



BUG-Alutechnik

WOOD PLUS

Aluminium-Profile System
for Wood Windows



Edition January 2008



| | Page |
|--|---------|
| Profile system for wood windows | 3 |
| Installation instruction | 4 – 8 |
| System profiles and accessories | 9 – 13 |
| Roller shutter rails | 14 |
| Window types | 15 |
| Structural sectional views for 16 mm overlapping and glass lap | 16 – 30 |
| Structural sectional views for 18 mm overlapping and glass lap | 31 – 33 |
| Structural sectional views for System with 19 mm lap dimension | 34 – 35 |
| Structural sectional views below for system RD 19 | 36 |
| Element joint profile | 37 |
| Building connections | 38 – 43 |
| Installation in winter garden | 44 – 45 |
| Corner structure | 46 |
| Systems overview | 47 – 50 |

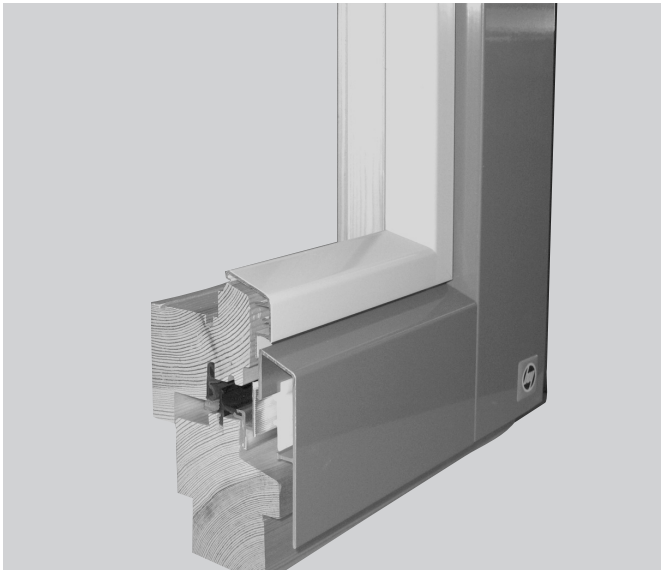
Ü mark for BUG profiles

BUG aluminum extruded profiles are provided with the Ü mark according to the building product law.



This brochure replaces all earlier versions.
Changes due to technical progress are reserved.

Weather protecting for wood windows



WOOD PLUS – the wood protection by design from BUG

The most efficient and most durable protection for wood windows against weather damages is a aluminum covering on the outdoor side, which allows an individual color design.

The aluminum profiles are applied to the finish wood window with a new patented clip-on connection and ensure the wood protection by design.

It is an advantage for window manufacturers that the system WOOD PLUS can be mounted on the wood window without further milling works.

Suitability and scope of application

The profile system WOOD PLUS is suitable for all wood windows manufactured according to DIN 68 121.

The guideline for wood metal window designs, issued by the association of the windows and Facade manufacturers registered association in Frankfurt, as well as the guideline for aluminum-wood window, issued by i.f.t. Rosenheim, are the basis for the respective facades for design, planning, manufacturing and installation.

The length of the aluminum profiles is the approved window size according to DIN 68 121

Technical rules, DIN standards

Precondition for a reliable function of our profiles and system-components is compliance with technical rules and relevant standards and guidelines during the design phase and manufacturing of wood windows and wood window doors.

Self cleaning glazing may not be provided with silicon sealing material, but require sealing material especially approved by the glass supplier.

Selection of the profile and system components

BUG profiles and system components are available in various designs. The correct selection of the profile and system components depends on the purpose of use and the realistic installation condition at site. It is therefore exclusively the responsibility of the company performing the installation works.

The drawings contained in our brochure can of course not consider these circumstances, but serve only for providing the detailed dimensions of our profiles and deliver individual processing instructions. They are thus not to be understood as design instructions for the window manufacturing.

Usage of the system tested components

The present documented system components are designed to match. It is expressly stressed, that a proper function is not guaranteed if instead of original BUG system components, components from other suppliers are being used.

Technical trademarks

We are stating that our products are trademark and patent rights protected.



Processing instructions

The follosash processing instructions must be observed during manufacturing. This information corresponds to the current status of knowledge. Moreover applying standards, guidelines and installation instructions of other suppliers, such as for sealing material, glass etc. must be observed. We are not liable for damages arising from improper handling.

Wood-aluminum structures have a lot of joints because of their design, which may cause noise by movements, independently of their the origin. The guideline for wood metal window designs HM.01, issued by the association of the window and facade manufacturers registered association in Frankfurt points in the edition of September 2002 under point 4.8 at the subject of length depending expansions of metal parts and allows a development of noise.

For renovation works the suitability of the already existing profile and system components must be checked.

System profiles

The aluminum profiles are supplied in lengths of approx. 6,000 mm ex stock with surface treatment.

This made by anodic oxidation according to the quality guidelines EURAS/EWAA; or with color coating according to the quality guidelines of the quality association for coated components manufacturing registered association.

Cutting of profiles

For cutting the profiles we are recommending the usage of miter circular saws with length limit stop and hydraulic or pneumatic feeding. Generally saw blades made of hard metal are required.

In order to achieve an accurate cut the profiles must be clamped with the appropriate wooden parts.

Thermal length changes of the profiles must be considered.

Fixing the profiles

The holder for sash and frame profiles must be installed with corrosion resistant screws, preferably stainless steel screws, on the wooden frames correctly aligned.

Work processes for sash

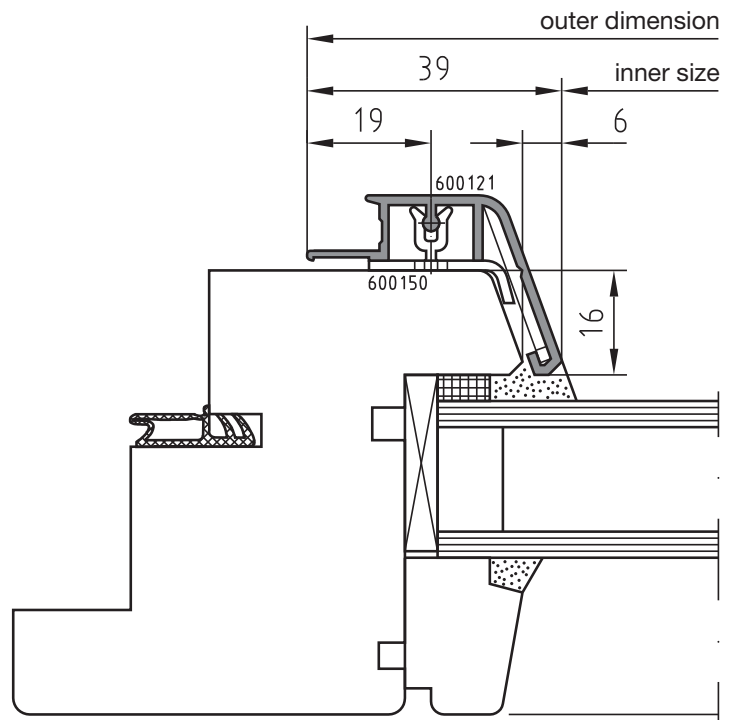
Specification for the aluminum sash dimensions

The sash profiles are cut with mitered joint

Cut dimension = Wood sash gap minus
 $2 \times 6 \text{ mm} = 12 \text{ mm}$
 equals the inner size
 of the aluminum profile

or if applicable

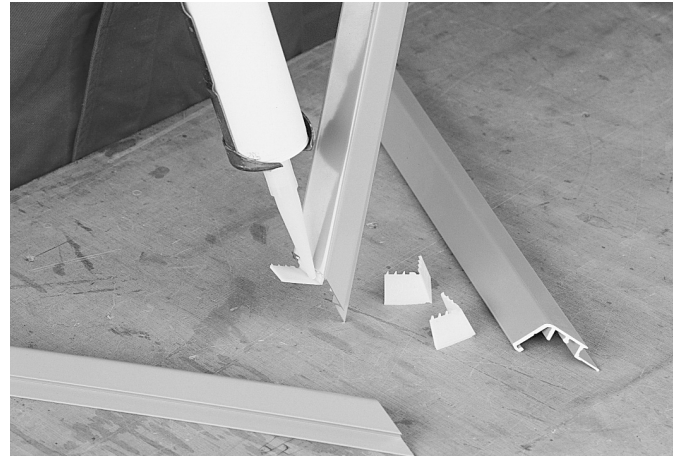
Cut dimension = Wood sash gap plus
 $2 \times 33 \text{ mm} = 66 \text{ mm}$
 equals the outer dimension
 of the aluminum profile





Producing the sash frame

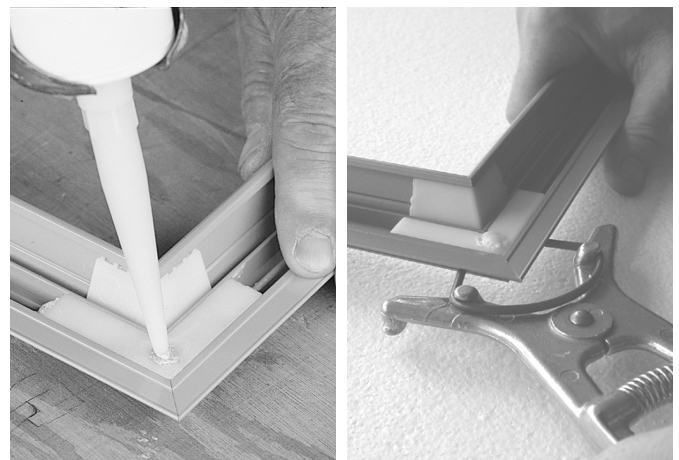
The sash profiles cut to miter are put together with the reinforcement angle 600 157. Fill sealing material into the groove of the reinforcement angle prior to putting it together.



After putting together the mitered joint, apply one component reaction adhesive, order no. 929 108 (300 ml), on the reverse side of the profile in the area of the corners and the corner angle 600 152 should be pushed into the adhesive bed.

Fixing of the corner can be performed for example with a mitered joint fixture.

Finally inject one component reaction adhesive into the opening of the corner angle.



Mounting the clip-on holder

Fixing the sash frame on the wood is made with the clip-on holder 600 150 (black) at 16 mm overlapping and with clip-on holder 600 151 (gray) at 18 mm overlapping. The clip-on holders have a limit stop at the glass lap and are fixed with stainless steel screws DIN 7996 – 3 x 16 on the wood part.

Also stainless steel pins may be used. Holder distance from the corner approx. 80 mm, Holder distance to each other 200 – 250 mm.



Assembling the sash frame

After curing of the adhesive the sash frame will simply be clipped-on to the wood part and following the glazing will be performed with suitable elastic sealing material IVD under consideration of instruction leaflet no. 13 concerning glass sealing on wood-aluminum windows with sealing material, as well as the instructions from insulating windows suppliers and sealing material suppliers, under consideration of TGIC free coating materials for aluminum surfaces.

For the profile back ventilation no additional measures are required, this is ensured by the gap between wood and aluminum.





Work steps for frames

Important

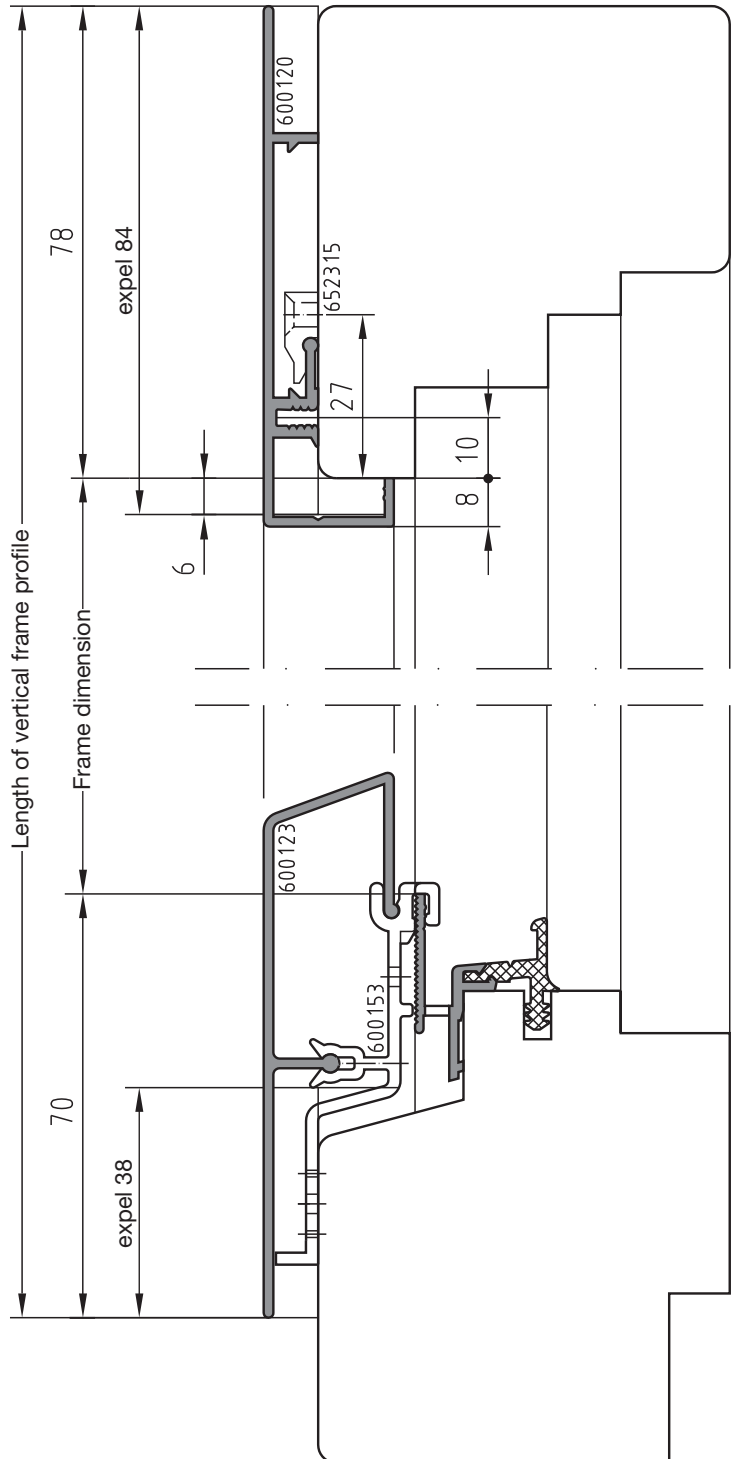
The vertical frames and setting bar profiles are generally continuous.

Specification of the aluminum frame dimensions and their cut

The vertical frame profiles are continuous; for length determination see drasash. The profiles must be notched on top and bottom up to the outside of the wood frames.

Notch dimension on top: 84 mm / bottom: 38 mm.

In order to facilitate the notching the profiles are provided with a predetermined breaking point, so that only a vertical cut with the saw is required. The horizontal frame covering are generally flush-mount cut between the vertical profiles. No corner joint and no covering is provided here.



Mounting the holders

Fixing of the frame profiles on the wood part is made by clip-on holders 652 315. These will be mounted flush in a distance of approx. 200–250 mm with stainless steel countersunk screws 3.5 x 25 on the wood part. Usage of the boring jig 990 018 is recommended.





Fixing the frame profiles

First the vertical and then the upper horizontal frame profile will be clipped-on to the wood frame.

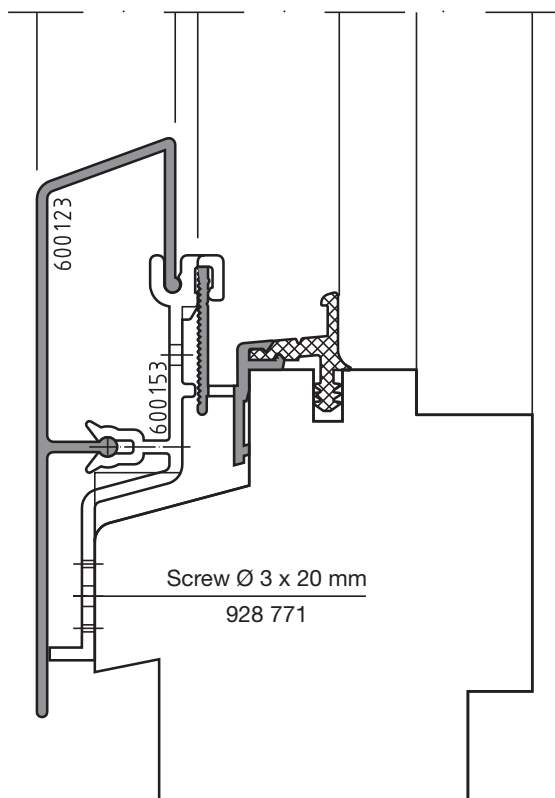
Important

Precondition for a quick assembly of the lower frame profile is the usage of a corresponding waterbar.
See page 12

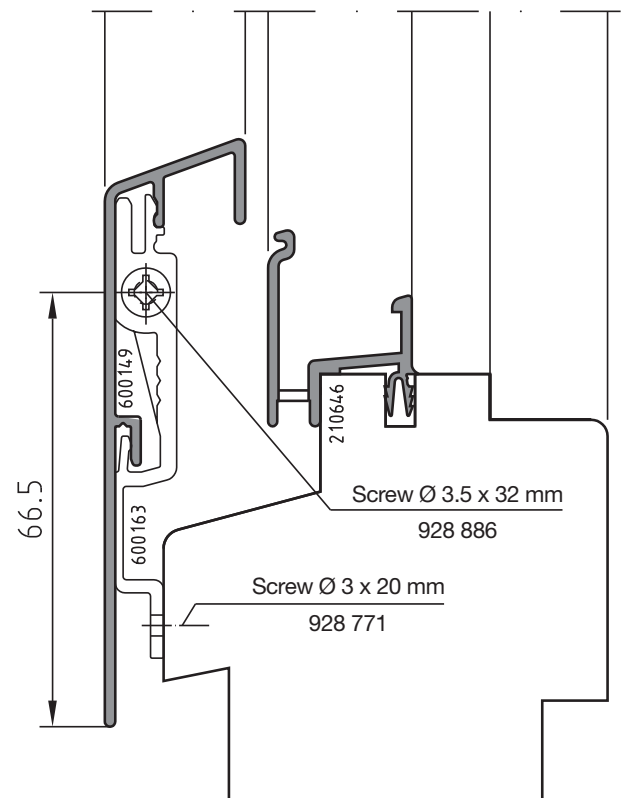
The lower frame profile is fixed with special holders. The clip-on holders are inserted at the Stil-ruler and fixed on the lower cross bar with screws 3 x 20, order no. 928 771.

Note:

If no waterbar will be used, the upper inserting catch must be cut off at the special holders. The holder will then be fixed from the front with tapping screws 3.5 x 9.5, order no. 928 401, on the rain protection rail and on the lower cross bar with screws 3 x 20 as before.



Mounting with waterbar



Mounting without waterbar



Center mullion/post

The post will be made of two frame profiles. The profile 600 120 or 600 144 is used single sided, the profile 600 125 is fixed in a mirror image way. In this way wood widths from 80 mm up to 115 mm can be lined. The profiles are continuous and must be notched on top and bottom in the same way as the lateral frame profiles.

Transom

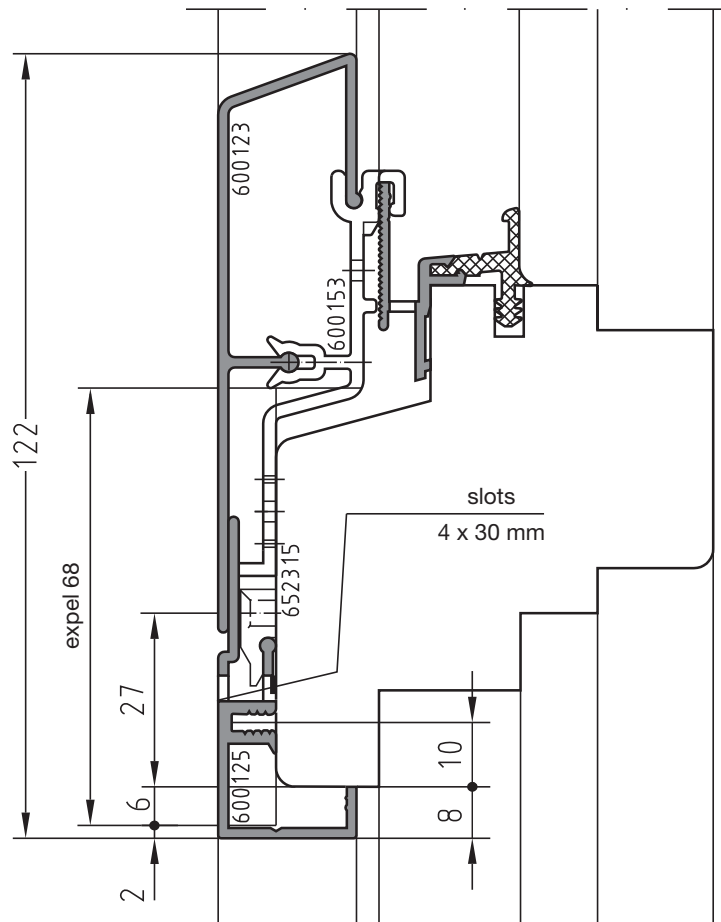
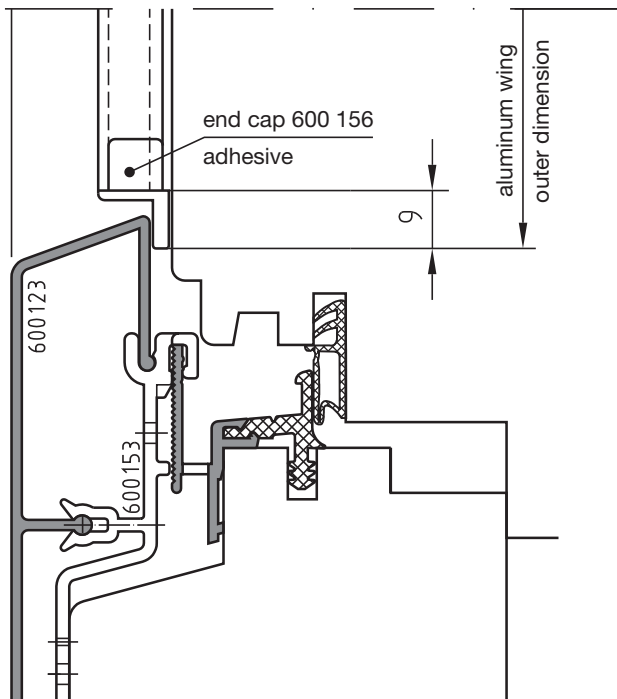
The transom will also be made of two profiles. The two profiles 600 125 and 600 123 or 600 124, respectively, are flush mounting cut like the horizontal frame profiles between the vertical profiles. For drainage purposes two each drainage channels 4 x 30 mm must be cut in at the profile 600 125 at the side. Back ventilation of the lower transom profile is ensured via the notch in the vertical frame profile.



Astragal

The astragal is fixed with the clip-on holder 652 315 on the wood part.

length of astragal =
height of outside sash – 18 mm.



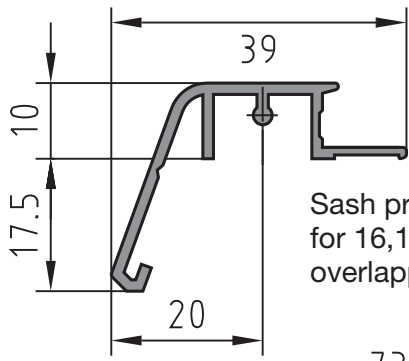
Round arched window

Semi arched and segmental arch windows can be made from follosash profiles:

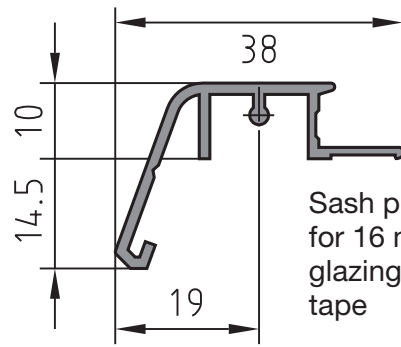
- frame profile 600 120 minimum inner radius 1500 mm
- frame profile 600 125 minimum inner radius 450 mm
- sash profile 600 121 minimum inner radius 450 mm
- sash profile 600 129 minimum inner radius 700 mm

Slope element

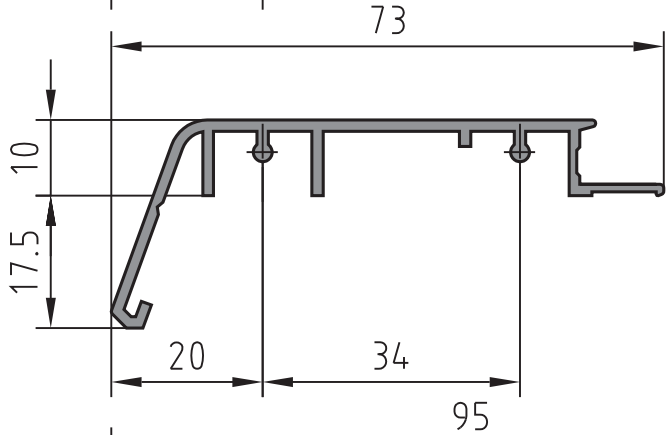
At angled windows the vertical frame profiles or mullion bar profiles are continuous. The horizontal profiles are cut to match. At sash corners which do not have an angle of 90° the corner angle must be cut and bonded with instant glue appropriately.



