



Building with conscience.

StoVentec™ Glass

Design Guide and Detail Booklet

Series 90G.xx | March 2020



Facades



Interiors



Ventilated Rainscreen
cladding systems

StoVentec™ Glass Rainscreen® Systems provide elegance and superior energy efficiency for the building envelope. The fully engineered, layered system is made up of an air and moisture barrier, a sub-construction of stainless steel brackets and aluminum profiles, mineral wool thermal insulation board and a prefabricated glass panel assembly. The glass panels come in an endless variety of shapes and an impressive range of custom colors that are fused into the glass so that the panels will not wear, scratch, fade or incur water damage.



Design Guide



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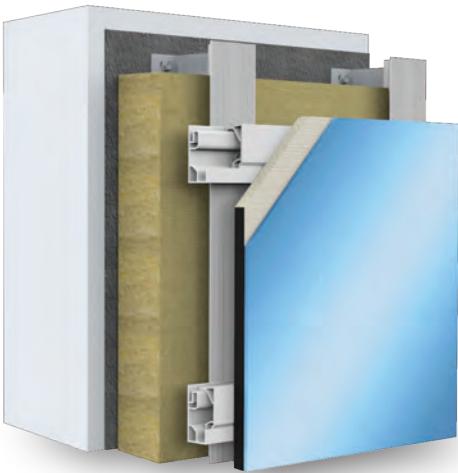


ATTENTION

The final design of any project is the sole responsibility of the Design Professional, with considerations for compliance of local building and design codes and requirements. Sto Corp. accepts no liability for design, engineering, or workmanship of any project. The information provided herein is in addition to other technical data provided by Sto Corp. (System Bulletin, Specification, Guide Details, etc). For more information, please visit www.stocorp.com

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StoVentec™ Glass Ventilated Rainscreen® Wall System

StoVentec Glass is a drained and back-ventilated open joint rainscreen wall system fully warranted by a single source - Sto Corp.

The system consists of four principal components: an air and moisture barrier, an adjustable stainless steel and aluminum sub-construction, thermal insulation, and a prefabricated opaque glass panel assembly.

StoVentec Glass Panels are project-specific, customized pieces that are fully bonded to a carrier board to produce an inseparable composite panel. The panels are available in a variety of sizes and shapes, an impressive range of standard and custom colors, as well as direct to glass printing options. All colors and designs are fused into the glass so that the panels will not wear, scratch, fade or incur water damage.



Air and Moisture Barrier

The first component of the StoVentec Glass system is Sto AirSeal®. It is a fluid applied Air and Moisture barrier (AMB) designed for use on most substrates including glass mat gypsum sheathing, wood-based sheathing, concrete, and masonry. Sto AirSeal® protects walls against moisture damage from rain during construction and provides secondary moisture protection while the building is in service. It functions as the primary air barrier component in the wall assembly and comes with multiple transition components for maintaining AMB continuity at joints, seams, wall penetrations, and across dissimilar materials. Sto AirSeal® features 500% tensile elongation, meets requirements of ASTM C1305 Low Temperature Crack Bridging and offers building code compliance confirmed by ICC-ESR 1233. Sto VaporSeal™ can be used where a vapor impermeable air and moisture barrier is specified.



StoVentro™ Sub-construction

The second component of the StoVentec Glass system is comprised of stainless-steel wall brackets and aluminum vertical and horizontal support profiles. StoVentro sub-construction forms the structural link between the facade and the supporting wall construction. The corrosion resistant design absorbs wind and dead loads and transfers these loads to the supporting wall construction.

Stainless steel wall brackets provide superior strength and lower thermal conductivity, increasing thermal performance for a given insulation thickness. In some cases StoVentro sub-construction may allow less insulation thickness to meet energy code requirements. StoVentro brackets come in two sizes; large and small. They accommodate wall cavity depths of 80mm to 360mm (3-1/8" - 14-3/16"), with lengths in 20mm (13/16") increments.

