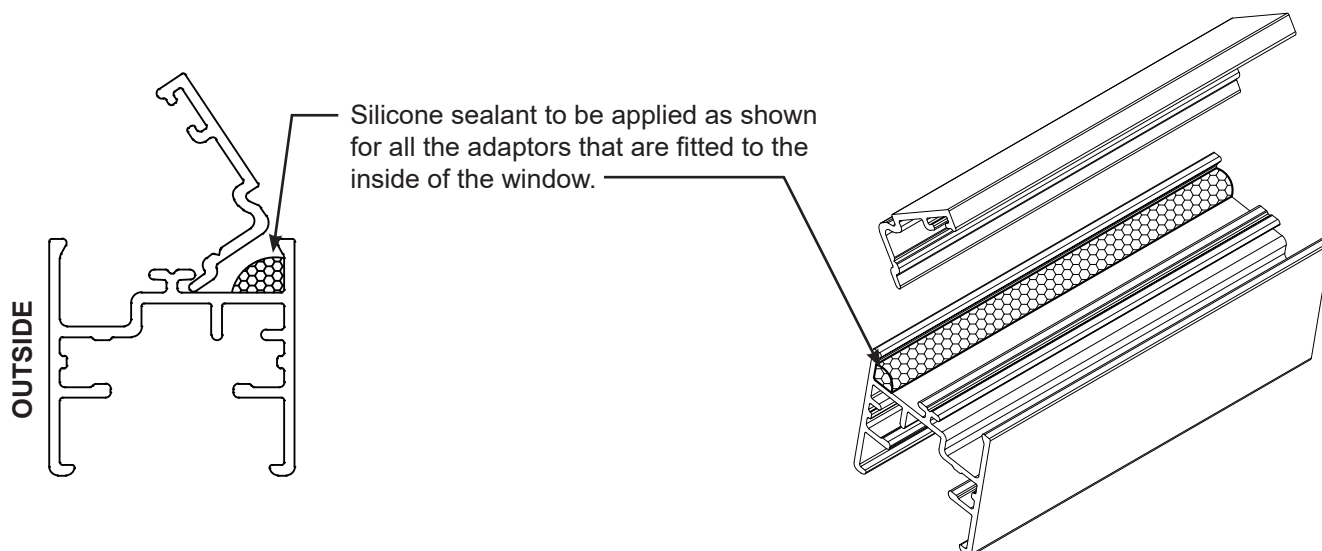
Ensure that the cut-outs in the bottom adaptor do not line up with the slotted holes in the outer frame or transome where the sash is located.

Overall Width



**Note:**

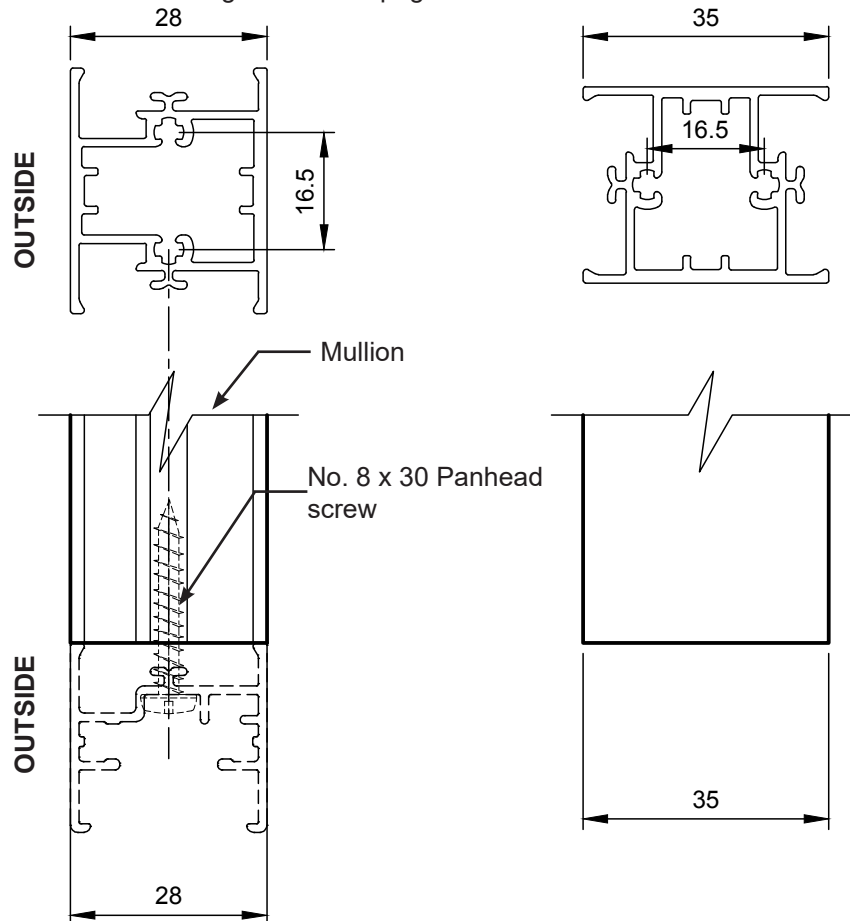
**All adaptors that are fitted to the inside of the window, as well as the Inner beads are to be sealed with Crealco silicone sealer.**



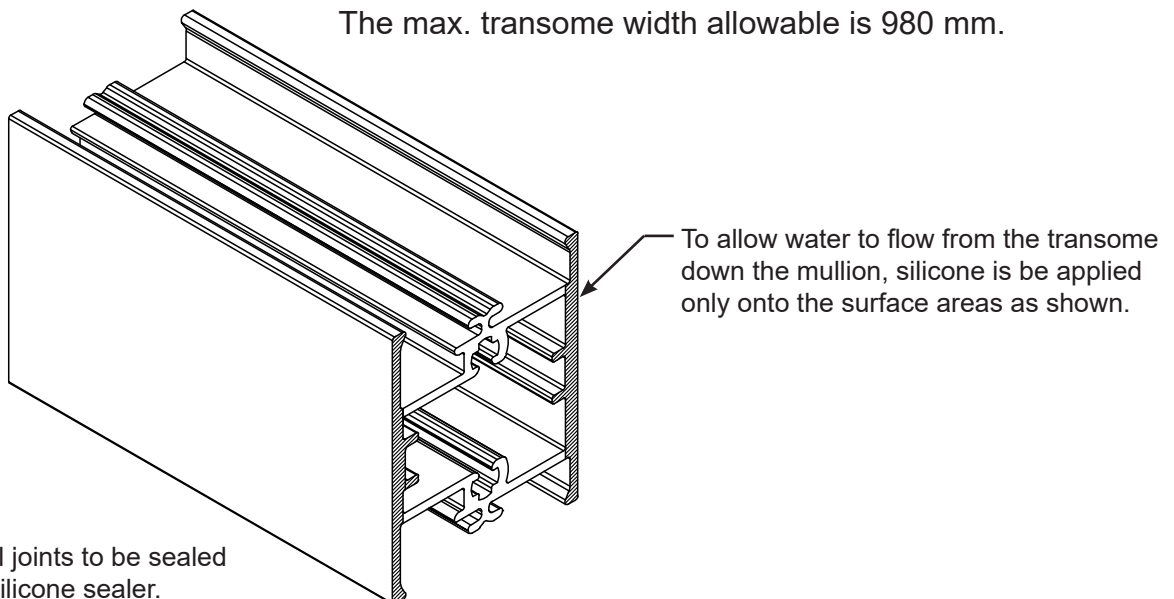
DIE No. W58086

Evolution Mullion 28 mm

NB: Where there are sashes located in relation to the transome, the transome needs to be machined for the relevant drainage slots as well. See drainage details on page 13.

**NOTE:**

The max. transome width allowable is 980 mm.

**Note:**

All mechanical joints to be sealed with Crealco silicone sealer.