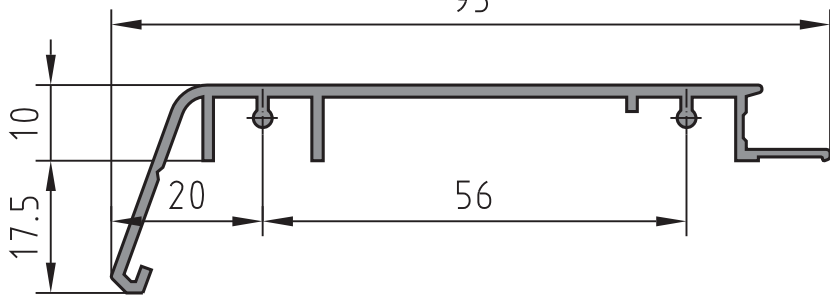
Sash profile 600 121
for 16,18 mm
overlapping



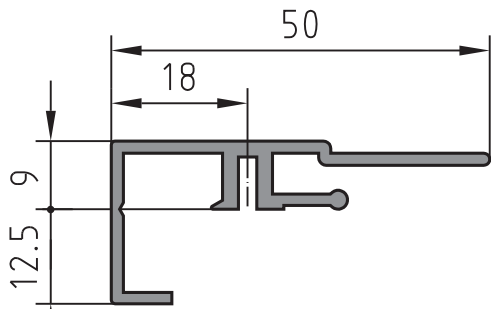
Sash profile 600 130
for 16 mm overlapping
glazing without glazing
tape



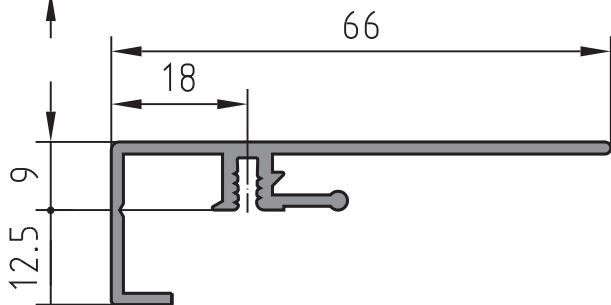
Sash profile 600 129
for revolving doors



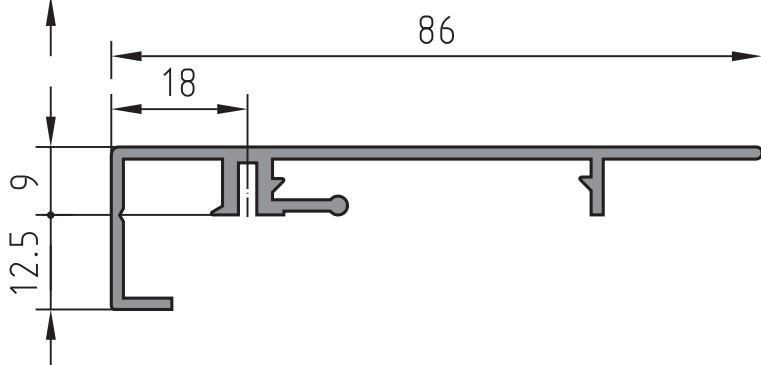
Sash profile 600 139
for front door



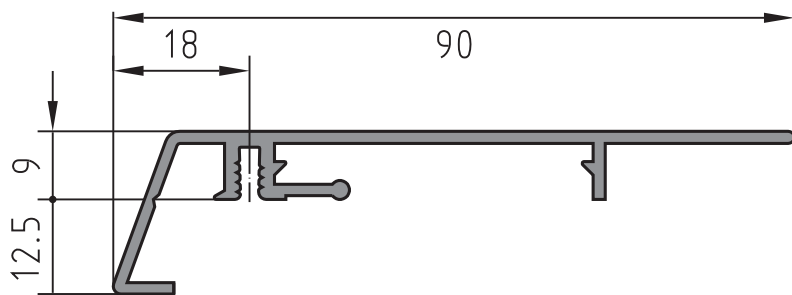
Frame profile 600 125



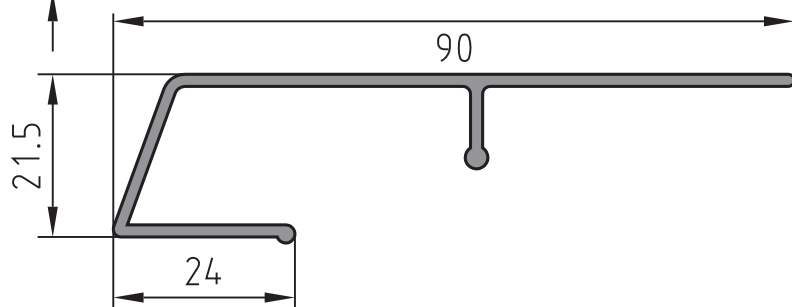
Frame profile 600 144



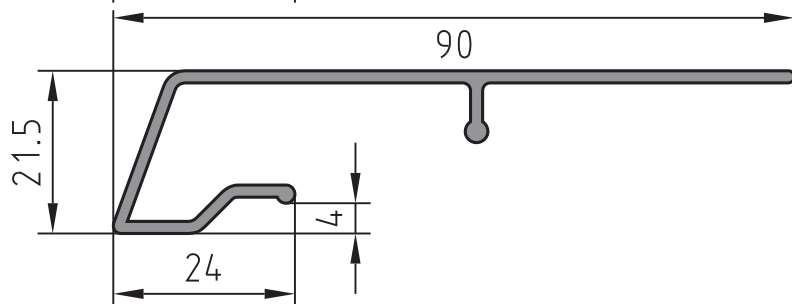
Frame profile 600 120



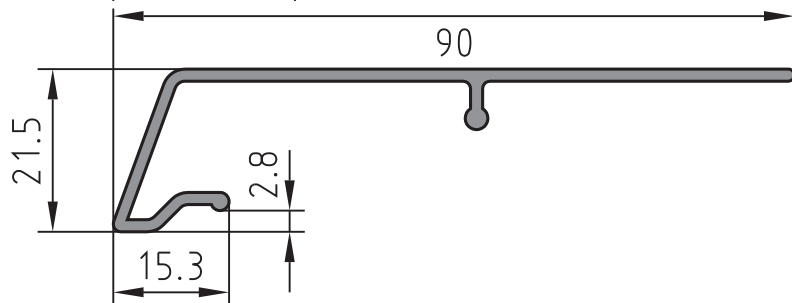
Bottom frame profile 600 131



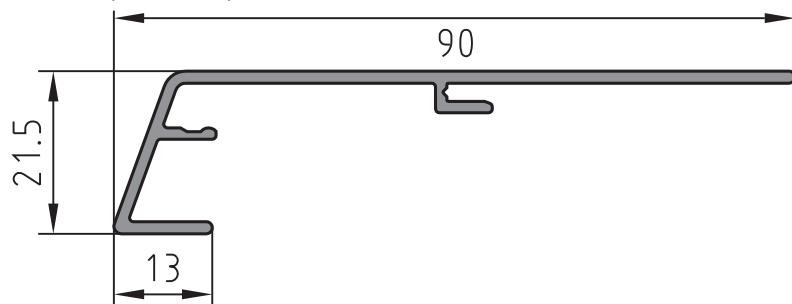
Bottom frame profile 600 123
for 16/18 mm overlapping
for System 22 and 25



Bottom frame profile 600 124
for 16 mm overlapping
for System 19



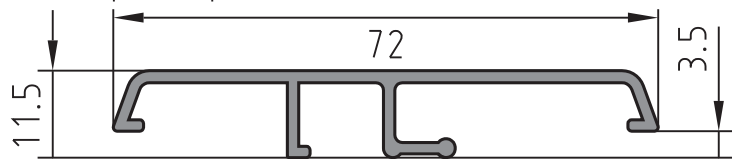
Bottom frame profile 600 133
for 16 mm overlapping
for System RD 19, RD 22, RD 25



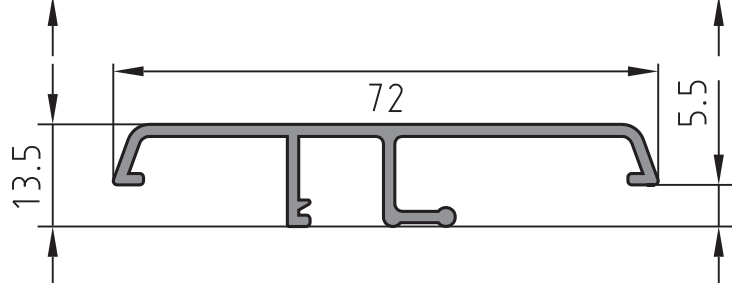
Bottom frame profile 600 149

NEW

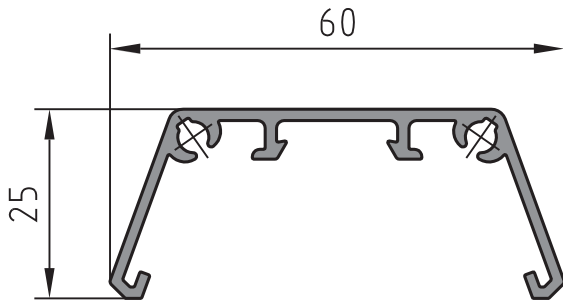
In connection with holder 600 901
no waterbar required



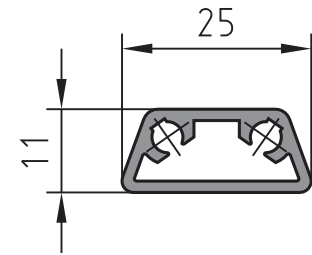
Door base / astragal 600 126
for 16 mm overlapping



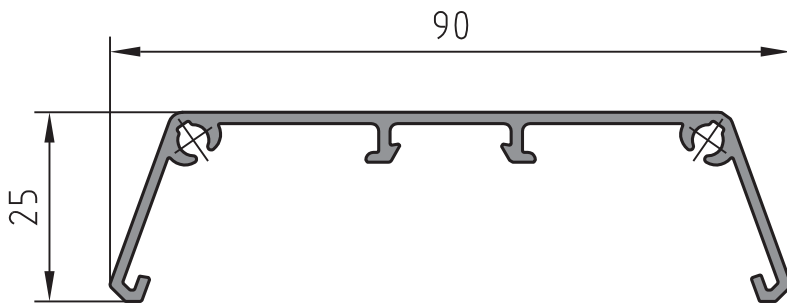
Door base / astragal 600 127
for 18 mm overlapping



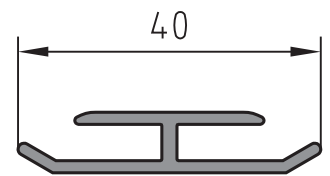
Sashbar profile 600 135



Sashbar profile 652 008

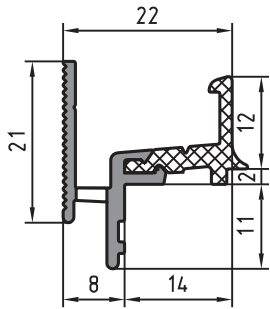


Sashbar profile 600 136

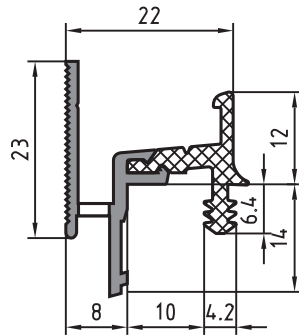


Joint profile 205 402

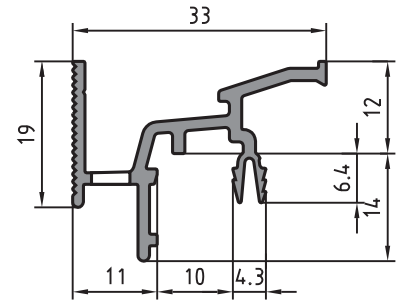
- | | | | | | |
|--|--|--|-----------------|--|--|
| | 652 315 Holder frame unit 100 each | | | unit 20 each | 600 153 Holder frame System 22/25 16 mm overlapping |
| | 600 150 Holder sash 16 mm overlapping unit 50 each | | | 600 154 Holder frame System 22/25 18 mm overlapping | |
| | 600 151 Holder sash 18 mm overlapping unit 50 each | 600 901 Holder for frame below (600 149) unit 50 each | | 600 155 Holder frame System 19 | |
| | 600 158 Holder door sash 16 mm overlapping unit 50 each | | unit 50 each | 600 160 Holder frame System RD 22, RD 25 | |
| | 600 159 Holder door sash 18 mm overlapping unit 50 each | | unit 50 each | 600 161 Holder frame System RD 19 | |
| | 600 162 Holder window bar unit 50 each | | unit 50 each | 600 152 Corner angle sash | |
| | | | unit 10 each | 600 157 Reinforced angle sash 600 121, 600 129 | |
| | | | | 600 110 Reinforced angle sash 600 130 | |
| | | | | 600 156 Endcap of astragal | |



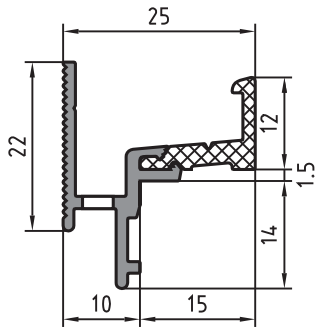
TR 12.22 Stil
 Order no. 260 031
 Endcaps
 Order no. left 210 750
 Endcaps
 Order no. right 210 751



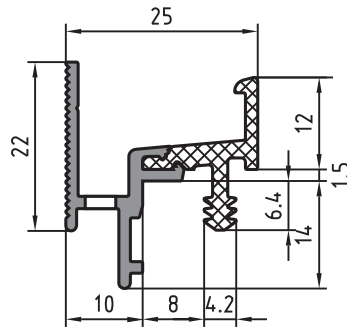
TR 12.22 K Stil
 Order no. 260 038
 Endcaps
 Order no. left 210 815
 Endcaps
 Order no. right 210 816



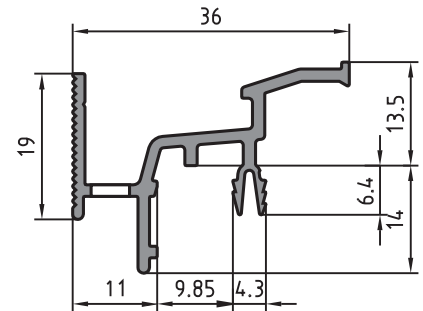
RDN 22 K Stil
 Order no. 211 054
 Endcaps
 Order no. left 211 055
 Endcaps
 Order no. right 211 056



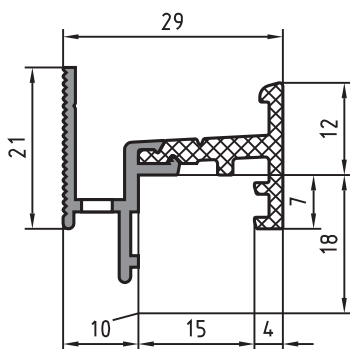
TR 12.25 Stil
 Order no. 260 047
 Endcaps
 Order no. left 210 903
 Endcaps
 Order no. right 210 904



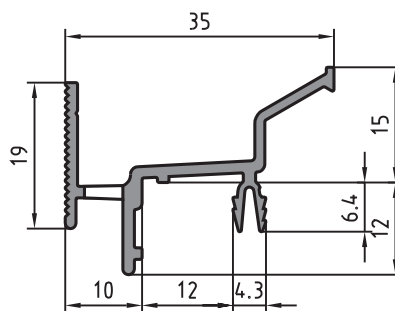
TR 12.25 K Stil
 Order no. 260 048
 Endcaps
 Order no. left 210 903
 Endcaps
 Order no. right 210 904



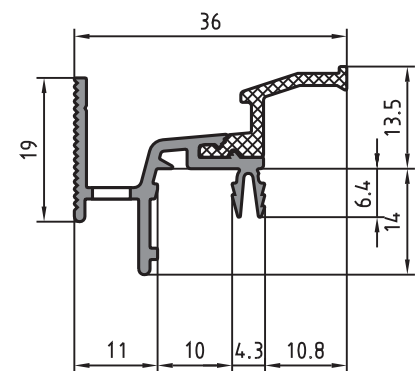
RDN 25 K Stil
 Order no. 211 045



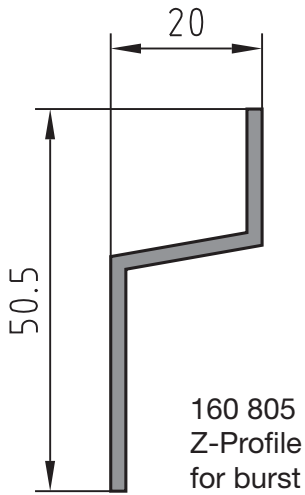
TR 12.19 Stil
 Order no. 260 010
 Endcaps
 Order no. left 211 063
 Endcaps
 Order no. right 211 064



RD 19 K Stil
 Order no. 211 017
 Endcaps
 Order no. left 211 018
 Endcaps
 Order no. right 211 019



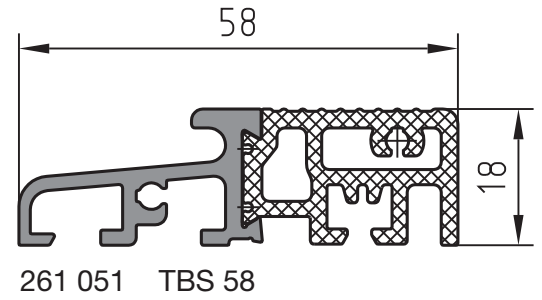
TRDN 25 K Stil
 Order no. 260 077
 Endcaps 20°
 Order no. left 211 057
 Endcaps 20°
 Order no. right 211 058
 Endcaps 90°
 Order no. left 211 046
 Endcaps 90°
 Order no. right 211 047



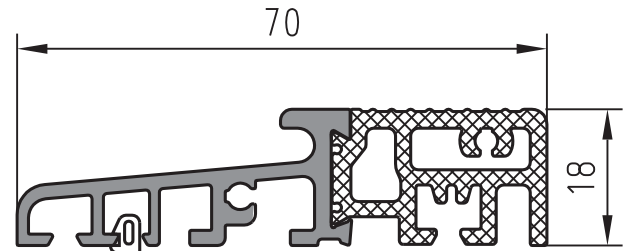
160 805
Z-Profile
for burst



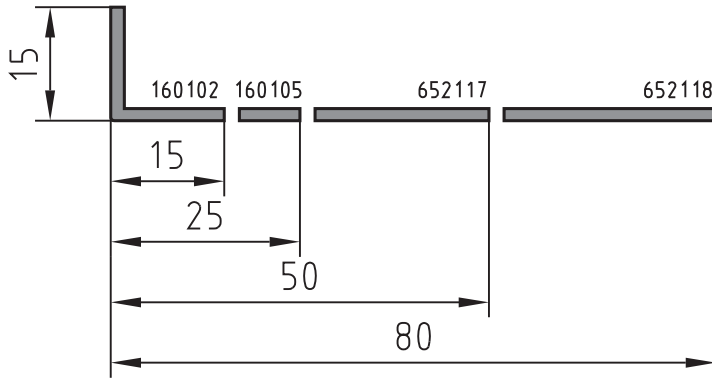
201 418
Connection sealing EPDM
for window sills
unit 50 running meters



261 051 TBS 58

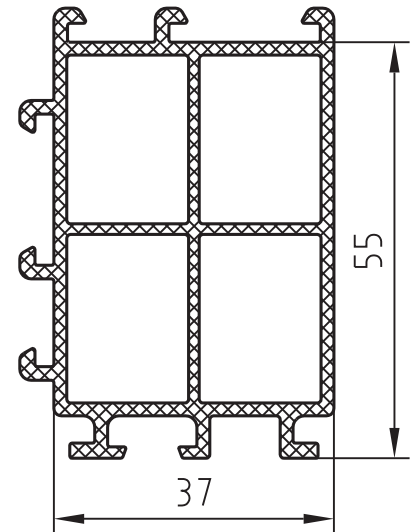


261 052 TBS 70

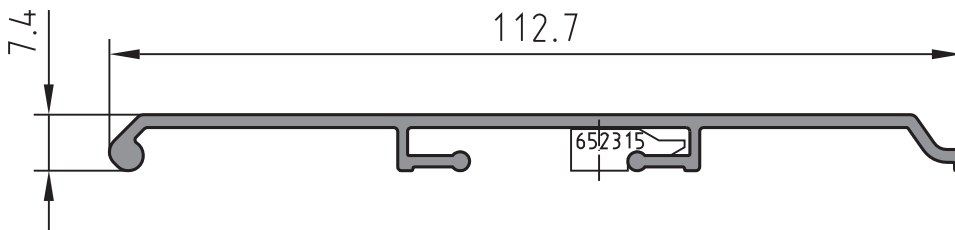


160102 160105 652117 652118

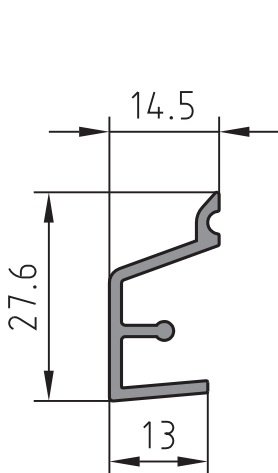
213 687
Foil



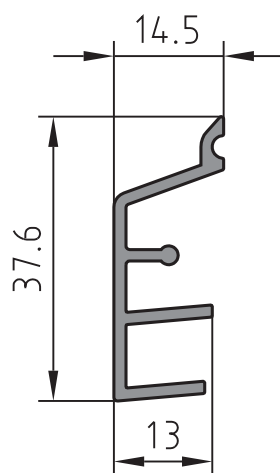
213 671 base profil
stackable and 90° rotating



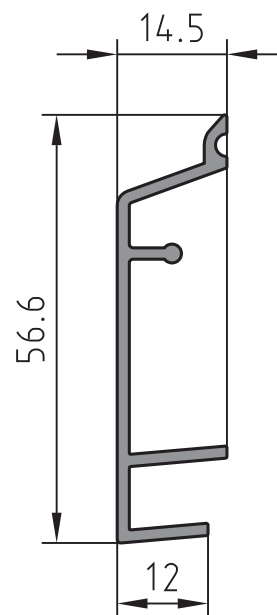
630 085
Corner covering profile
(installation see page 46)



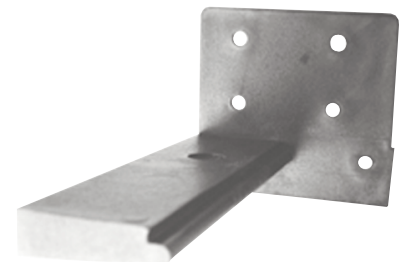
630 082
Stone sill connection



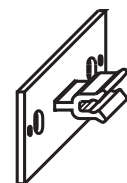
630 083
Stone sill connection



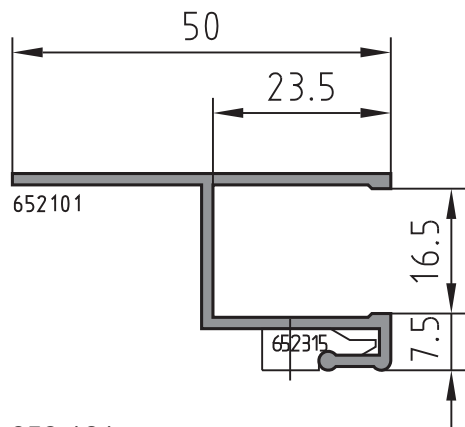
630 088
Stone sill connection



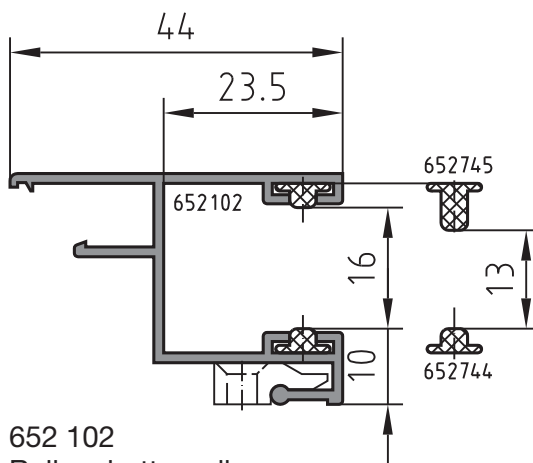
End adapter
213 682 left
213 683 right



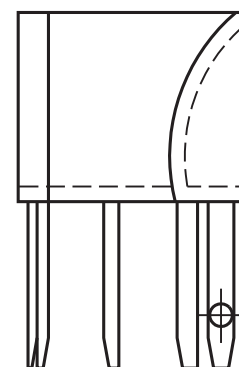
600 158
Holder, unit 100 each



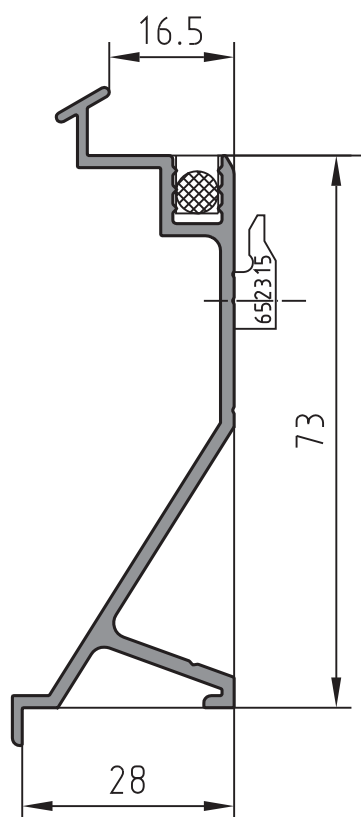
652 101
Roller shutter rails



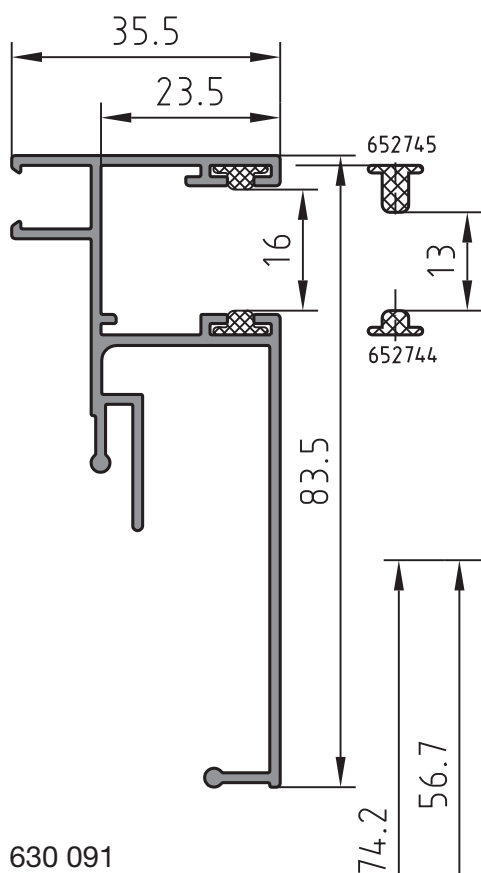
652 102
Roller shutter rails



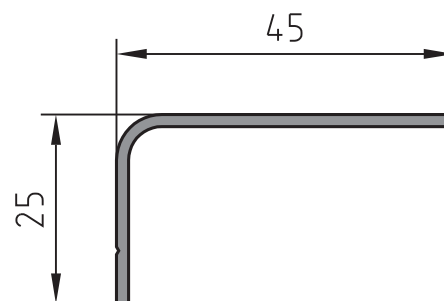
652 902
Running in funnel for pair to profile 652 102



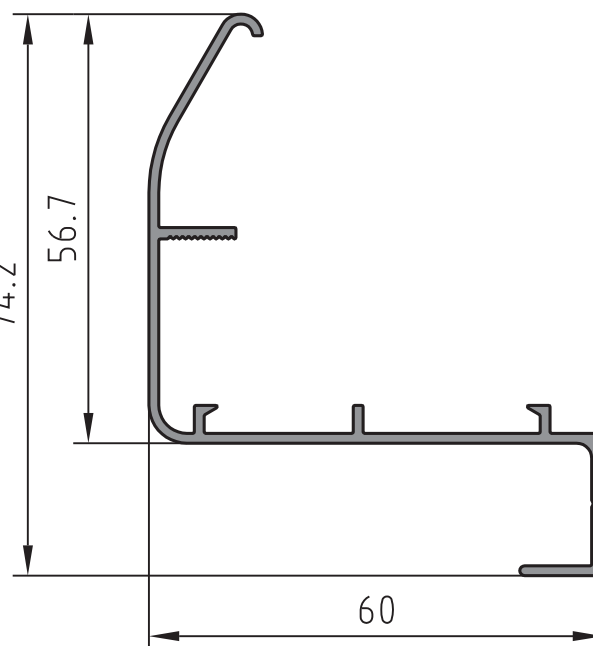
630 090
Support profile



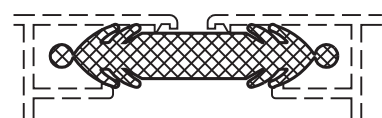
630 091
Gip profile



600 104
Ingress profile for shutter



630 092 Revisions cover
928 025 Fixing screw



719 062
Sealing profile for expansion joint, EPDM

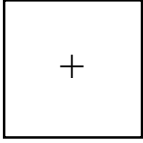
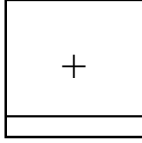
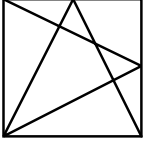
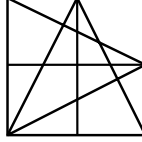
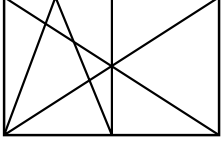
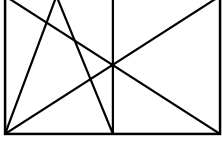
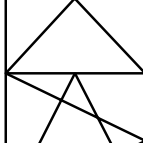
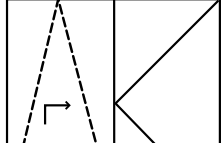
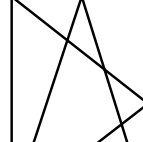