StoVentro Sub-construction provides adjustability of the glass panel assembly vertical wall based upon the insertion depth of the StoVentro 'T' or 'L' profiles into the wall brackets. This allows compensation for uneven substrates, and enables StoVentec Glass panel assemblies to be easily installed flush with surrounding claddings.



Thermal Insulation

The third component of the StoVentec Glass system is mineral wool thermal insulation board. The StoVentec Glass system uses Owens Corning Thermafiber® RainBarrier®45 continuous insulation. This mineral wool board provides exceptional thermal insulation performance, fire resistive characteristics, acoustical control and moisture resistance. Thermafiber® RainBarrier®45 is an ASTM C612 (CAN/ULC S-702, Type I) compliant, non-combustible mineral fiber board classified into types and categories: Type IA, IB, IVA.

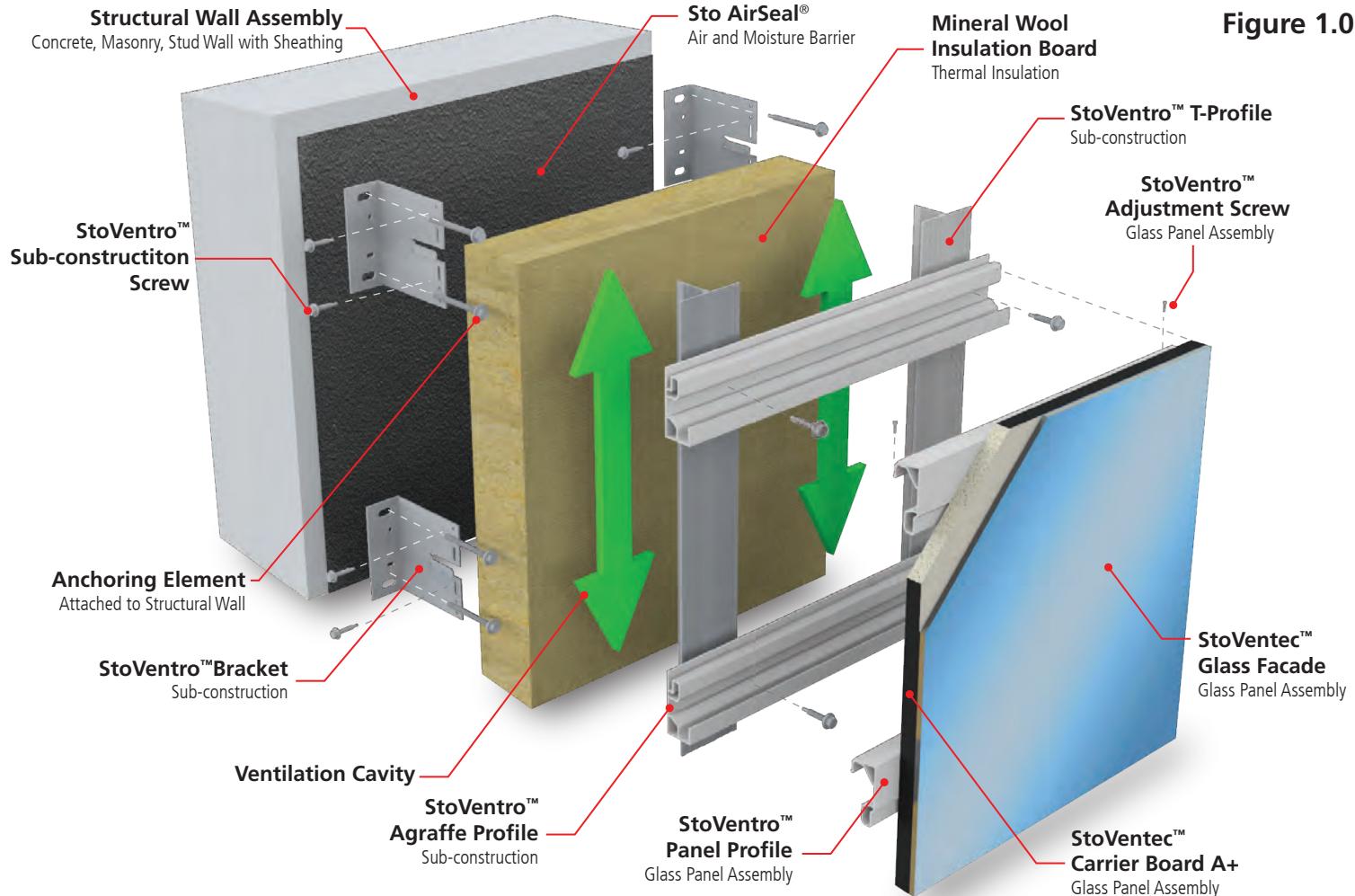


StoVentec™ Glass Panel Assembly

The fourth component of the StoVentec Glass system is the exterior glass panel assembly. StoVentec Glass Panels are opaque glass-faced composite panels. The glass is fully bonded to a robust, lightweight StoVentec Carrier Board A+. StoVentec Glass Panel assemblies combine warmth and beauty with durability, hardness and weather resistance. They are factory made in accordance with project-specific shop drawings, and are delivered to the project site ready for installation. StoVentro Panel Profiles are factory-installed on the glass panel assemblies, and are easily hung onto their StoVentro Agraffe Profile counterparts located on StoVentro sub-construction. After installation, the glass panel assemblies can be quickly and easily leveled using the StoVentro Adjustment Screw, located on the top of the StoVentro Agraffe profile.



Figure 1.0



Glossary of Terms