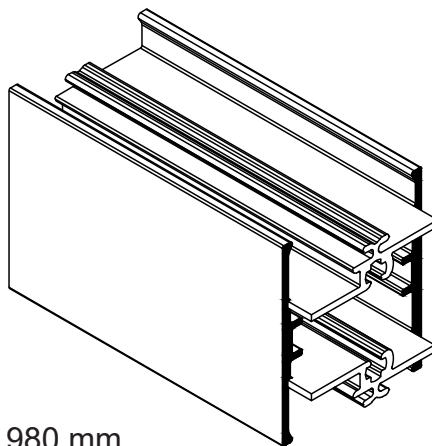
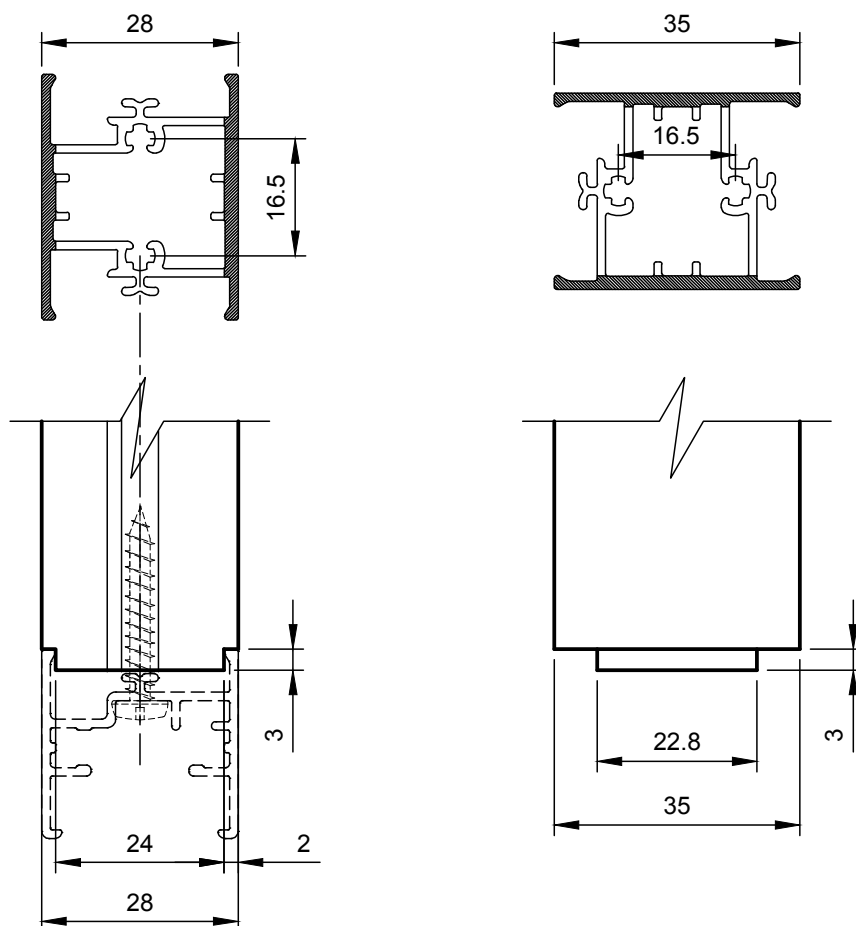
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DIE No. W58086

Evolution Mullion 28 mm

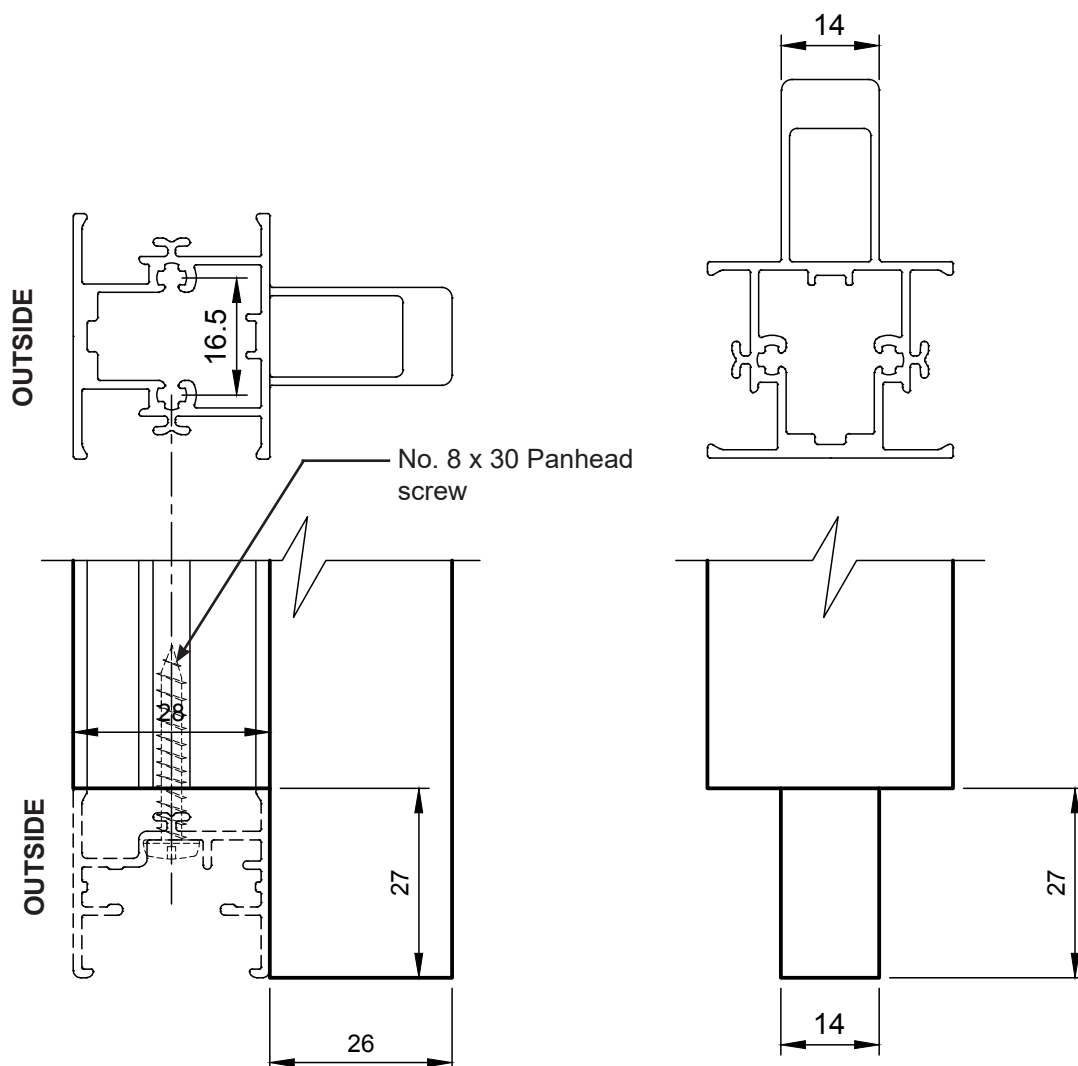
NB: Where there are sashes located in relation to the transome, the transome needs to be machined for the relevant drainage slots as well. See drainage details on page 13.

**NOTE:**

The max. transome width allowable is 980 mm.

