

Test Report



Number	22-003184-PR01 (PB-B01-03-en-01)
Owner (Client)	AESTECH PORTUGAL, LDA Alameda dos Oceanos 142, Ground Floor– Door 0C, 1990-502 Lissabon Portugal
Product	SG façade
System designation	FG Aestech
Details	Manufacturer PEC Group GmbH; Material Glass with Fibre-reinforced plastic (FRP); Overall dimensions (W x H x D) 4,164 mm x 6,220 mm x 2,230 mm;
Special features	Application in Europe is subject to approval of the construction as set out by the “Guideline for European Technical Approval for Structural Sealant Glazing Systems” ETAG No. 002
Order	Impact resistance
Contents	The test report contains a total of 39 pages .
Note	The test report shall only be published in its unabbreviated form. The “Guidance Sheet for the Use of ift Test Documents” applies.

Ve-PB0-4390-en/ (01.10.2019

1 Execution

1.1 Sampling and product description

The following details have been presented to ift:

Sampler: Limited Liability Company
Projects Engineering Consulting Group, 02072 Kyiv (Ukraine)
Date: 10.02.2023
Evidence: A sampling report has been presented to ift.
Description: For product identification the specimen tested is described/represented in the Annex. Material specifications, item numbers and other company-specific descriptions are details provided by the client and will be checked for plausibility by ift.
Test specimen no.: 22-003184-PK01

1.2 Basic documents*) of the procedures

EN 13830: 2003-09

Curtain walling - Product standard

EN 14019:2016-06

Curtain walling – Impact resistance – Performance requirements

*) and the relevant national versions, e.g. DIN EN

1.3 Deviations

There were no deviations from the test method:

1.4 Attendees

Name	Company
Vorobei, Denis	Limited Liability Company
Florian Kugler	ift Rosenheim

1.5 Calibration

The test equipment used is calibrated annually.

The last successful calibration was carried out on 14.02.2023.

1.6 Test sequence

No.	Type of test	Test standard	Maximum load
1	Impact resistance – safety test	EN 14019:2016-06	
	Soft body, safety test	Internal and external	950 mm

1.7 Short description of the procedures

Soft body (EN 14019:2016-06):

Impact resistance (soft body) was tested in accordance to EN 14019:2016-06, using an impact body, composed of a twin tyre impactor with a pressure of 0.35 ± 0.02 MPa and a total weight of 50 kg. For the safety test one impact at each impact location was conducted. Impact locations as well as impact energy were defined by client before testing. Evaluation and further details are given in detailed result.

Test Report

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Owner (client) AESTECH PORTUGAL, LDA, 1990-502 Lissabon (Portugal)

Impact resistance



2 Detailed results

Impact resistance according to EN 14019

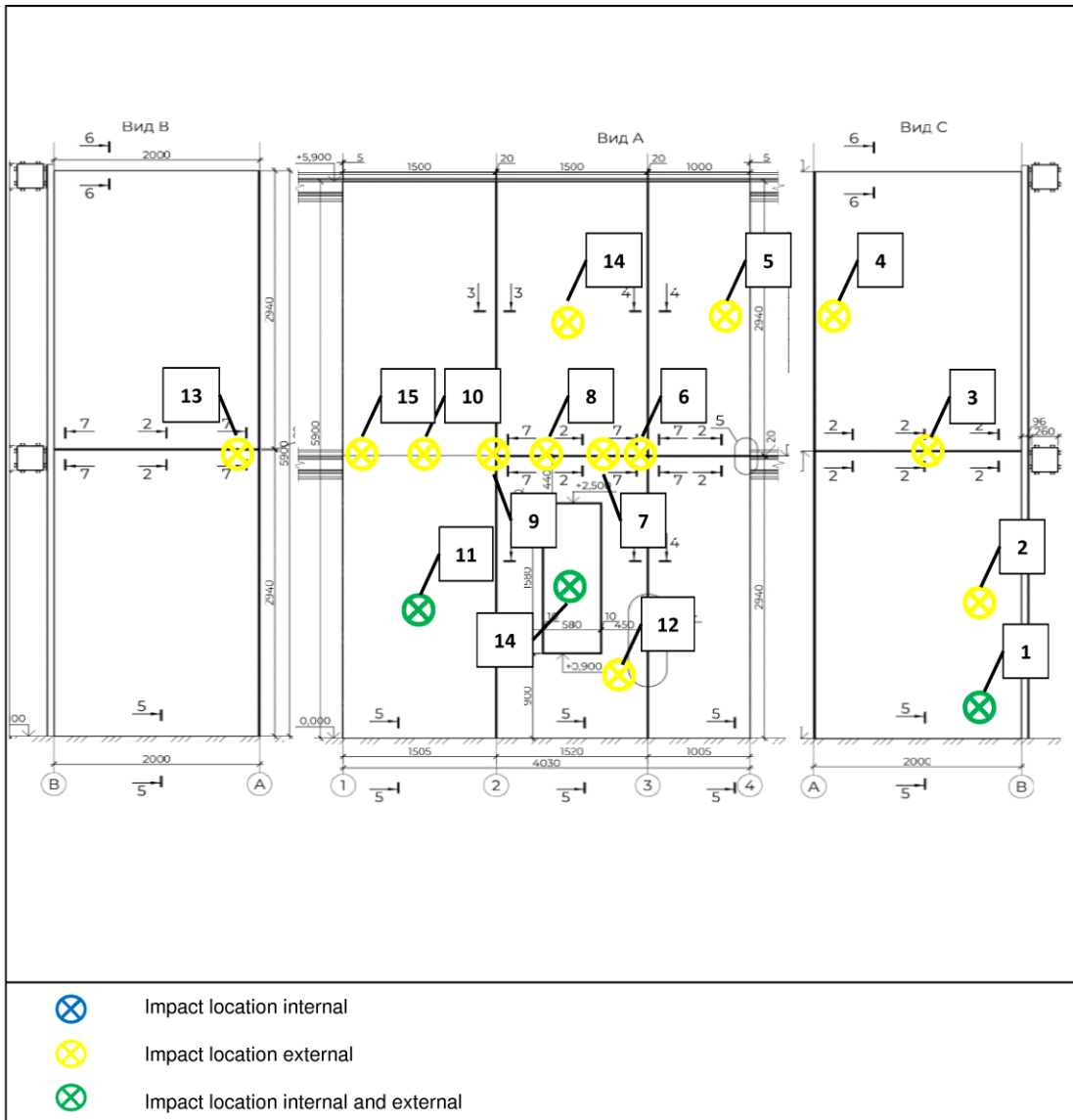
Project-No.	22-003356-PR01
Basis	EN 14019:2016-06 Curtain walling - Impact resistance - Performance requirements
Test equipment	Pst/020591 DP/029336 PstZ/020663
Test specimen	SG facade
Date of test	21.03.2023
Test engineer in charge	Thomas Krichbaumer
Test engineer	Florian Kugler

Implementation of tests

Deviations There have been no deviations from the test method as specified in the standard/basis.

Ambient conditions	Temperature	17 °C	Air humidity	66 %	Air pressure	956 hPa
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Measurement data/Results



Test specimen with marked impact load positions

Drop height in mm	200	300	450	700	950
External					✓
Internal					✓

Impact test passed from external at up to 950 mm.

Impact test passed from internal at up to 950 mm.

Malfunctions:

At the test specimen were no malfunctions detected.

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Impact resistance

**Notes:**

Impact point	Note			
1	Internal		External	
2	Internal		External	
3	Internal		External	
4	Internal		External	
5	Internal		External	
6	Internal		External	
7	Internal		External	
8	Internal		External	
9	Internal		External	
10	Internal		External	
11	Internal		External	
12 informative	Internal	Not tested. Break at 12	External	Glass break
13	Internal		External	
14	Internal	Not tested. Break at 12	External	Not tested. Break at 12
15	Internal		External	

3 Summary

3.1 Result

Impact resistance – safety test according to EN 14019:2016-06

Soft body: 950 mm drop high internal and external

3.2 Instructions for use

This test/evaluation does not allow any statement to be made on further characteristics of the present structure regarding performance and quality, in particular the effects of weathering and ageing. On the basis of this Test Report an "ift-Nachweis" (Evidence) can be issued.

ift Rosenheim
20.09.2023

A handwritten signature in blue ink that reads 'Thomas Krichbaumer'.

Thomas Krichbaumer
Deputy Head of Testing Department
Building Component Testing

A handwritten signature in blue ink that reads 'F. Kugler'.

Florian Kugler, B.Eng.
Operating Testing Officer
Building Component Testing

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Die Beschreibung des geprüften Probekörpers dient der normkonformen Identifizierung des Produkttyps, für den die festgestellten Werte gelten. Alternativ zur vorgegebenen tabellarischen Datenerfassung kann die Beschreibung auch in Form von technischen Zeichnungen, Verarbeitungsrichtlinien, Stücklisten etc. erfolgen. Zusätzliche Produktdetails bitte ergänzen.

The description of the specimen to be tested serves to identify, in conformity with the standards, the product type, for which the values determined will apply. Alternatively to the specified tabulated data collection, the description may also be made by technical drawings, processing instructions, parts lists, etc. Please supplement additional product details.

Alle Maßangaben in mm

All dimensions in mm

ift Mitarbeiter: Florian Kugler
ift staff member :

Eigenschaft Characteristic	Angaben des Auftraggebers Information/details provided by the client
Produkt Product	*SG Facade
Hersteller Manufacturer	*AESTECH Group LTD 02000,Ukraine, Kyiv, Borysa Hmyri str 2
Systemgeber System supplier	*Aestech Portuga LDA Alameda dos Oceanos 142, Ground Floor– Door 0C Portugal
System System	*FG Aestech
Material Material	*Fibre glass
Außenmaß (B x H) Overall dimensions (W x H)	*H 6220 x T 2203 x B 4164 see Drawing(s) of test specimen Page 1;3; 8; 9;
Feldrastermaße (B x H) Field grid dimensions (W x H)	*2,048 mm x 5,837 mm 1,538 mm x 5,873 mm 1,500 mm x 2,913 mm 2,048 mm x 2,913 mm
Fassadenbefestigung Fixing method of facade	*See installation drawing: mounting with bracket, mounting with mounting plate. See pictures: Page14; 16; 22; 23;
Profile Profiles	*
Profilwerkstoff¹ Profile material ¹	Integrated fibreglass profiles
Rahmenprofile, Art.-Nr. Frame profile, item no.	*15 mm x 12 mm item no. 04.012
Koppelpfosten, Art.-Nr. Coupling mullion, item no.	*Integrated fibreglass profiles item no. 04.012. with connection of Fibre glass profiles 40x6 mm item no. 04.010
Zusatzprofile, Art.-Nr. Supplementary profiles, item no.	*Right tube made of fibreglass for the corner according to static calculation
Eckverbindung Corner joint	*See processing drawing(s)
Befestigung Fixing method	*Vertical continuous, horizontal profiles butted against vertical profiles, tightening torque: 5 Nm, Screw spacing: between each other 260 - 300 mm, from edge 70-150 mm, according to guidelines with system description.

¹ falls abweichend zum Material
if different to material

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Eigenschaft Characteristic	Angaben des Auftraggebers Information/details provided by the client
Elementdichtungen Element gasket	*
Systemgeber / Hersteller System supplier / manufacturer	*Dow Corning
Material Material	*Silicone
Satteldichtungen (Lage, Art.-Nr.) Saddle gaskets (position, item no.)	*Horizontally outside bottom sealed with silicone, item no. 07.010 (DowSil DC791). Horizontally inside, item no. sealed with silicone, item no. 07.010 ((DowSil DC791).
Elementdichtungen (Lage, Art.-Nr.) Element gaskets (position, item no.)	*Vertical outside, item no.: sealed with silicone, item no. 07.010 (DowSil DC791) Vertical inside, item no.: sealed with silicone, item no. 07.010 (DowSil DC791)
Glashalter Corner design	*See specimen drawing(s)
Ausfachungen Infill panels	
Ausfachung Typ 1 Infill panel type 1	*Fixed glazing
Typ Type	*Insulating glass unit (IGU) 3-fold insulating glass with increased rigidity. Description and drawing 3-fold stepped insulating glass with increased stiffness. Description and drawing.
Gesamtglasdicke Total glass thickness	60 mm
Glasaufbau (von außen nach innen) Glass configuration (from outside to inside)	*10 mm / 18 mm / 6 mm / 18 mm / 8 mm
Einbau der Verglasung Installation of glazing	*See specimen drawing(s) See processing drawing(s)
Verglasungsdichtung außen (Art.-Nr.) External glazing gasket (item no.)	*with silicone according to guideline or system description
Material Material	*Silicone
Verglasungsdichtung innen (Art.-Nr.) Internal glazing gasket (item no.)	*Silicone, item no. 07.010 (DowSil DC791)
Material Material	*Silicone
Eckausbildung Corner design	*See specimen drawing(s) See processing drawing(s)
Belüftung / Entwässerung Ventilation / drainage	*Not present
Ausfachung Typ 2 Infill panel type 2	*Insert element - window
Typ Type	Pivoting top-hung windows (opening to outside)

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Eigenschaft Characteristic	Angaben des Auftraggebers Information/details provided by the client
Profilsystem Profile system	Aluprof MB SR 50N
Öffnungsart / Öffnungsrichtung Type of opening / opening directions	Top hung window
Rahmenmaterial Frame material	Aluminium Metal Plastic Composite profile
Blendrahmenaußenmaß (B x H) Overall frame dimensions (W x H)	646 mm x 1646 mm
Flügelaußenmaß (B x H) Overall casement dimensions (W x H)	614 mm x 1614 mm
Blendrahmen Frame member	See specimen drawing(s) See processing drawing(s)
Artikelnummer Item no.	K43 1578 8 R7016
Rahmenverbindung Frame joint	Mitred, glued and nailed Corner angle item no. 8012 4353/8013 4339
Zusatzprofile: Supplementary profile:	Clamping profile
Rahmenverbindung Frame joint	screw-fastened, sealed with elastic sealant
Flügelrahmen Casement member	see Drawing(s) of test specimen Page 24; 25
Artikelnummer Item no.	K51 9611 8R7016
Rahmenverbindung Frame joint	Mitred, bonded and compressed. Corner cleat item no. 8019 9040
Zusatzprofile Supplementary profile	sill - none
Rahmenverbindung Frame joint	screw-fastened, sealed with elastic sealant
Zusatzprofile Supplementary profile	glazing beads
Rahmenverbindung Frame joint	screw-fastened, sealed with elastic sealant
Falzausbildung Rebate design	
Falzentwässerung Rebate drainage	*slot 50 mm x 30 mm
Falzdichtungen Rebate gaskets	
Hersteller / Lieferant Manufacturer / supplier	Aluprof
Material Material	EPDM