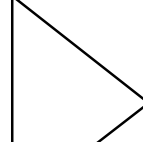
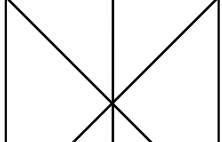
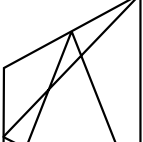



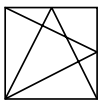
750 013
Round rope (Keder)



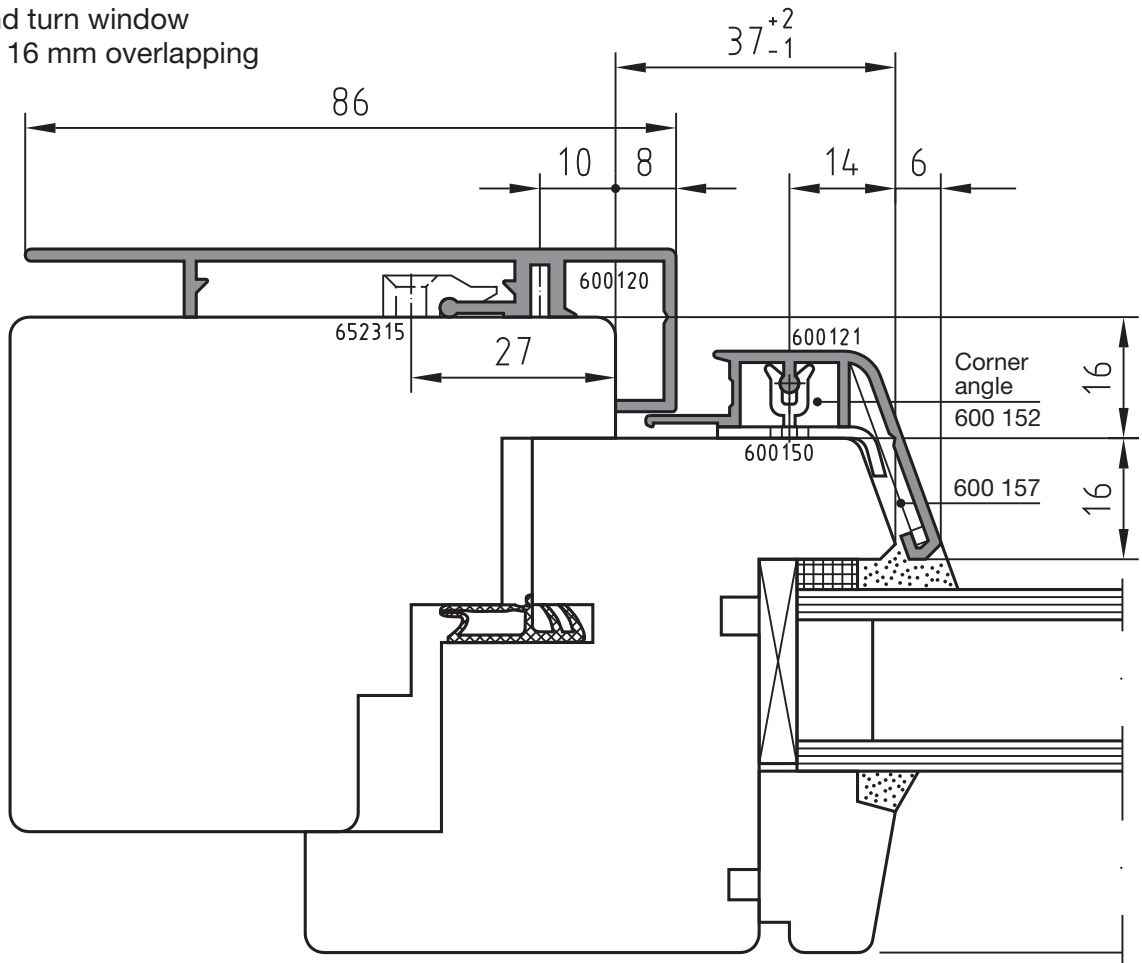
652 315
Holder



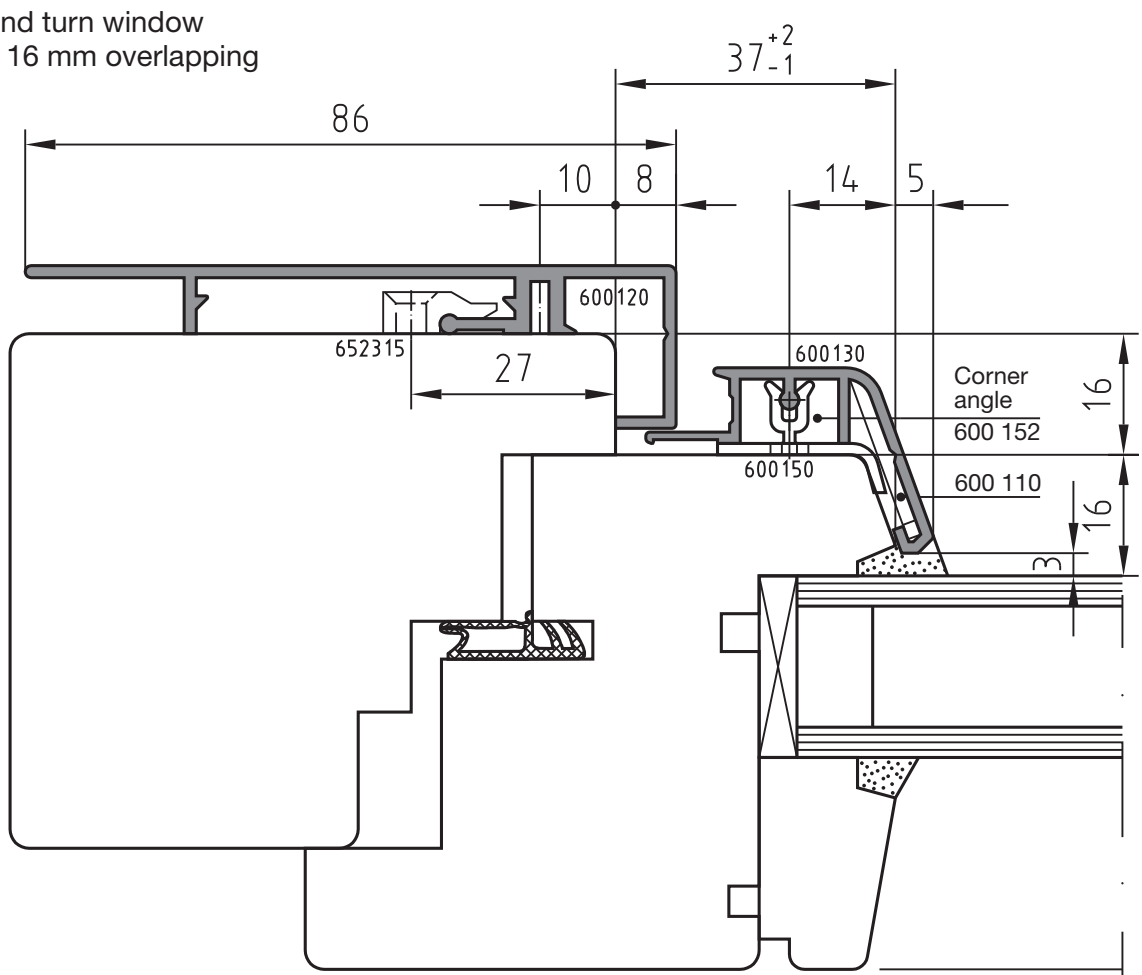
| | |
|---|--|
|  <p>Fixed glazing</p> |  <p>Fixed glazing with counter profile</p> |
|  <p>Tilt-turn window</p> |  <p>Tilt-turn window with sash bar</p> |
|  <p>Element two parts with astragal</p> |  <p>Element two parts or multiple parts with mullion</p> |
|  <p>Element two parts with transom</p> |  <p>Parallel sliding-tilt two parts</p> |
|  <p>Tilt-turn door one sash</p> |  <p>Tilt-turn door two sashes</p> |
|  <p>Revolving door one sash</p> |  <p>Revolving door two sashes</p> |
|  <p>Slope elements see notes on page 8</p> |  <p>Round arched window see notes on page 8</p> |



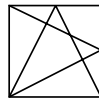
Sectional view: tilt and turn window
lateral and on top for 16 mm overlapping
+ glass lap



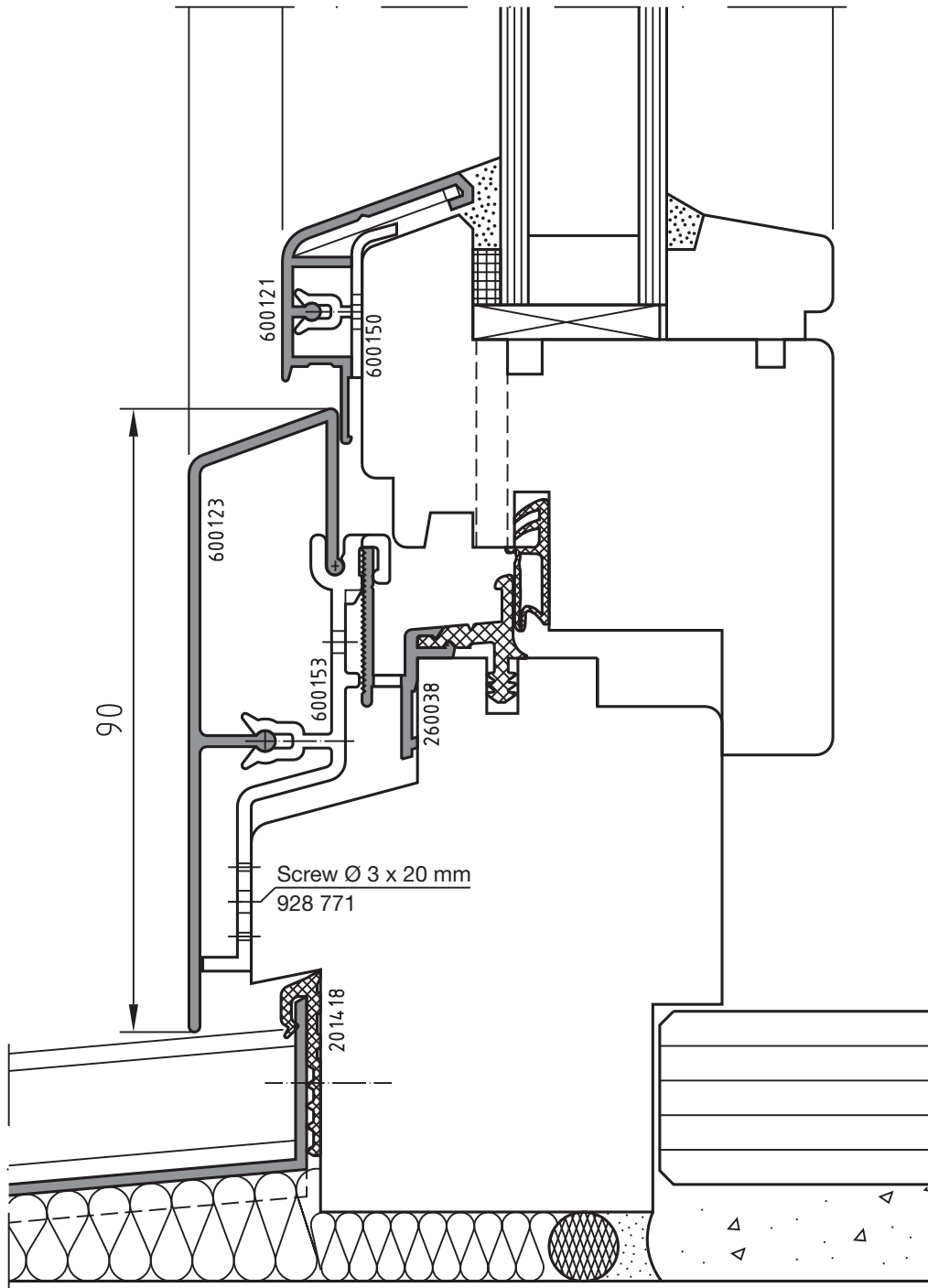
Sectional views: tilt and turn window
lateral and on top for 16 mm overlapping
+ glass lap without
glazing tape



Perform glazing with suitable elastic sealing material according to IVD-instruction leaflet no. 13 concerning glass sealing on wood-aluminum windows with sealing material, as well as the instructions from insulating windows suppliers and sealing material suppliers under consideration of TGIC free coating materials for aluminum surfaces.

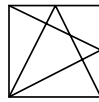


Sectional view: tilt and turn window below
for 16 mm overlapping + glass lap

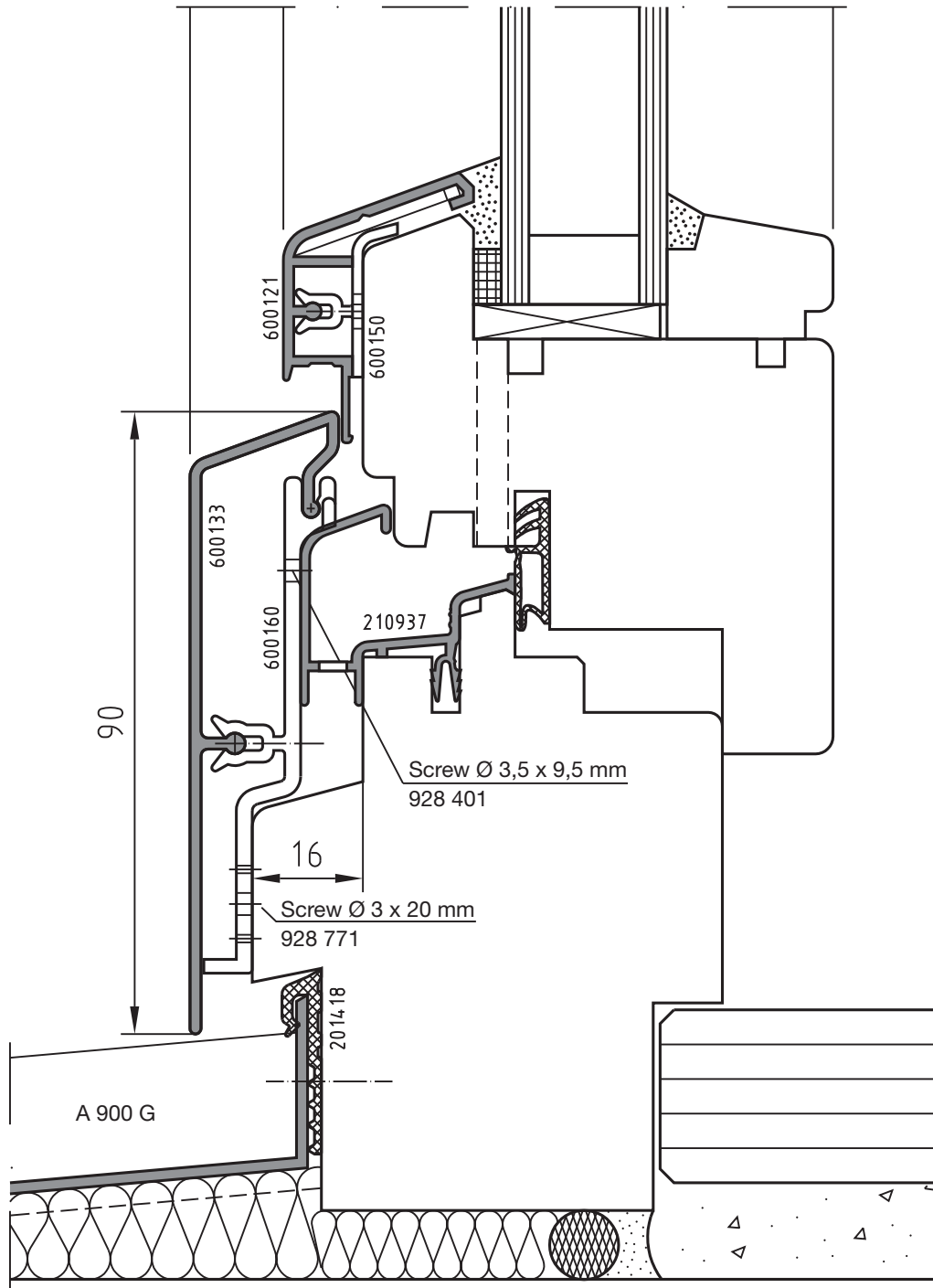


The building connection shall be made according to the guidelines of RAL quality assurance for installation. For adjacent components made of metal it must be checked, if this is suitable, since metals such as copper may not be installed together with aluminum.

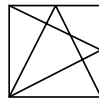
Copper ions contained in discharge water may cause area corrosion of aluminum, zinc and galvanized steel, especially if it concerns larger copper areas. That means these metals should not be used in flow direction below copper materials.



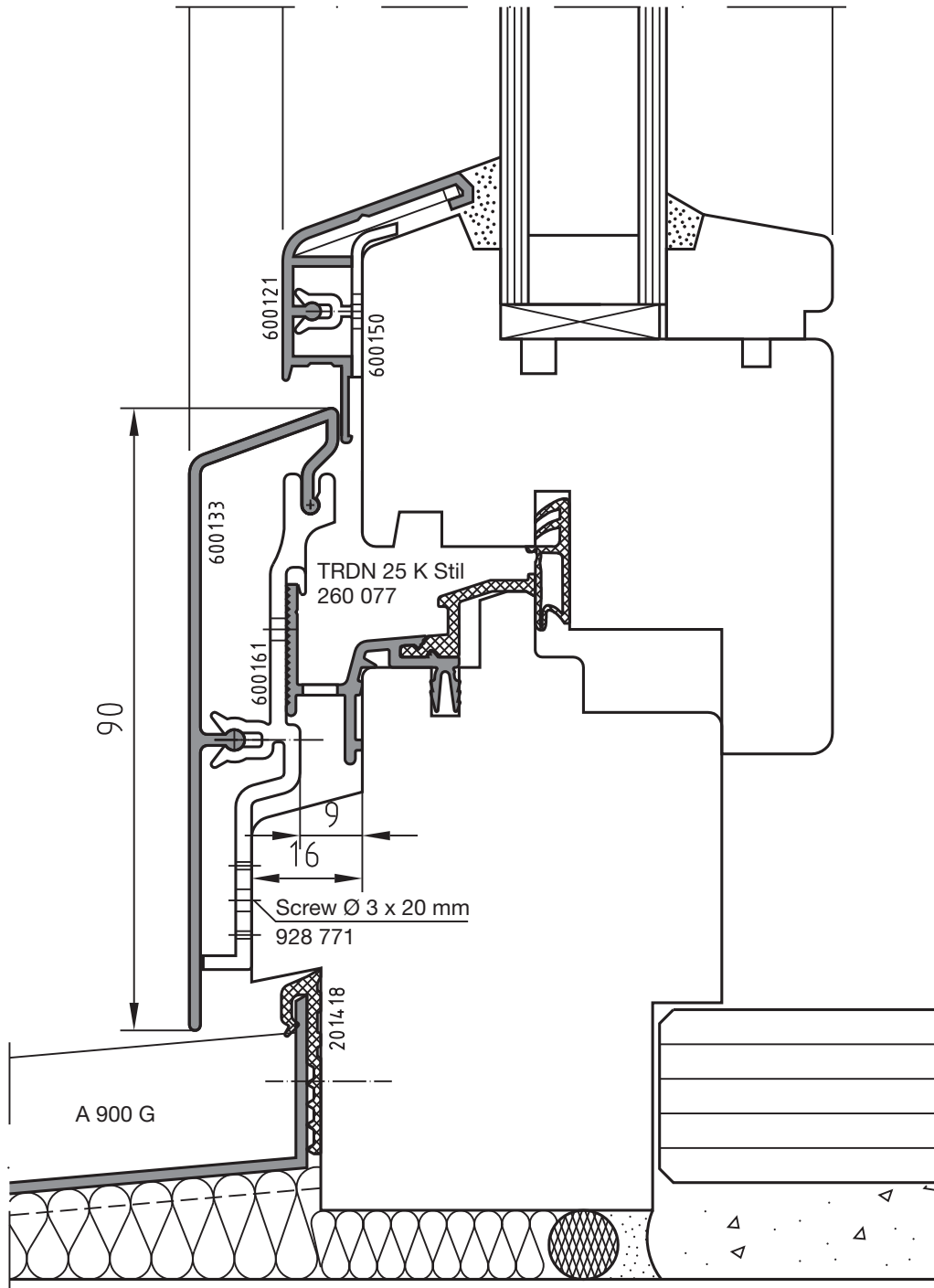
Sectional view: tilt and turn window below
for 16 mm overlapping + glass lap system RD 22



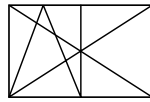
Building connection – see notes on page 17



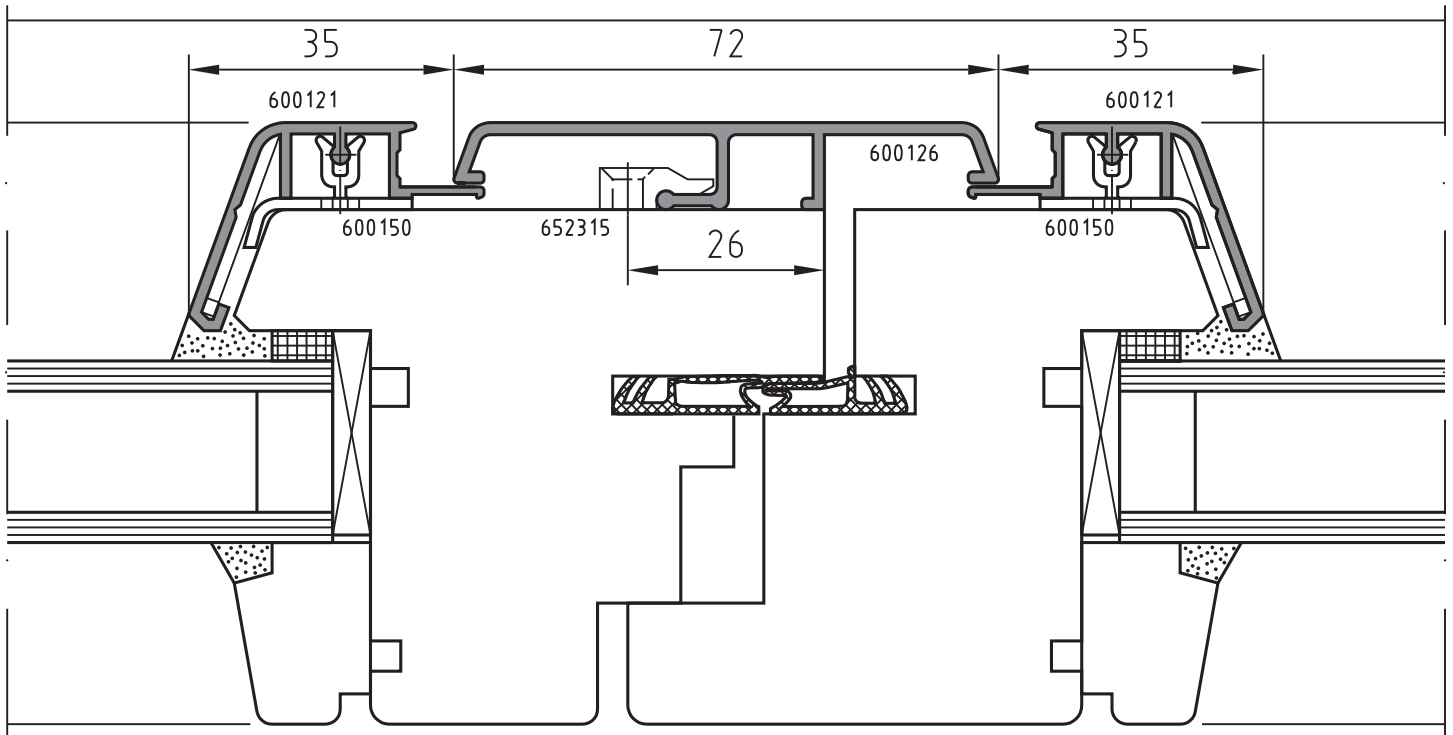
Sectional view: tilt and turn window below
for 16 mm overlapping system RDN 25



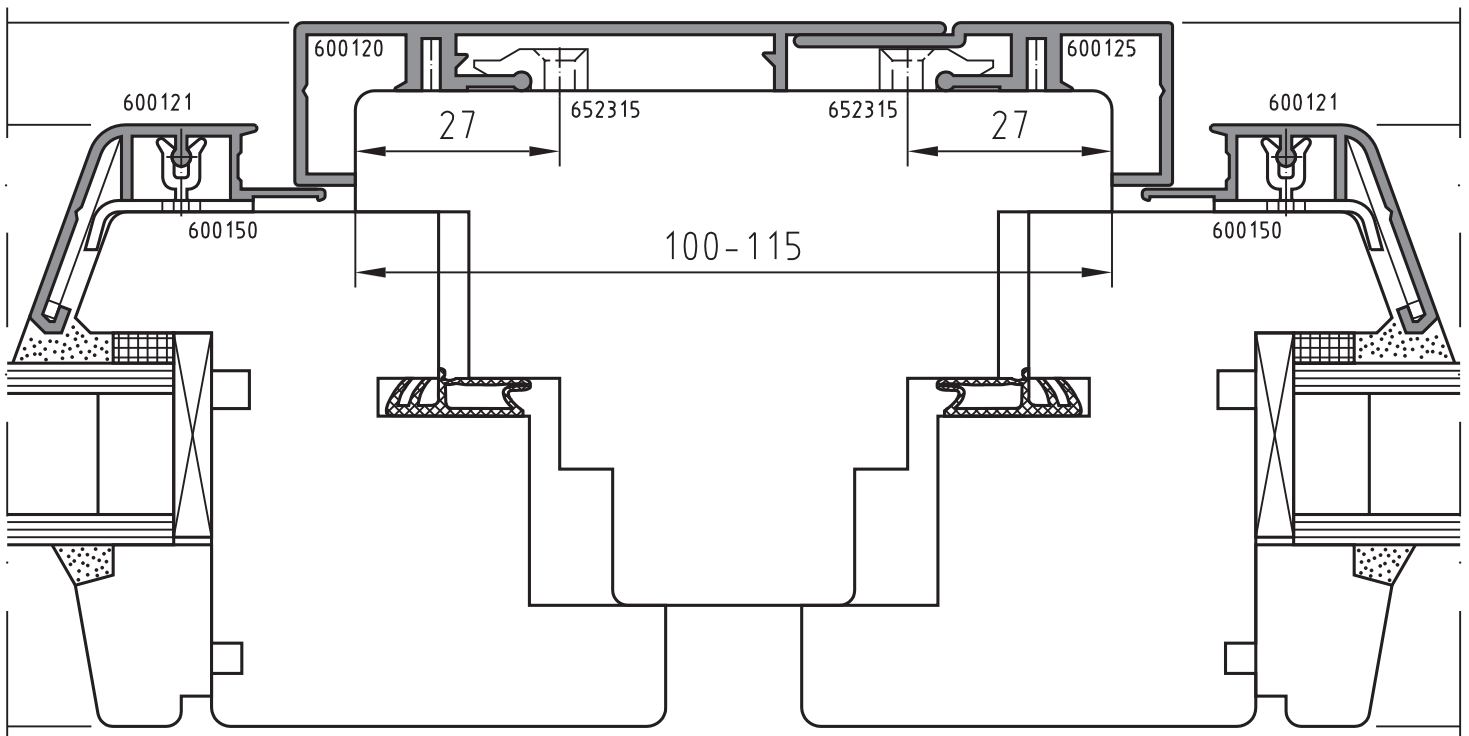
Building connection – see notes on page 17