StoGuard® Air & Moisture Barrier – a liquid applied air & moisture barrier available as a vapor-permeable or vapor-impermeable component.

Mineral Wool Insulation Board – Owens Corning Thermafiber® RainBarrier®45 insulation provides thermal insulation, fire resistive characteristics, and acoustical control. (Not provided by Sto Corp.)

StoVentec™ Sub-construction – Stainless-steel wall brackets with aluminum vertical and horizontal support profiles.

StoVentec™ Bracket – Adjustable stainless-steel support for vertical 'L' and 'T' profiles.

StoVentec™ T-Profile – Vertical aluminum profile, attached to the wall brackets, which supports horizontal StoVentec™ Agraffe profiles.

StoVentec™ Agraffe Profile – Horizontal profile attached to the vertical StoVentec™ T-profile, which supports the StoVentec™ Glass Panel assembly.

StoVentec™ Sub-construction Screw – Stainless steel fastener that provides wall bracket to vertical profile attachment and StoVentec™ Agraffe Profile to vertical profile attachment.

Anchoring Element – Engineered and code compliant fastener for attachment of StoVentec™ Bracket to structural wall. (Not provided by Sto Corp.)

StoVentec™ Glass Panel – comprised of the StoVentec™ Panel Profile, StoVentec™ Carrier Board A+ and StoVentec™ Glass Facade. The panel is prefabricated and ready for installation.

Ventilation Cavity – The circulating air layer between the Mineral Wool Insulation Board and StoVentec™ Glass Panel Assembly.

StoVentec™ Panel Profile – Horizontal profile that provides attachment of the glass panel assembly to StoVentec™ Sub-construction.

StoVentec™ Carrier Board A+ – Lightweight composite board made of recycled glass granulate.

StoVentec™ Adjustment Screw – Stainless steel fastener that allows for leveling of StoVentec™ Glass Panel Assembly.