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Eigenschaft Characteristic	Angaben des Auftraggebers Information/details provided by the client
Falzdichtung außen (Art.-Nr.) External rebate gasket (item no.)	*126 060
Falzdichtungen innen (Art.-Nr.) Internal rebate gasket (item no.)	*120 956
Füllung Infill	
Typ Type	*Insulating glass unit (IGU)
Gesamtglasdicke Total glass thickness	*52 mm
Glasaufbau (von außen nach innen) Glass configuration (from outside to inside)	*6/16/6/14/10
Beschlag Hardware	*Top-hung hardware
Hersteller Manufacturer	*ROTO
Bezeichnung / Typ / Art.-Nr. Designation / type / item no.	1810
Lager Bearings	*turn mechanism pivot 1810 7138 R7016 stay arm bearing 1810 5134 corner pivot 1810 5761



Picture 1
View of test specimen



Picture 2
Fixing method of façade construction



Picture 3
Fixing method of façade construction



Picture 4
Element coupling, seen from the outside



Picture 5
Element coupling, seen from the inside



Picture 6
External glazing



Picture 7
Internal glazing



Picture 8
External glazing



Picture 9
Internal glazing



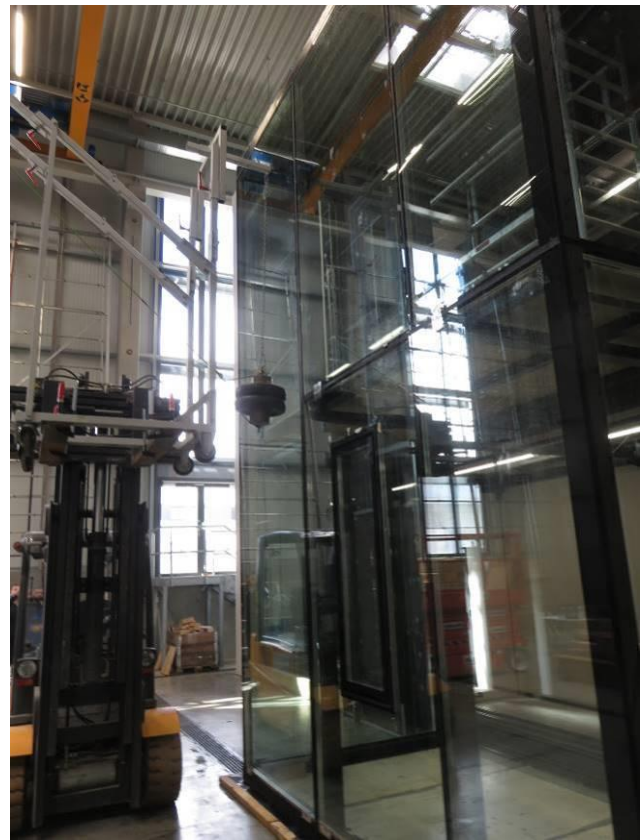
Picture 10
Impact testing



Picture 11
Impact testing

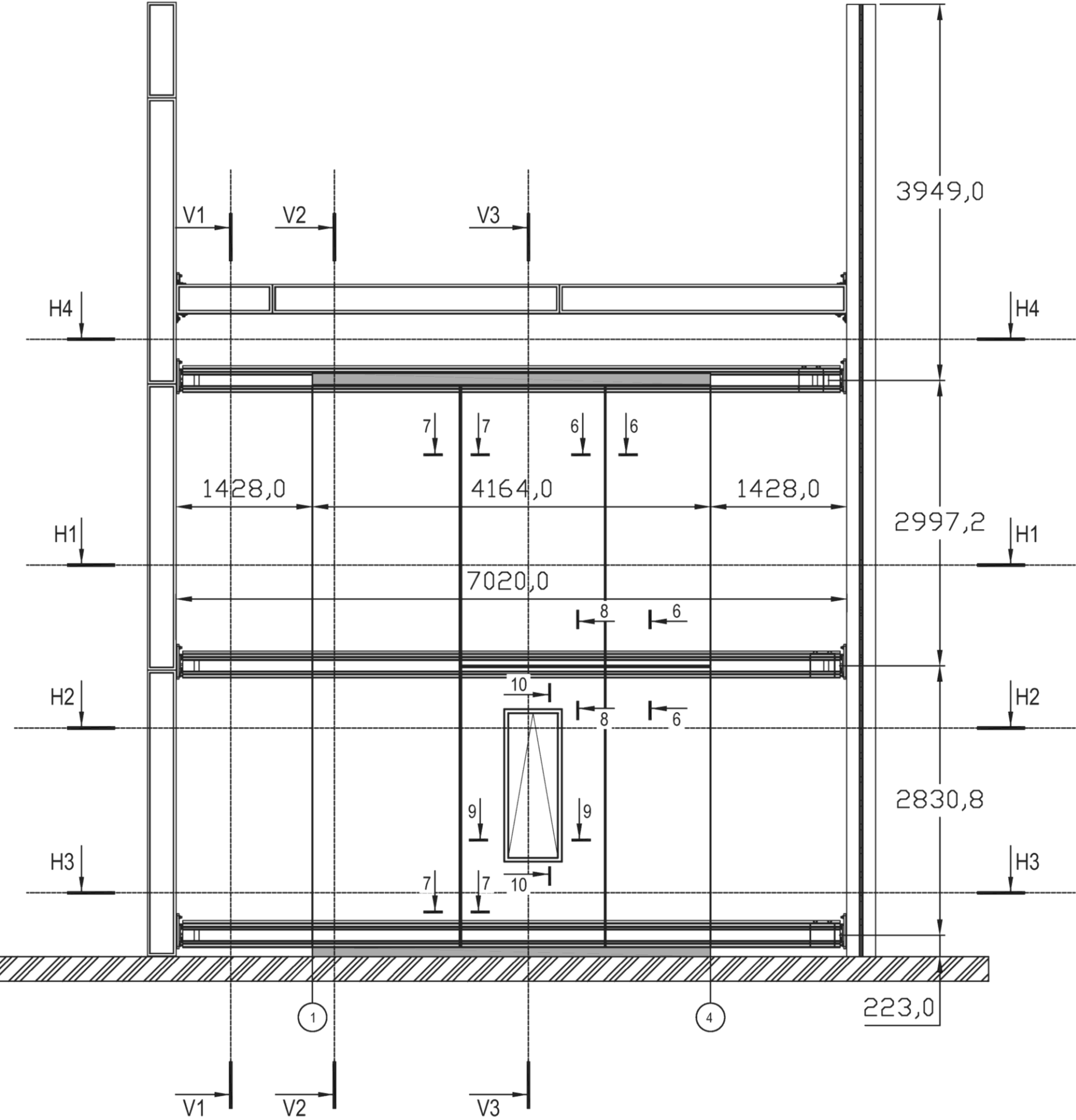


Picture 12
Impact testing



Picture 13
Impact testing

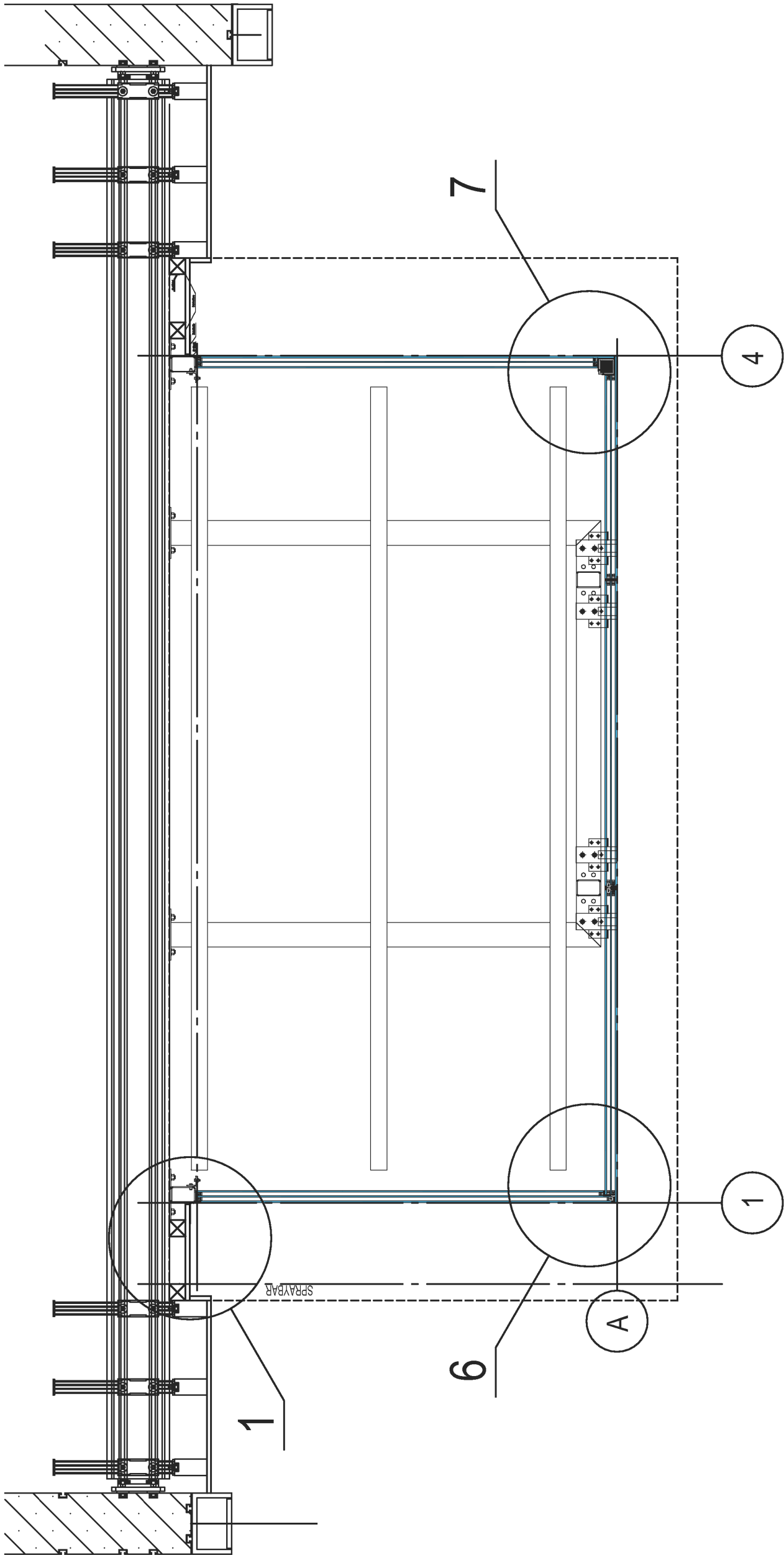
Elevation in grids 1-4
Main View



Picture 1
View of test specimen



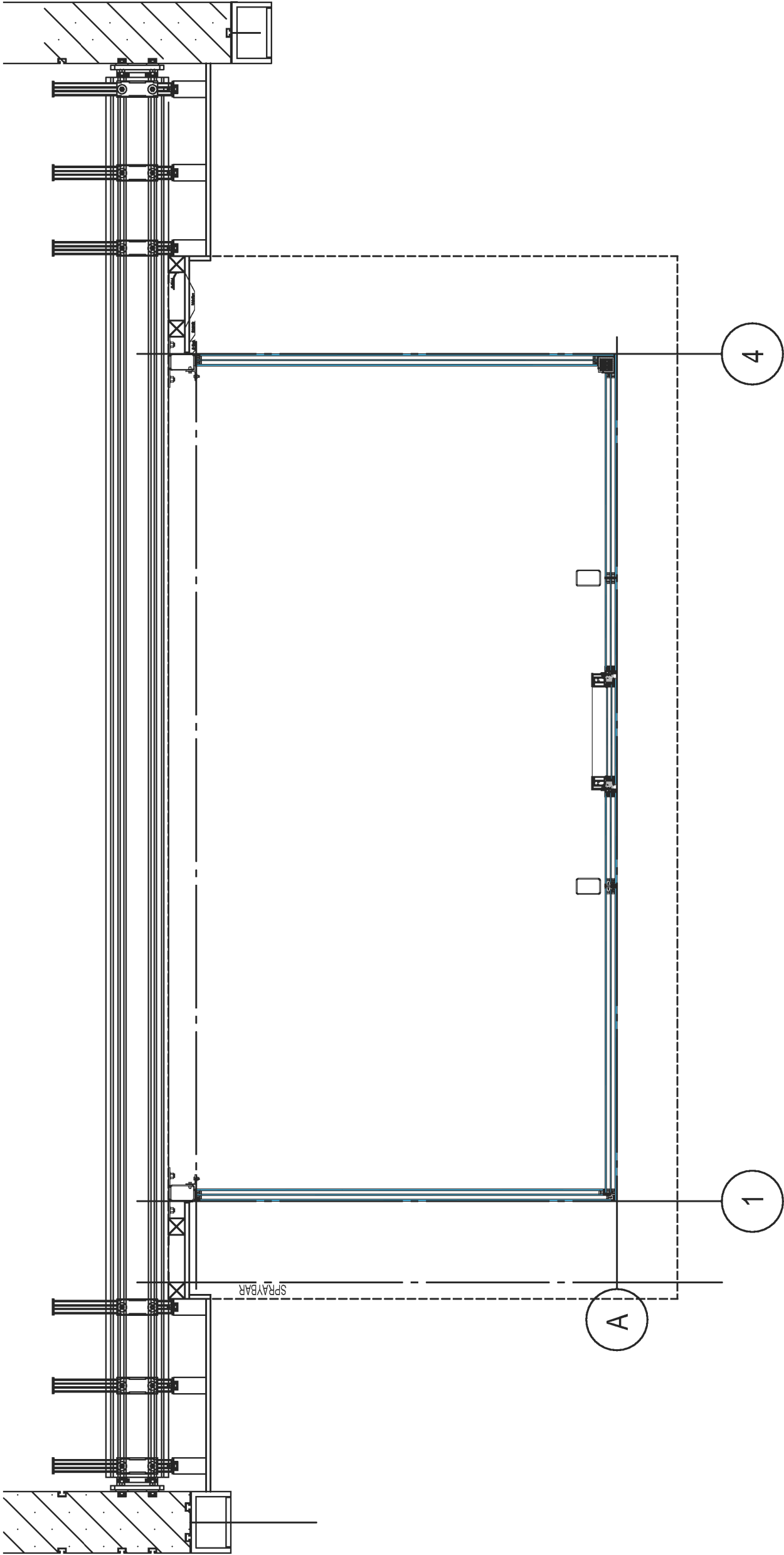
Fragment Plan H1
Option 2 with additional efforts