**NOTE:**

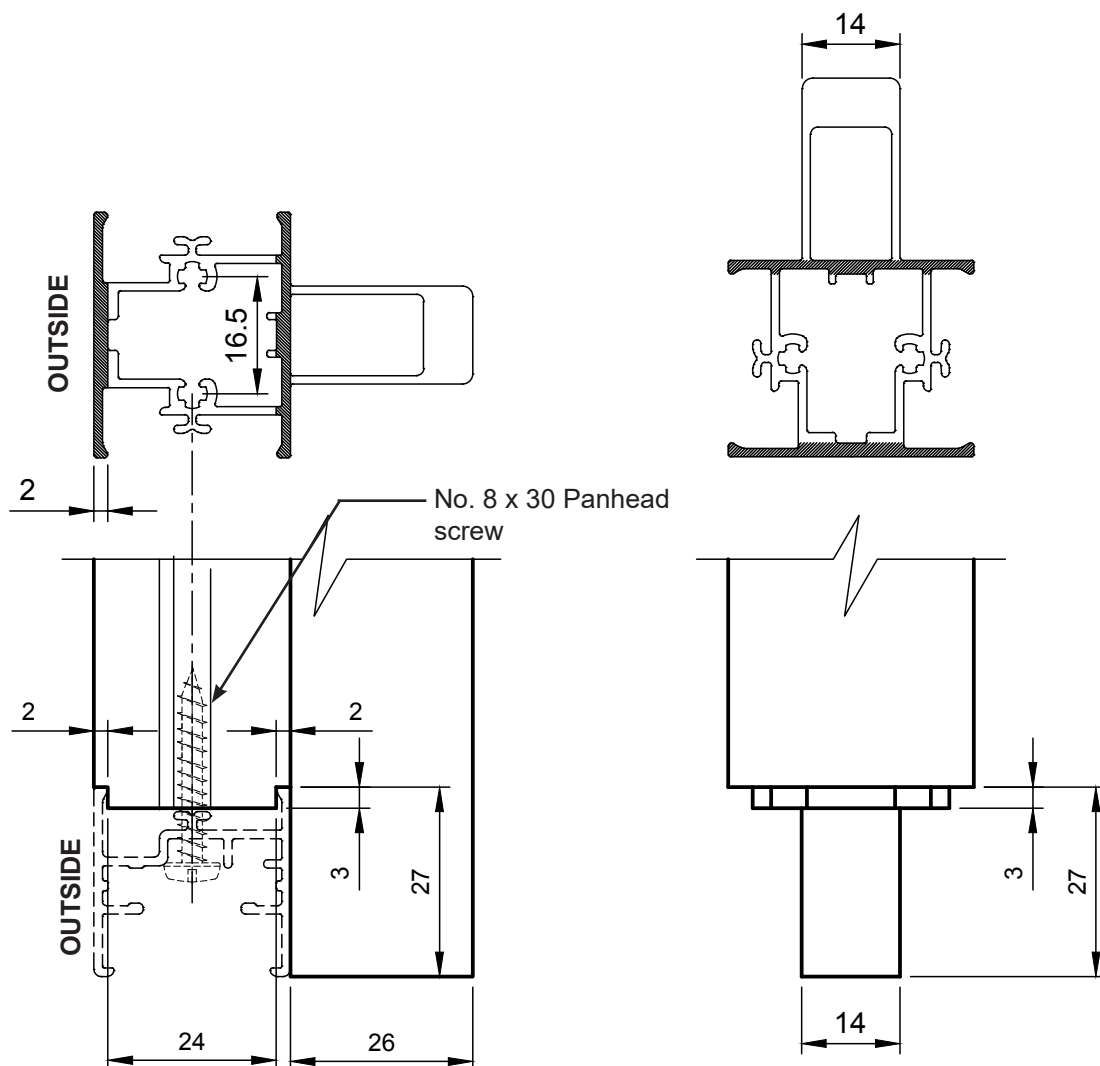
The heavy duty mullions are not designed to be suitable as transomes due to sash handle interferences.





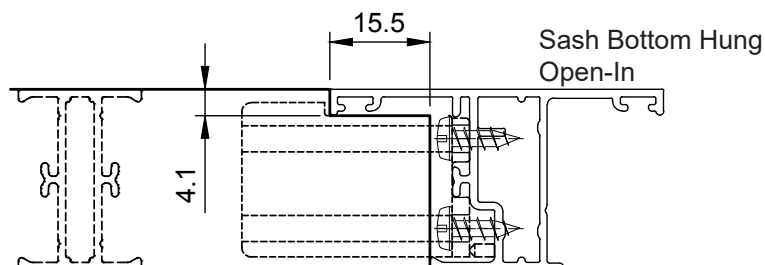
**NOTE:**

The heavy duty mullions are not designed to be suitable as transomes due to sash handle interferences.

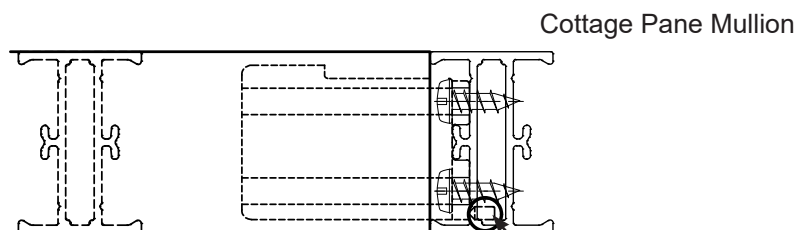
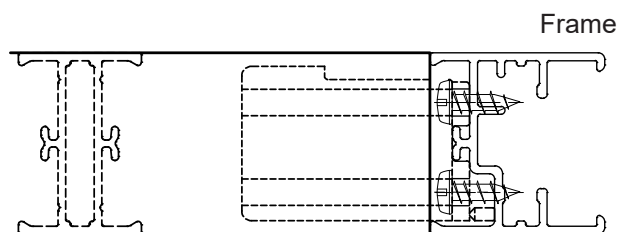
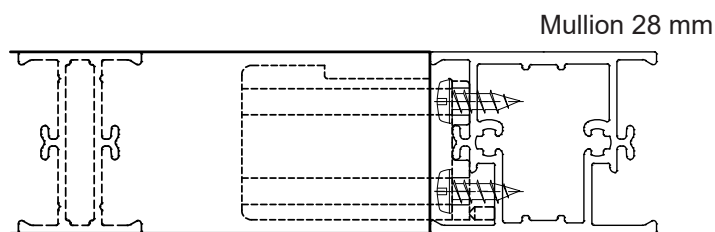


DIE No. W58120

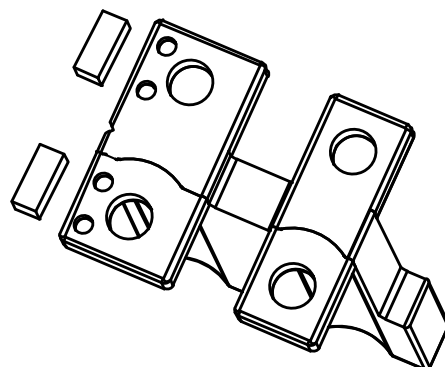
Evolution Mullion Cottage Pane



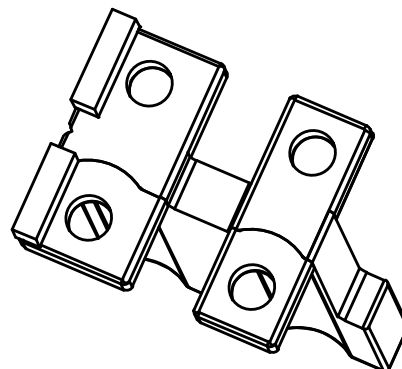
**NB !!** For Sash Bottom Hung Open-In profiles, the cottage pane mullion requires machining as shown.