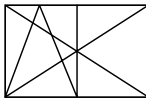


Sectional view: astragal

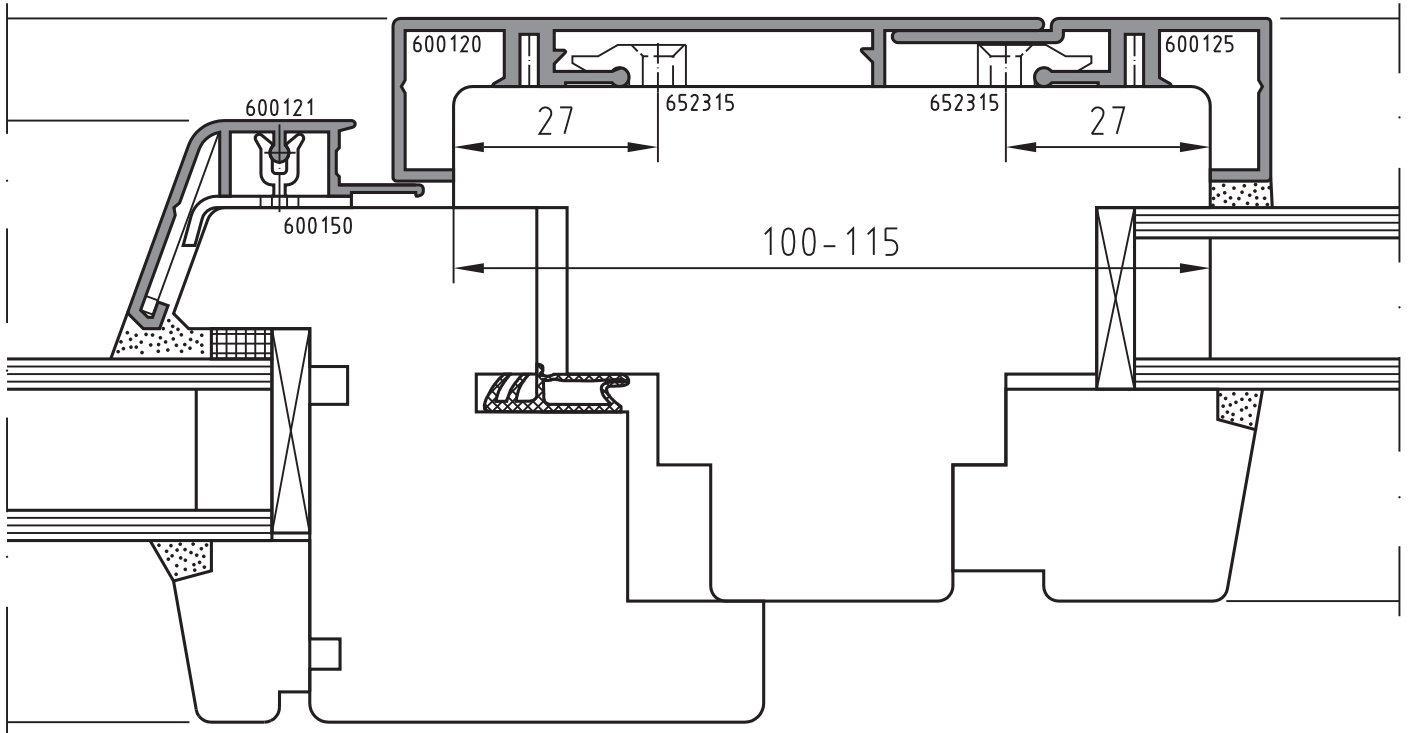


Sectional view: Center mullion/post

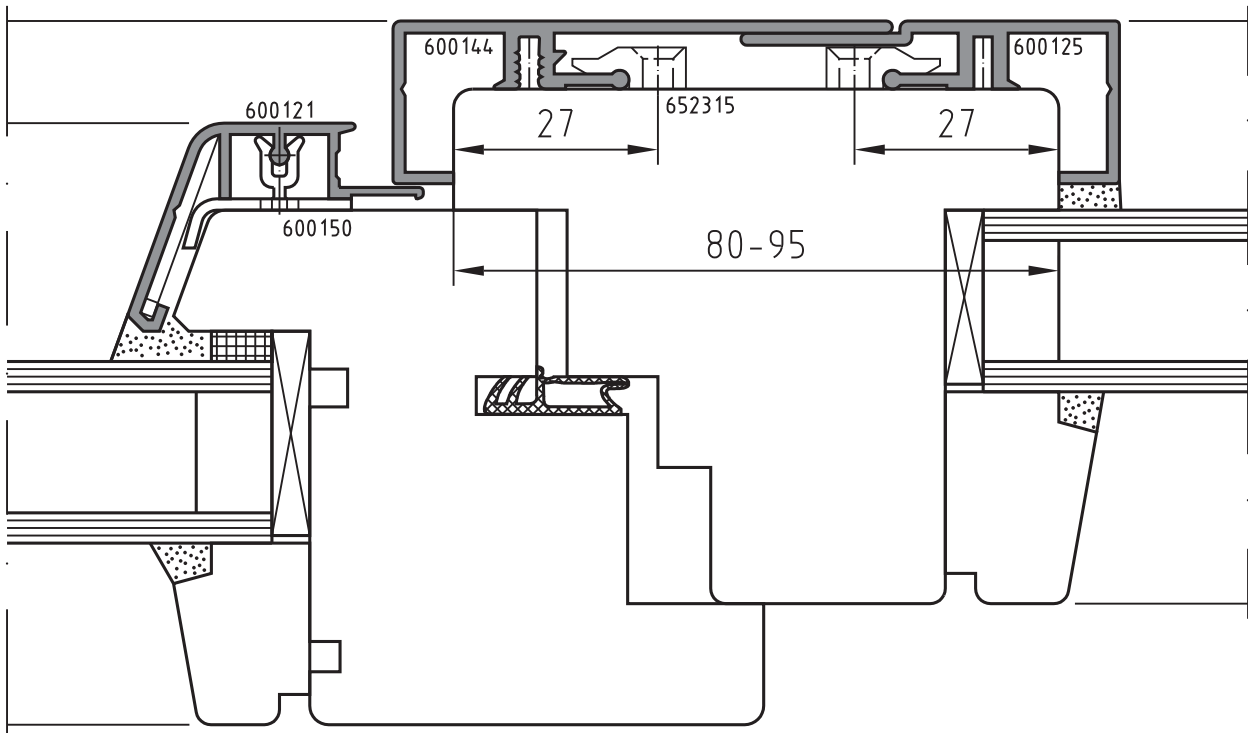




Sectional view: Center mullion/post

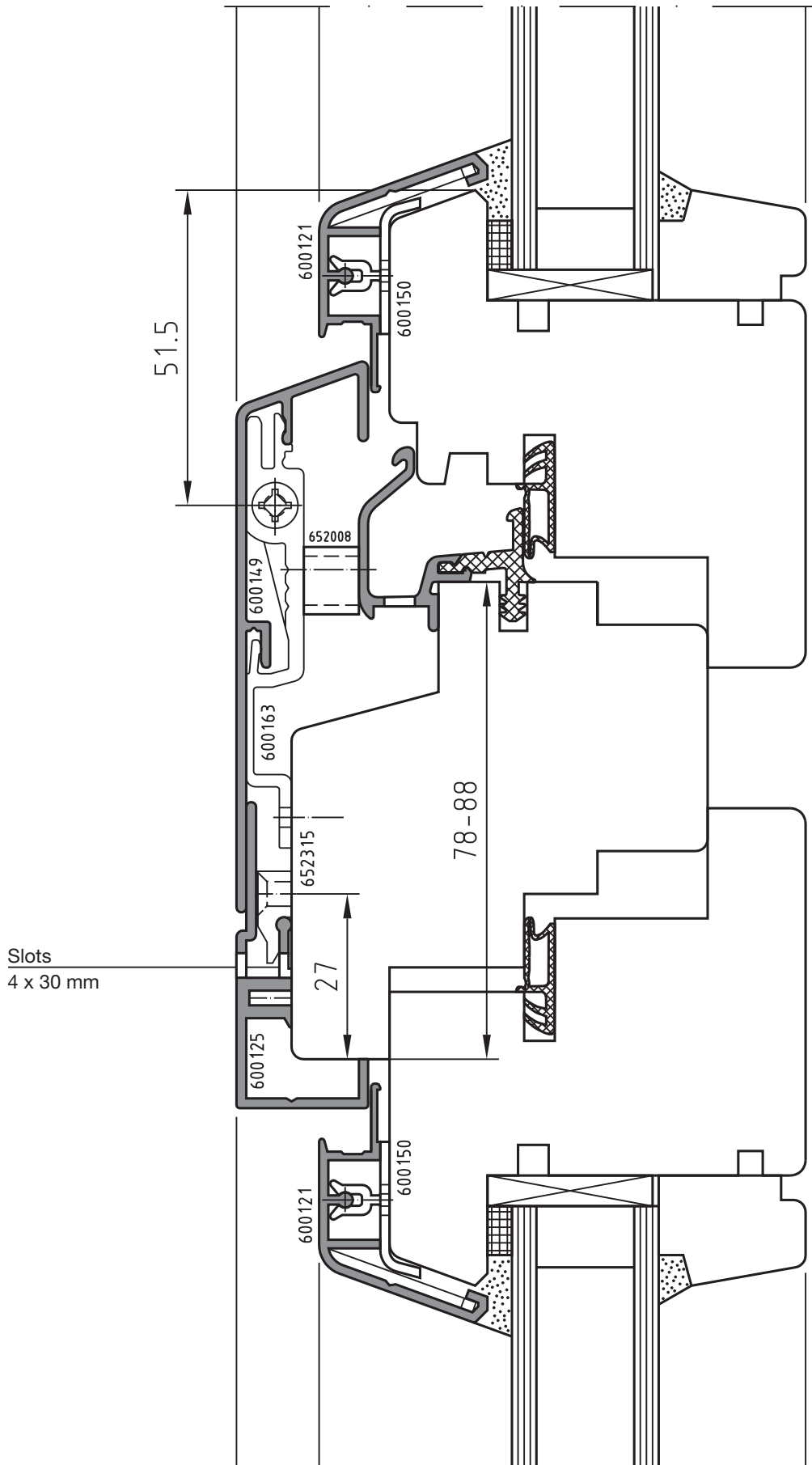


Sectional view: Center mullion/post

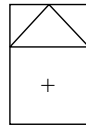




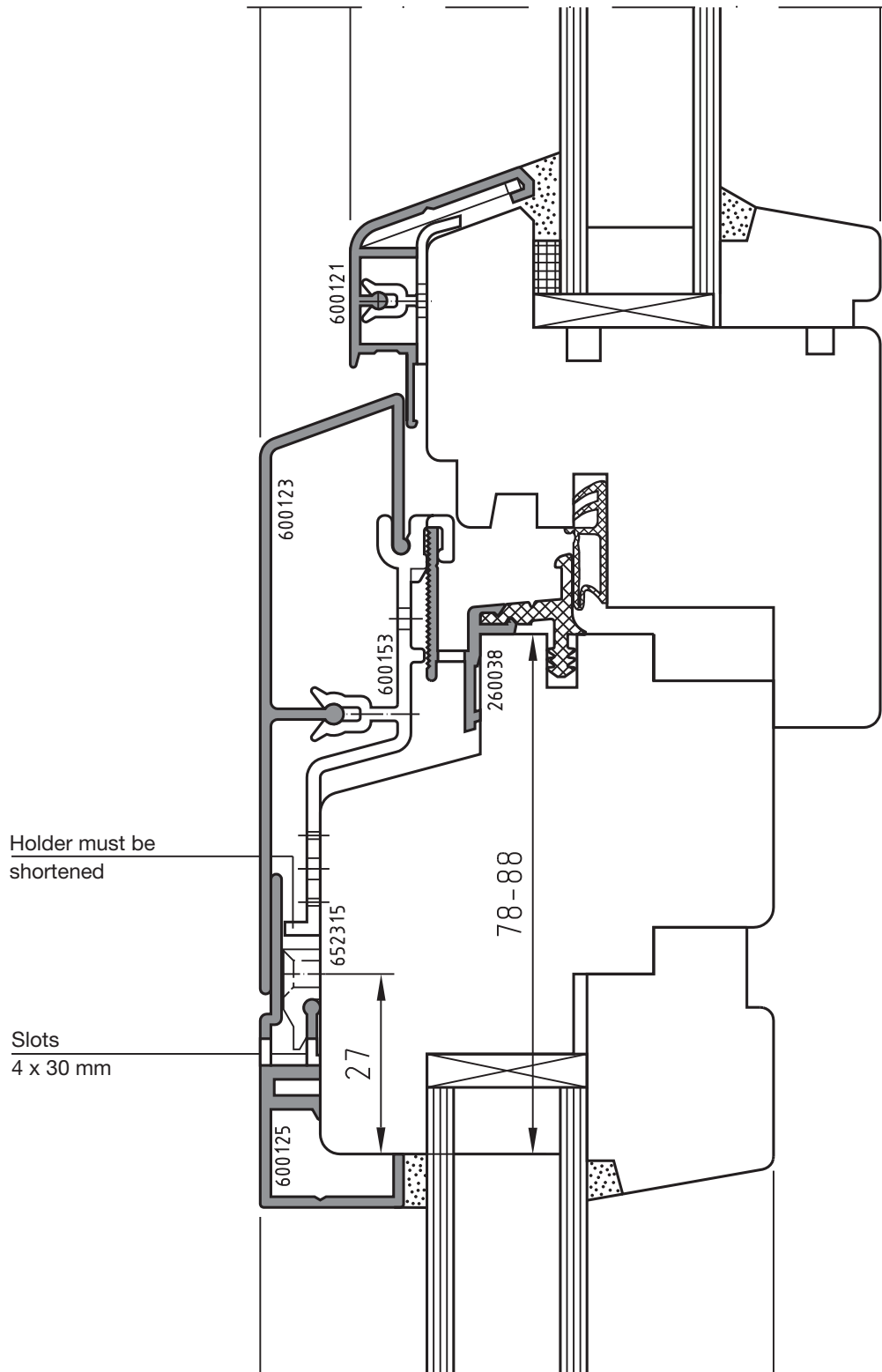
Sectional view: Transom/bar



Slots
4 x 30 mm

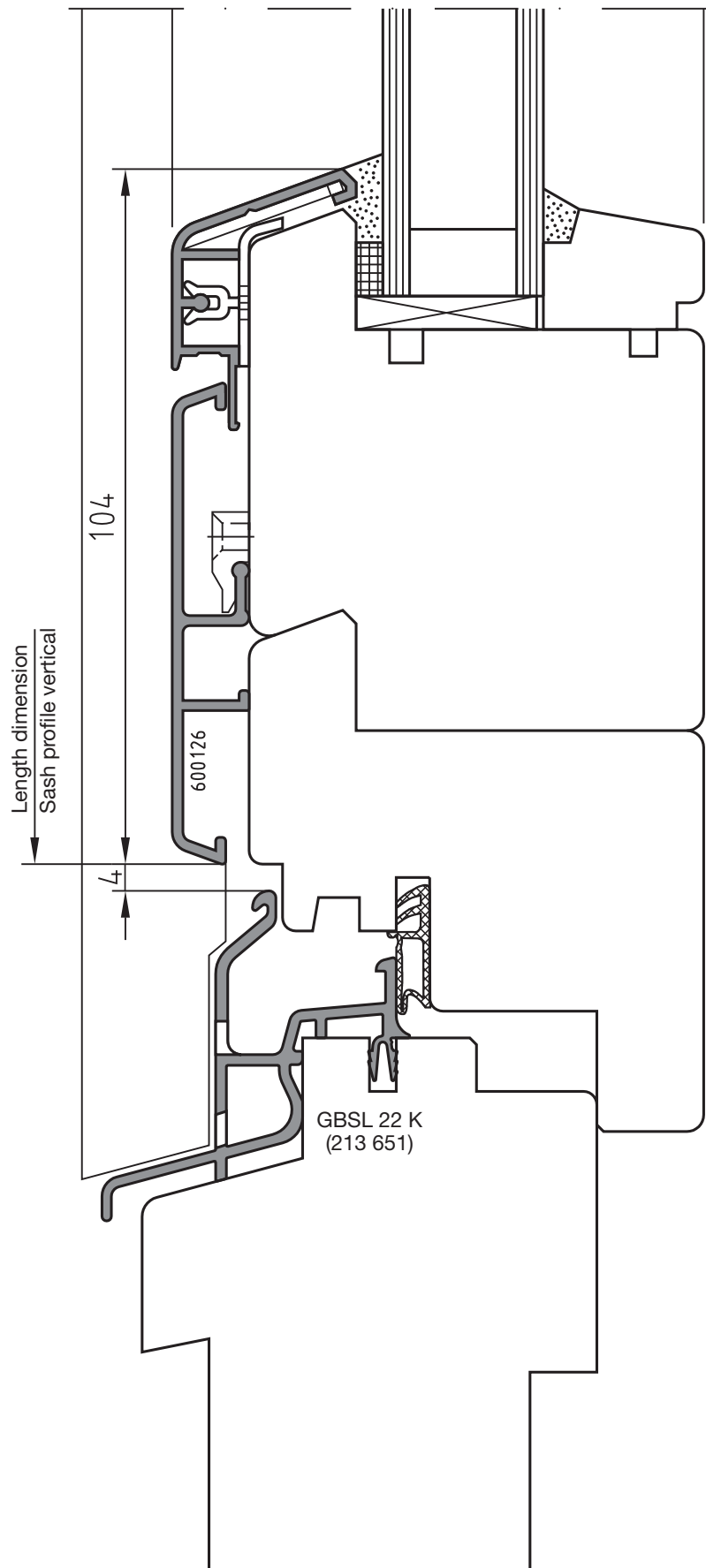


Sectional view: Transom/bar



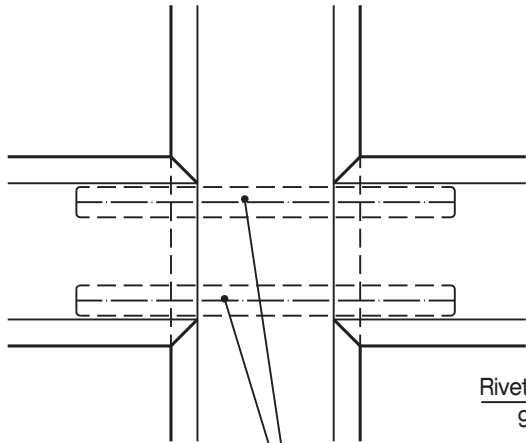


Sectional view: tilt + turn door + bottom parallel sliding tilt door



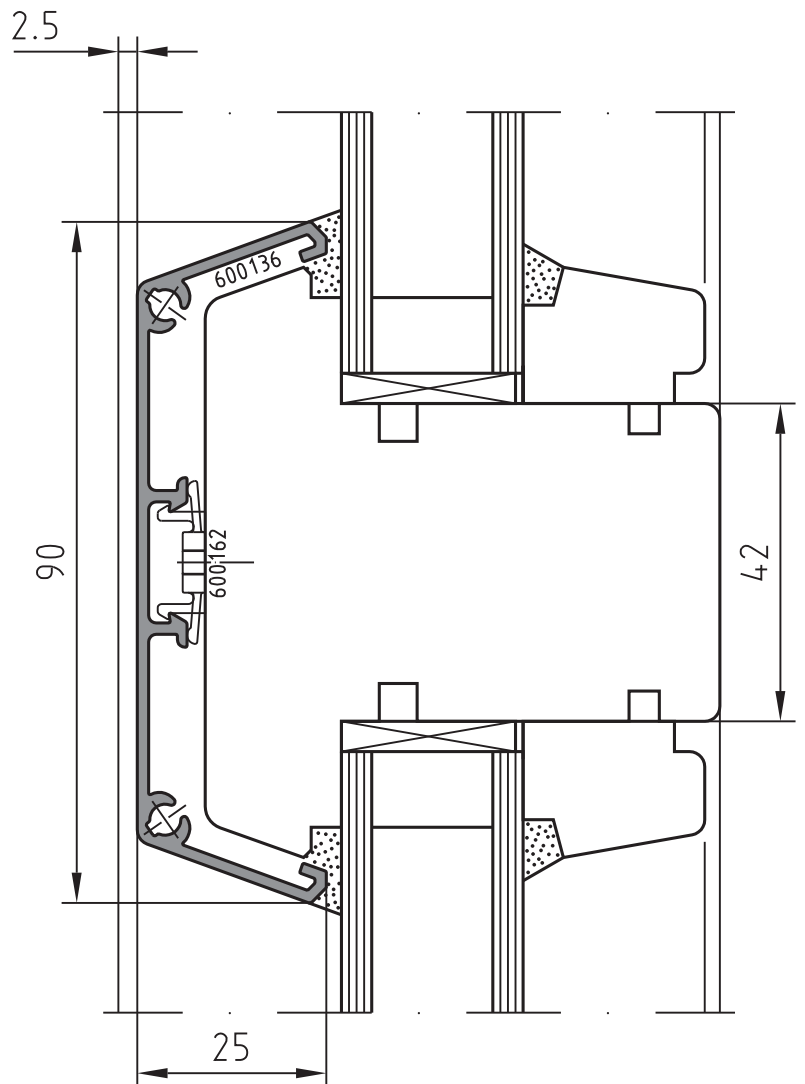
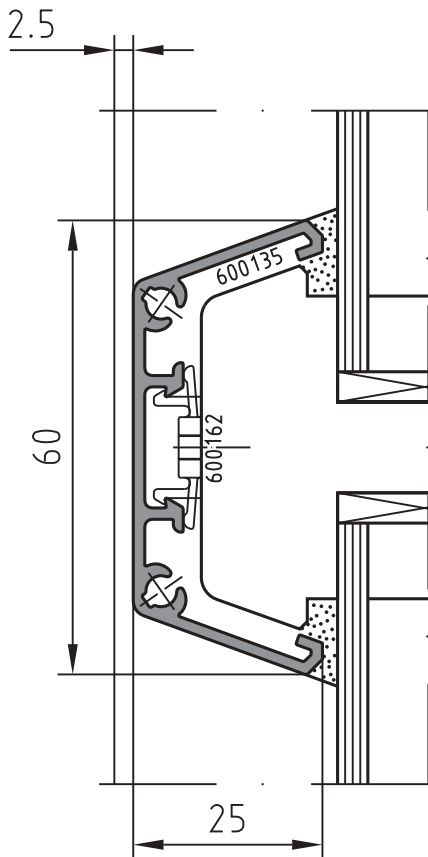
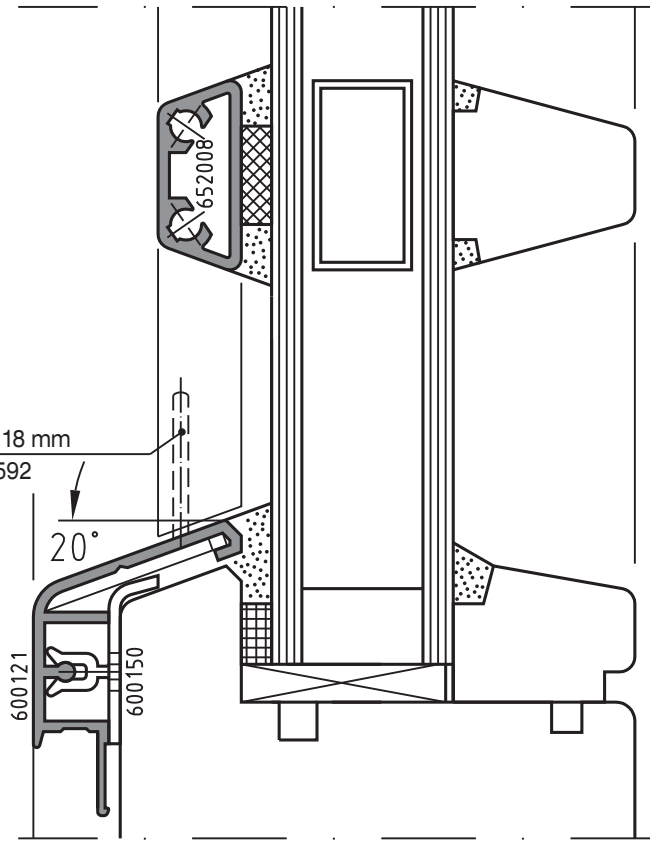


Sectional view: Glazing window bar



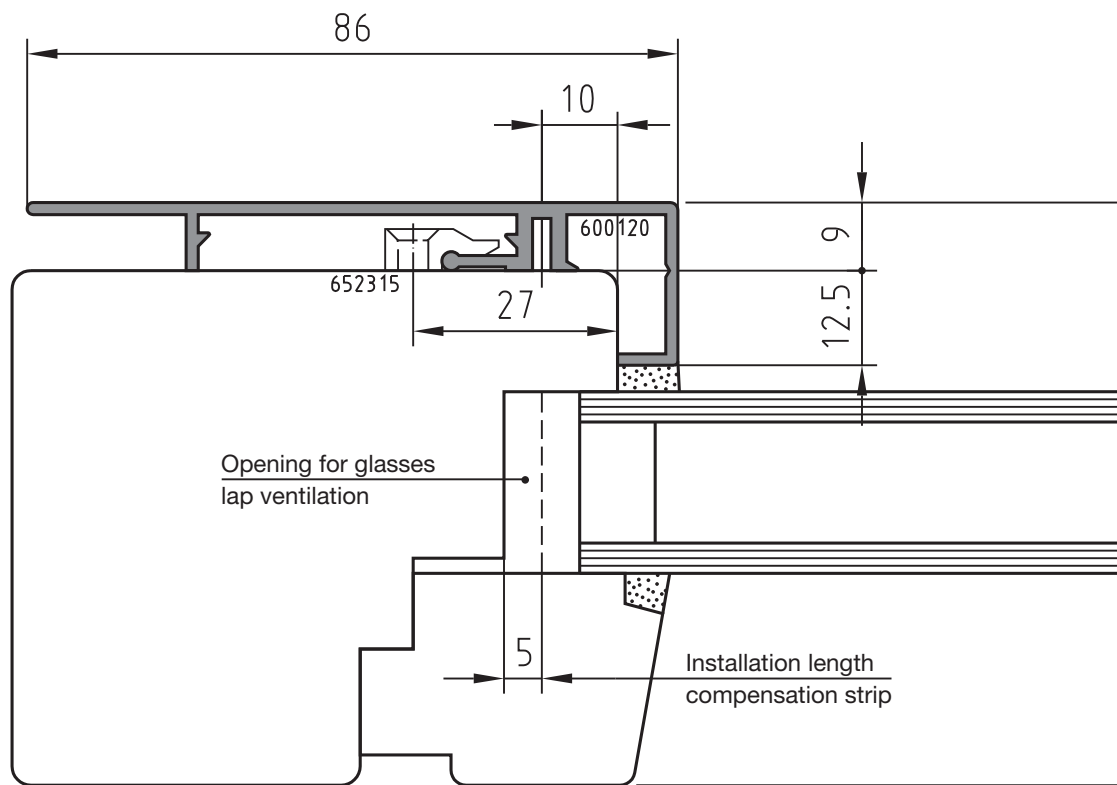
Notch pin 4 x 50 mm
928 432
Drill gauge 990 565