Sto Ventilation Profile – Perforated profile for drainage and ventilation. (Not shown)

StoVentec™ L-Profile – Aluminum support member used at inside and outside corners for structural attachment. (Not shown)

StoVentec™ Lintel Bracket – Bracket used for attachment of panels, metal trims and flashings to corners. (Not shown)

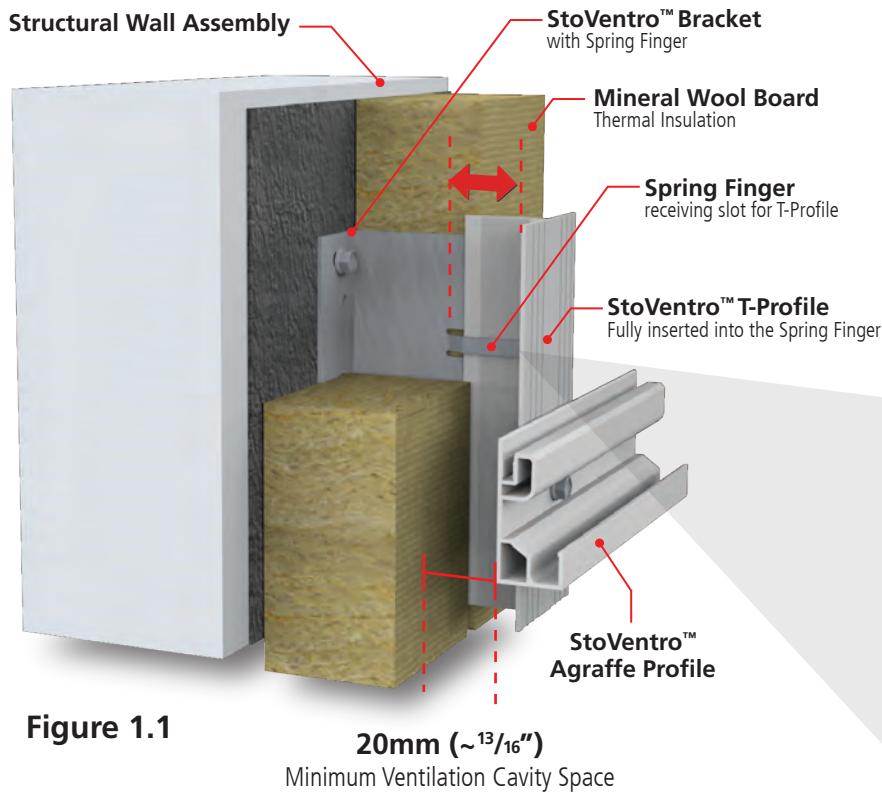


Figure 1.1

Minimum Ventilation Cavity

The vertical support profile (StoVentro T-Profile) is fully inserted into the StoVentro Bracket Spring Finger. This configuration represents the minimum ventilation cavity space of 20mm ($13/16"$). This ventilation cavity is measured from the exposed side of the Mineral Wool Insulation board to the attachment plane of the StoVentro Agraffe Profile.