Picture 2
Horizontal section

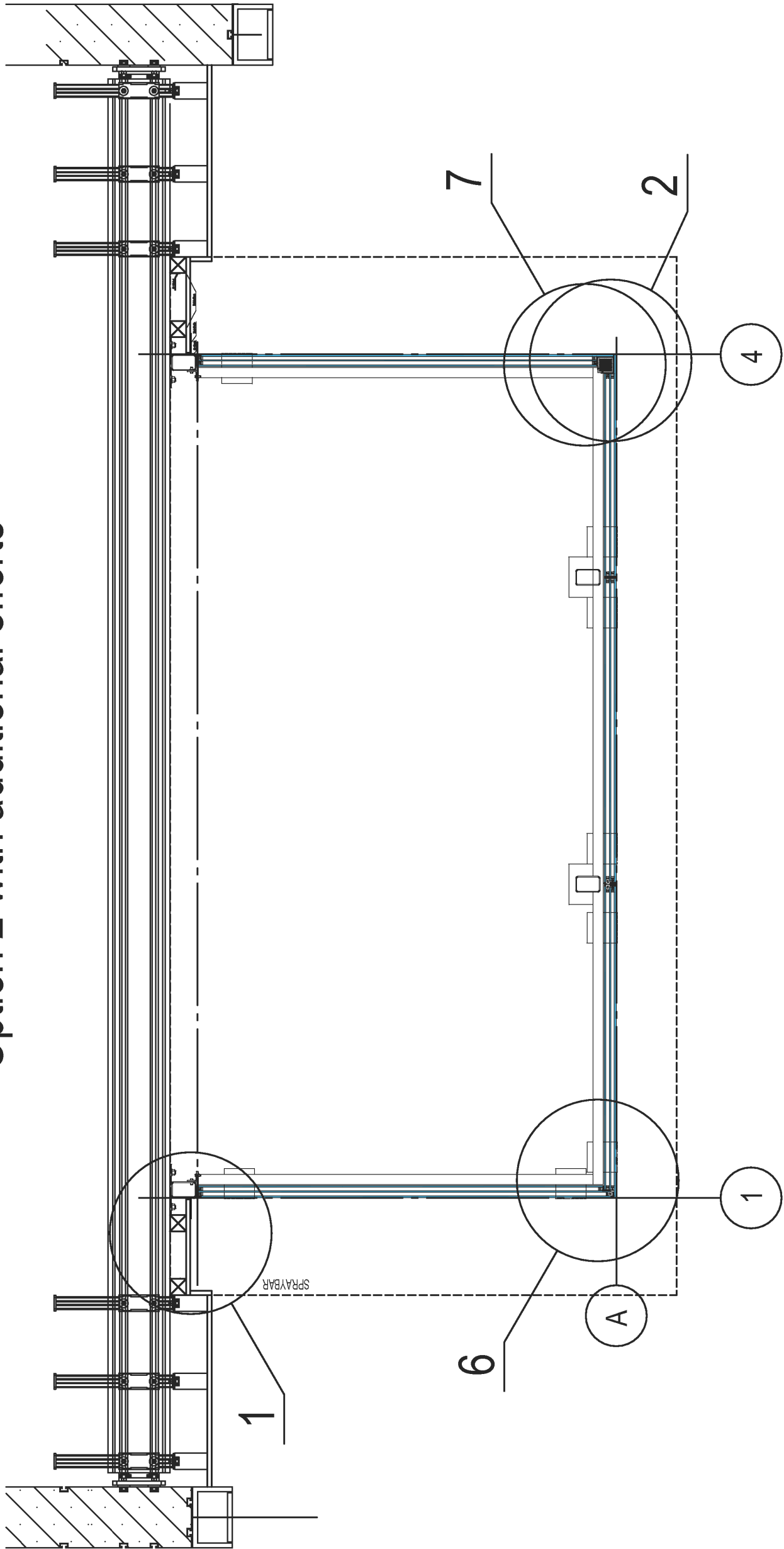


Fragment Plan H2
Option 2 with additional efforts



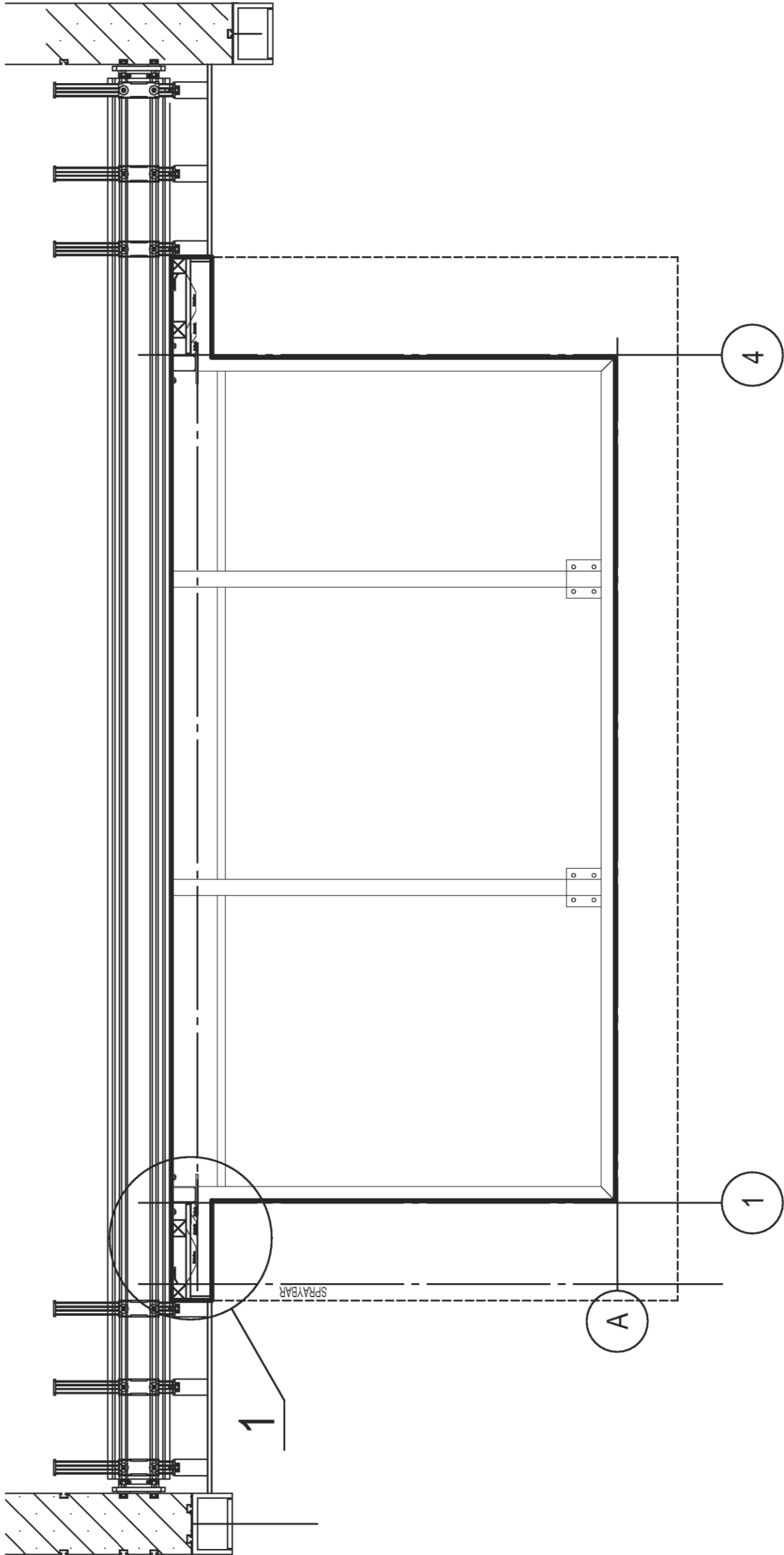
Picture 3
Horizontal section

Fragment Plan H3
Option 2 with additional efforts



Picture 4
Horizontal section

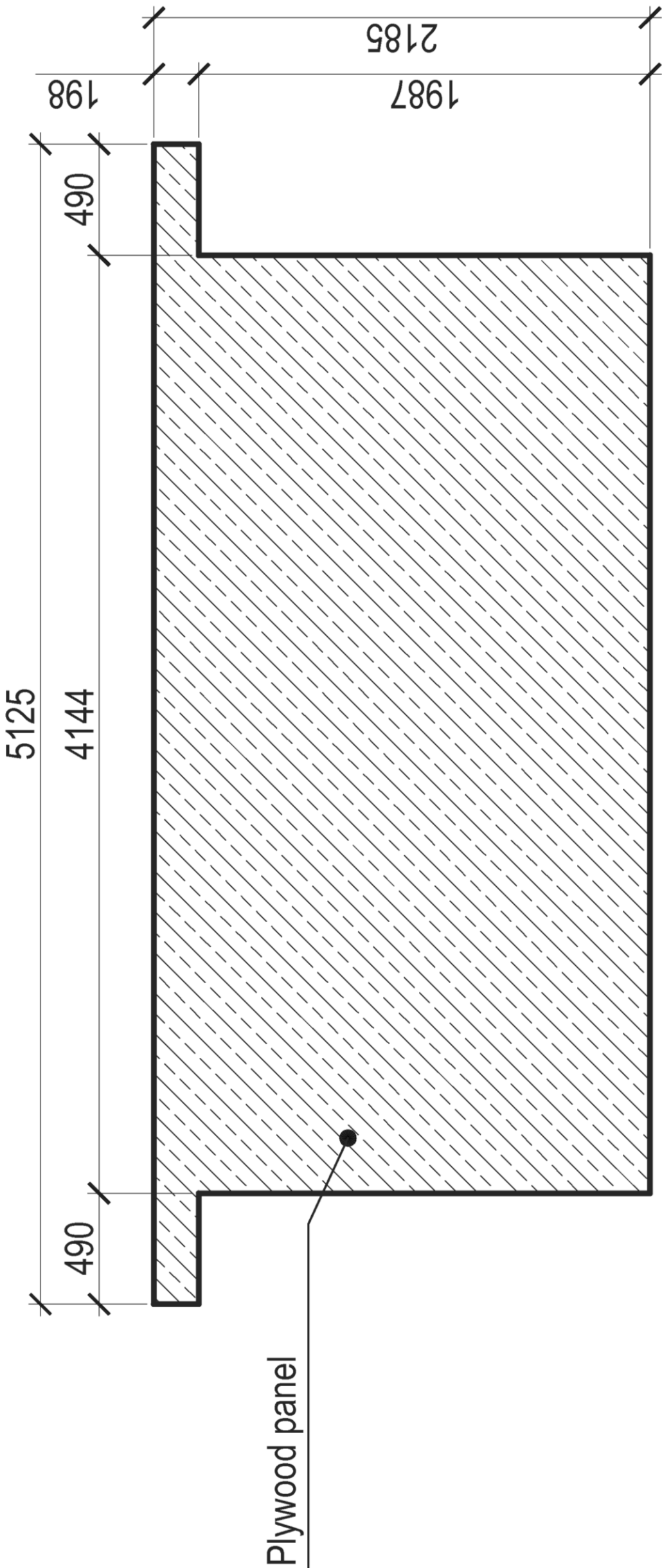
Fragment Plan H4
Option 2 with additional efforts
Hermetical base plate made of 2 plywood panels with the thick of 42
mm(2x21mm)