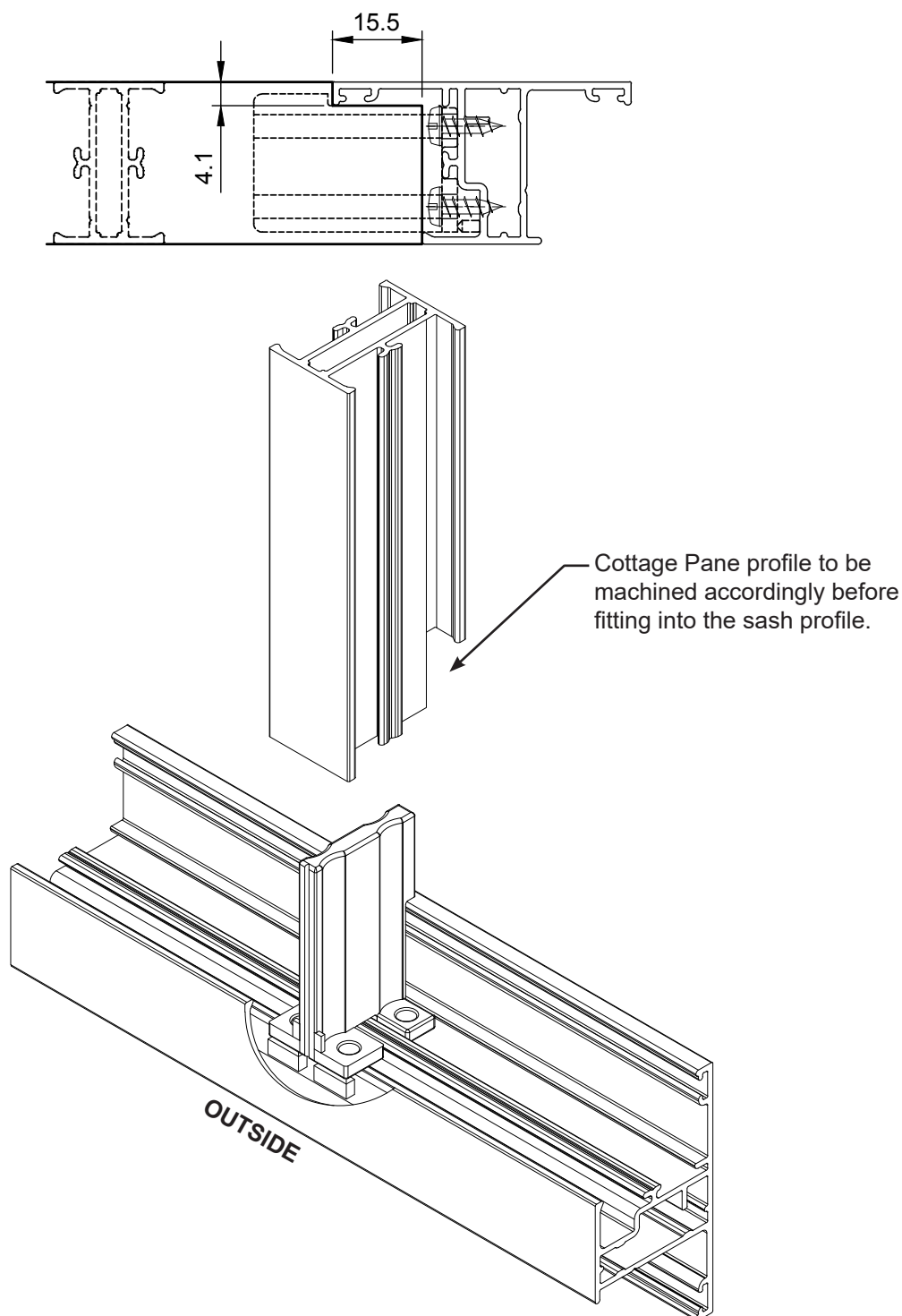


**NB !!** For the fitting of the mullion connector to a cottage pane profile, the 2 small blocks are not required.

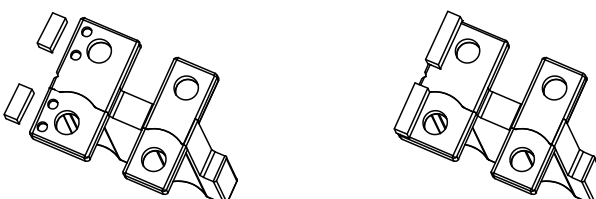


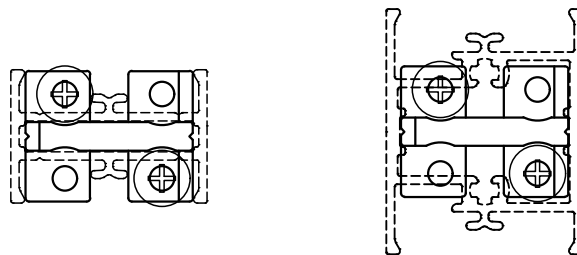
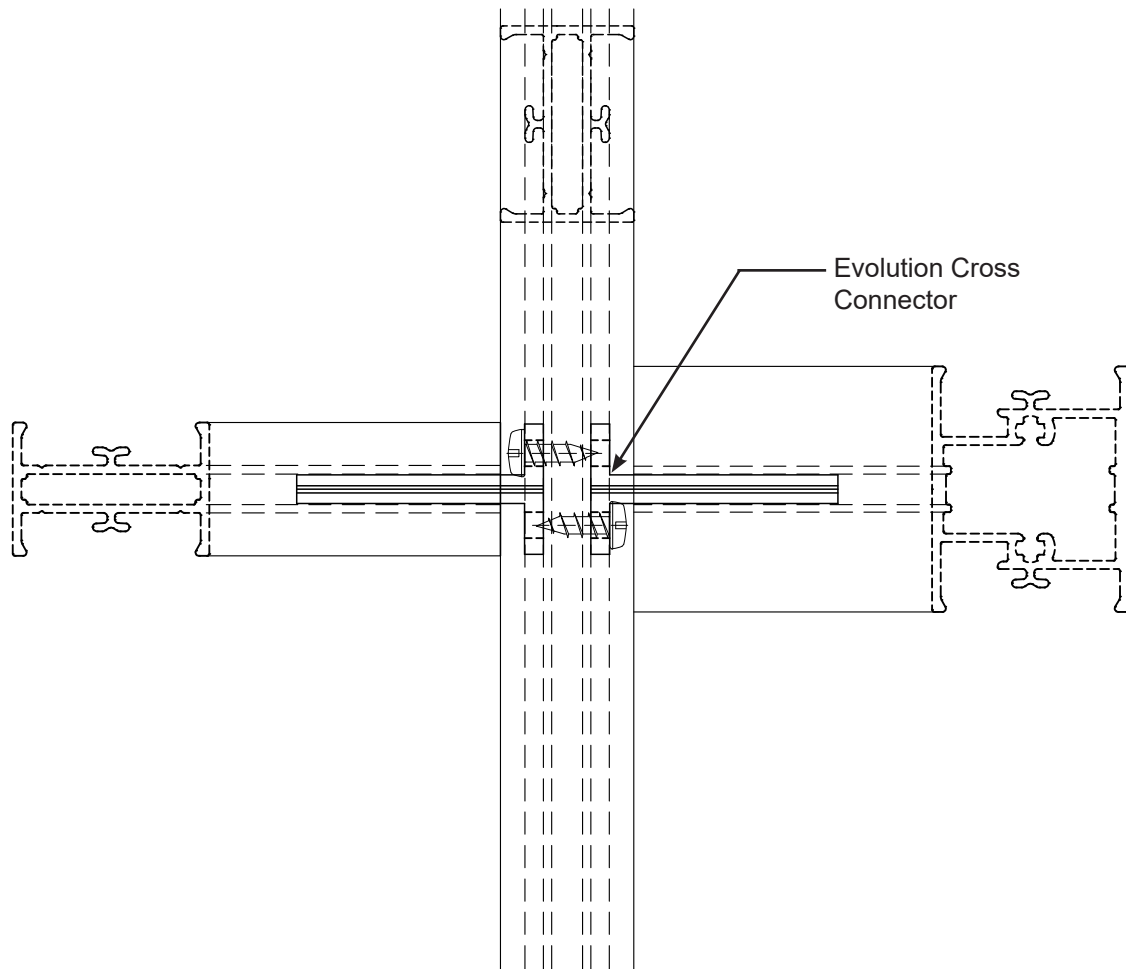
The Evolution cross connector has 2 small blocks with pips, which locate onto the underside of the cross connector. Only the cottage pane profile does not require the 2 blocks to be fitted to the cross connector.



**ASSEMBLY DETAILS****COTTAGE PANE WITH THE SASH PROFILE**

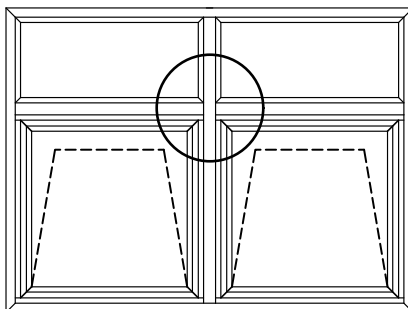
The Evolution cross connector has 2 small blocks with pips, which locate onto the underside of the cross connector. Only the cottage pane profile does not require the 2 blocks to be fitted to the cross connector.



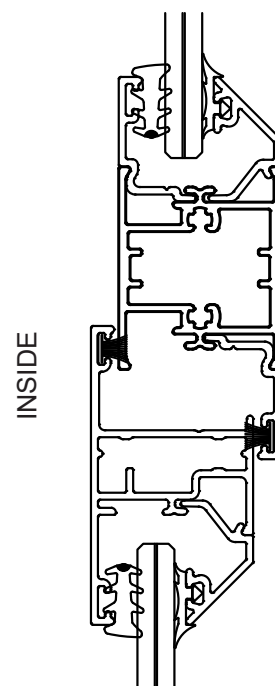
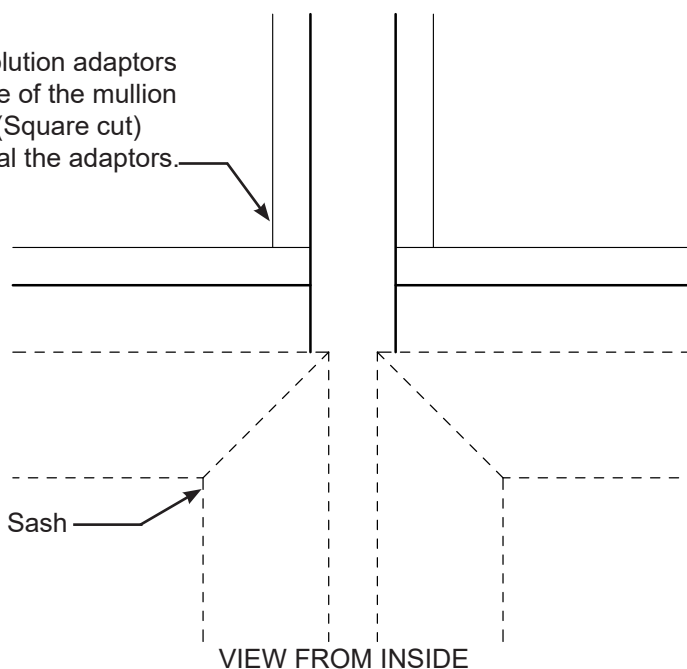
**ASSEMBLY DETAILS****COTTAGE PANE MULLION/TRANSOME**

Position of Mullion connector with a cottage pane & mullion profile.