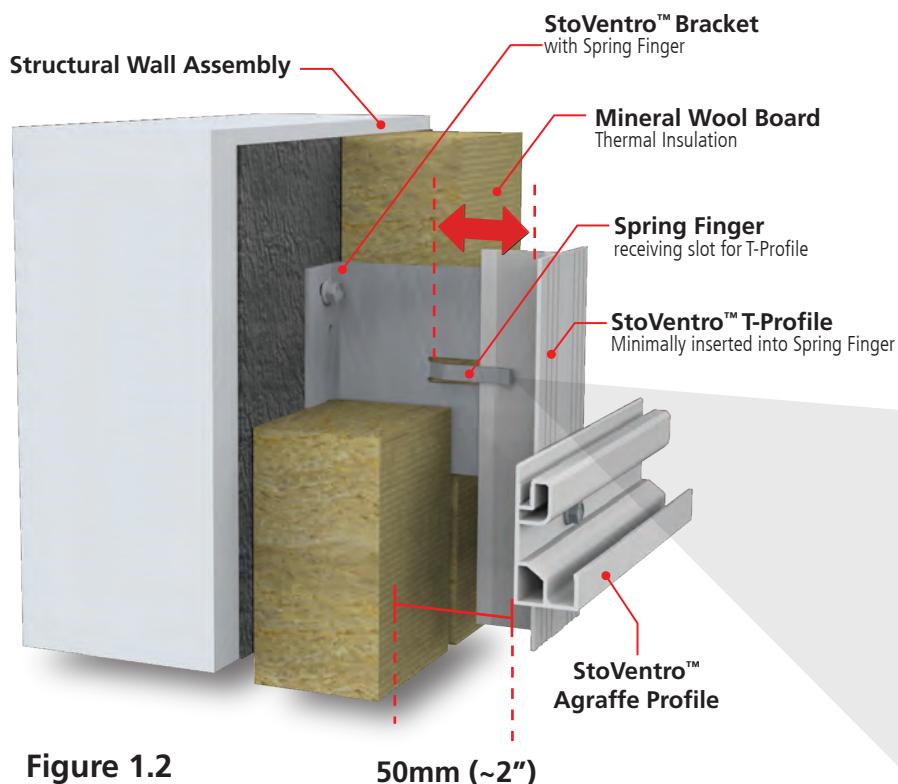


Figure 1.2

Maximum Ventilation Cavity

The vertical support profile (StoVentro T-Profile) is minimally inserted within the StoVentro Bracket Spring Finger. This configuration represents the maximum ventilation cavity space of 50mm (~2"). This ventilation cavity is measured from the exposed side of the Mineral Wool Insulation board to the attachment plane of the StoVentro Agraffe Profile.





Table 1.0 - Bracket Size and System Depth as determined by Insulation Requirements

Insulation ⁴ Size Required				Sto Wall Bracket Size Required (mm)	- Minimum - Distance from AMB ³ to Face of Sto Glass Panel Assembly (mm)	- Minimum - Distance from AMB ³ to Face of Sto Glass Panel Assembly (in)	- Maximum - Distance from AMB ³ to Face of Sto Glass Panel Assembly (mm)	- Maximum - Distance from AMB ³ to Face of Sto Glass Panel Assembly (in)	
Width (in)	Width (mm)	R-Value ¹	RSI-Value ²						
2"	50.8	8.6	1.48	80	144.7	5 ¹¹ / ₁₆ "	174.7	6 ⁷ / ₈ "	
2.5"	63.5	10.7	1.85	100	164.7	6 ¹ / ₂ "	194.7	7 ¹¹ / ₁₆ "	
3"	76.2	12.9	2.22	100	164.7	6 ¹ / ₂ "	194.7	7 ¹¹ / ₁₆ "	
3.5"	88.9	15	2.59	120	184.7	7 ¹ / ₄ "	214.7	8 ⁷ / ₁₆ "	
4"	101.6	17.2	2.96	120	184.7	7 ¹ / ₄ "	214.7	8 ⁷ / ₁₆ "	
4.5"	114.3	19.3	3.33	140	204.7	8 ¹ / ₁₆ "	234.7	9 ¹ / ₄ "	
5"	127	21.5	3.70	160	224.7	8 ⁷ / ₈ "	254.7	10"	
5.5"	139.7	23.6	4.07	160	224.7	8 ⁷ / ₈ "	254.7	10"	
6"	152.4	25.8	4.44	180	244.7	9 ⁵ / ₈ "	274.7	10 ¹³ / ₁₆ "	
6.5"	165.1	27.9	4.81	200	264.7	10 ⁷ / ₁₆ "	294.7	11 ⁵ / ₈ "	
7"	177.8	30.1	5.18	200	264.7	10 ⁷ / ₁₆ "	294.7	11 ⁵ / ₈ "	
Custom	7.5"	190.5	32.2	5.55	220	284.7	11 ³ / ₁₆ "	314.7	12 ³ / ₈ "
	8"	203.2	34.4	5.92	220	284.7	11 ³ / ₁₆ "	314.7	12 ³ / ₈ "
Special Design Considerations Required	8.5"	215.9	36.5	6.29	240	304.7	12"	334.7	13 ³ / ₁₆ "
	9"	228.6	38.7	6.66	260	324.7	12 ¹³ / ₁₆ "	354.7	13 ¹⁵ / ₁₆ "
	9.5"	241.3	40.8	7.03	260	324.7	12 ¹³ / ₁₆ "	354.7	13 ¹⁵ / ₁₆ "
	10"	254	43	7.40	280	344.7	13 ⁹ / ₁₆ "	374.7	14 ³ / ₄ "
	10.5"	266.7	45.1	7.77	300	364.7	14 ³ / ₈ "	394.7	15 ⁹ / ₁₆ "
	11"	279.4	47.3	8.14	300	364.7	14 ³ / ₈ "	394.7	15 ⁹ / ₁₆ "
	11.5"	292.1	49.4	8.51	320	384.7	15 ¹ / ₈ "	414.7	16 ⁵ / ₁₆ "
	12"	304.8	51.6	8.88	320	384.7	15 ¹ / ₈ "	414.7	16 ⁵ / ₁₆ "
	12.5"	317.5	53.7	9.25	340	404.7	15 ¹⁵ / ₁₆ "	434.7	17 ¹ / ₈ "
	13"	330.2	55.9	9.62	360	424.7	16 ³ / ₄ "	454.7	17 ⁷ / ₈ "
	13.5"	342.9	58	9.99	360	424.7	16 ³ / ₄ "	454.7	17 ⁷ / ₈ "