Rivet 4 x 18 mm
928 592



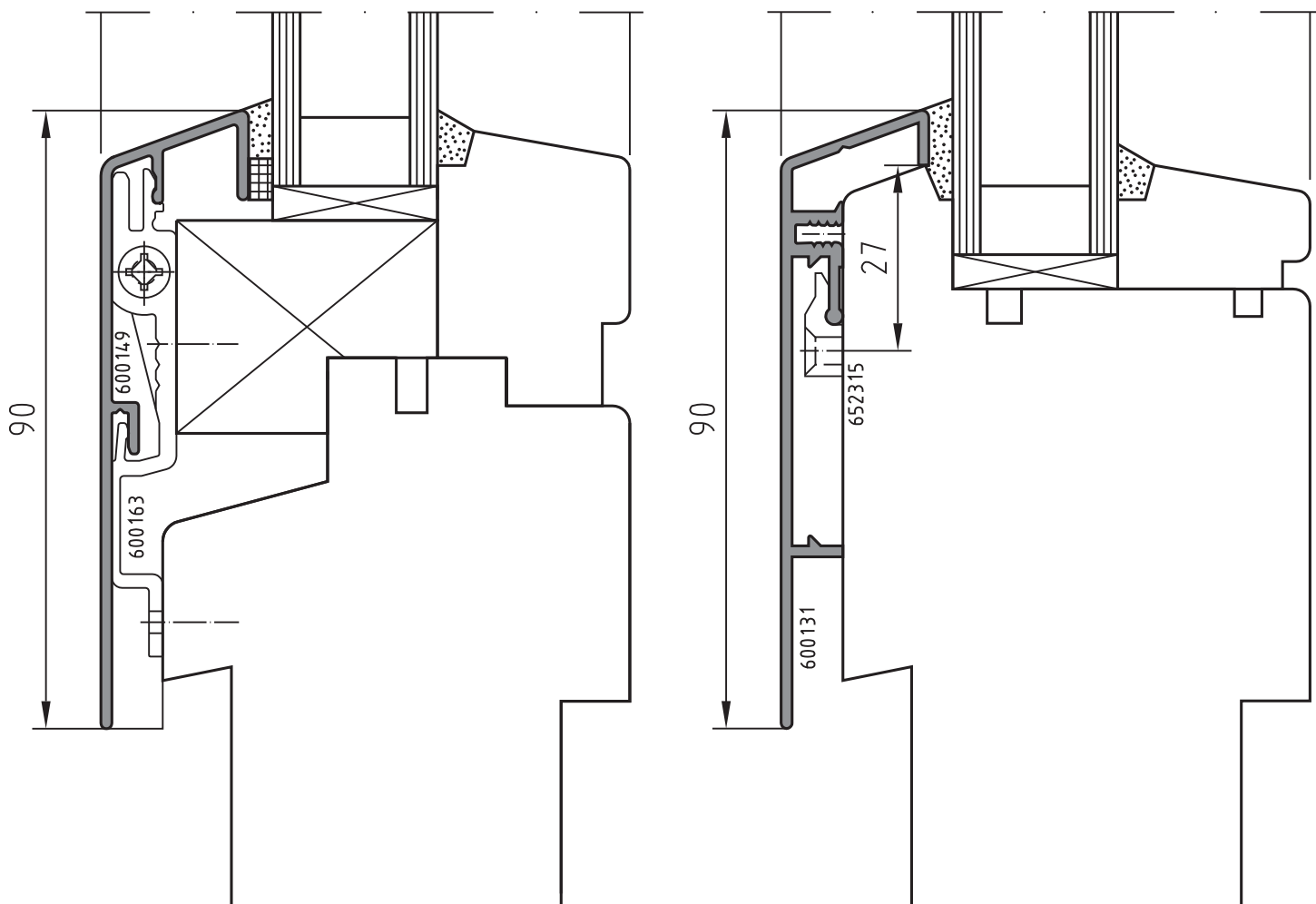


Sectional view: fixed glazing lateral and on top



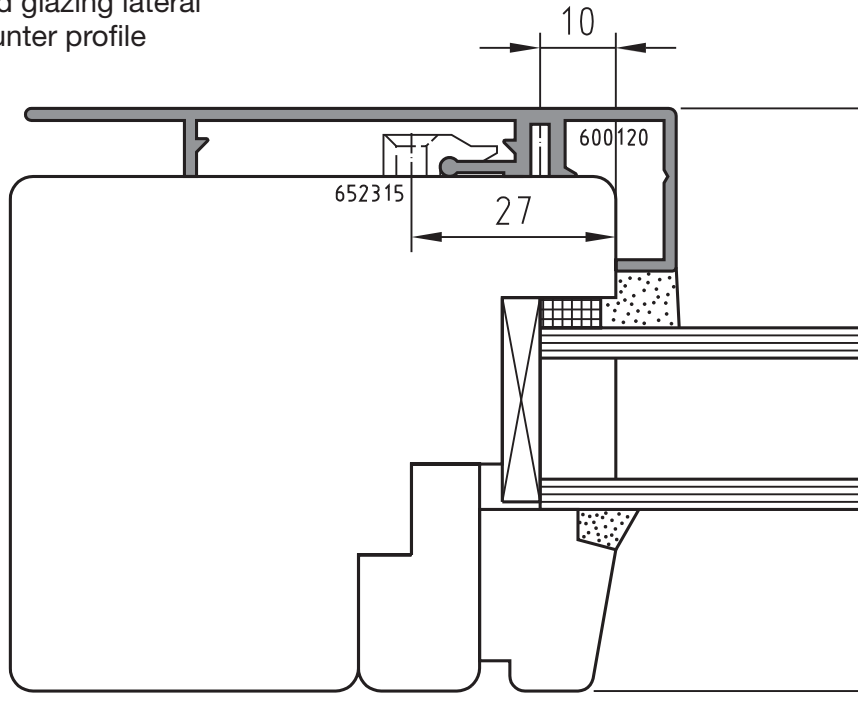
Perform glazing with suitable elastic sealing material according to IVD-instruction leaflet no. 13 concerning glass sealing on wood-aluminum windows with sealing material, as well as the instructions from insulating windows suppliers and sealing material suppliers under consideration of TGIC free coating materials for aluminum surfaces.

Sectional view: fixed glazing below

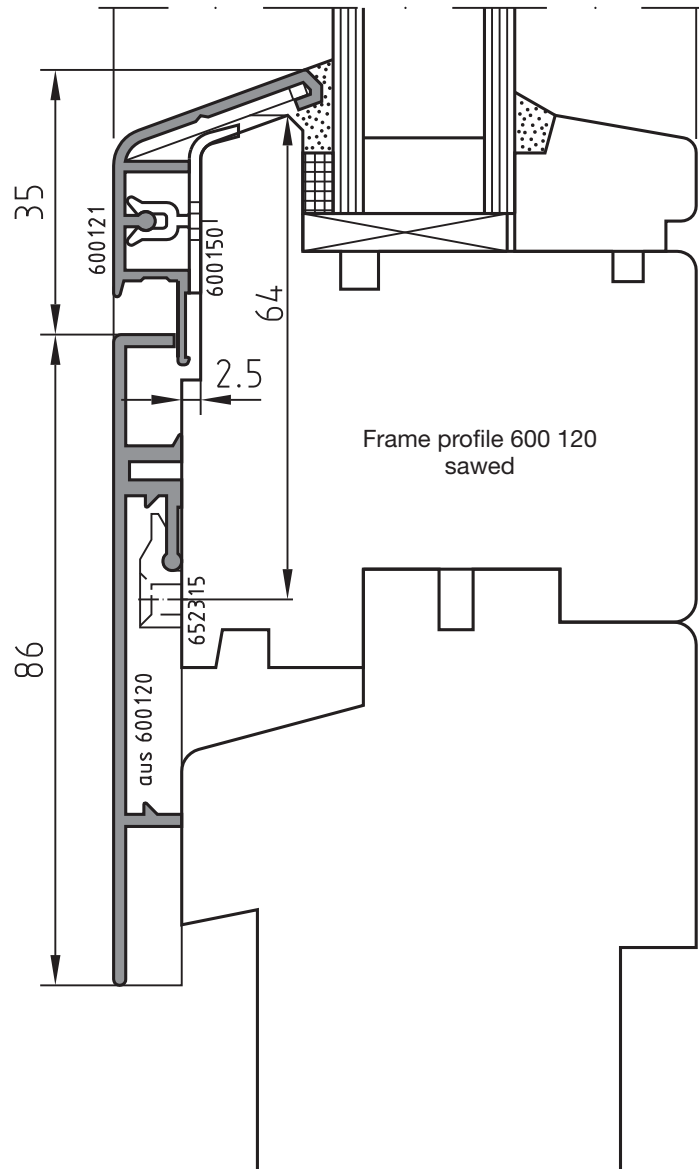


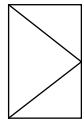


Sectional view: fixed glazing lateral and on top with counter profile

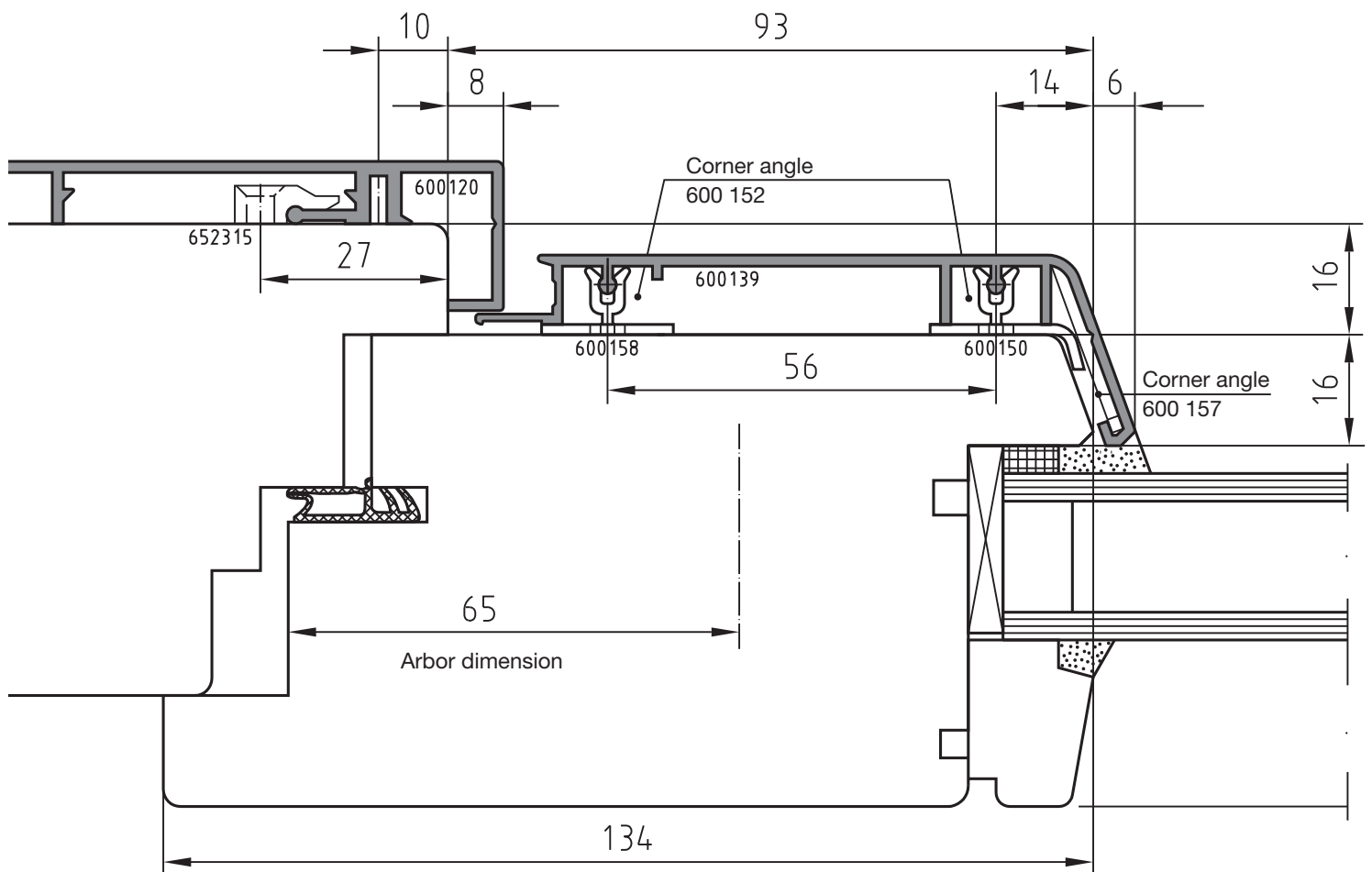
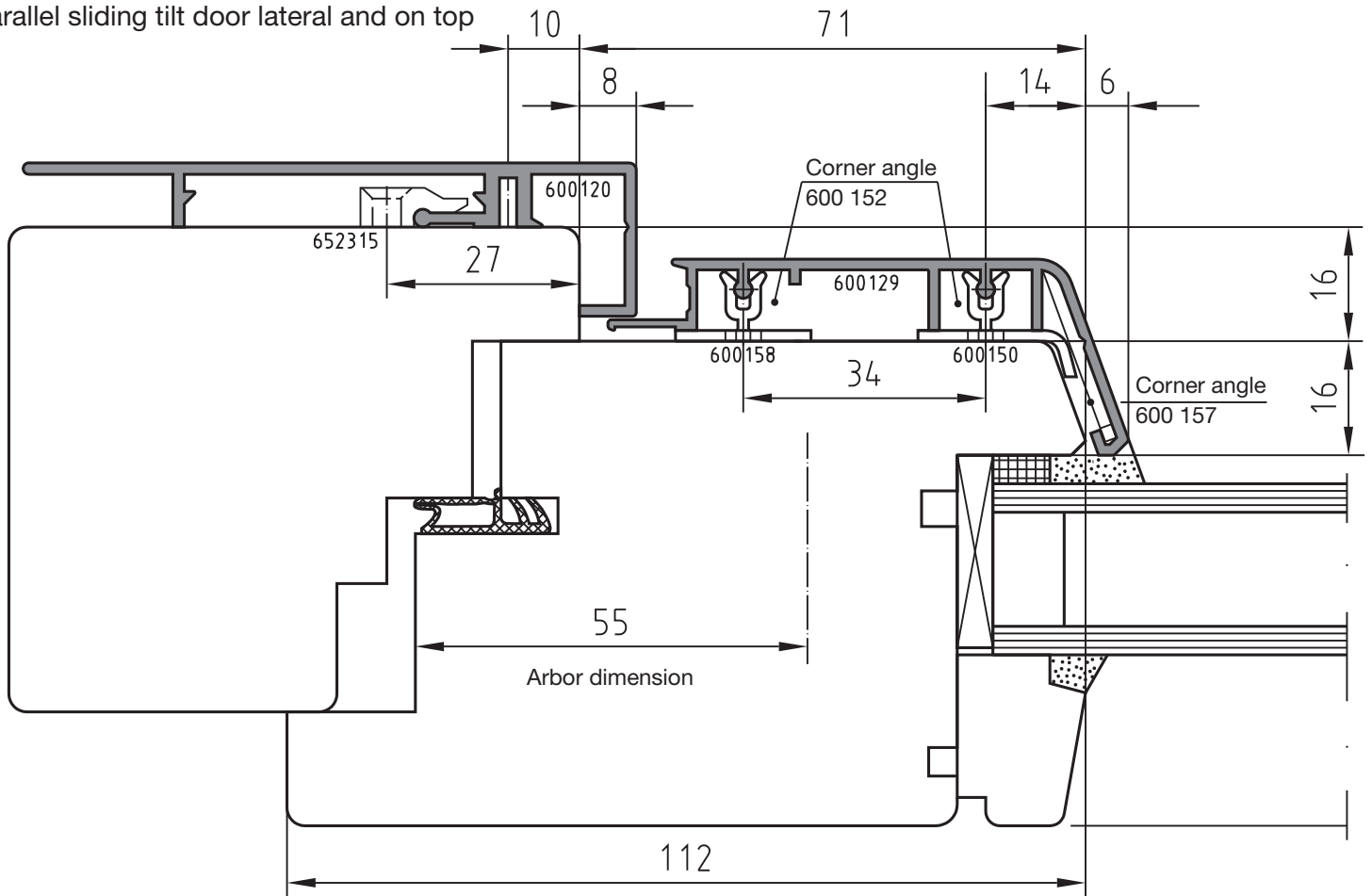


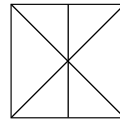
Sectional view: fixed glazing lateral below with counter profile



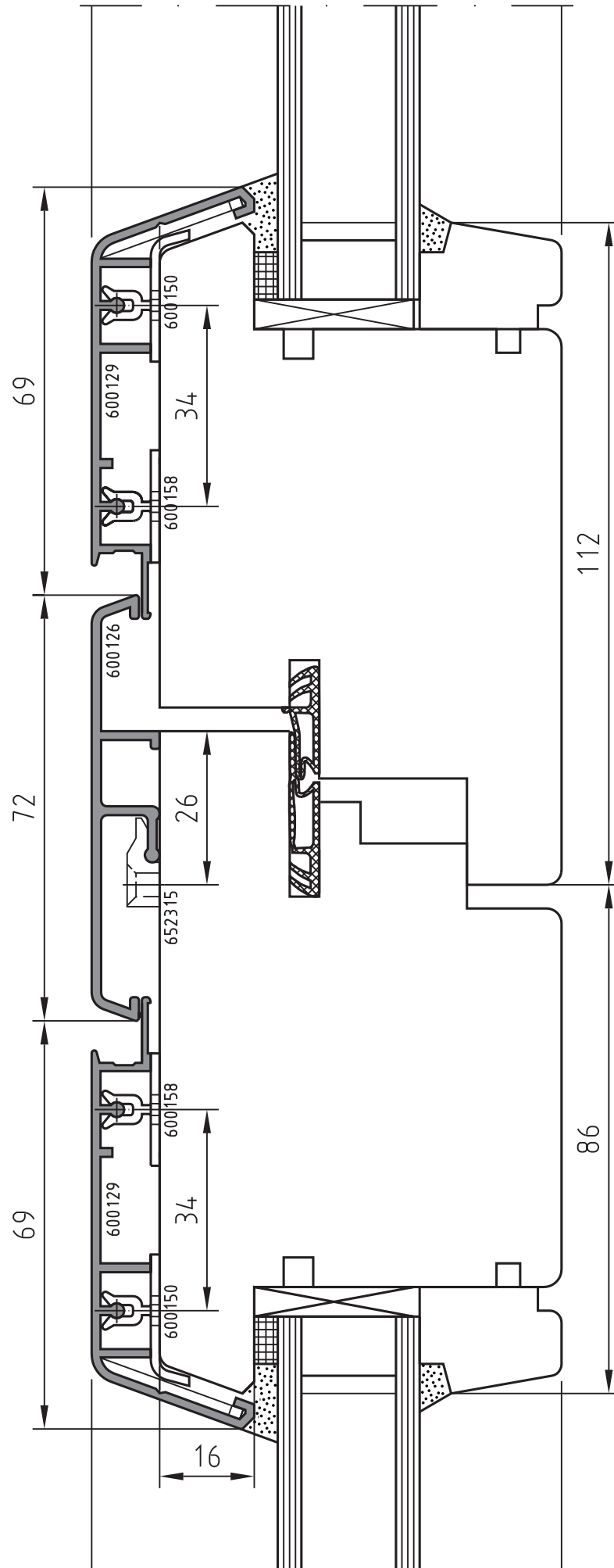


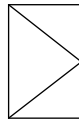
Sectional view: revolving door,
parallel sliding tilt door lateral and on top



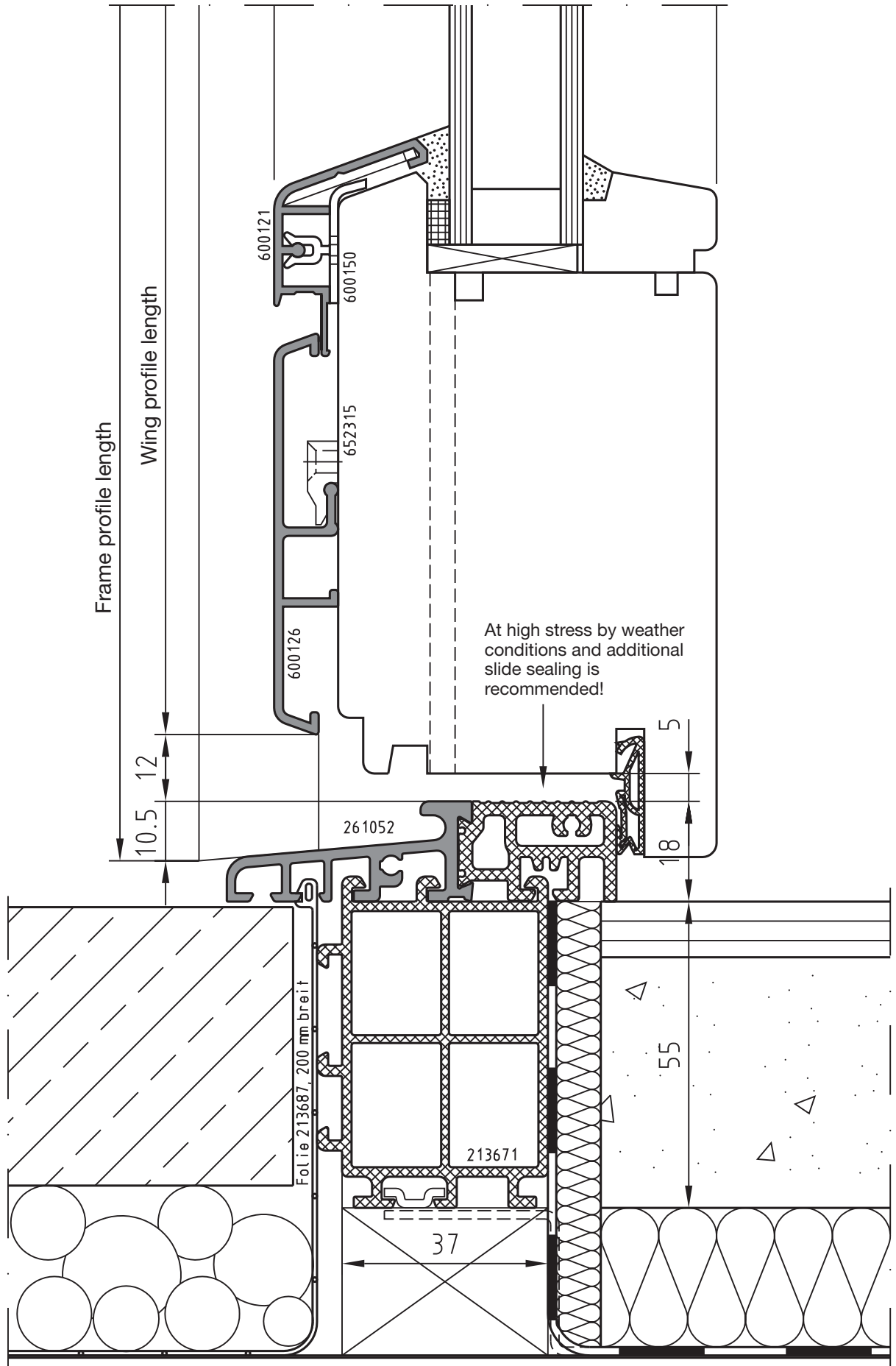


Sectional view:
astragal revolving door,
PSK door





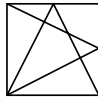
Sectional view:
revolving door
below



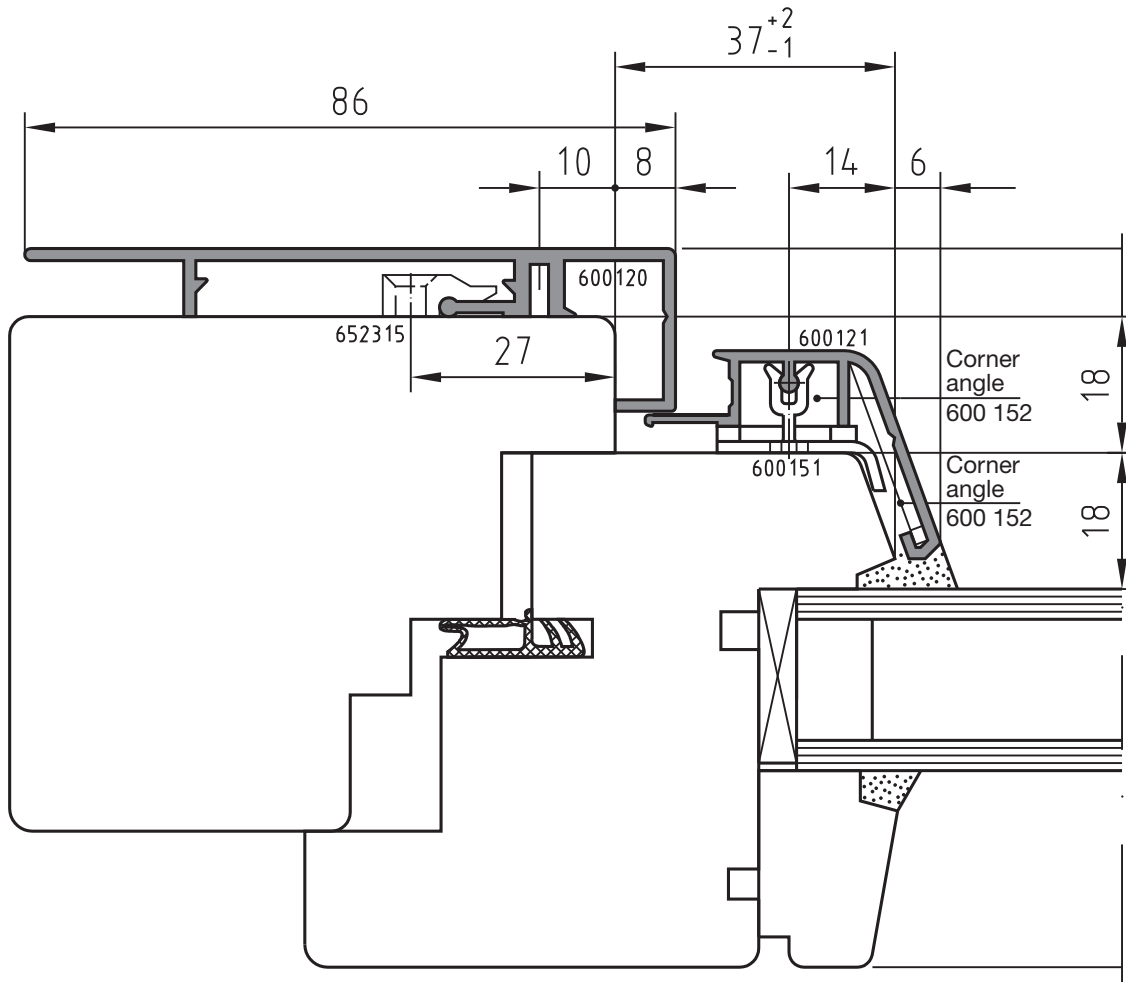
Thermal separated floor threshold
TBS 70

Base profile made of PVC · Check at foil connection on compatibility with adhesive and/or foil material!