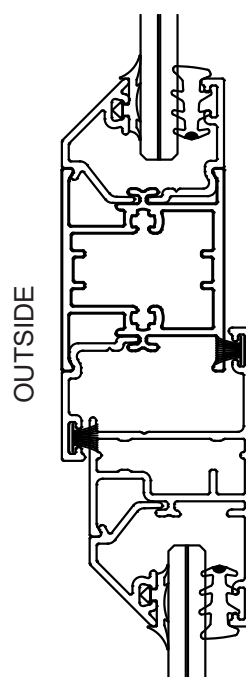
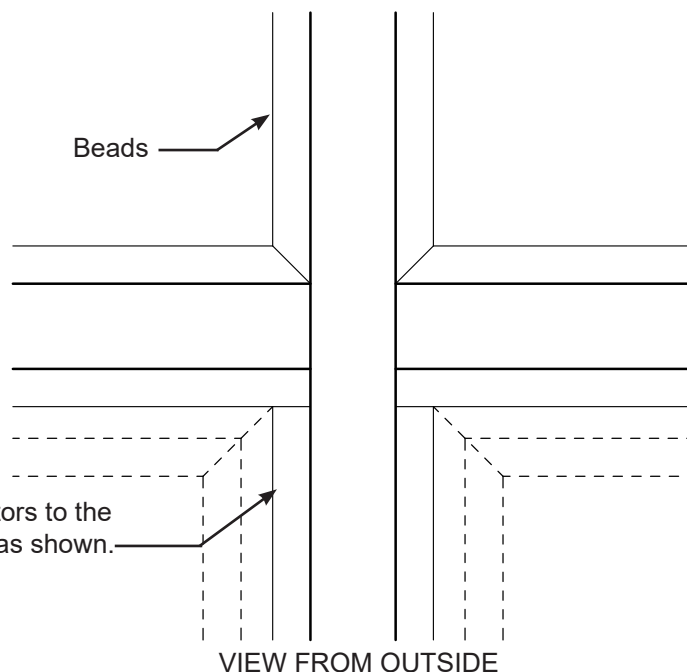
ELEVATION AS VIEWED FROM THE OUTSIDE



Fit the Evolution adaptors to the inside of the mullion as shown. (Square cut)  
Silicone seal the adaptors.



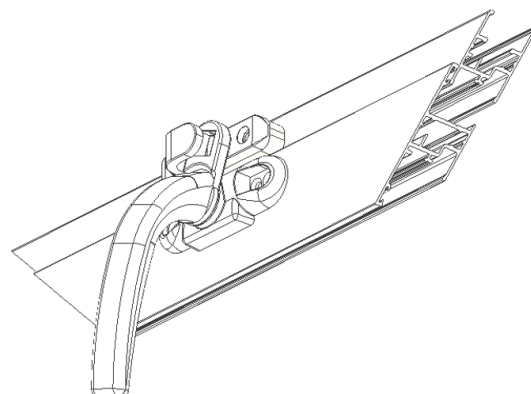
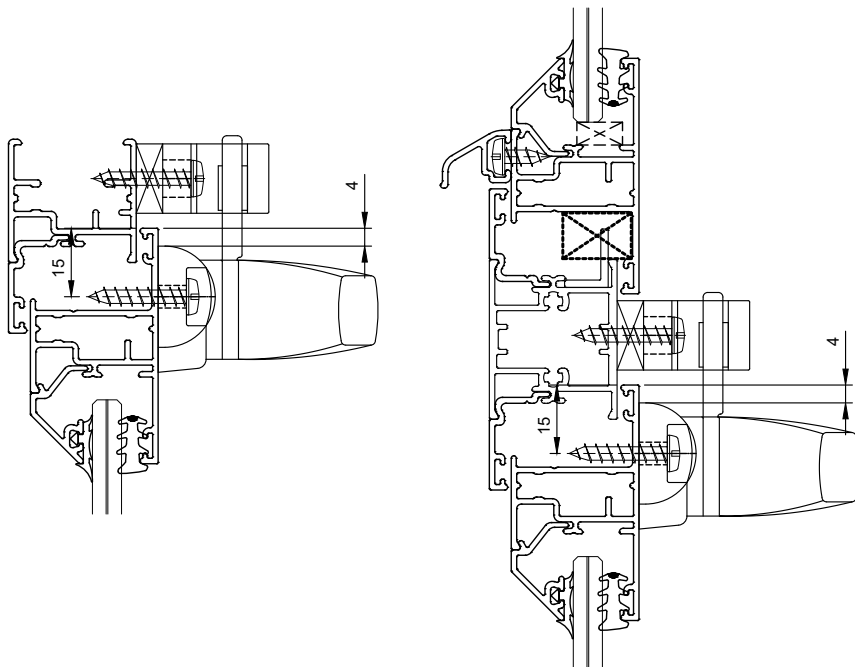
Beads



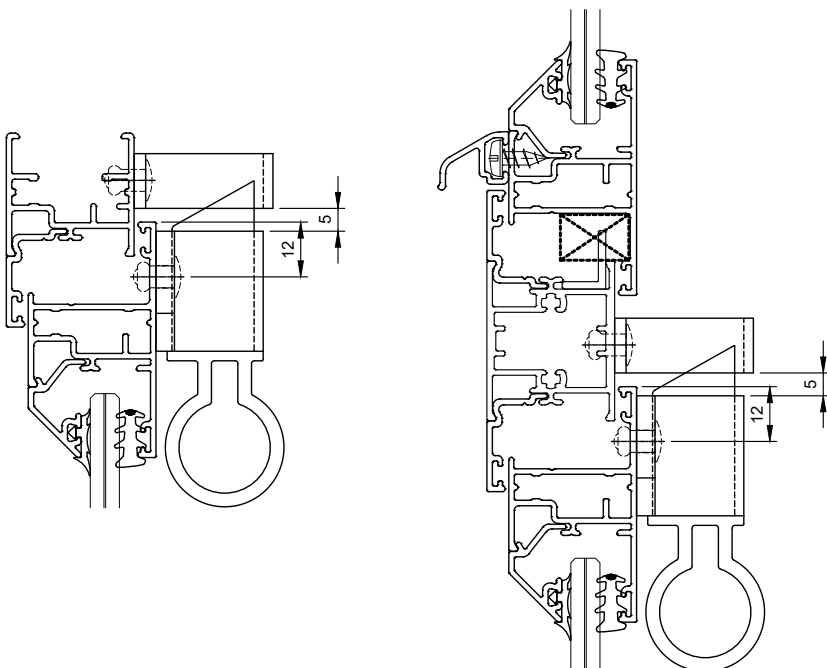
Fit the Evolution adaptors to the outside on the mullion as shown. (Square cut)