Picture 5
Horizontal section

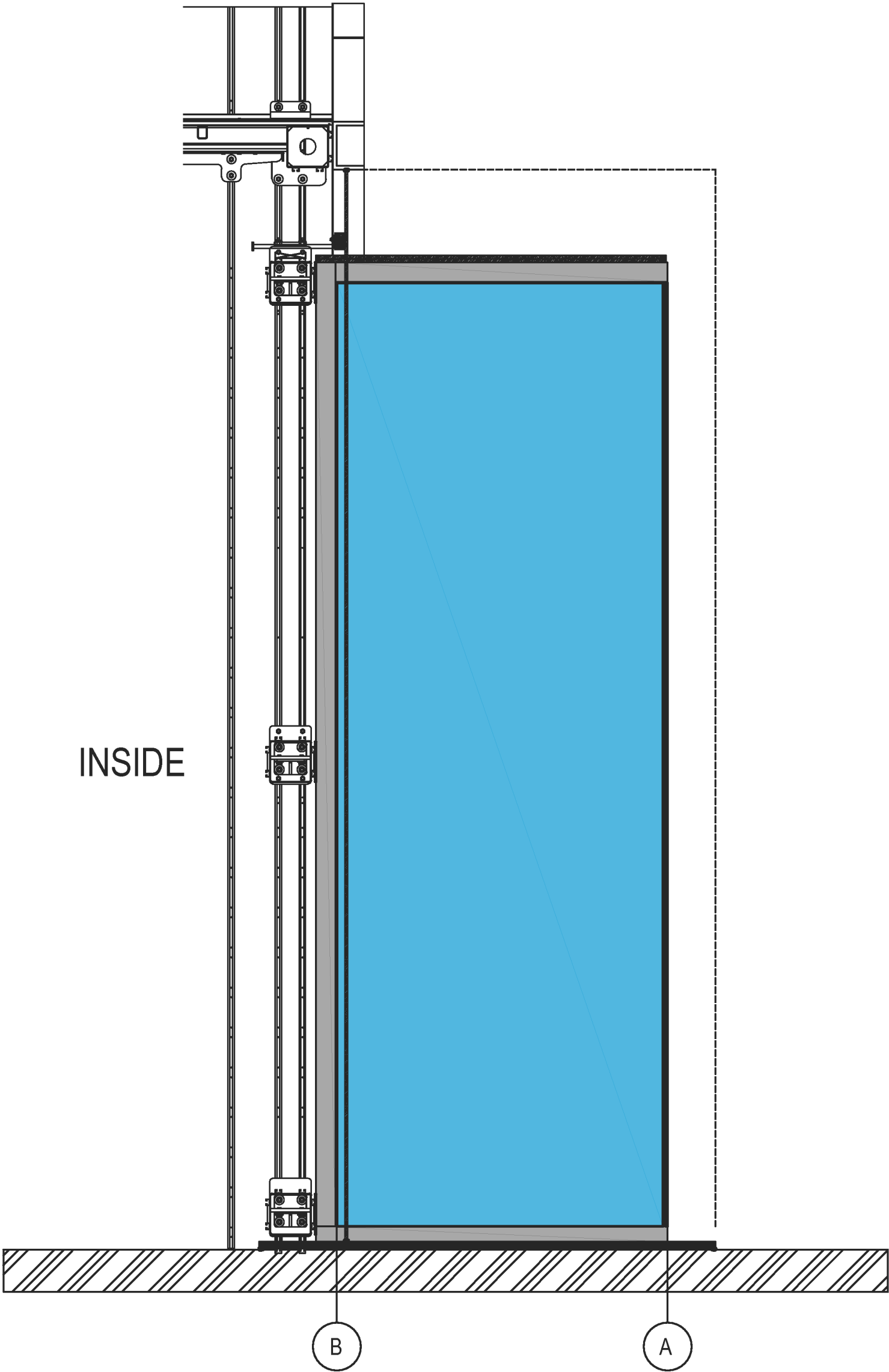


2x21 mm Plywood panels



Picture 6
Horizontal section

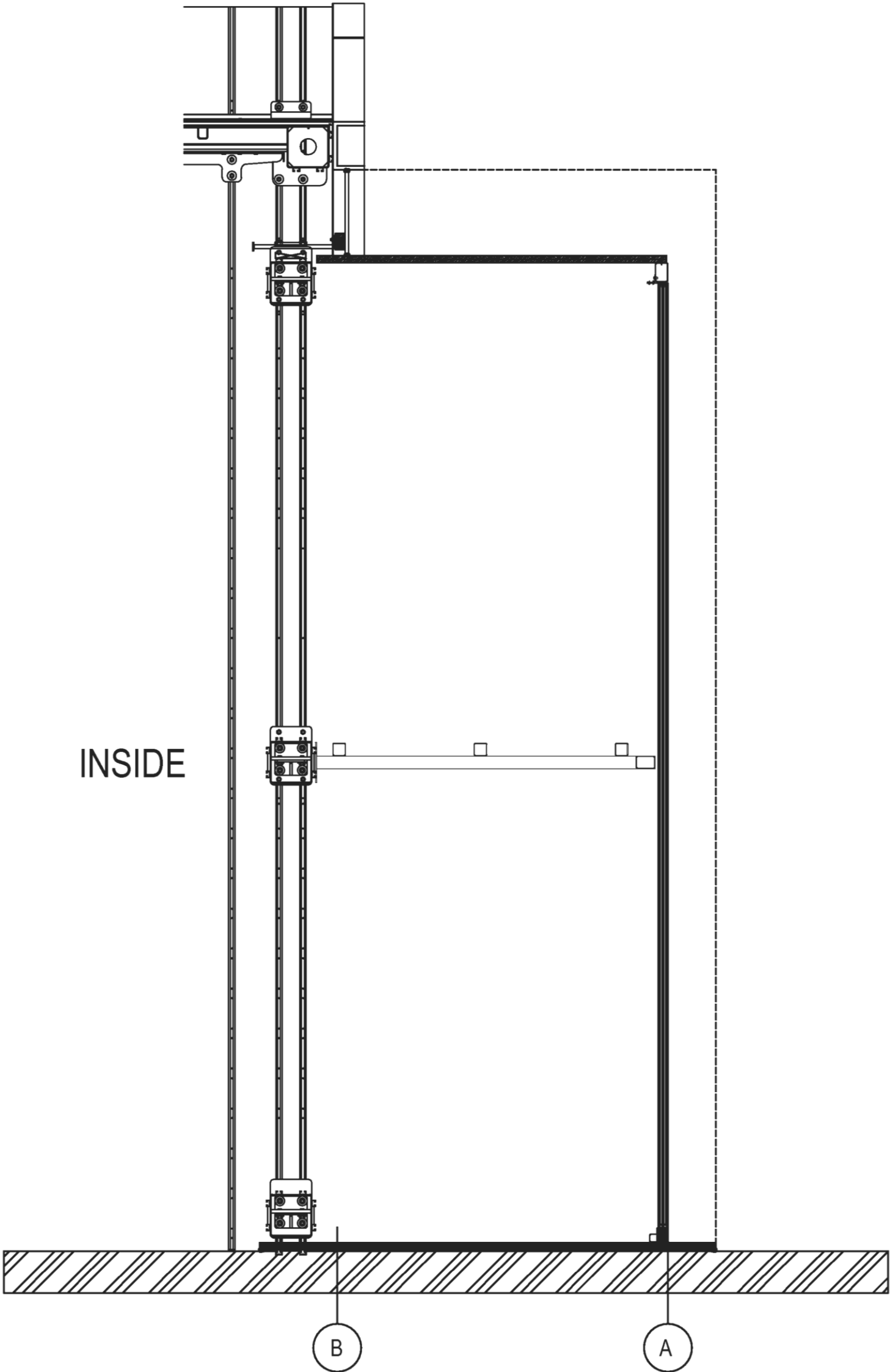
Vertical Section V1



Picture 7
Vertical section



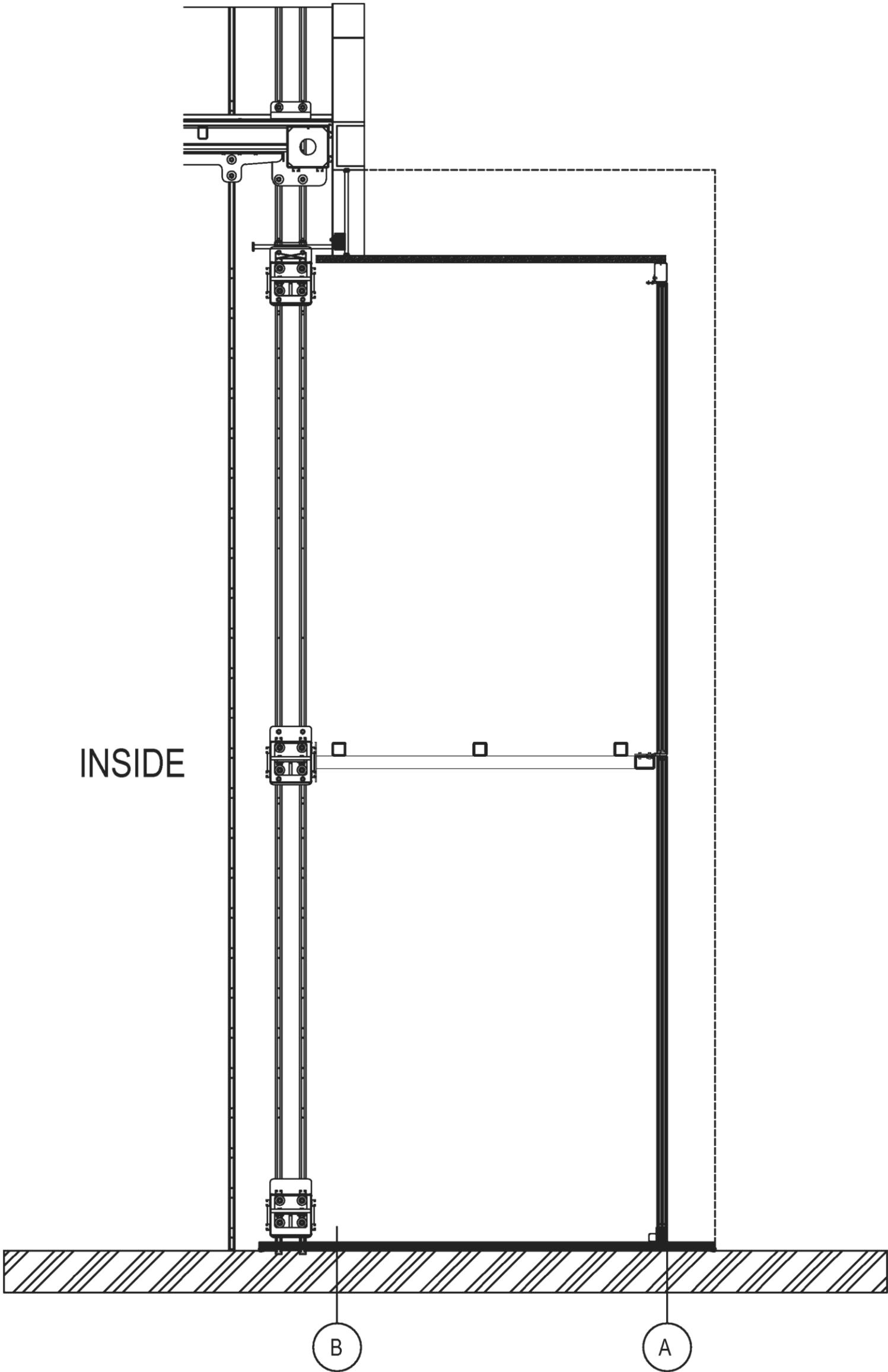
Vertical Section V2



Picture 8
Side View