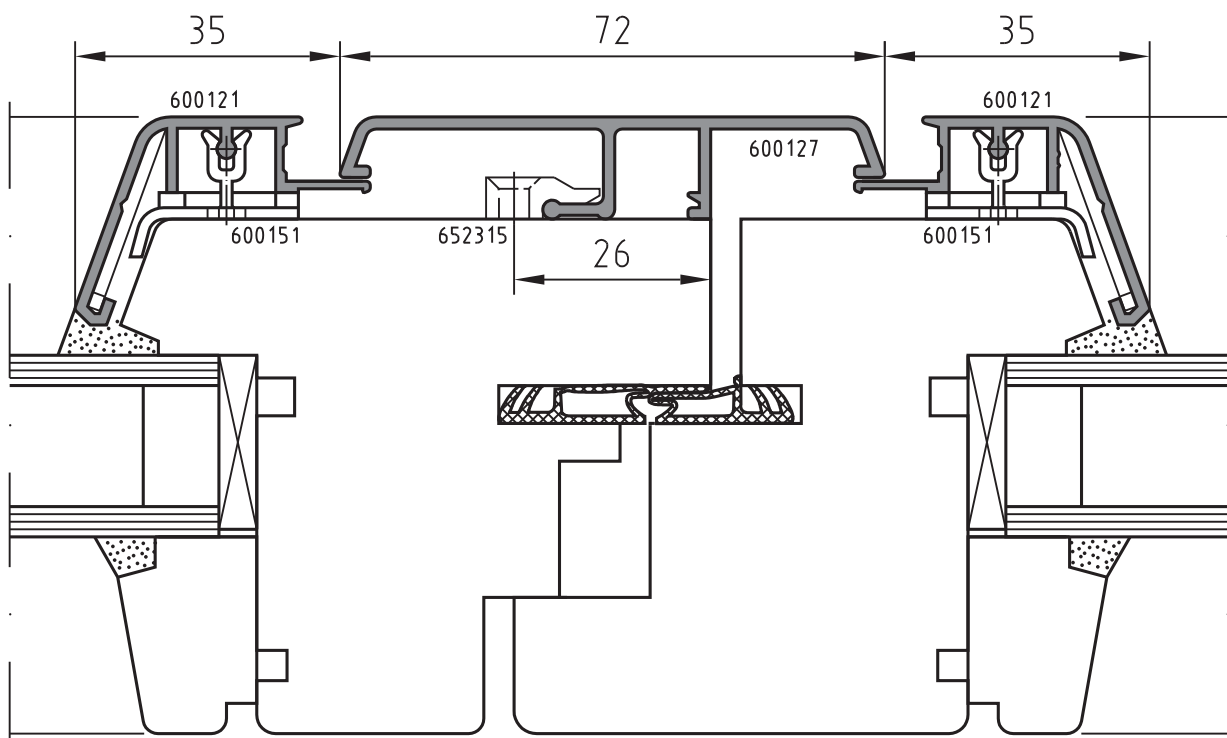
Building connection – see notes on page 17

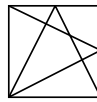


Sectional view: tilt and turn window lateral and on top for 18 mm overlapping and glass lap

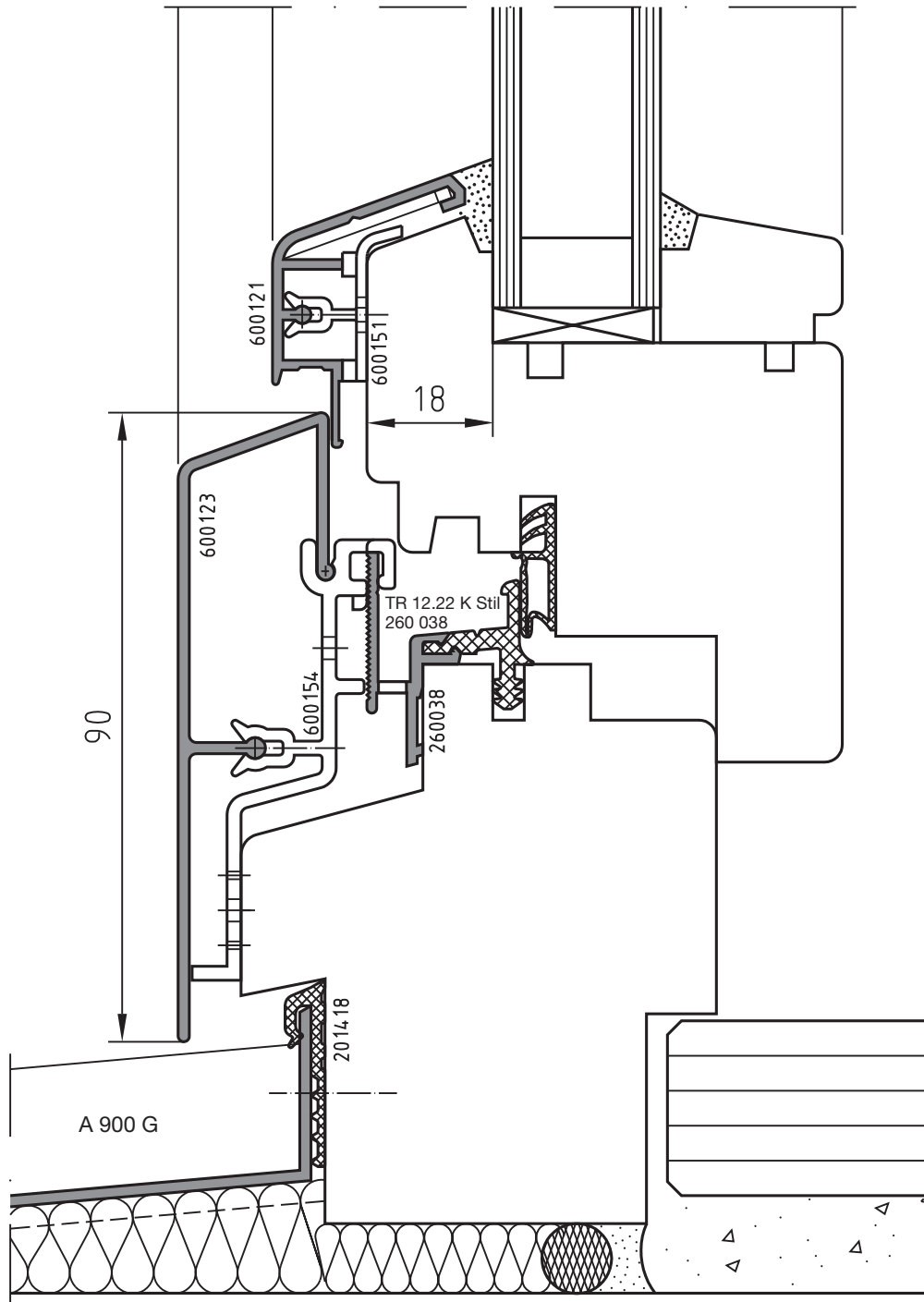


Sectional view: astragal for 18 mm glass lap

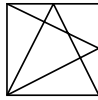




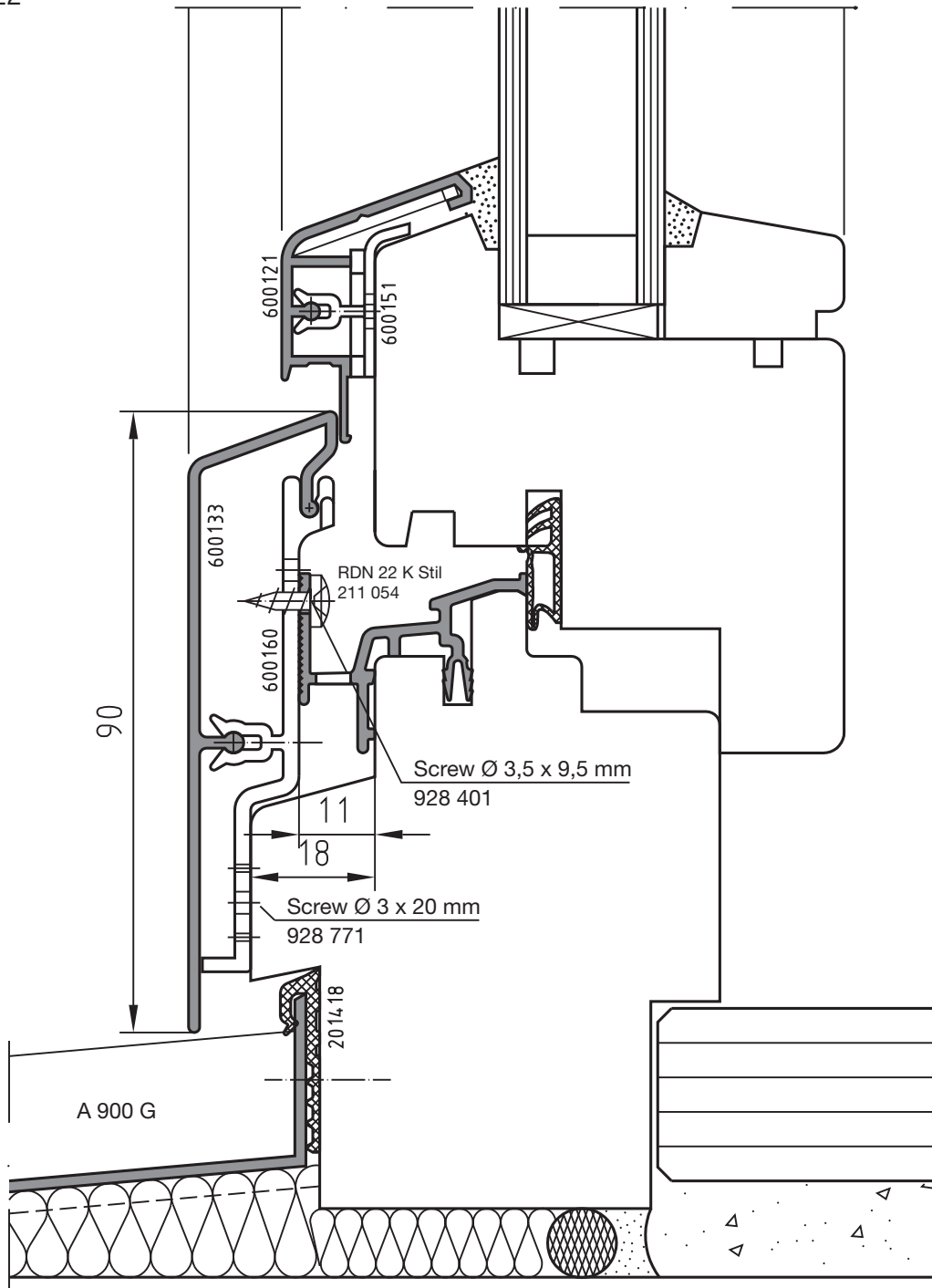
Sectional view: tilt and turn window below
for 18 mm overlapping and glass lap



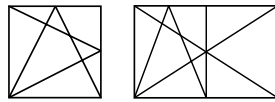
Building connection – see notes on page 17



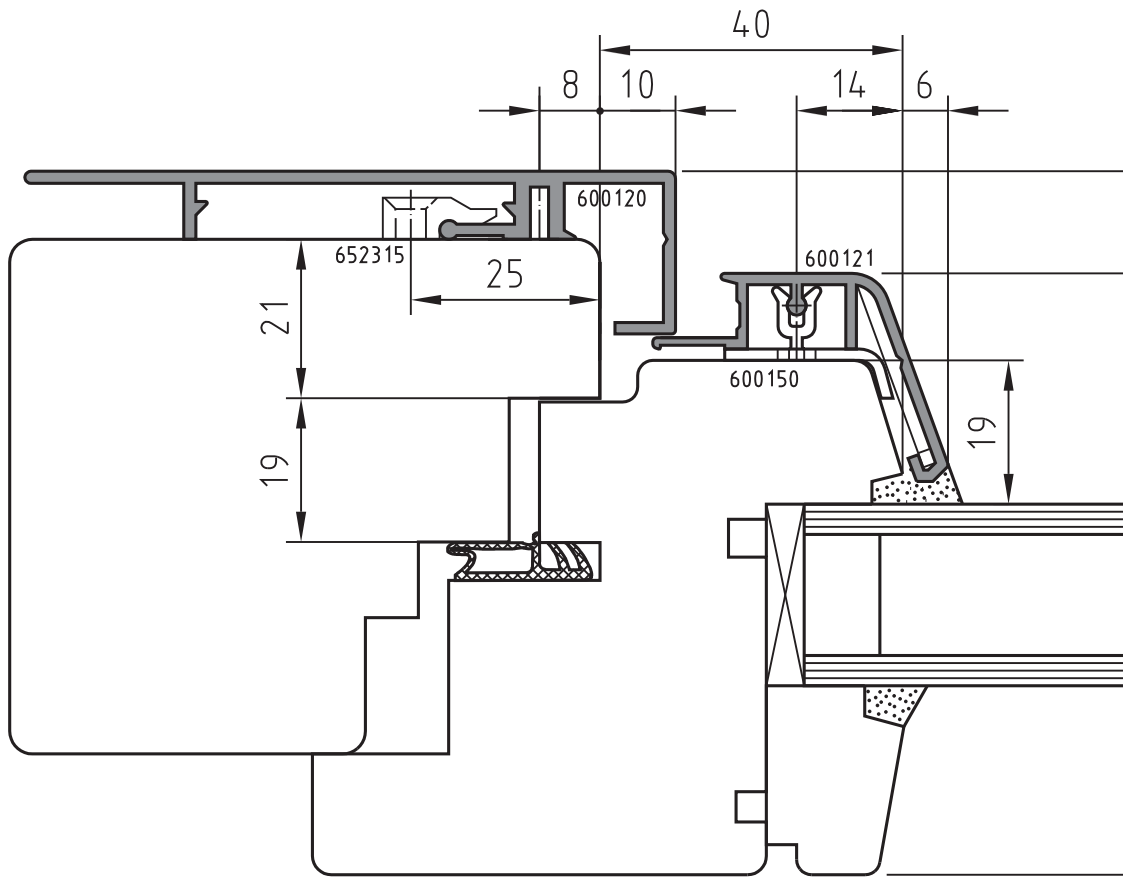
Sectional view: tilt and turn window below
for 18 mm overlapping + glass lap
system RDN 22



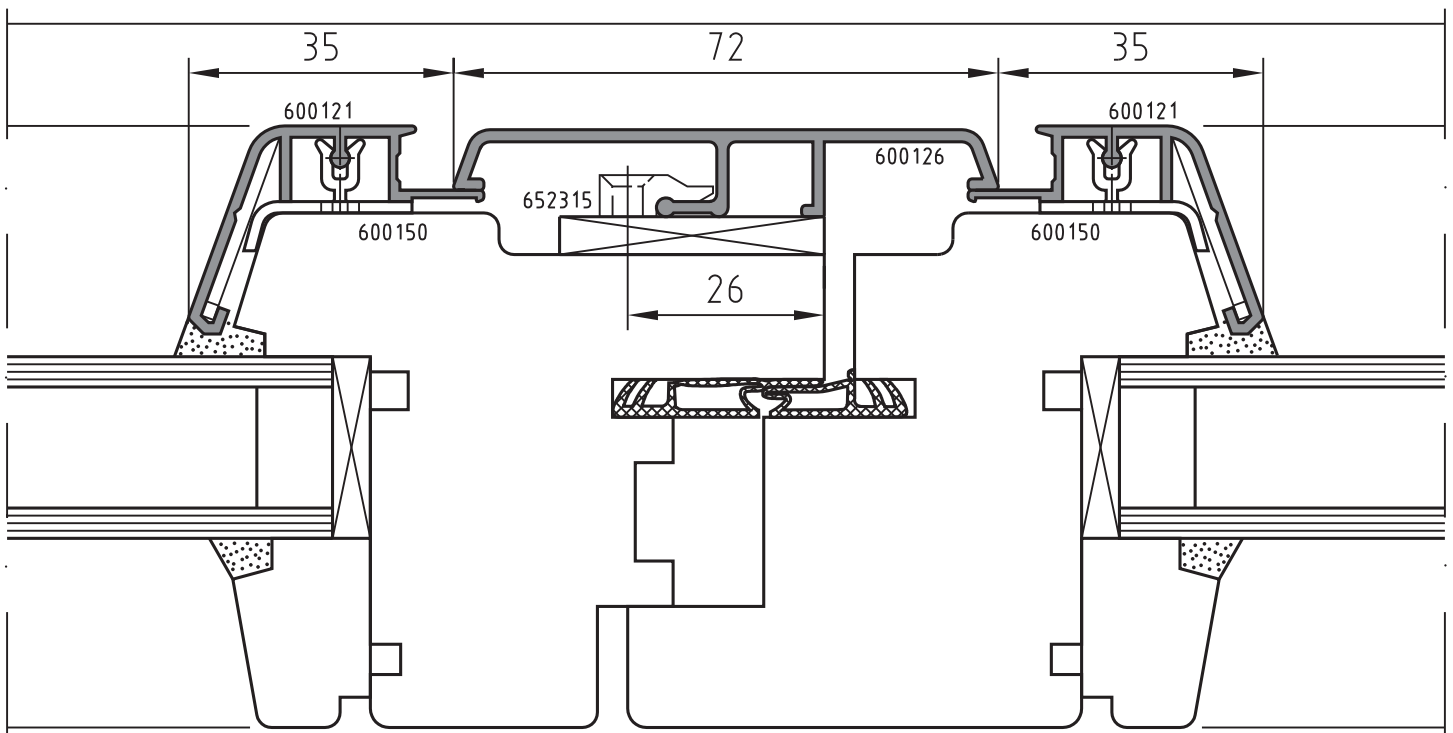
Building connection – see notes on page 17

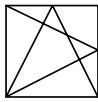


Sectional view: tilt and turn window lateral and on top for System 12.19

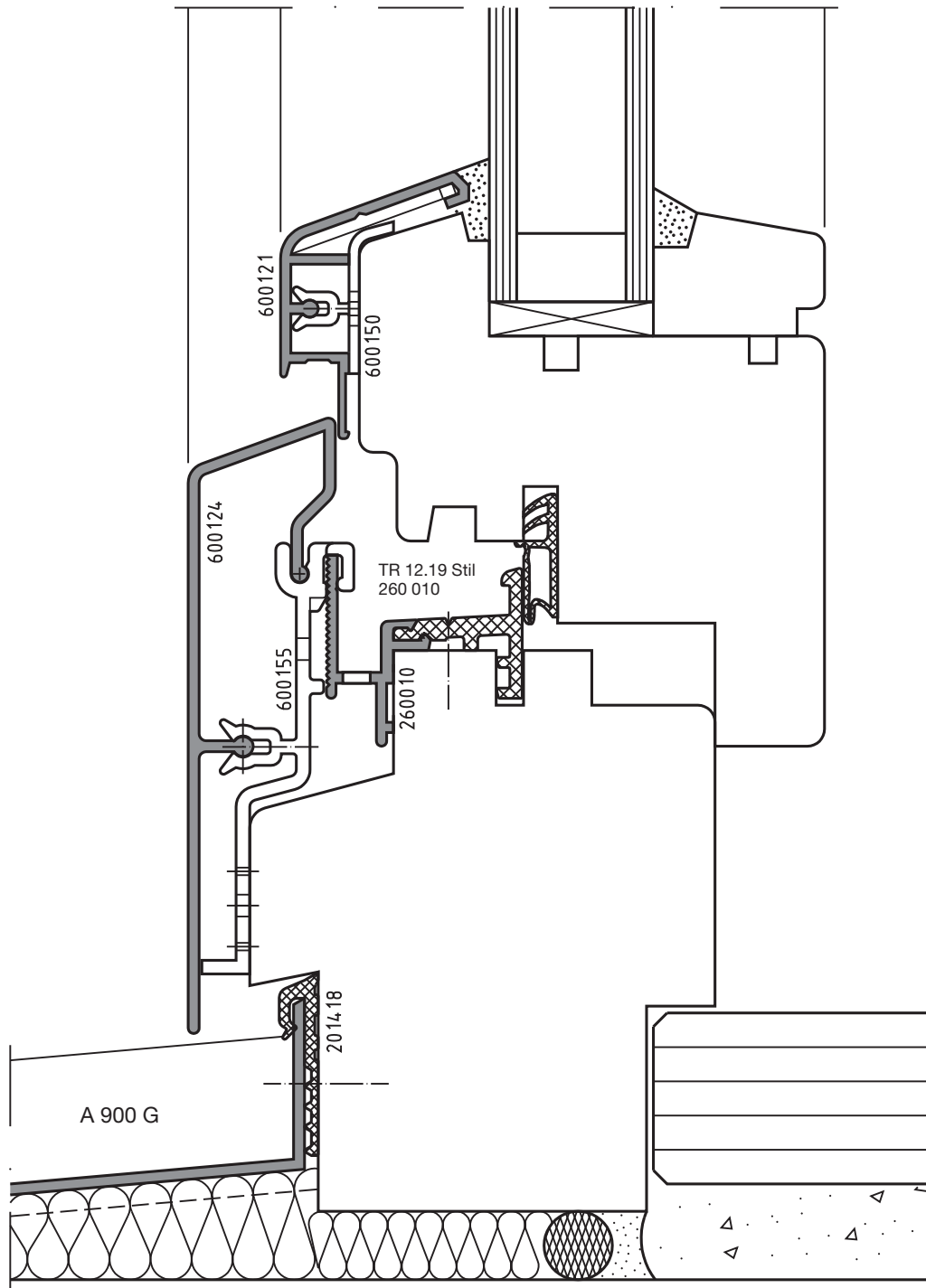


Sectional view: astragal for system 12.19

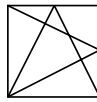




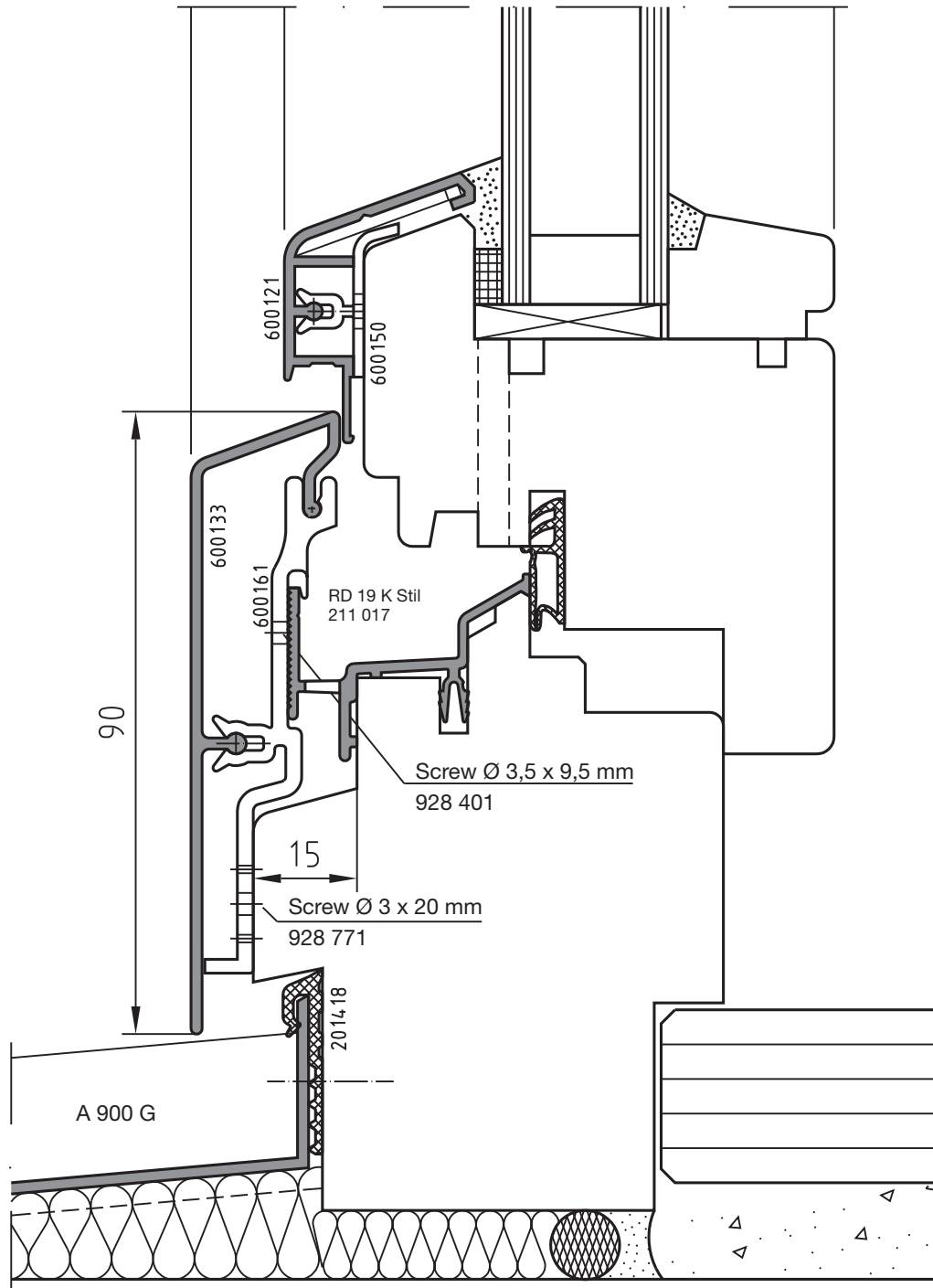
Sectional view: tilt and turn window below
for system 12.19