**ASSEMBLY DETAILS****FITTING OF HANDLES****Crealco Handle**

These handles are for low level windows

**Crealco Finger Catch**

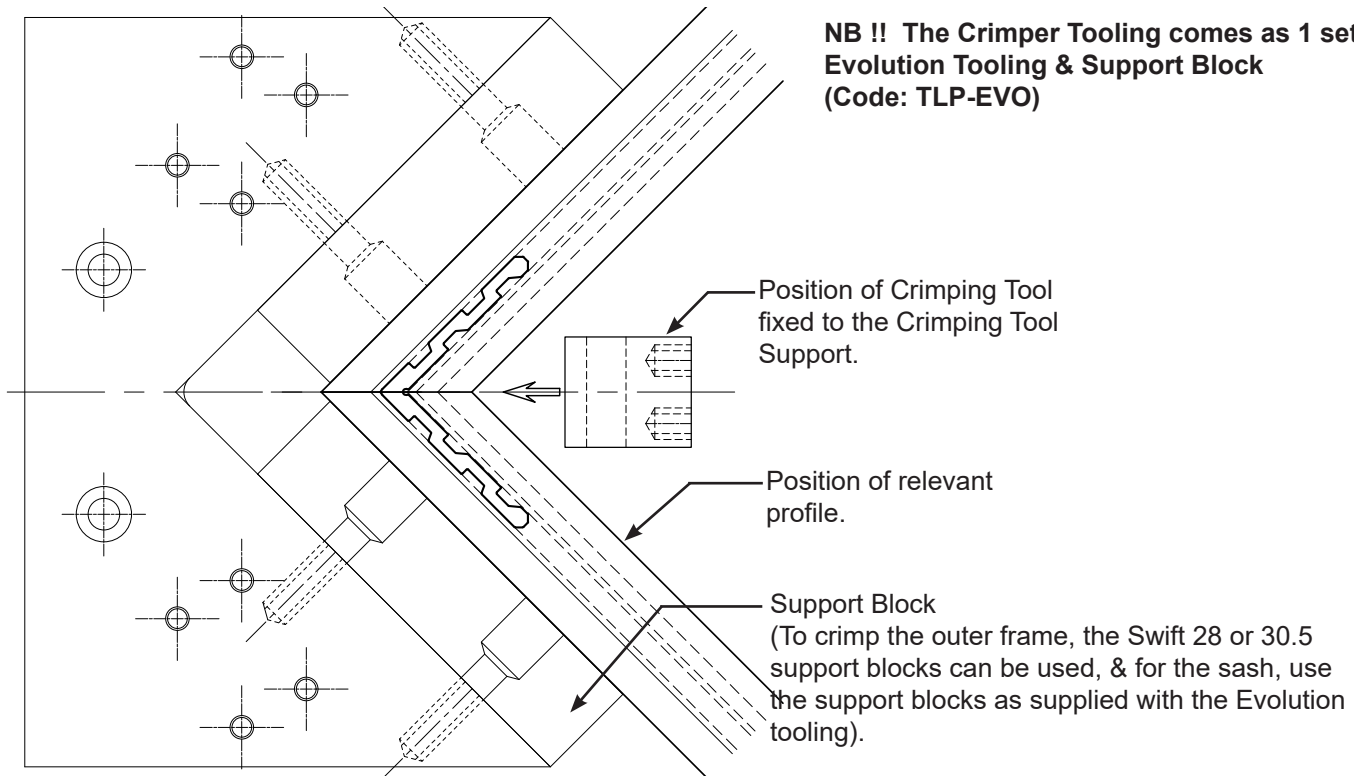
These handles are for high level windows



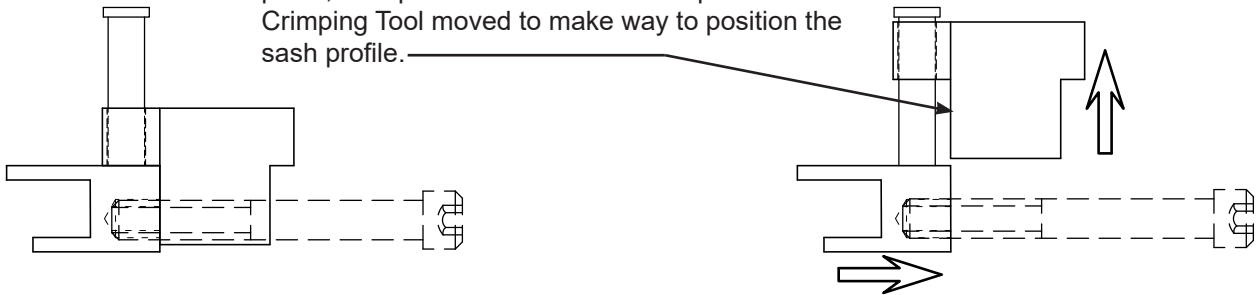


**ASSEMBLY DETAILS****FITTING OF CRIMPER SUPPORT BLOCKS**

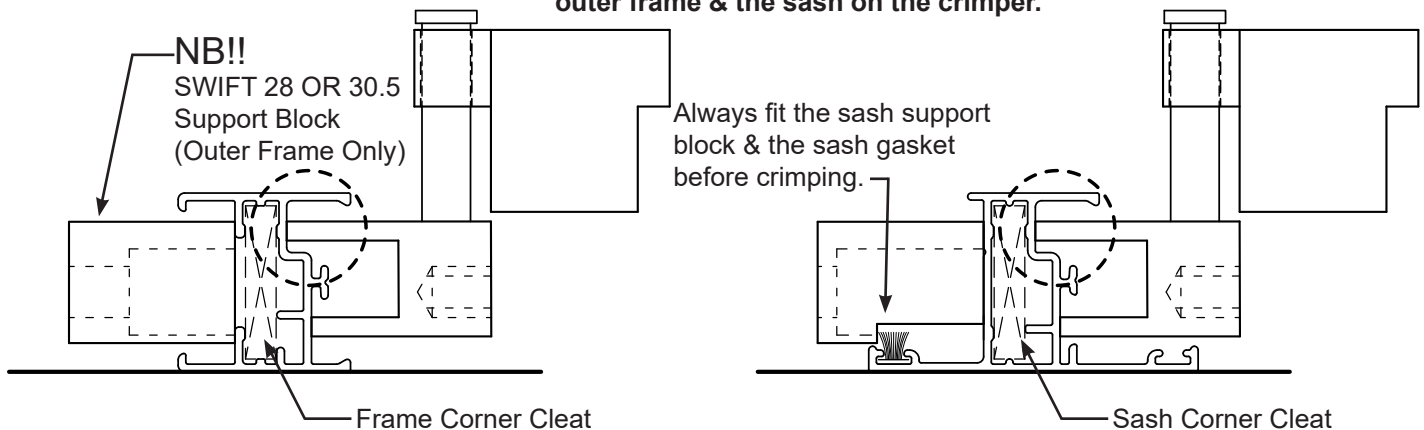
**NB !!** The Crimper Tooling comes as 1 set.  
Evolution Tooling & Support Block  
(Code: TLP-EVO)

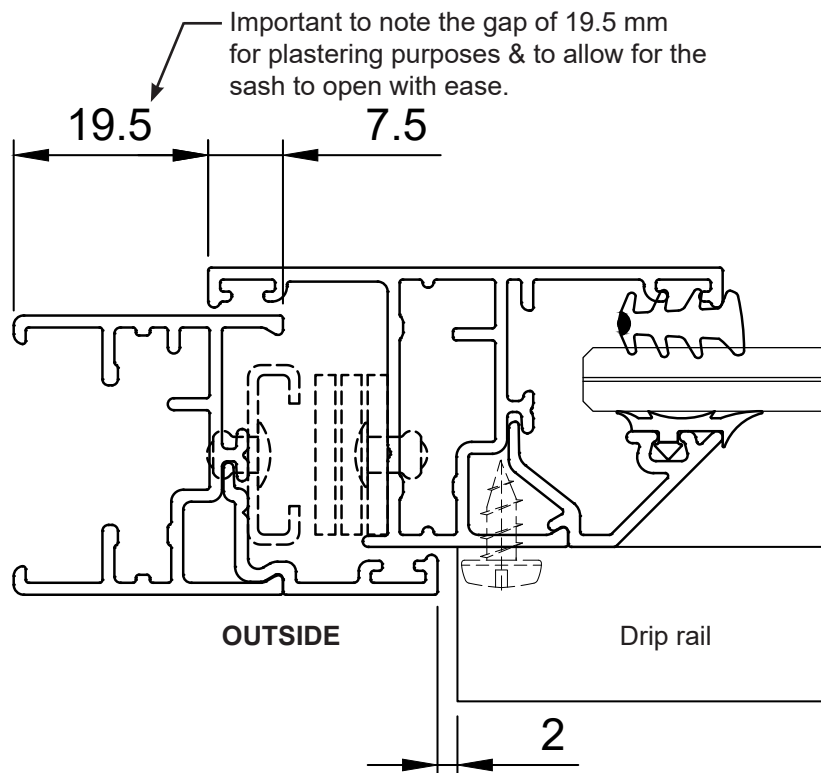


Note the Crimping Tool has a spacer which moves up & down. When placing the sash profiles into place, the spacer needs to be lifted up & the Crimping Tool moved to make way to position the sash profile.