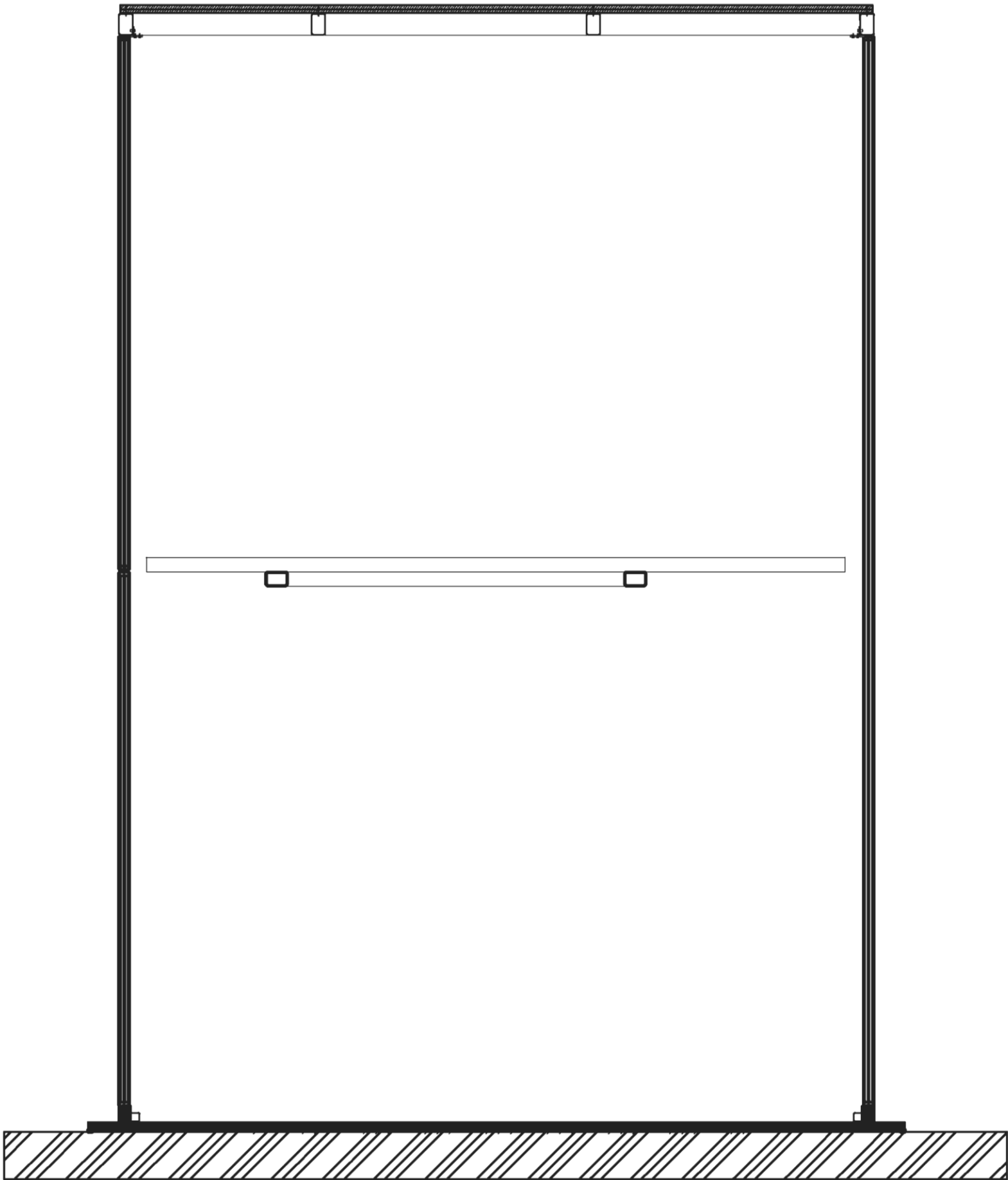
Vertical Section V3



Picture 9
Side View

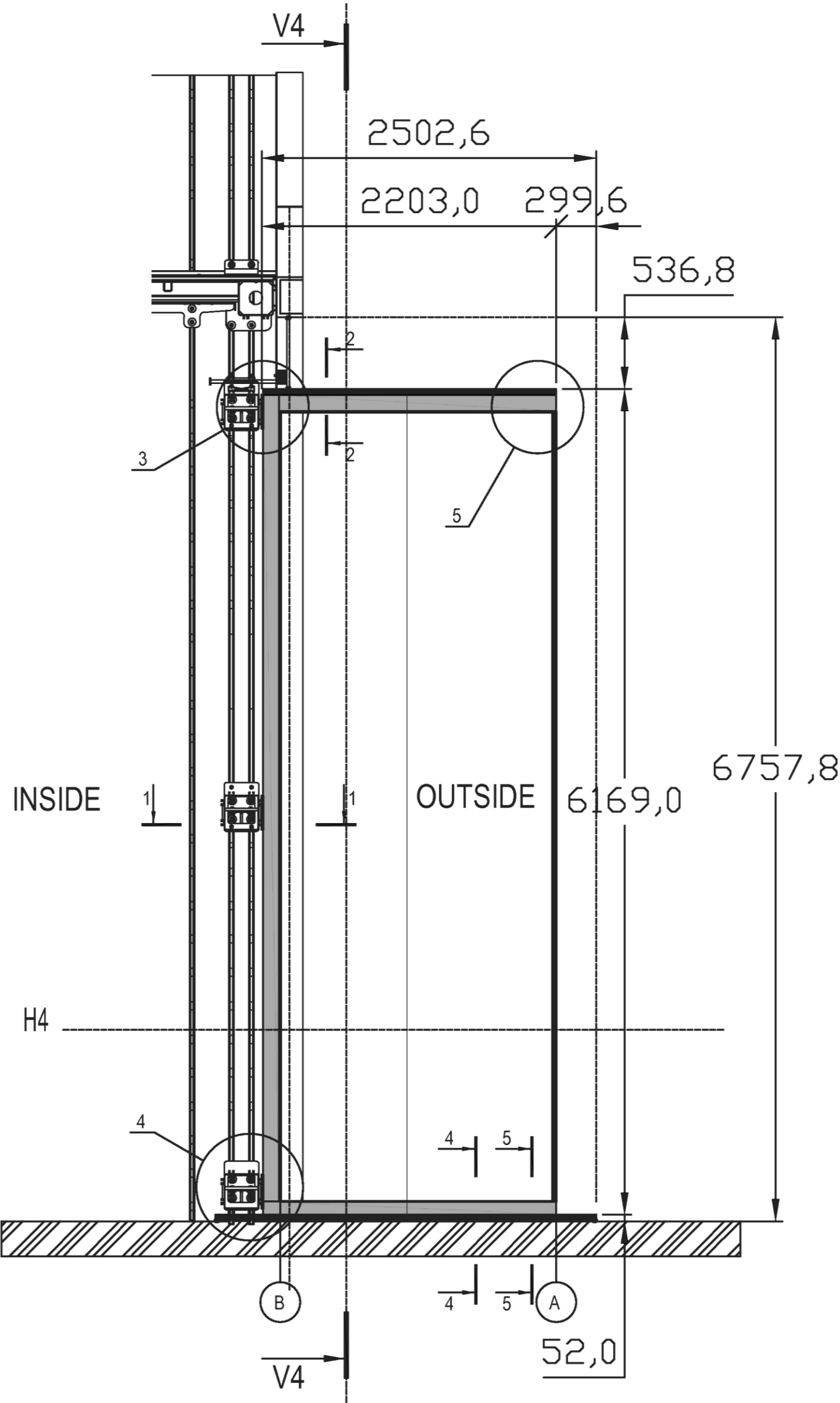


Vertical Section V4



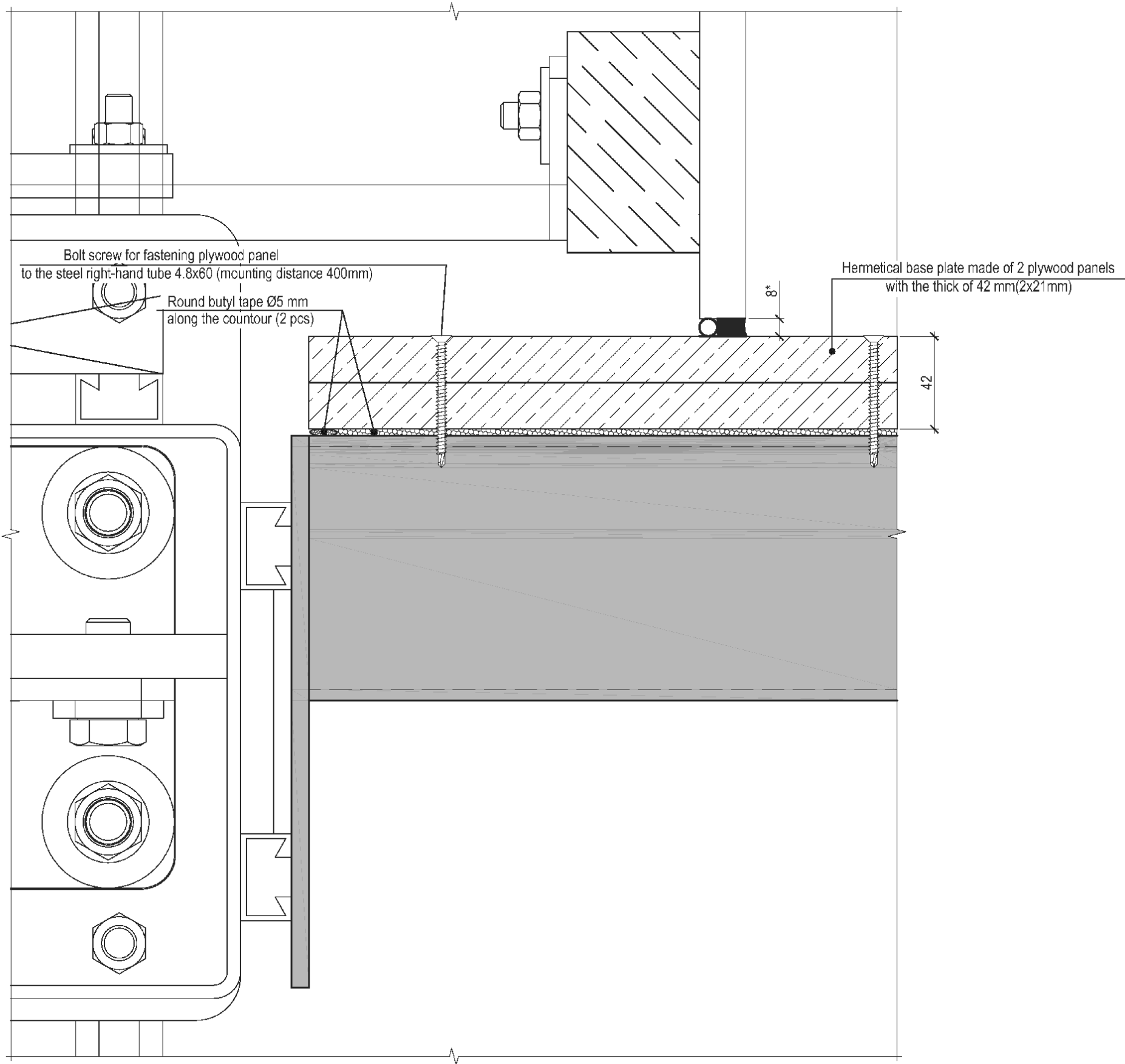
Picture 10
Vertical section

Vertical Section



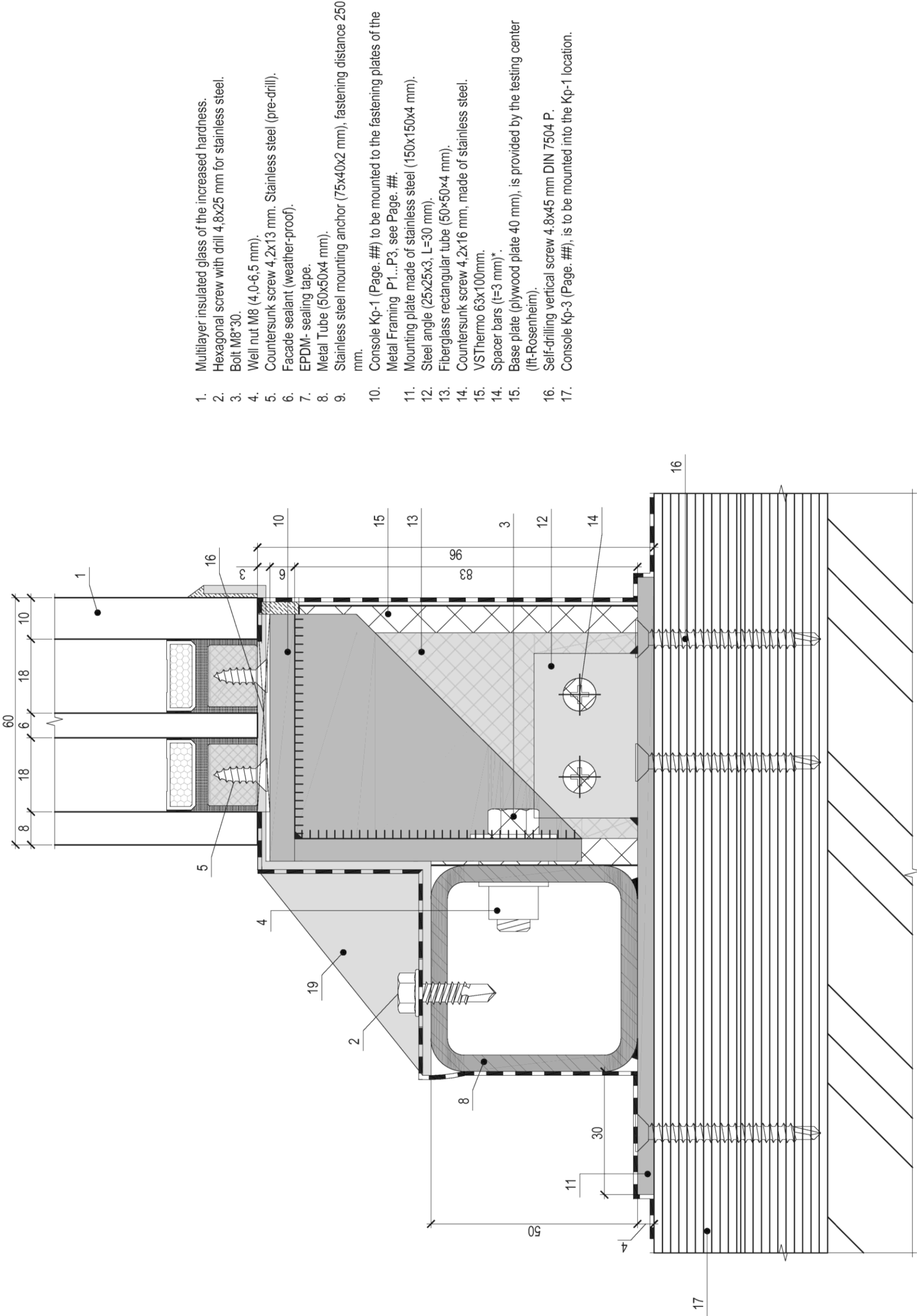
Picture 11
Vertical section

Section 3a-3a

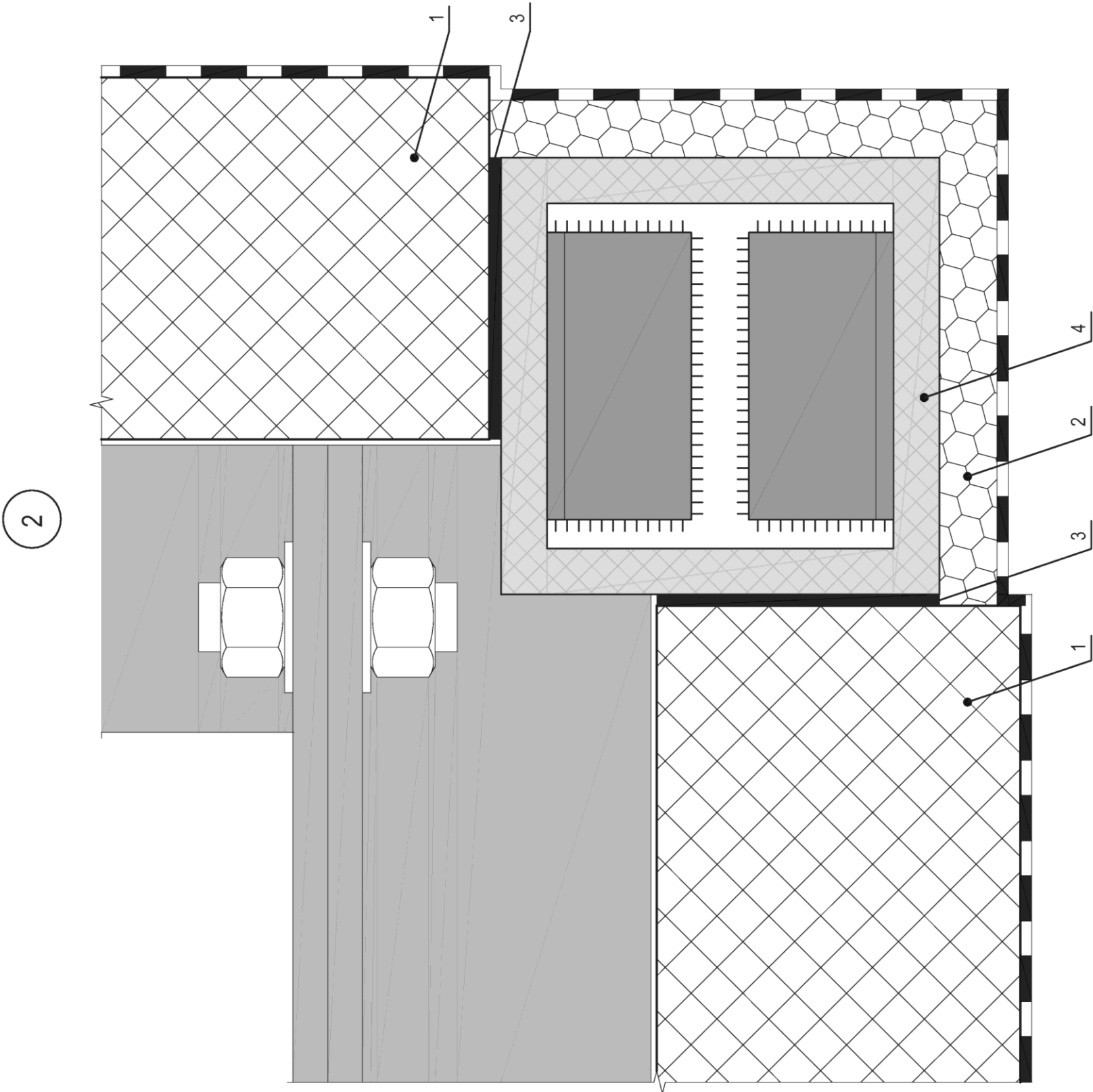