Building connection – see notes on page 17



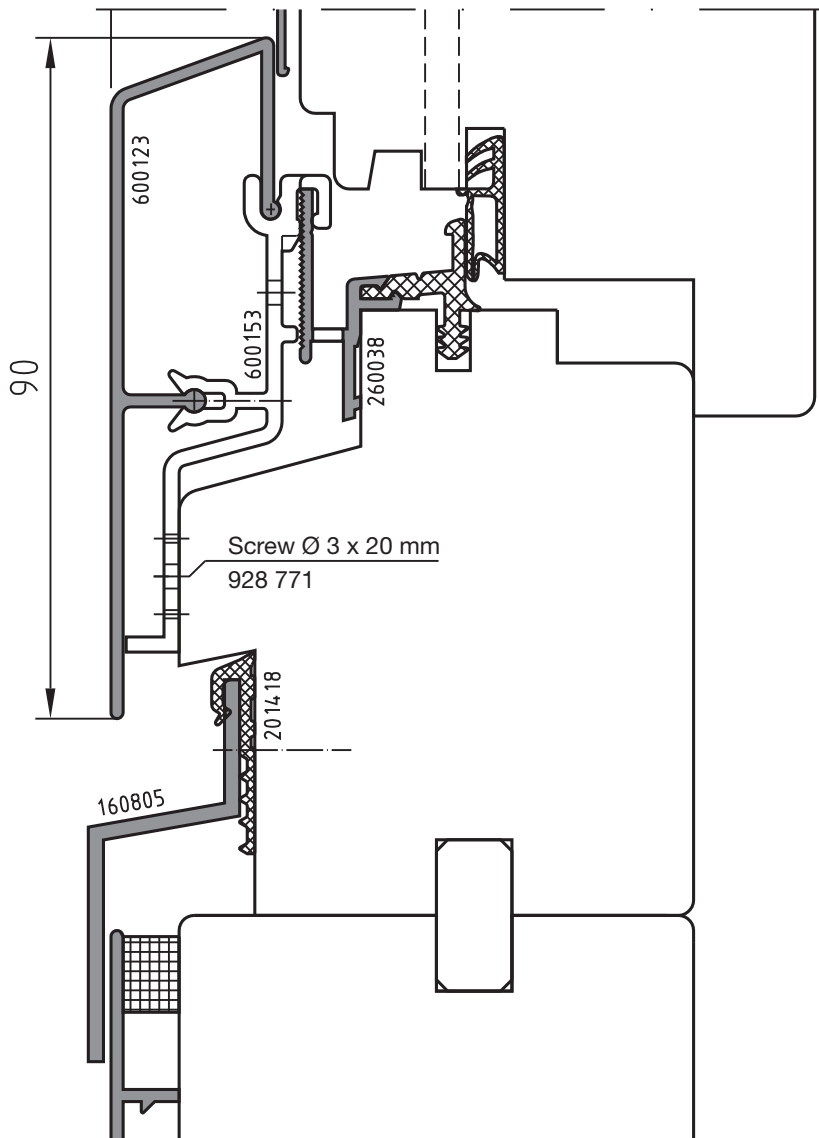
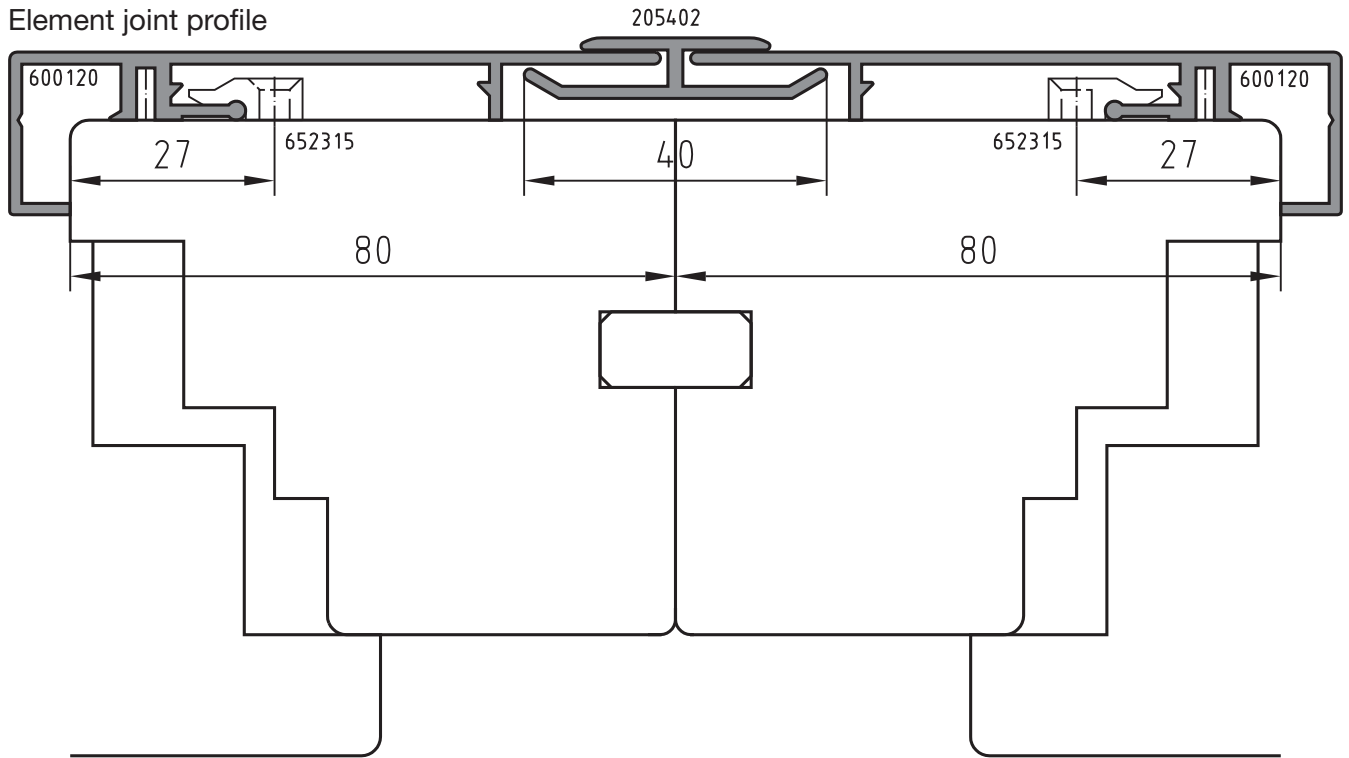
Sectional view: tilt and turn window below system RD 19

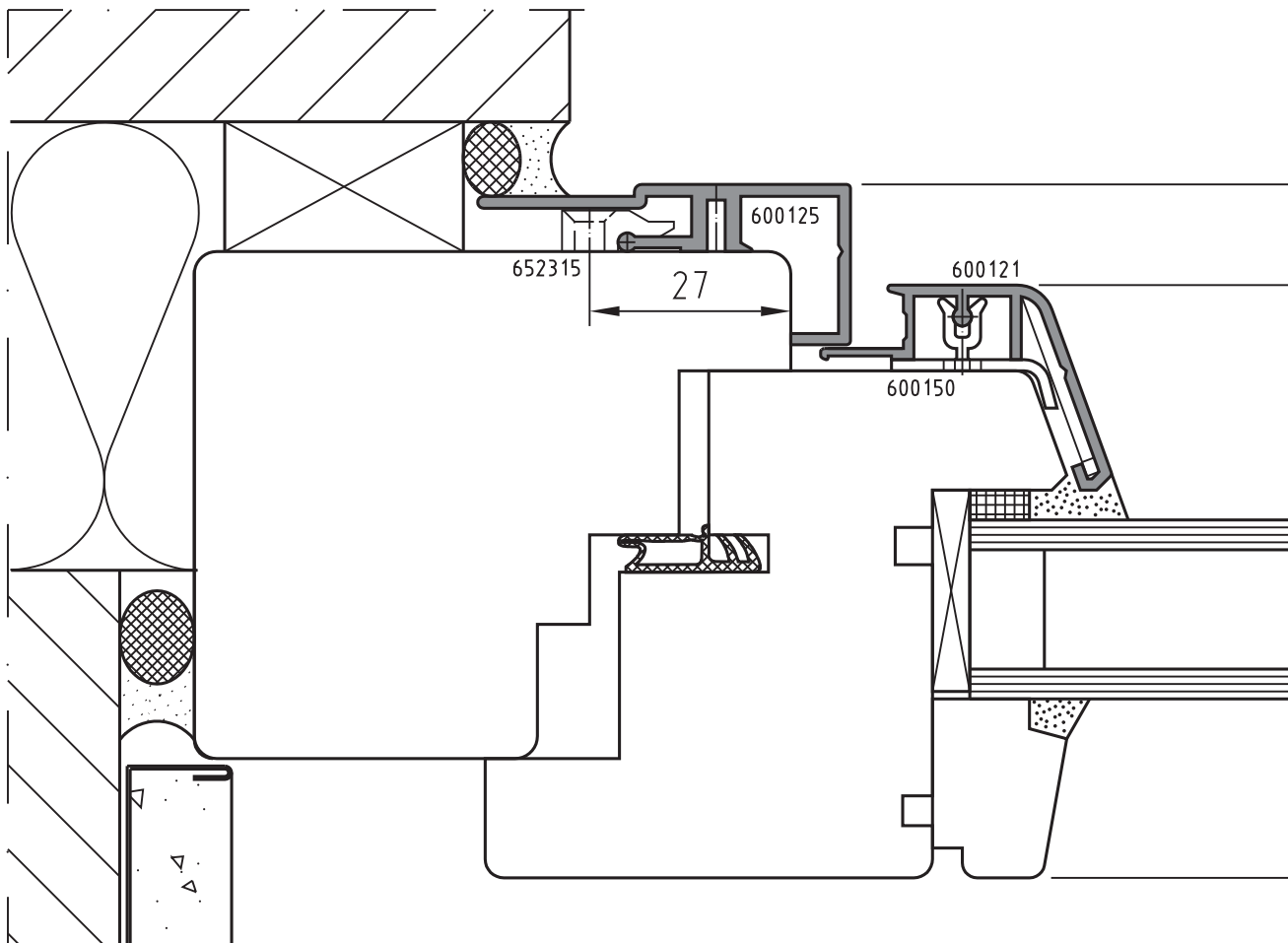
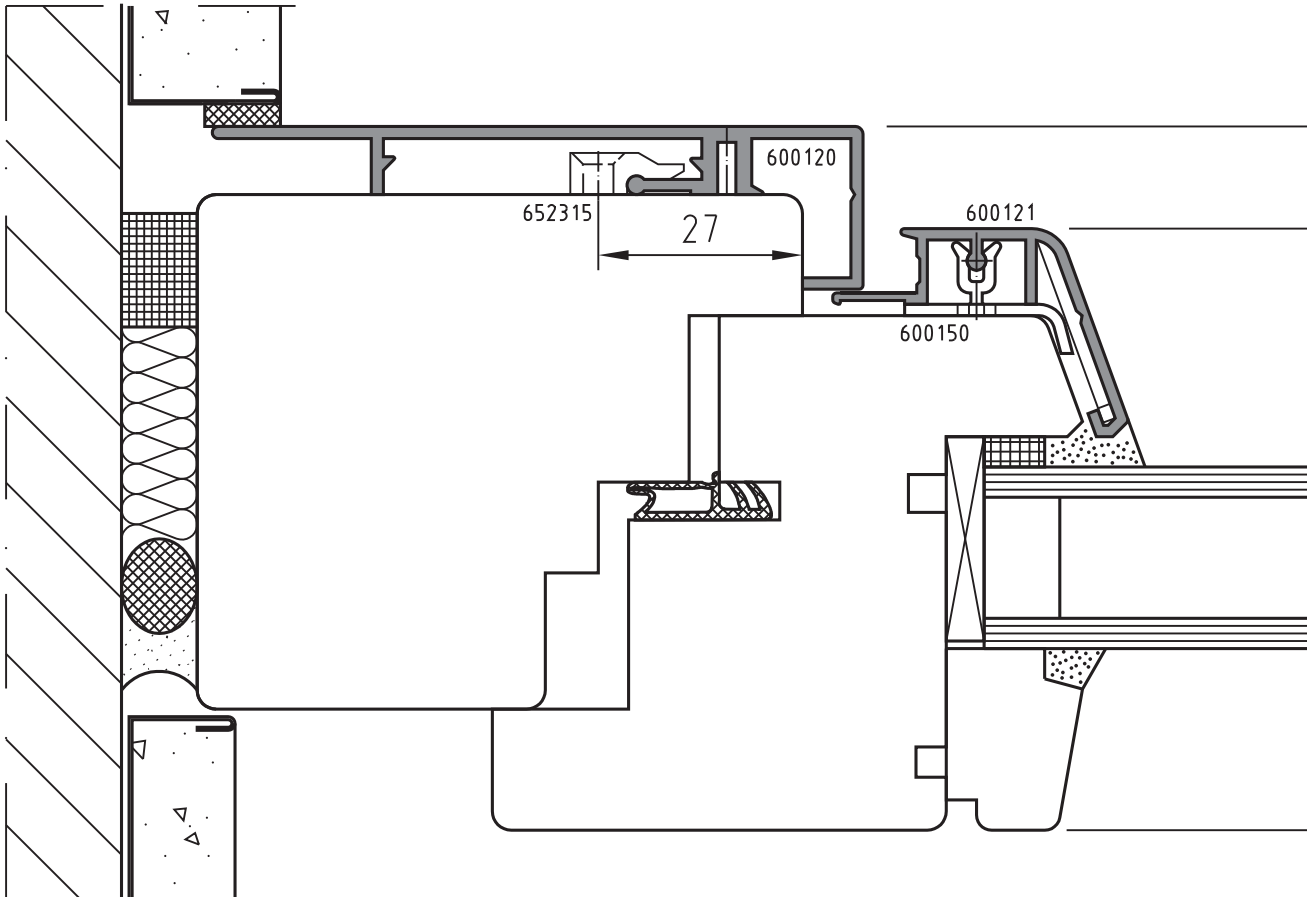


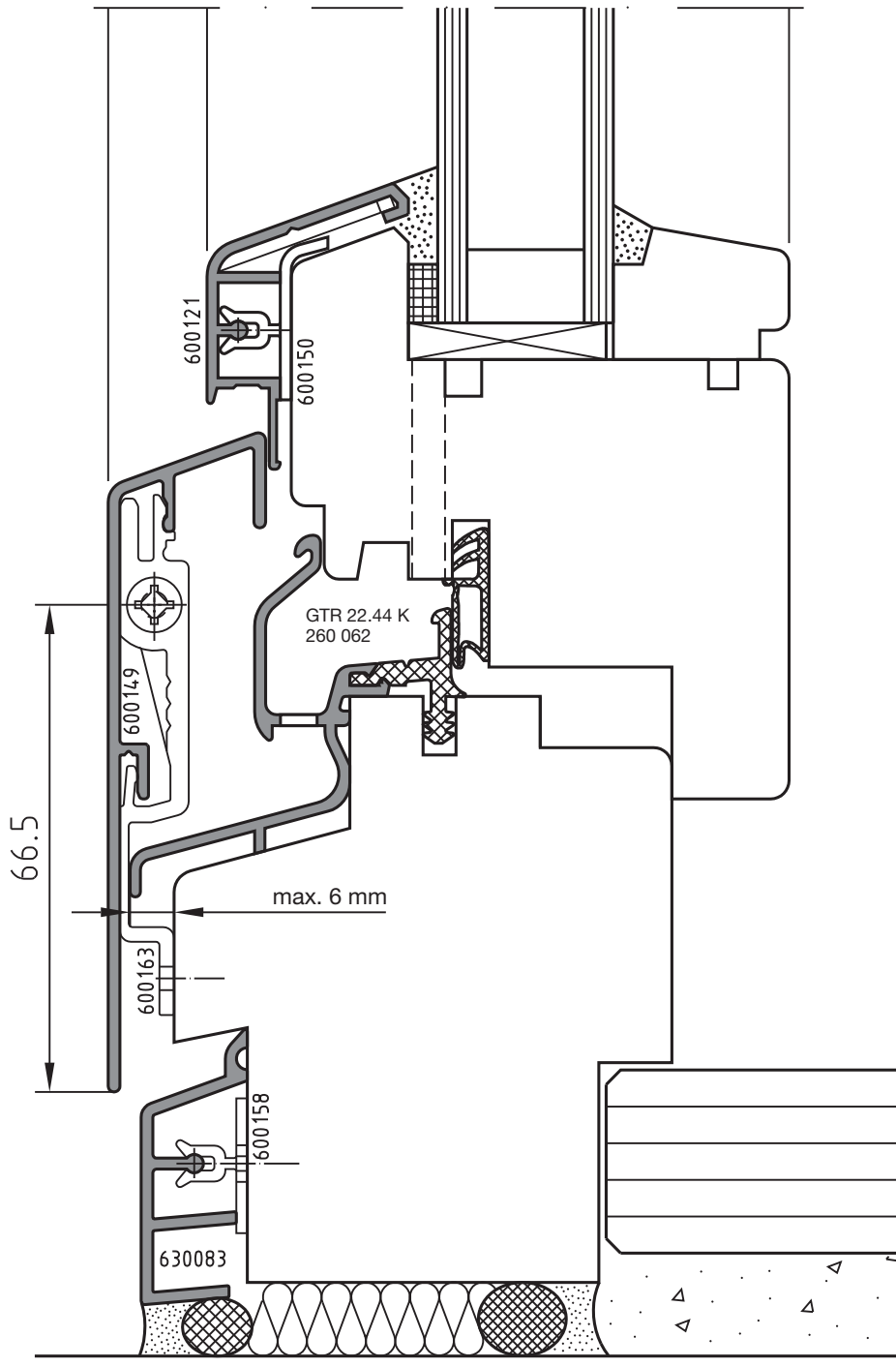
Building connection – see notes on page 17



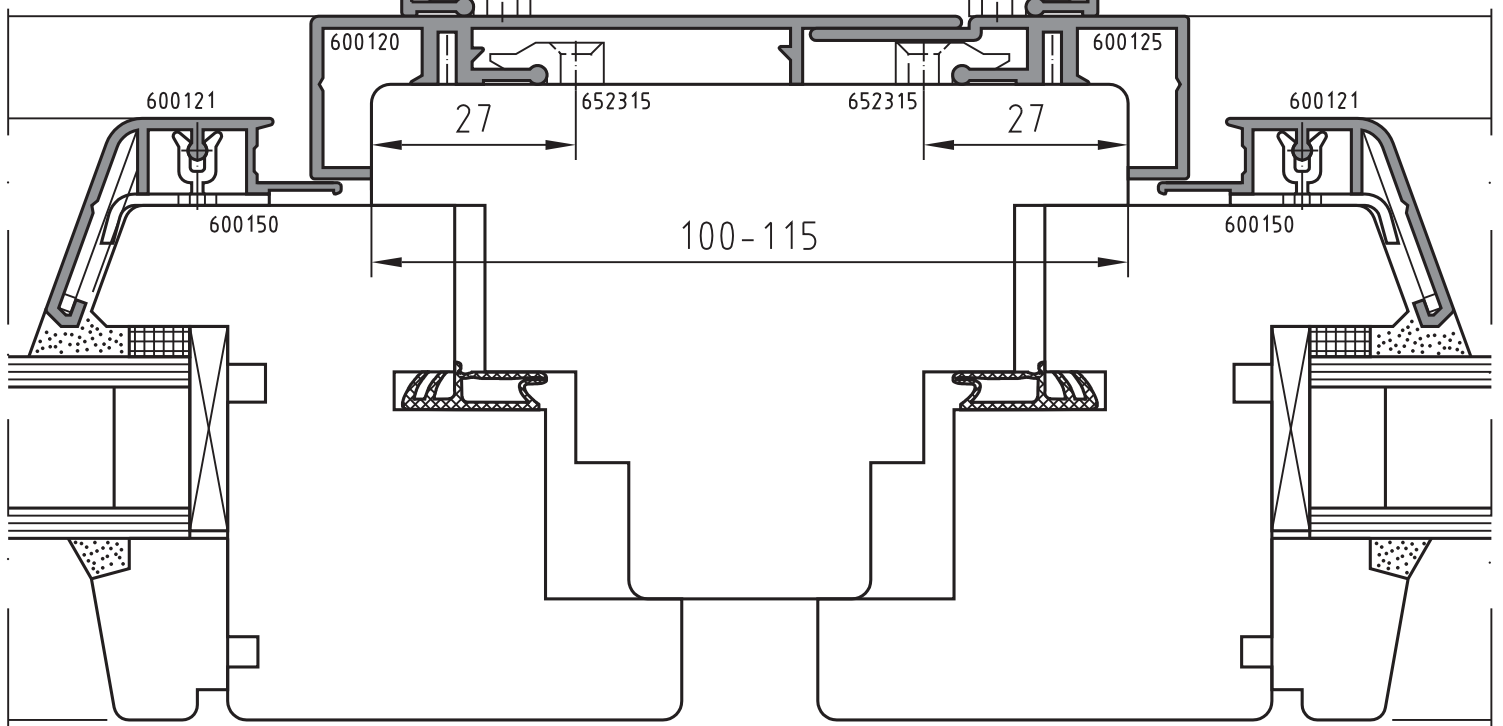
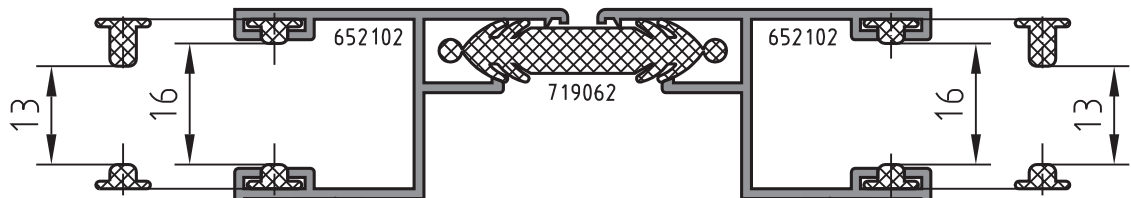
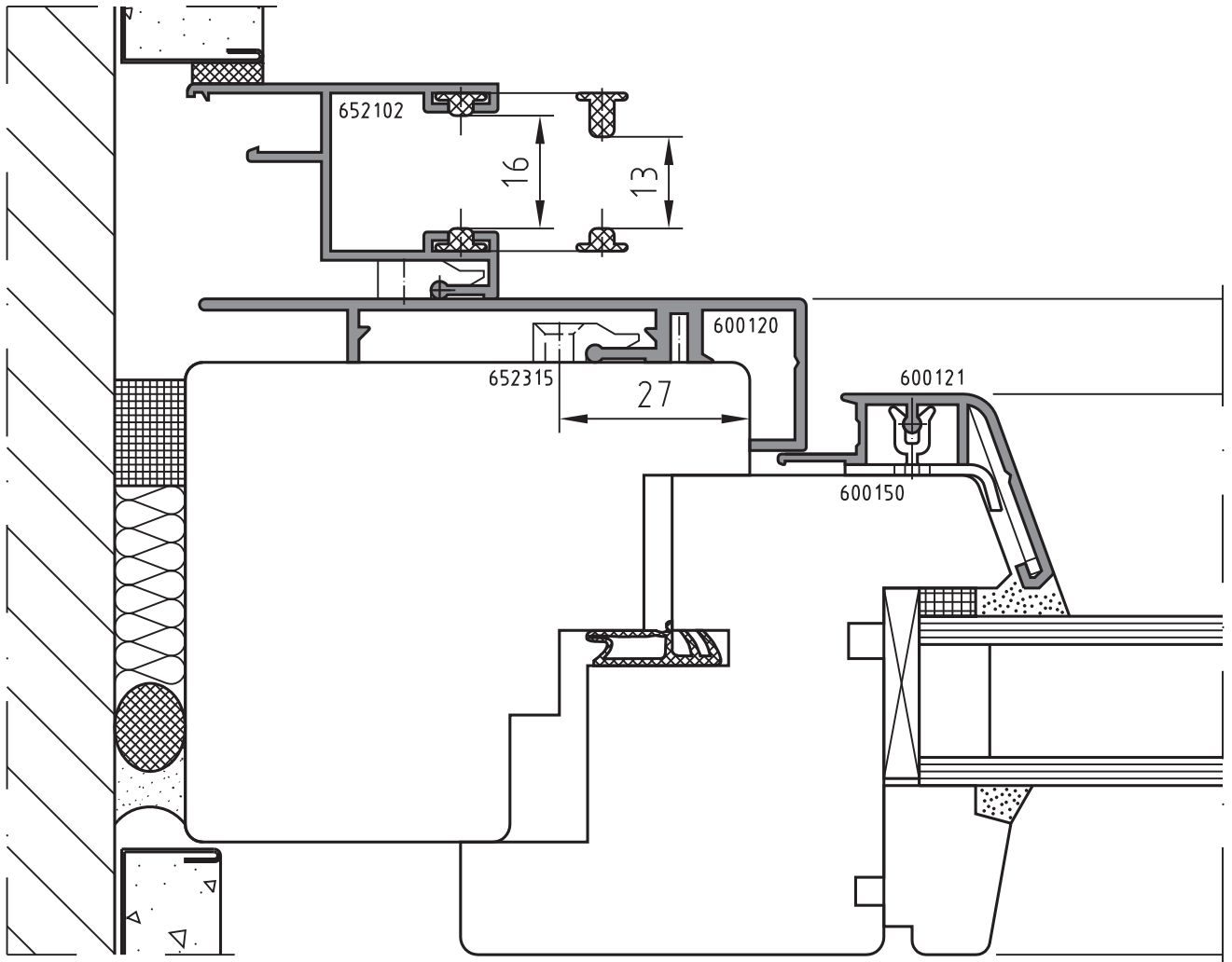
Element joint profile