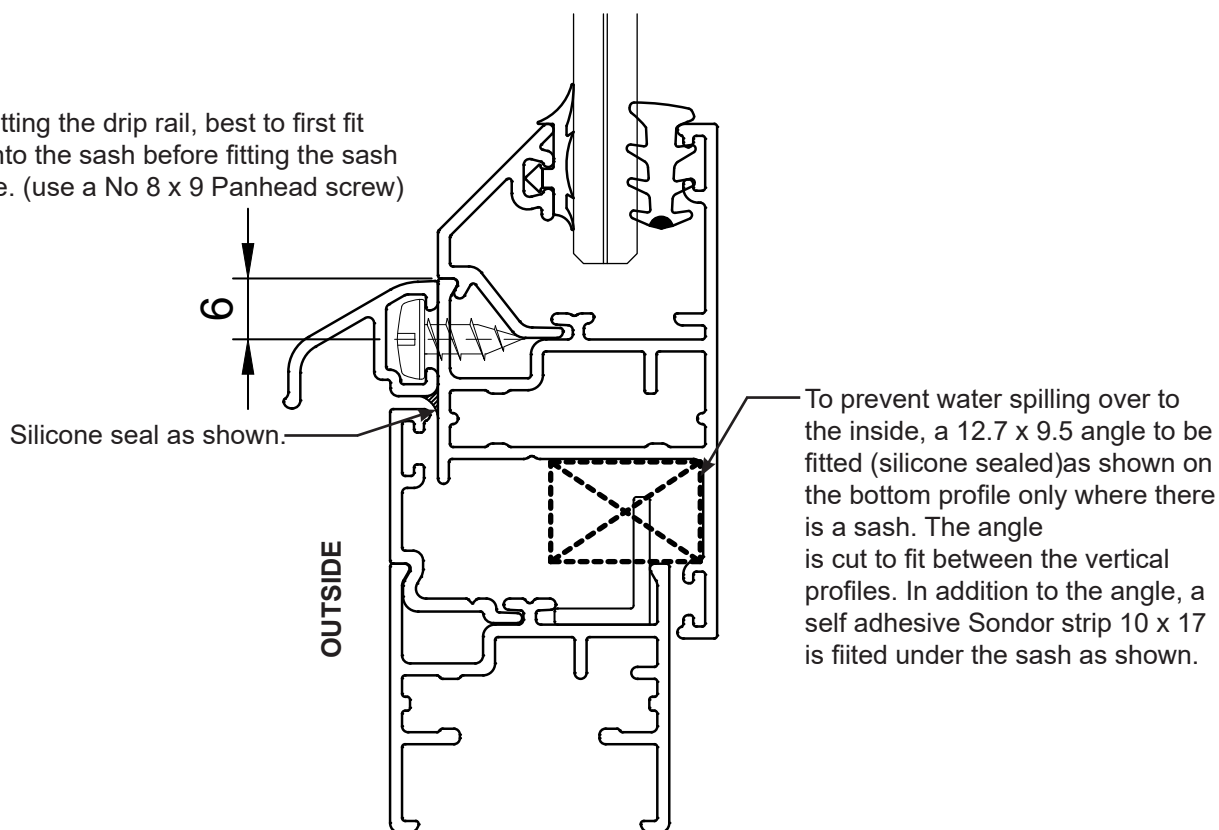


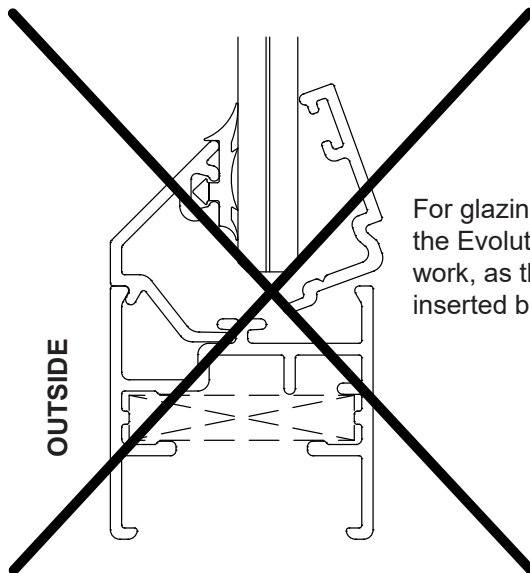
**Important to note the position of the outer frame & the sash on the crimper.**



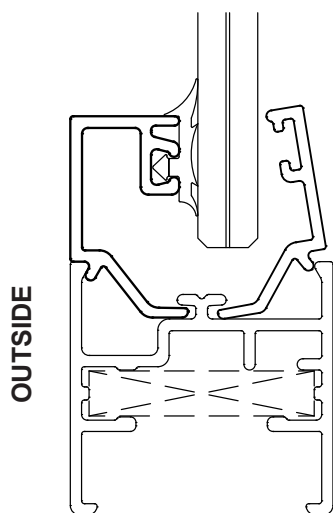
**ASSEMBLY DETAILS****PLASTERING GAP ON FRAME**

For ease of fitting the drip rail, best to first fit the drip rail onto the sash before fitting the sash into the frame. (use a No 8 x 9 Panhead screw)

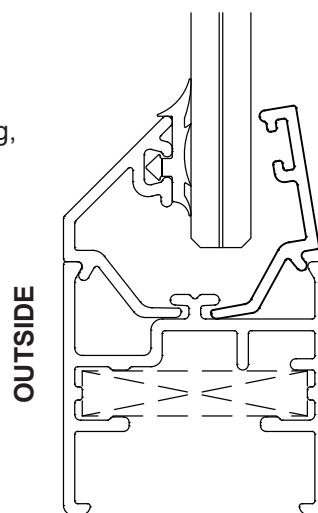


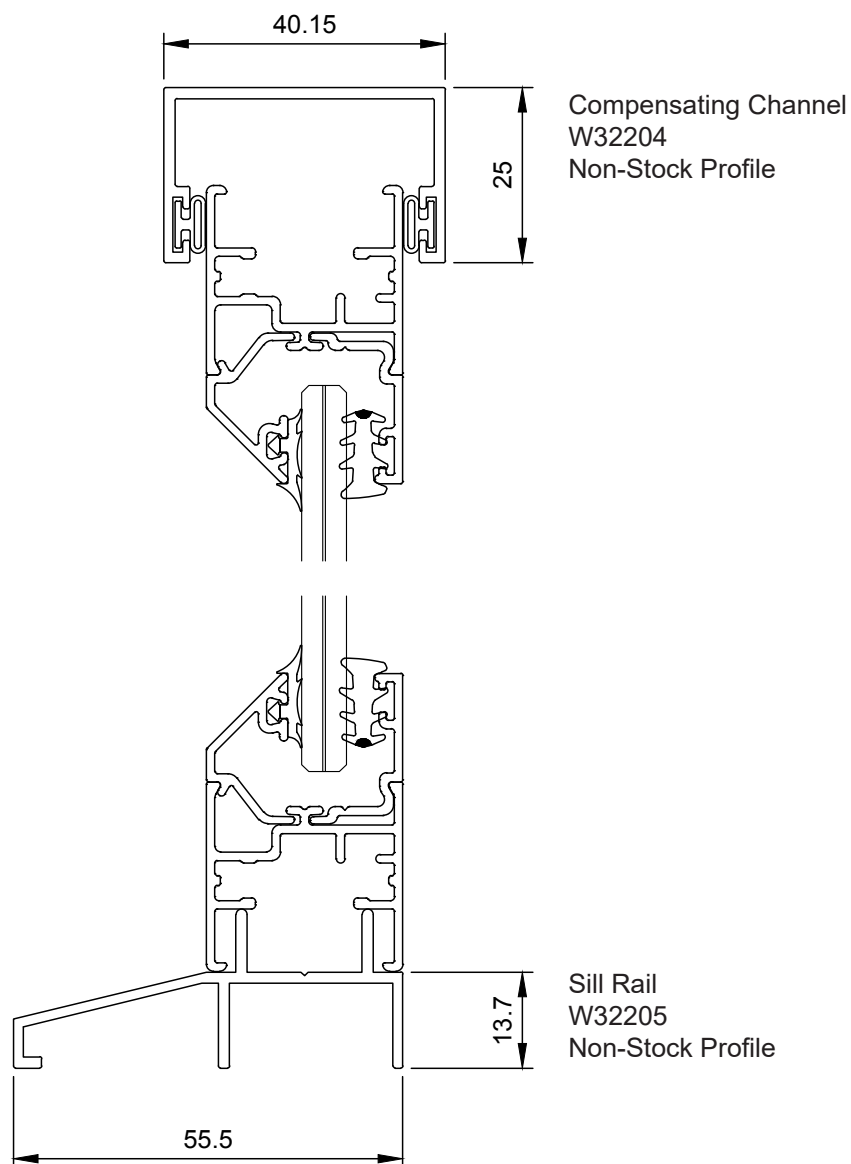


For glazing from the inside of a building, the Evolution adaptor (W36275) will not work, as this profile is meant to be inserted before the bead is fitted.