Picture 13
Standard PMU-Details

Section 5-5

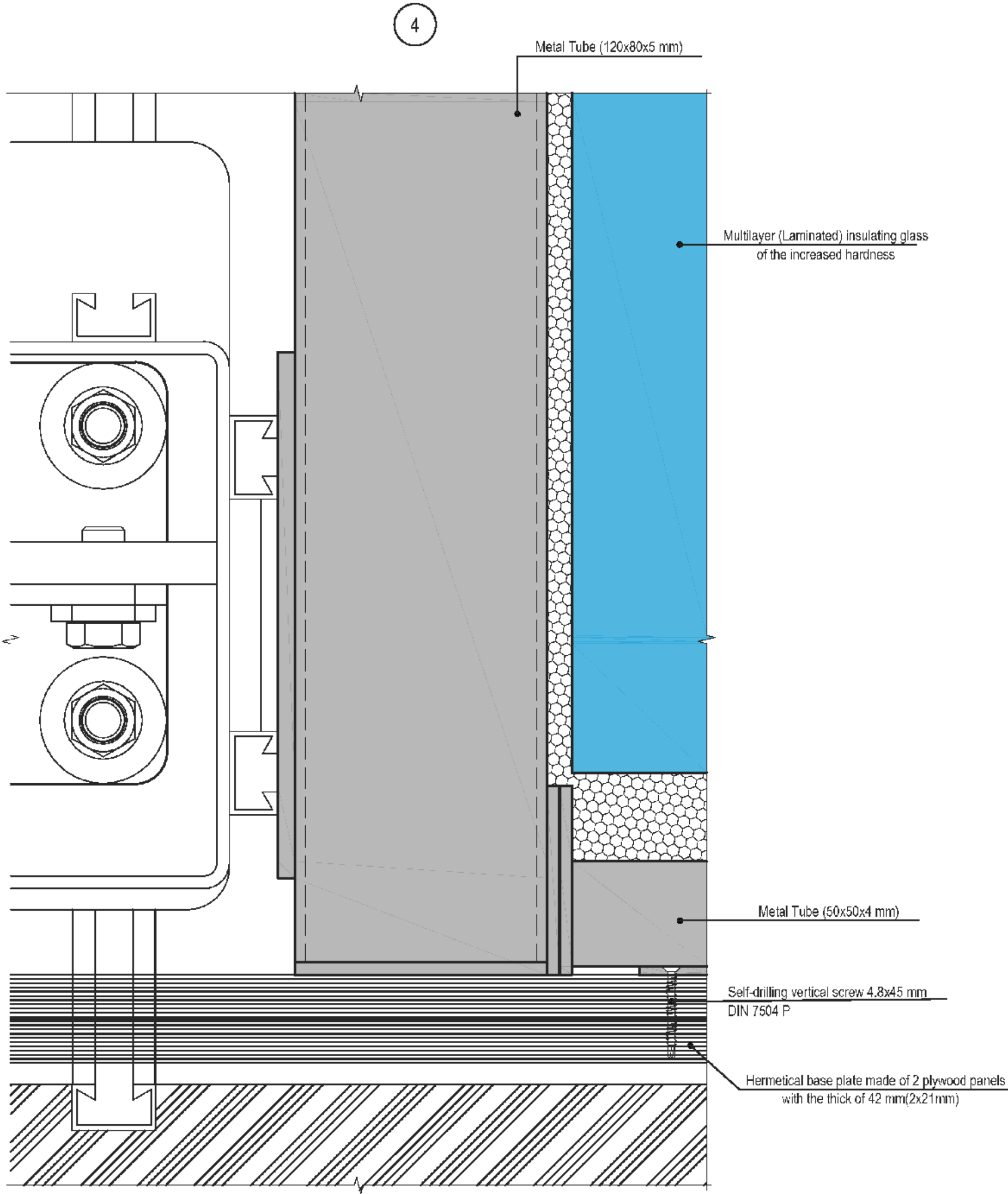


Picture 14
Standard PMU-Details

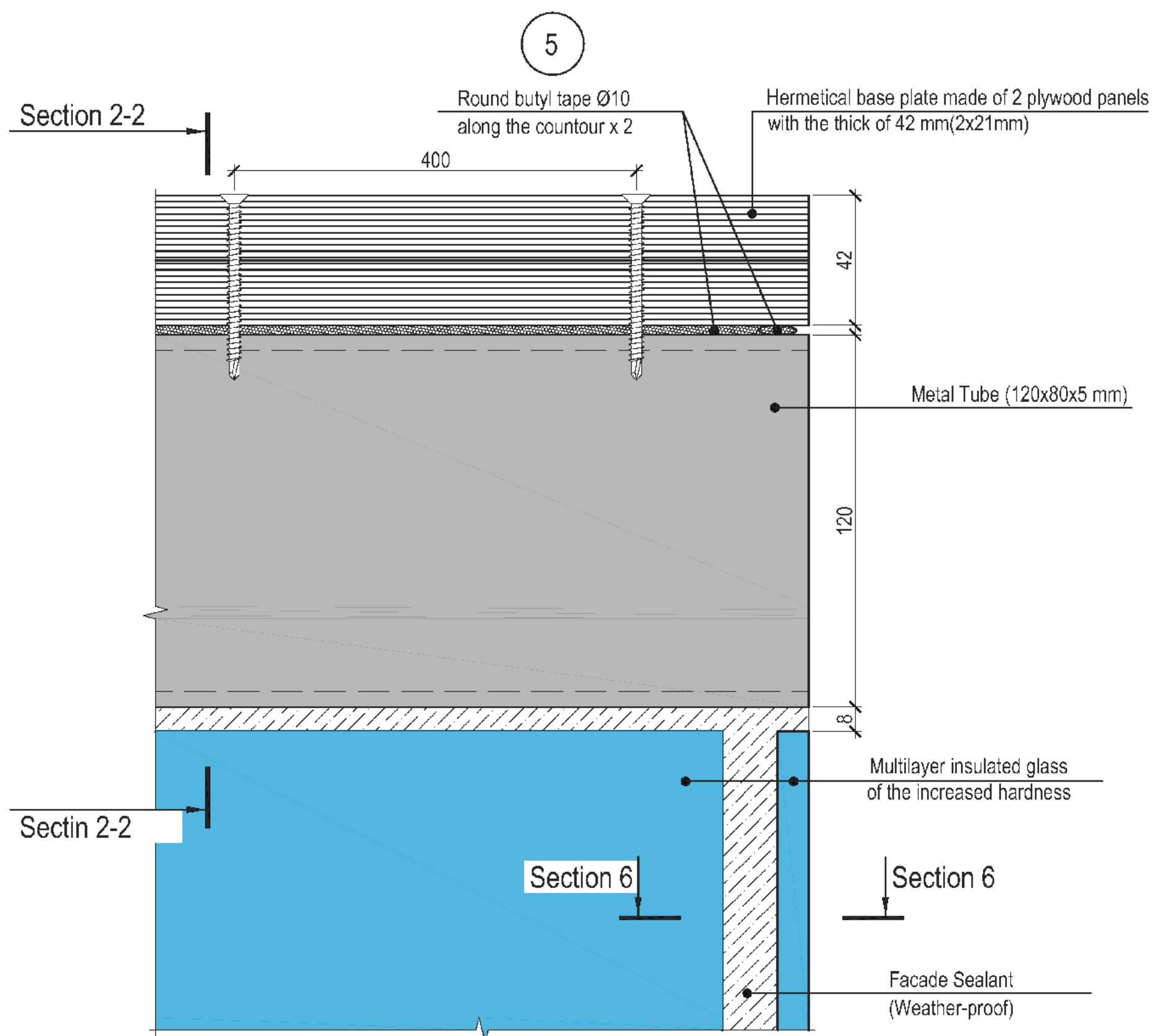


- 1. VSThermo 63x100mm.
- 2. Polyethylene sealing tape IZILON BASE 10 1/0 self-adhesive.
- 3. Hybrid polymer VST MS-15.
- 4. Fiberglass tube.