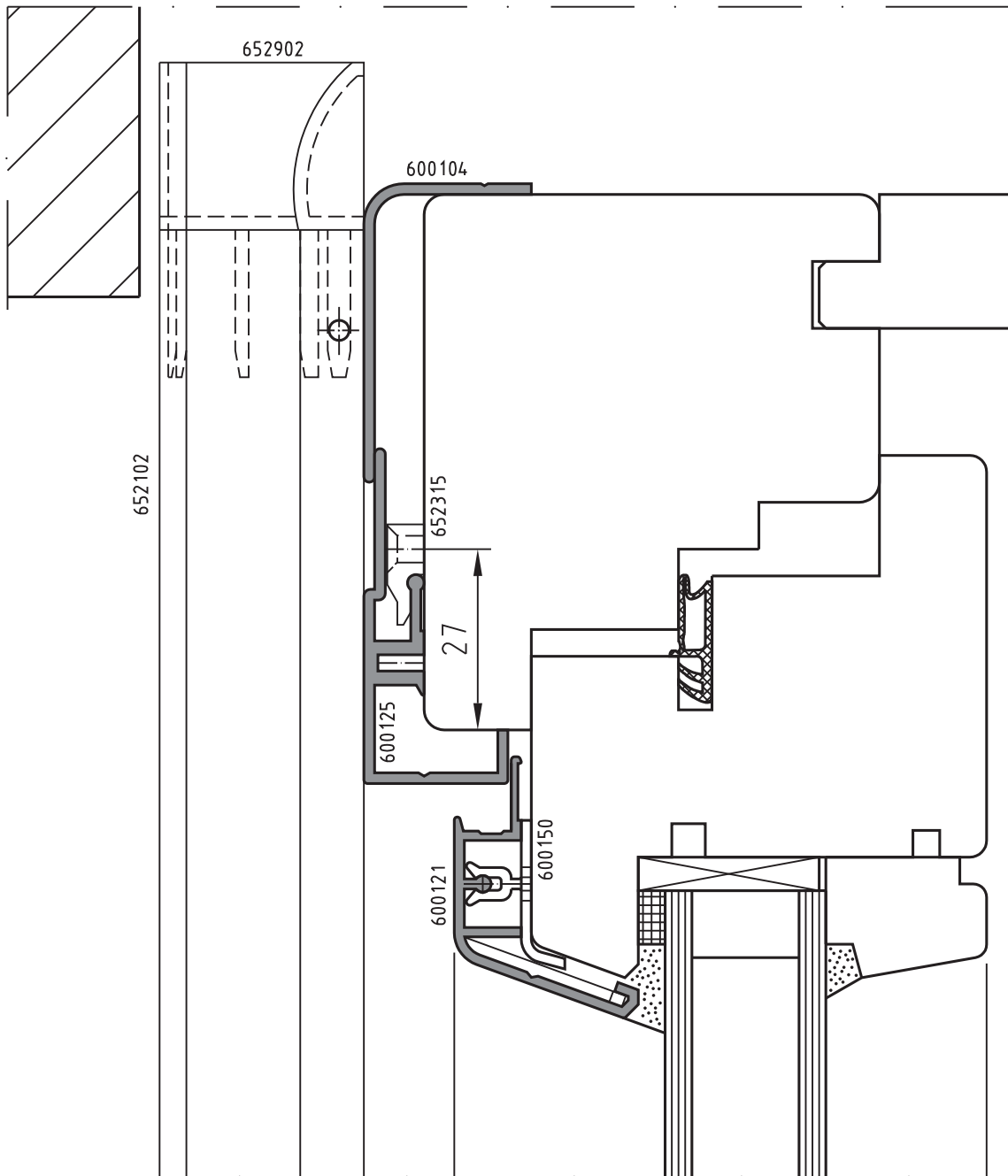




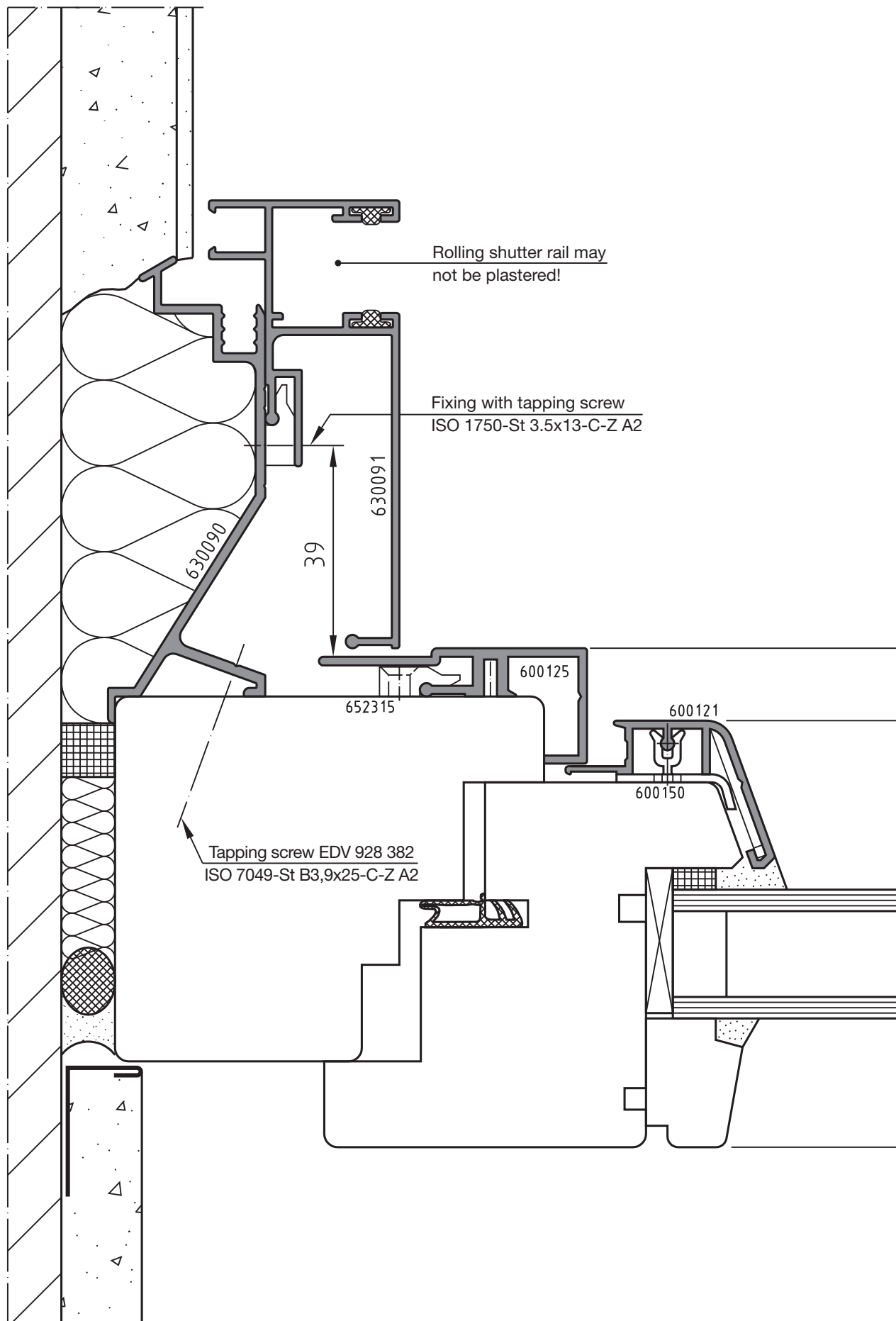


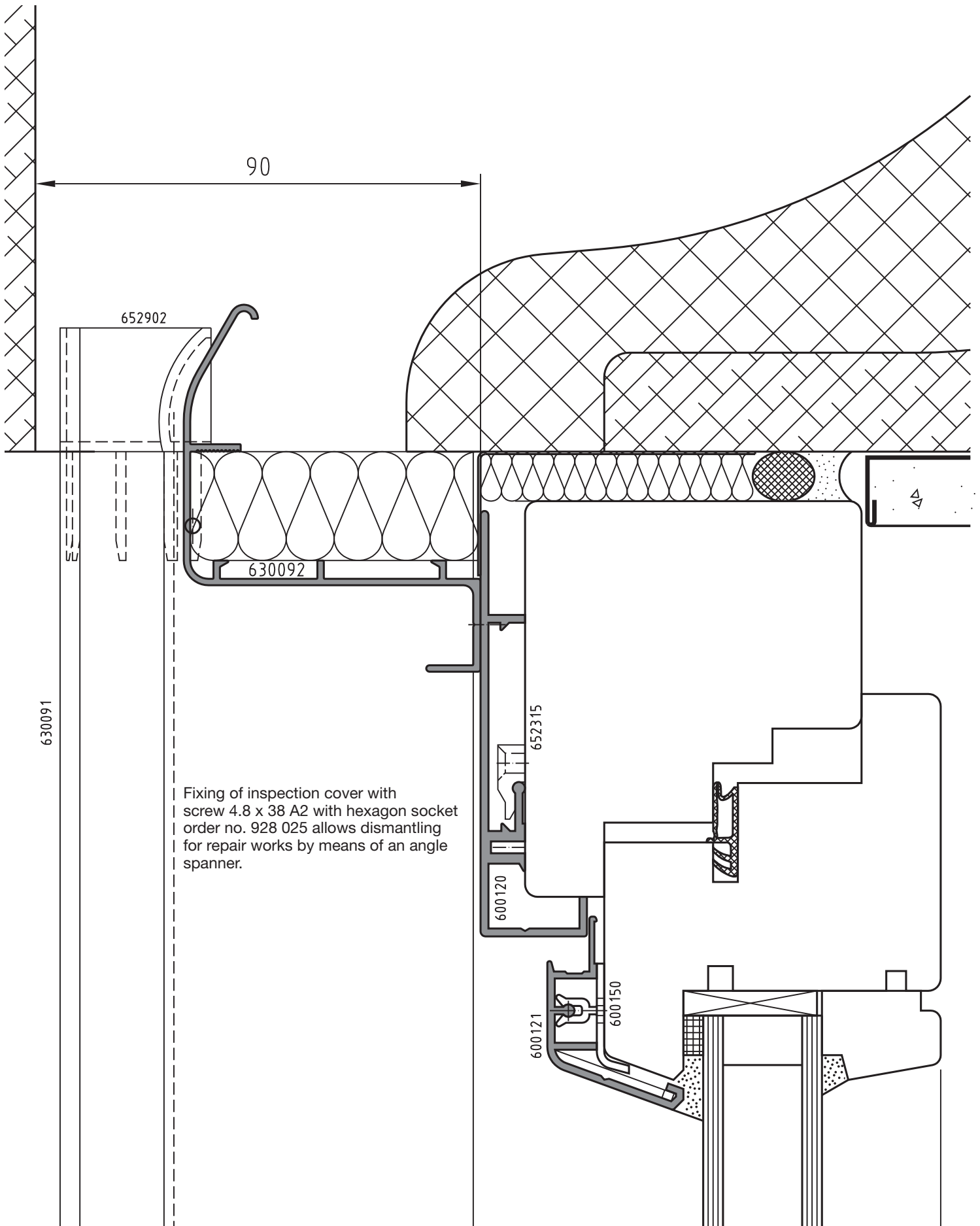
Building connection – see notes on page 17

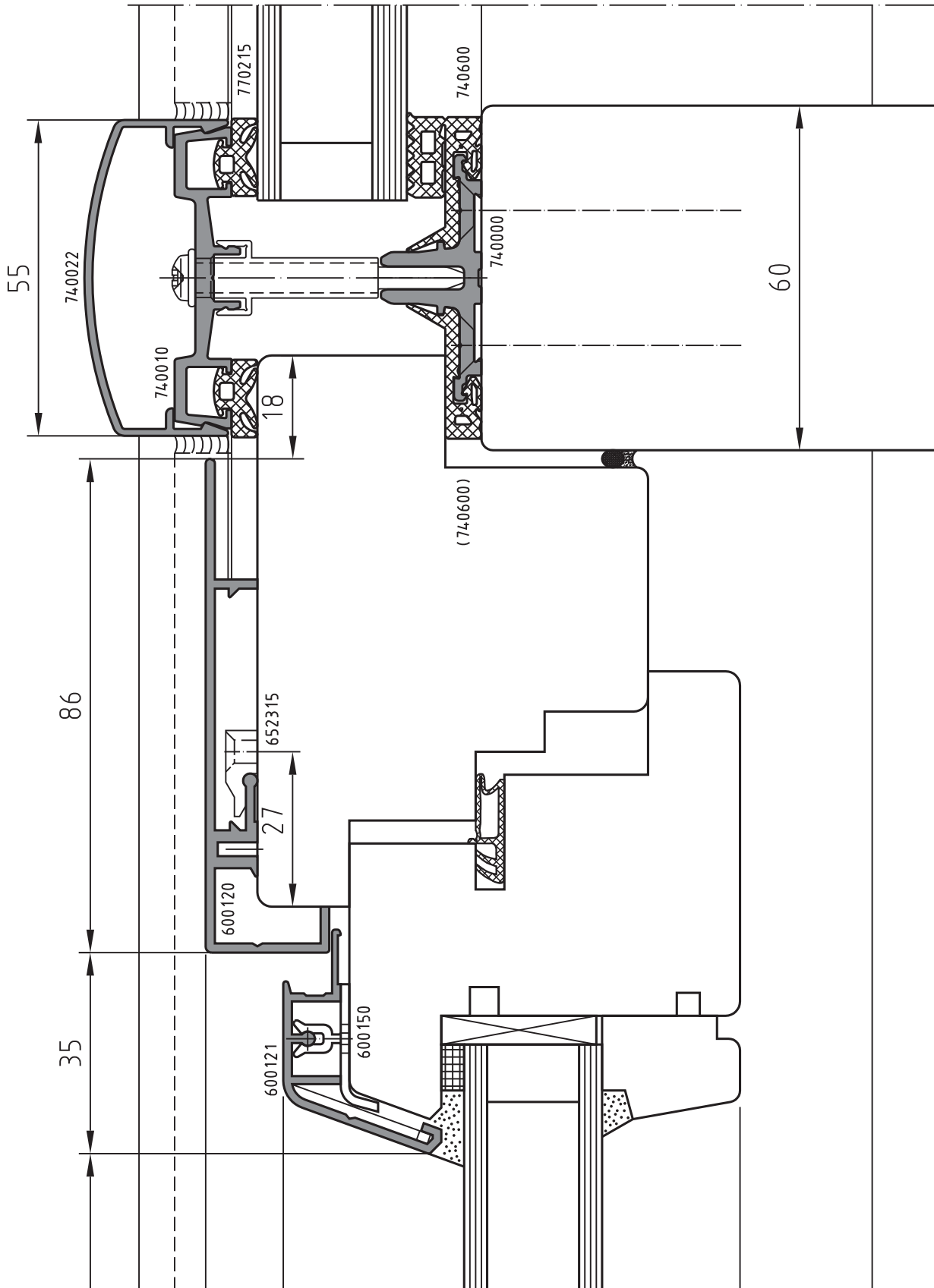




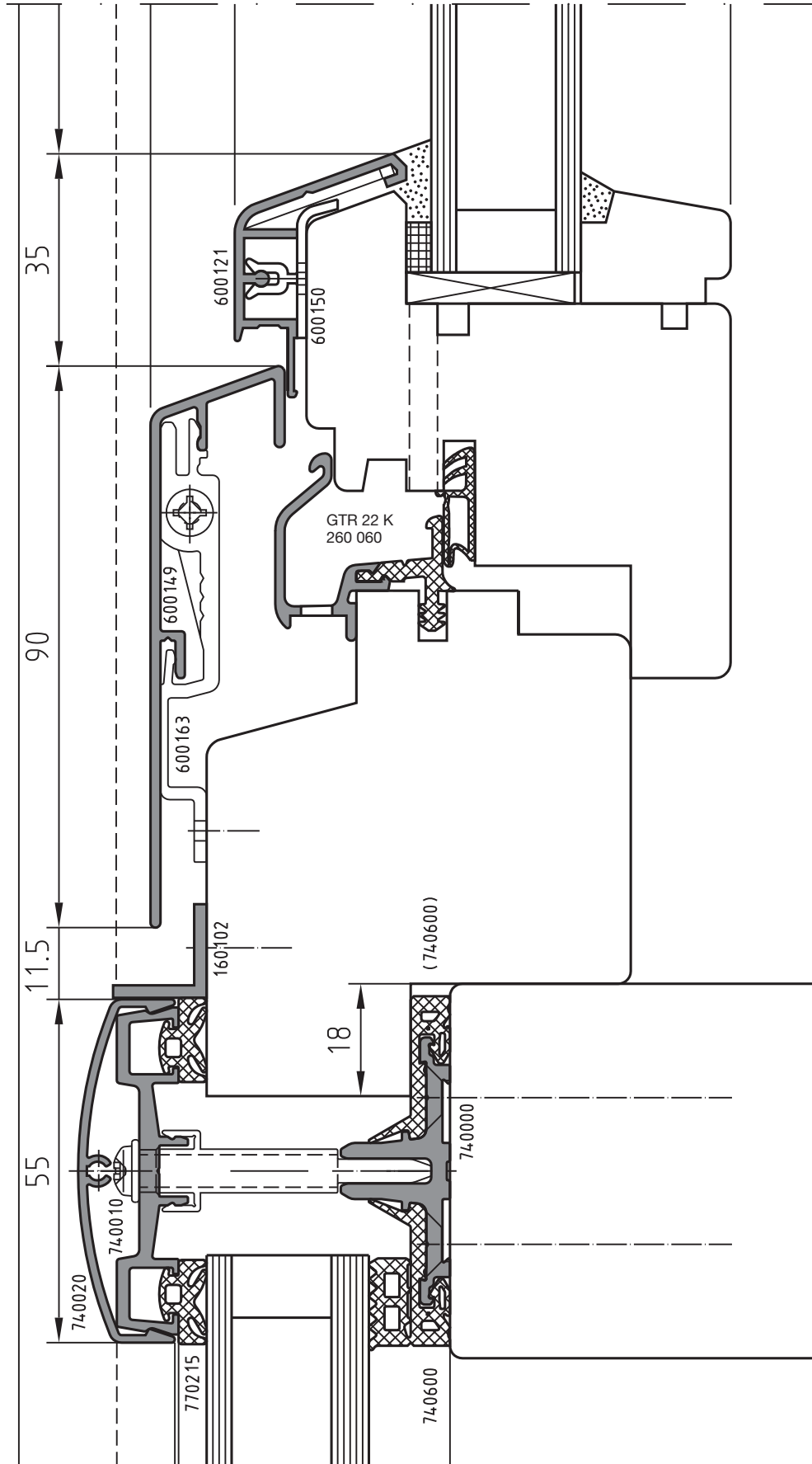
Building connection – see notes on page 17



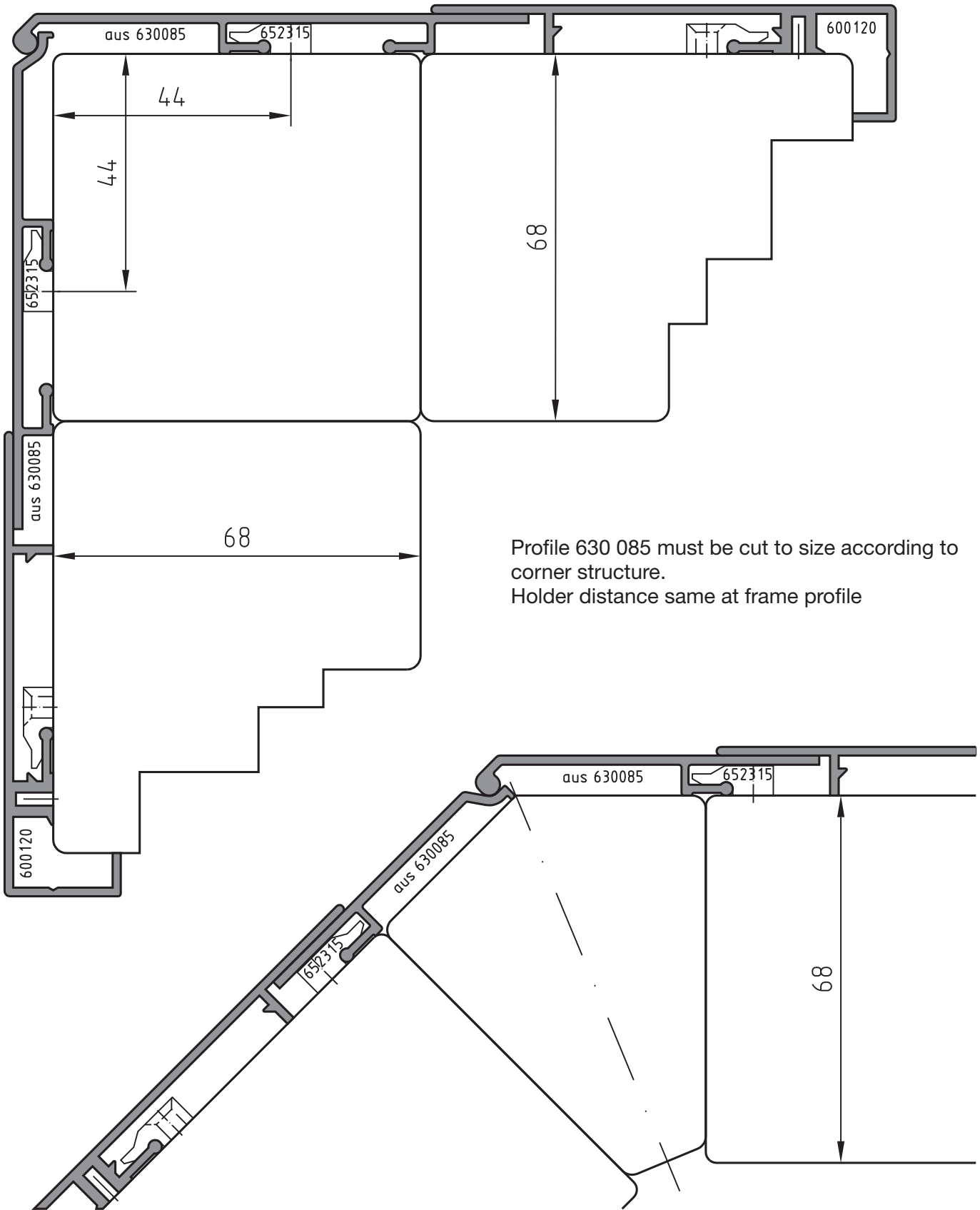




At the lap dimensions of the window frame the glass lap widths must be observed in order to ensure the required pressure on the sealing.



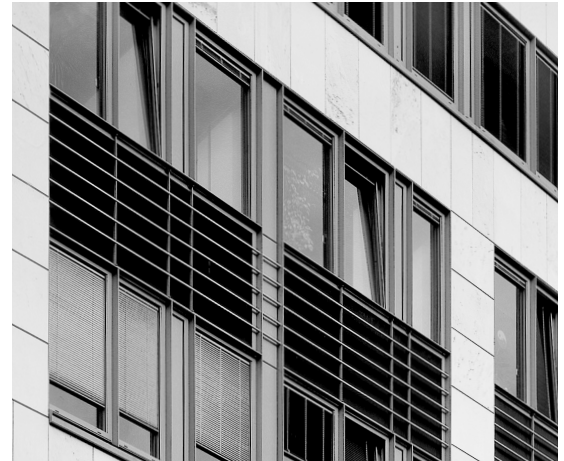
At the lap dimensions of the window frame the glass lap widths must be observed in order to ensure the required pressure on the sealing. Lap drainage of the insert windows may not be made over the glass lap of the facade construction.





Wood-aluminum systems for windows and Facades

- wood-aluminum windows provide an extra ordinary heat insulation value, e. g. with wood 68 mm
 U_f (EN 10077-2) = 1.40 W/m²K
- the uniform wood profiling for the blind frames and the same outer milling of the wood sashes allow quick planning and economic production
- the performance requirements system Aluvogt is tested according to the quality and test conditions RAL-RG 424/2
- uniform building connection solutions for all design lines facilitate quotations, planning and installation



BUG Waterbars

- Waterbars are protecting the lower cross wood of wood windows against weather factors
- moreover the thermo waterbars are building a thermal separation in the area of the lower window lap
- for lap dimensions of 19 mm, 22 mm and 24/25 mm
- the installation is made by means of clamps, nails or screws in A2 quality



The BUG-windowsill program

- protects the building against influence of the weather and environment
- provides the suitable windowsill for all applications
- by color anodization or thermo painting the windowsill can be adapted to each facade in color



New aluminum sliding terminal A 900 G

- the windowsill termination allows the aluminum to expand or to shrink due to temperature influences
- tested on heavy rainfall tightness follosash DIN EN 1027
- exact fixing by overlapping link plate at screw on bar, thus slipping to the front becomes impossible





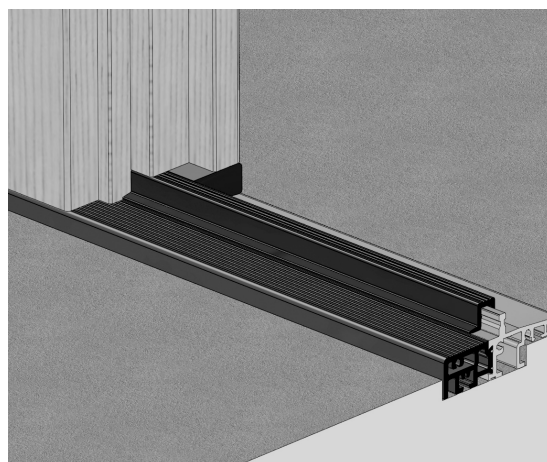
WOOD PLUS modernization

- optimum weather protection for wood windows
- the profile covers are ideally suitable for renovation works of existing windows because of their low structural profile, also with shutter rails
- easy mounting due to connecting bars with clip-on mechanism
- frame profiles will be mounted in front of the wood surface, which means no milling out required
- the multiple color design of the profiles emphasizes the appearance of the building



Floor threshold TBS 70 F

- for revolving doors and tilting doors made of wood and wood-aluminum, opening inwards and outwards
- provides a full perimeter section for the lap sealing
- threshold width 70 mm
- suitable for disabled persons according to DIN 18025
- stable composite profile made of aluminum and plastic
- thermal separation with high quality polyamide, UV resistance
- receiving groove for building connection foil



Wood-aluminum winter garden system

- provides integrated and extension solutions during planning and mounting of the winter garden and meets the requirements of EnEV
- no through scresash from the outside in the wood structure
- viesash width 50 mm, 55 mm and 75 mm
- high heat insulation
- pressure determined by spacers of the sealing on the glass edge
- applicable glass thickness from 6 mm up to 42 mm
- the glass lap ventilation is ensured without additional measures
- different shapes of the cover profiles



Wood-aluminum roofing system

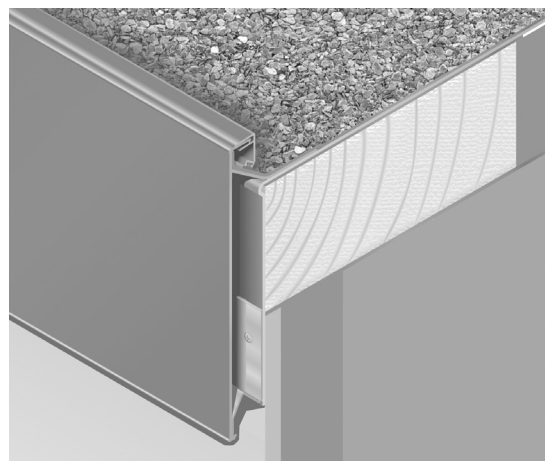
- for wood structures with widths of 60 mm and 80 mm
- the wood profiles adapt the static load
- pressure determined by spacers of the sealing on the glass edge
- transparent fillings from 8 mm thickness
- the glass lap ventilation is ensured without additional measures
- sealing system for self cleaning glazing and designed for polycarbonate - or PM MA tiles
- different shapes of the cover profiles
- compatible with BUG winter garden system
- ideal for carports, roofing of patios and entrances





Roof systems

- one-piece and multi-piece flat roof terminals with clip-on mounting
- wall connection profiles in multiple shapes
- balustrade covers with statically tested fixing system
- gravel catching strips in three sizes
- falling down protection according to guideline 89/686/EWG
- gable covering protects the roof structure permanently against influence of the weather



Insect screens

- for wood-, wood-aluminum- and plastic windows
- space saving and without impairing the shutter function
- easy to maintain due to corrosion resistance
- tenter, revolving doors and sliding doors possible
- special solutions for basement light wells



MPC – Multi Purpose Cabin

- ideal for carports, roofing of patios and entrances
- design as gable roof and flat roof
- layout single carport 5 x 3,0 m, double carport 5 x 5,5 m
- sub-structure for photovoltaics
- quick mounting due to standardized connecting elements
- free standing or connected to a building



Patio substructure made of aluminum

- deformation free and weather resistant sub-structure for decades
- full perimeter closed frame
- suitable for all types of floor coverings
- individual color selection possible
- low structural profile for high loads
- large supporting distances require less foundation





Palisades made of aluminum

- variable design possibilities and individual color selection
- only 3 palisades for 1 m fence length required
- low weight of the palisade profile
- low transport volume
- noise reduction up to 37 dB
- resistant against frost
- palisade profiles are available in different lengths



Aluminum fence system Exterior

- high quality and durable systems for gates and fences, balcony coverings, seeing protection
- various design possibilities due to different systems and decorations
- weather resistant, robust and easy to maintain
- noble design for beautiful gardens





Imprint

BUG-Alutechnik GmbH

A company of the Aleris Group

Bergstraße 17

D-88267 Vogt

Germany

www.bug.de

District court Ulm, court of record, HRB 551156
Headquarters Vogt, county of Ravensburg,
Germany