For glazing from the inside of a building, the Evolution Inner bead (W37100) will be required.



**ASSEMBLY DETAILS****COMPENSATING CHANNEL & SILL RAIL**

**GLAZING PROCEDURES****GASKET INSTALLATION****Note:**

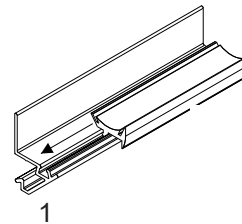
Insert the pull-in vinyl gasket into the glazing bead by sliding or pressing it into the groove (1). Before cutting the gasket, ensure that it has not been stretched & cut 6 mm longer so that the corners are in compression at all times.

Position the bottom glazing bead in the glazing bead rebate of the relevant profile (2).

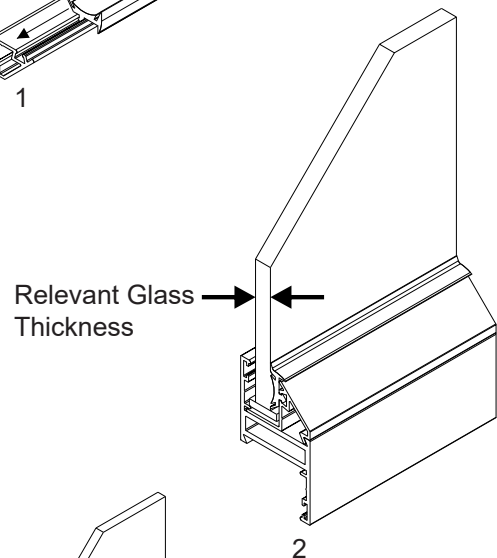
Place the glass onto the crealco glass setting blocks (3).

Insert the top then the side glazing beads ensuring that they are correctly positioned into place.

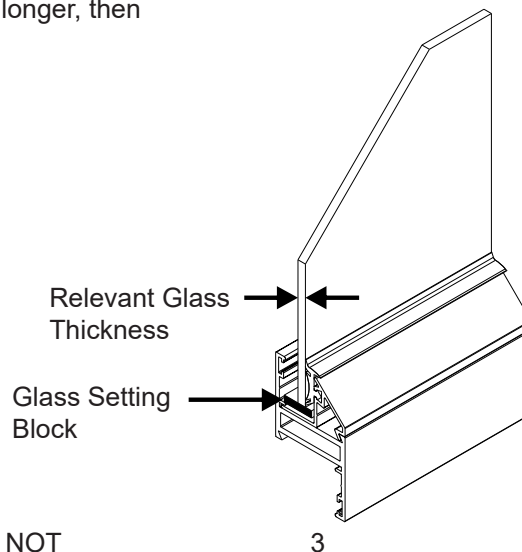
Starting from the top centre, insert the wedge gasket (4) without stretching it. Stop 150mm from the corner & partly cut the wedge gasket 6 mm longer than the vertical bead. Insert the gasket into the corner & then roll in remaining 150 mm (5). Repeat this on the other sides. Where the gasket end meets, cut the gasket 6 mm longer, then insert.



1

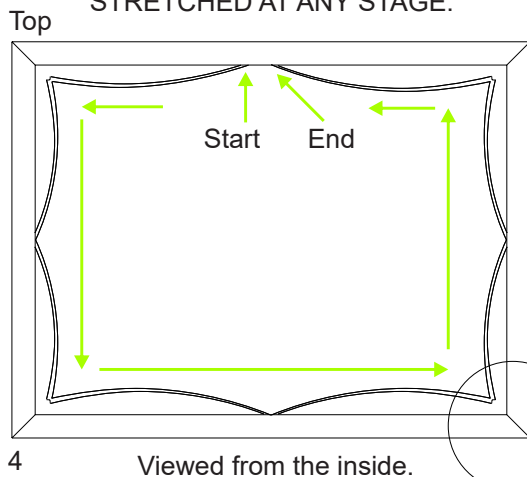


2



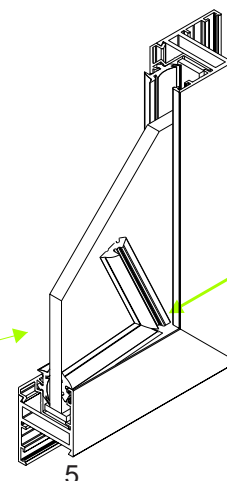
3

**ENSURE GASKETS ARE NOT STRETCHED AT ANY STAGE.**



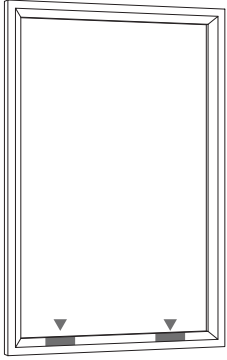
4

Viewed from the inside.

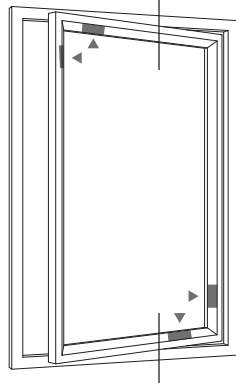
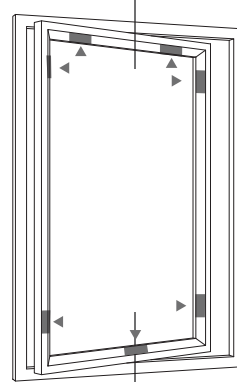
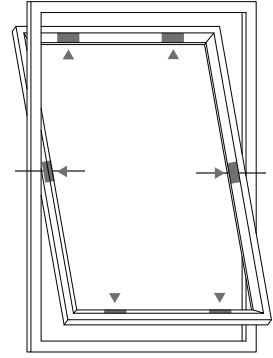
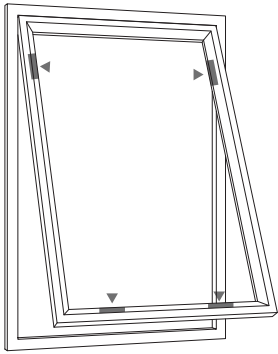


5

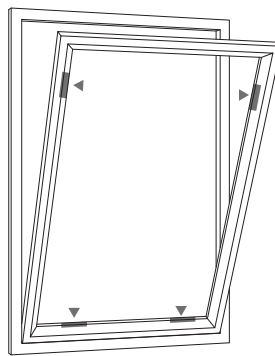
Notch gasket at the corners.

**GLAZING PROCEDURES****POSITIONING OF SETTING BLOCKS****FIXED**

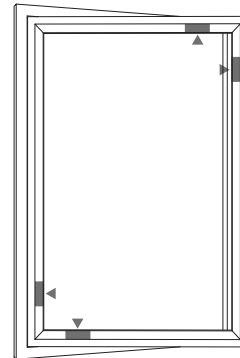
Fixed Light

**PIVOTING**Vertical Pivot  
(hung off-centre)Vertical Pivot  
(hung centrally)Horizontal Pivot  
and reversible**CASEMENT**

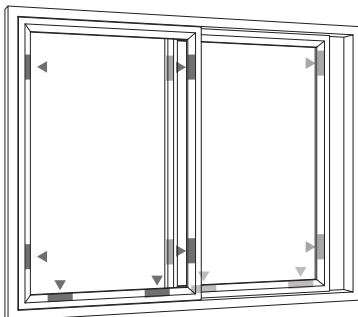
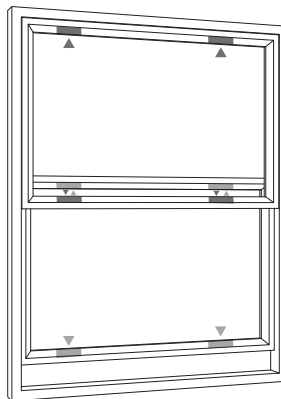
Top Hung



Bottom Hung



Side Hung

**SLIDING**Horizontally sliding  
6 setting blocks per paneVertically sliding  
6 setting blocks per pane**GLAZING****1. Selection of glazing methods.****1.1 Glass Setting Blocks.**

Glass to metal contact must be avoided at all times by using approved crealco setting blocks which have a shore hardness of 50 to 90 shore hardness.

Use only setting blocks made of Neoprene, EPDM, Silicone or other elastomeric materials.

Setting blocks are to have a minimum thickness of 3 mm & must be at least 27 mm in length per square metre of glass area.