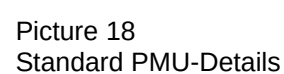
Picture 15
Standard PMU-Details

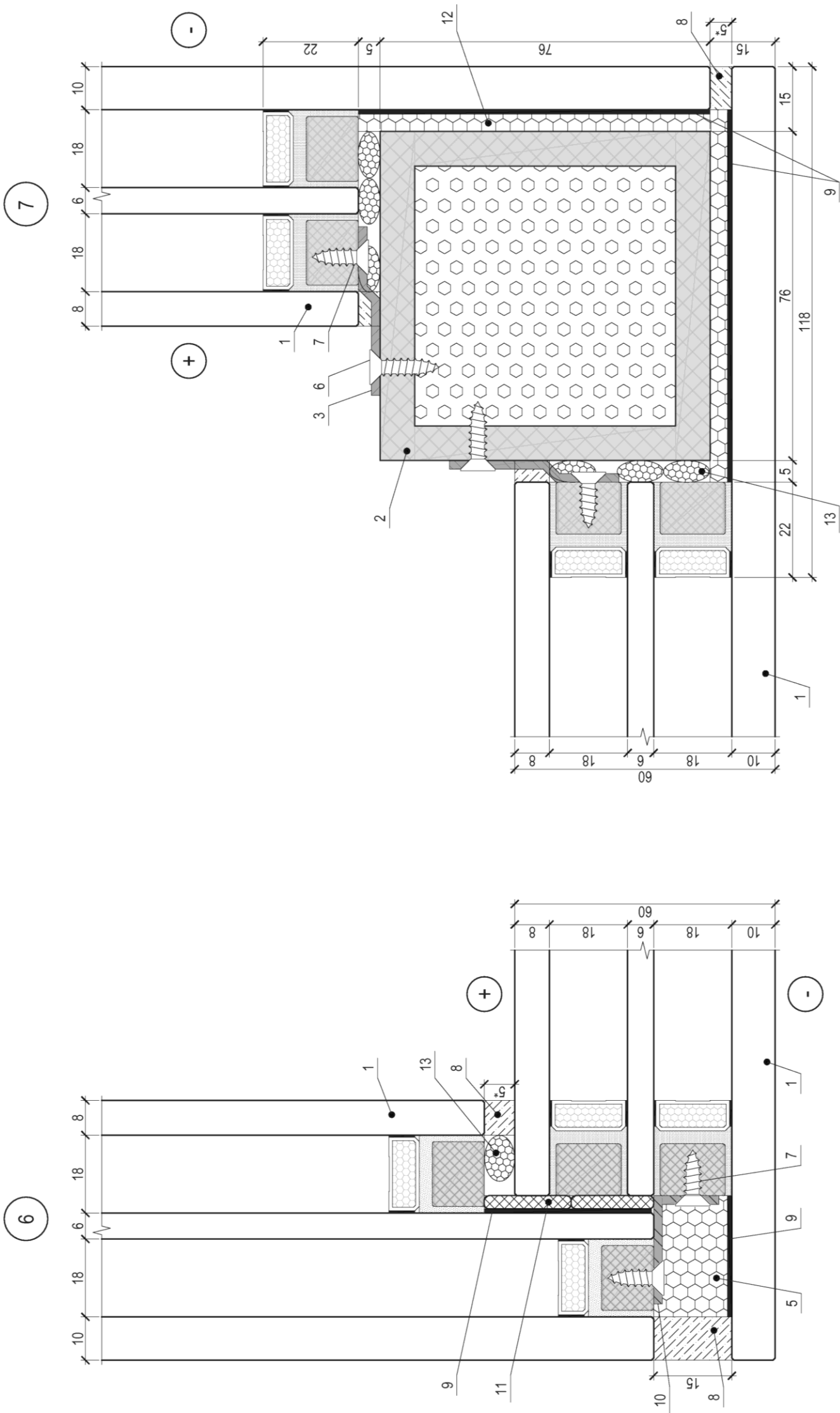


Picture 16
Standard PMU-Details



Picture 17
Standard PMU-Details



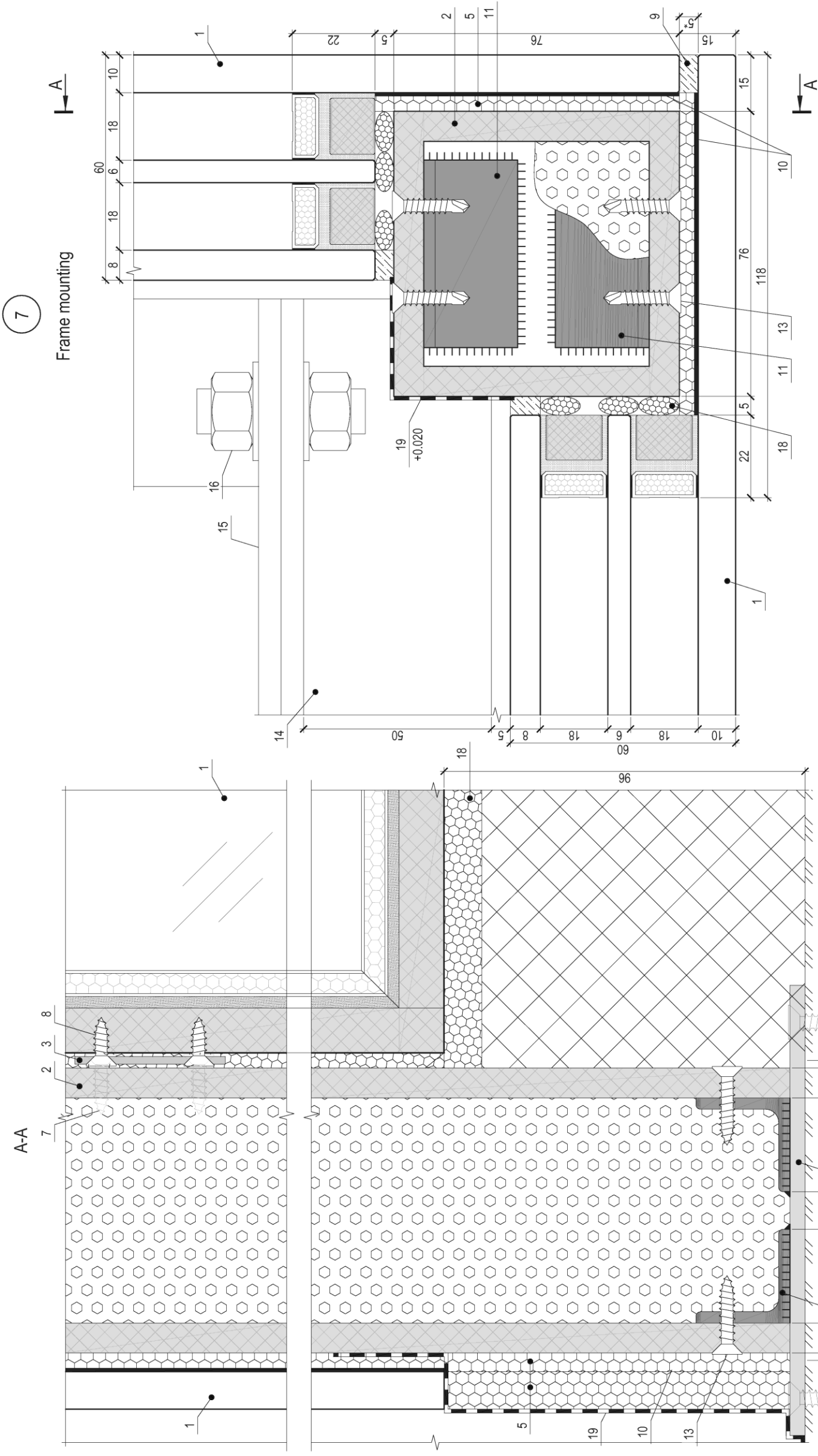


1. Multi layer insulated glass of the increased hardness.
2. Fiber glass right tube (76x76x8 mm).
3. Fastening plate (40x40x2 mm) with the spacing of 250 mm (Detail 3).
5. Polyethylene foam seal.
6. Vertical screw 4.2x16 mm, made of stainless steel (one hole pre-drilled).
7. Ball head drilling screw 4.2x13 mm. Stainless.
8. Facade sealant (Weather-proof) DowSil DC791.
9. Colorful facade sealant (due to main color solution).
10. Aluminum angle(20x15, L=40 mm) with spacing of 200 mm (Detail 2).
11. Self-adhesive sealing tape 5 mm.
12. Polyethylene seal IZILON BASE 10 .
13. PE - Round cord Ø8.

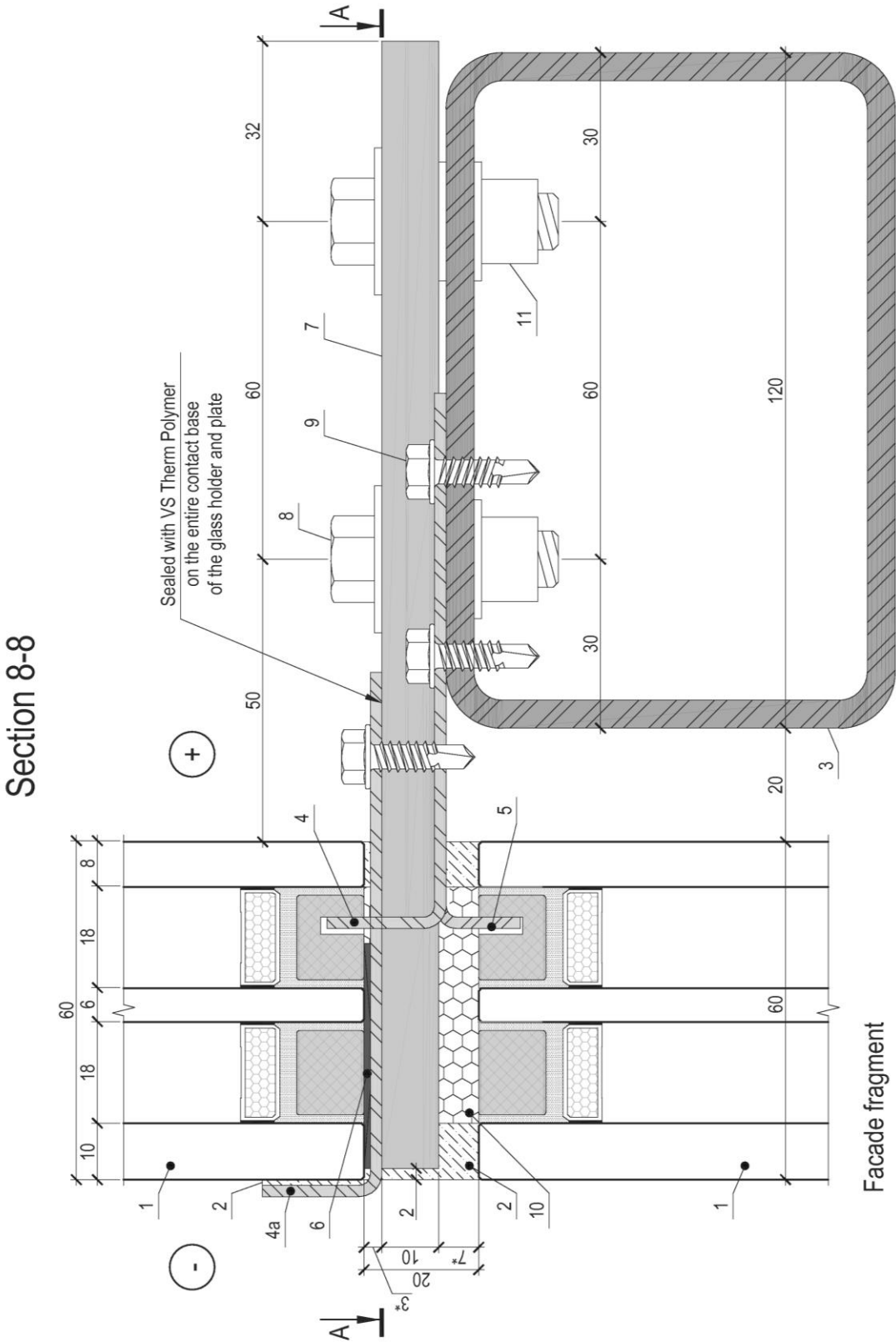
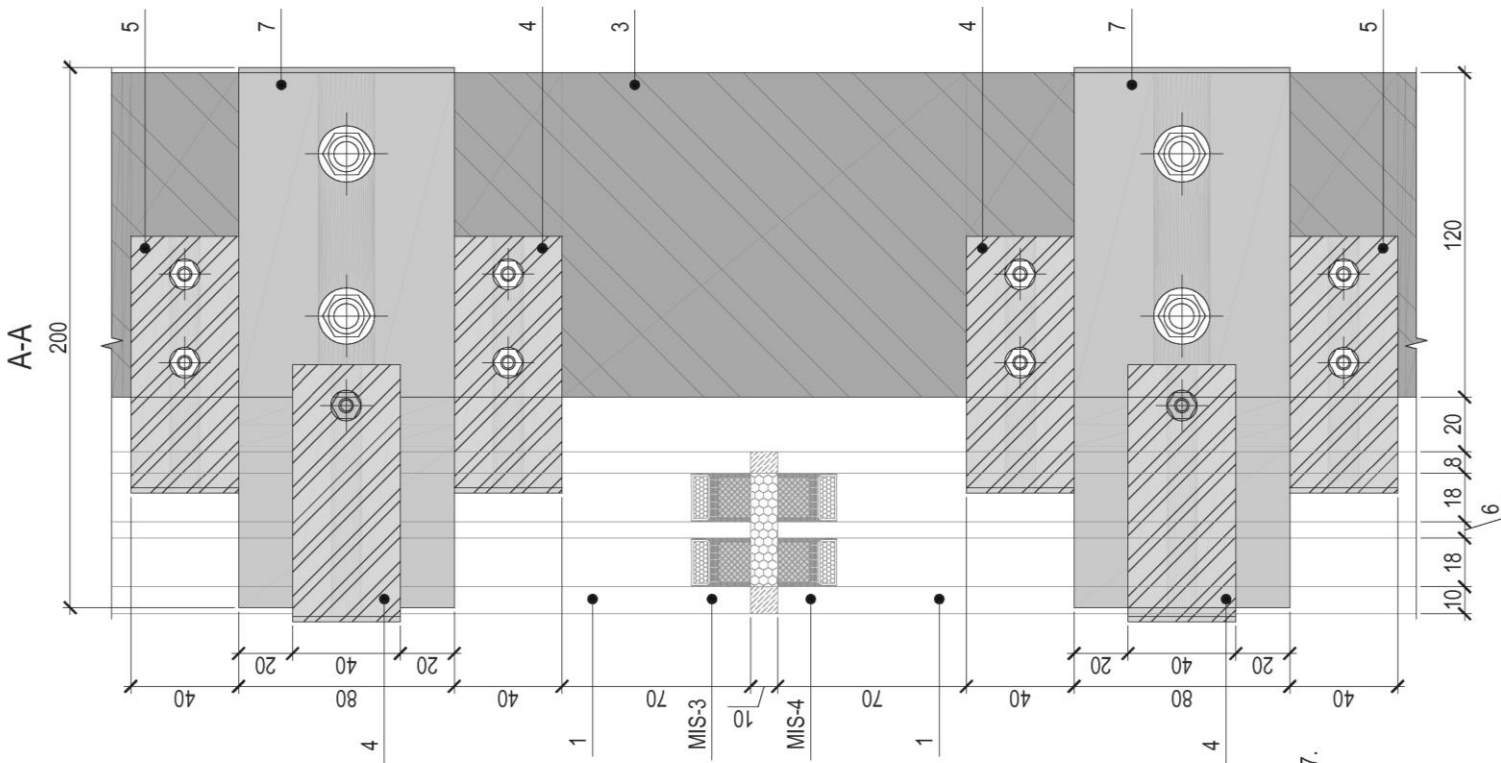
Notice:

- For the bolt screws that are to be screwed into fiberglass profile elements, the hole with the Ø0.8 mm of the bolt screw should be pre-drilled.

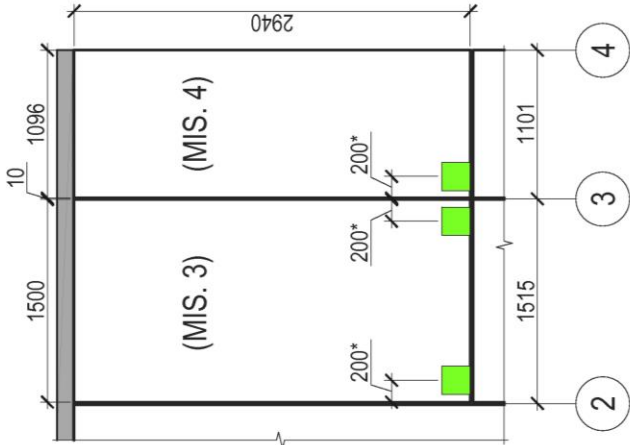
Picture 19
Standard PMU-Details



1. Multi layer insulated glass of the increased hardness.
2. Fiber glass right tube (76x76x8 mm).
3. Fastening plate (40x40x2 mm) with the spacing of 250 mm (Detail 3).
5. Polyethylene seal IZILON BASE 10.
6. Decorative angle.</



Facade fragment



Legend:

- Location due to Pos. 7

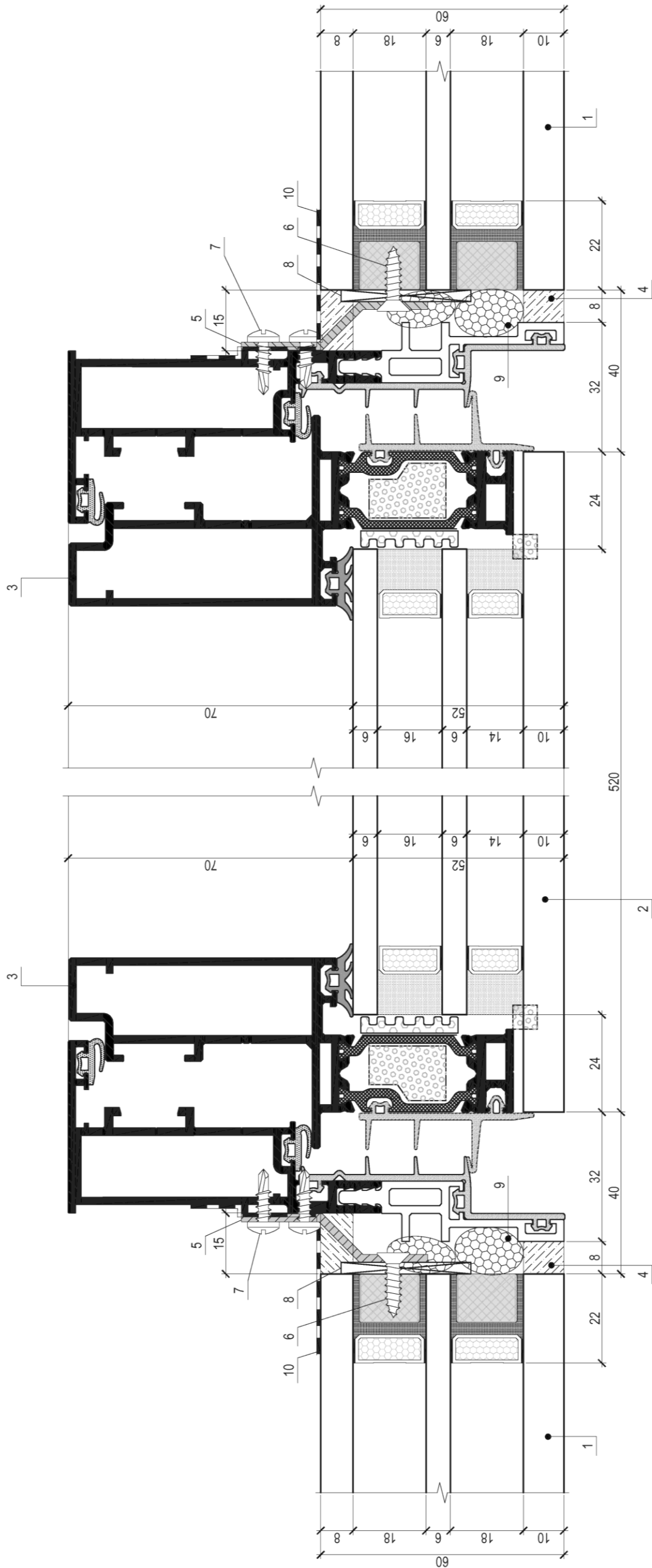
Notice:

- For the bolt screws that are to be screwed into fiberglass profile elements, the hole with the Ø0.8 mm of the bolt screw should be pre-drilled.

Picture 21
Standard PMU-Details



Section 9-9

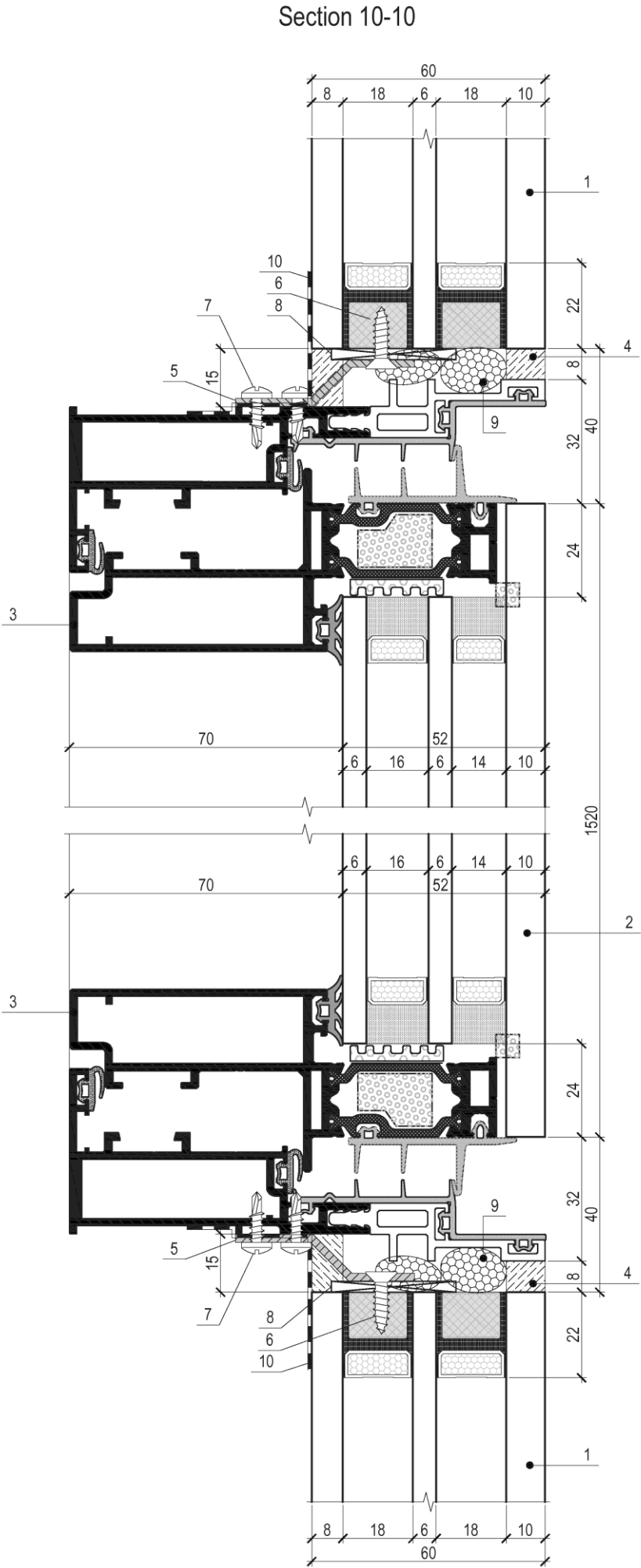


1. Multi layer insulated glass of the increased hardness.
2. SG-Glazing.
3. Aluprof wing for the SG - Facade System.
4. Facade sealant (Weather-proof) DowSil DC791.
5. Stainless steel plate (20x12x30x2 mm, L=40 mm), distance 250 mm (Detail 10).
6. Vertical screw 4.2x16 mm, made of Stainless Steel (one hole pre-drilled).
7. Vertical screw 4.2x16 mm, made of Stainless Steel.
8. PVC-Pipe 32x100x3 mm.
9. PE - Round cord Ø15 mm.
10. EPDM Sealing tape.

Notice:

- For the bolt screws that are to be screwed into fiberglass profile elements, the hole with the Ø0.8 mm of the bolt screw should be pre-drilled.

Picture 22
Standard PMU-Details

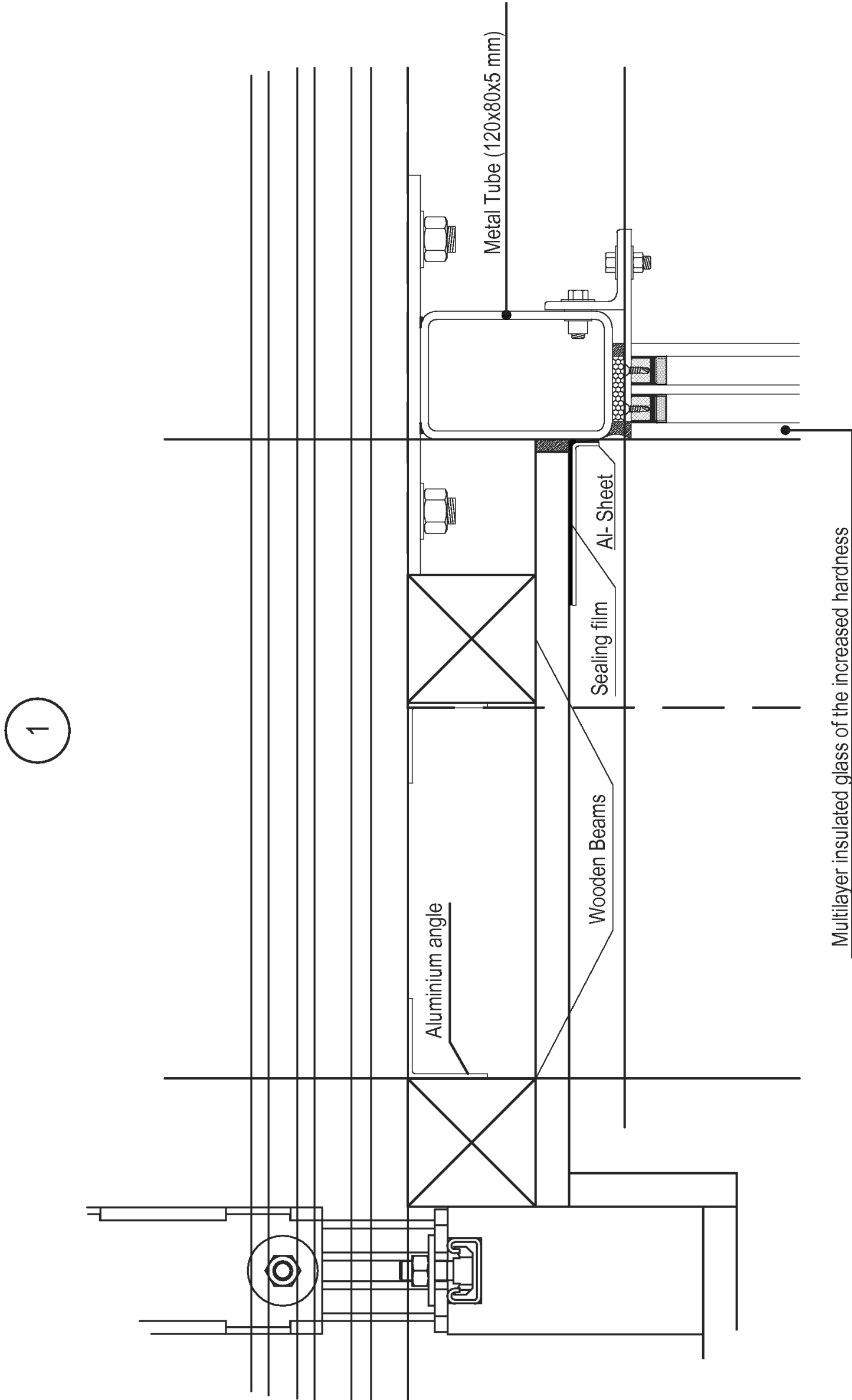


- 1. Multi layer insulated glass of the increased hardness.
- 2. SG - Glazing.
- 3. Alüprof wing for the SG - Facade System.
- 4. Facade sealant (Weather-proof) DowSil DC791.
- 5. Stainless steel plate (20x12x30x2 mm, L=40 mm), distance 125 mm (Detail 10).
- 6. Vertical screw 4.2x16 mm, made of Stainless Steel (one hole pre-drilled).
- 7. Vertical screw 4.2x16 mm, made of Stainless Steel.
- 8. PVC-Pipe 32x100x3 mm.
- 9. PE - Round cord Ø15 mm.
- 10. EPDM Sealing tape.

Notice:

- For the bolt screws that are to be screwed into fiberglass profile elements, the hole with the Ø0.8 mm of the bolt screw should be pre-drilled.

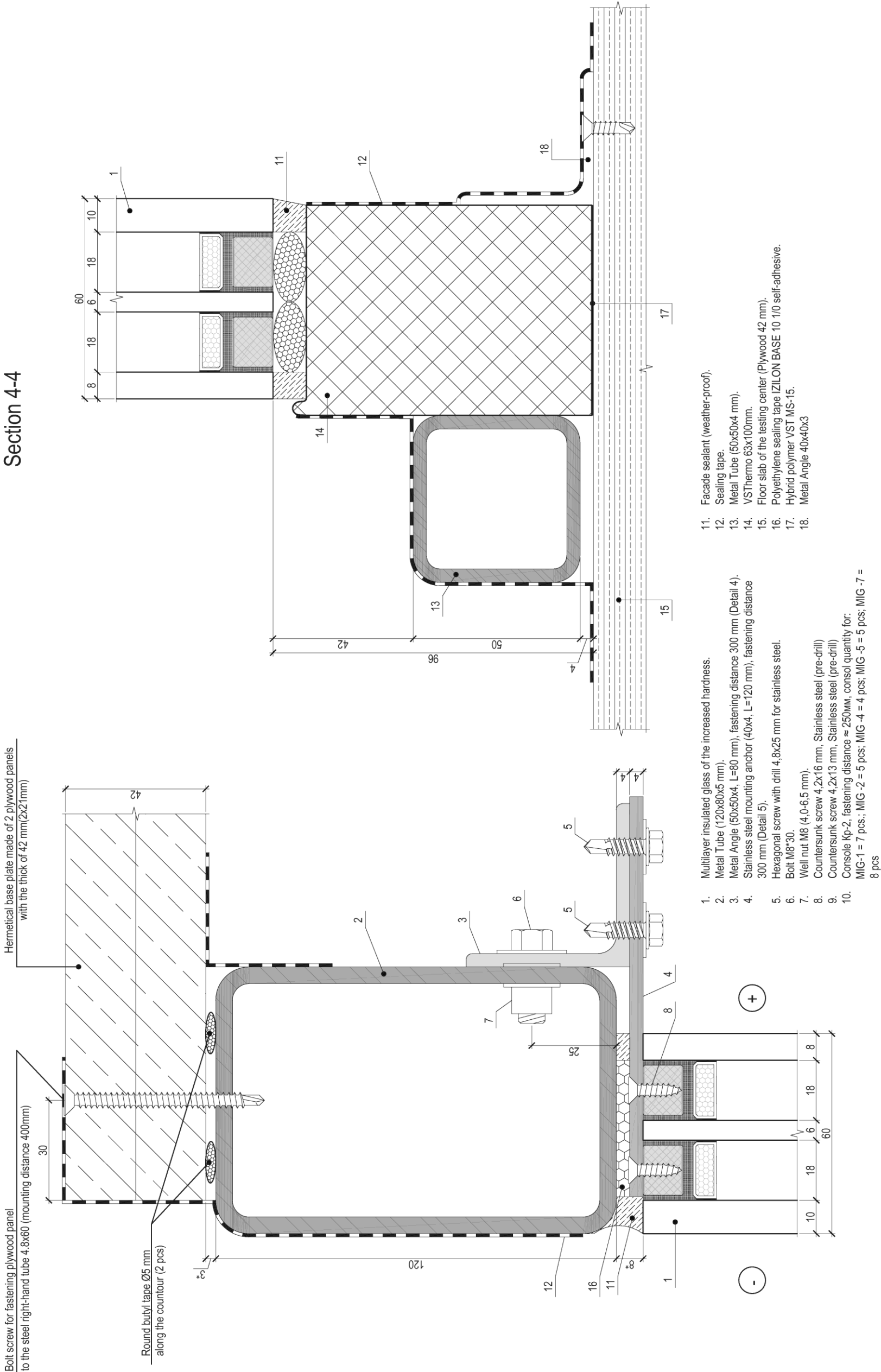
Picture 23
Standard PMU-Details



Picture 24
Standard PMU-Details



Section 4-4



Picture 25
Standard PMU-Details