¹ R = 4.3 per 1 inch² RSI = 0.74 per 25mm³ AMB= Air and Moisture Barrier Layer⁴ Owens Corning Thermafiber® RainBarrier® 45

**Table 1.1 - System Information**

Feature	Description	Value
Application	Approved for vertical walls	Above grade only, exterior and interior.
Warranty	Limited Warranty	10 Year
System Weight	Weight: 6 mm glass panel assembly and sub-construction	33.98 kg/m ² (~ 6.96 lb./ft ²)
System Weight	Weight: 8 mm glass panel assembly and sub-construction	38.96 kg/m ² (~ 7.98 lb./ft ²)
System Weight	Weight of StoVentec Sub-construction for 6mm glass panel assembly (nominal, will vary with glass panel configuration and sub-construction spacing as dictated by wind loading)	2.00 kg/m ² (0.41 lb./ft ²)
System Weight	Weight of StoVentec Sub-construction for 8mm glass panel assembly (nominal, will vary with glass panel configuration and sub-construction spacing as dictated by wind loading)	4.00 kg/m ² (0.82 lb./ft ²)
System Layout	Gap between adjacent glass panels (10 mm recommended)	5 - 12 mm (3/16" - 1/2")
System Layout	Gap between glass panel and other building elements (flashing, other claddings, etc.)	10mm (3/8") (minimum)
System Layout	StoVentec Glass panel assembly clearance above ground level	150mm (5-7/8") (minimum)
System Layout	StoVentec Glass panel assembly setback distance of glass from ground objects	At ground level, recommended 914.4mm (3') minimum setback allowance for protection against inadvertent impact, snow accumulation, debris build-up, etc.
System Layout	Quantity of fixed point (FP) connections to T/L profile	1 maximum
System Layout	Quantity of sliding point connections to T/L profile	At least one sliding point bracket is required. Actual quantity is defined by project-specific engineering.
System Layout	Quantity of horizontal StoVentec Agraffe profiles per glass panel assembly	2 min., 6 max., based upon glass panel assembly size, orientation (portrait or landscape), and wind loading.
System Layout	Maximum cantilever of glass panel assembly vertical edge over vertical StoVentec T or L profile	280mm (11")
System Layout	Maximum cantilever of glass panel assembly horizontal edge over horizontal StoVentec Agraffe profile	150mm, 200mm, 250mm, or 300mm (5-7/8", 7-7/8", 9-3/16", 11-13/16") See StoVentec Glass Details
System Layout	Use of ventilation profiles	Ventilation profiles are required at top and bottom of glass panel assembly to prevent bird, animal, bug, and debris build-up within the ventilation cavity.
Substrates	Allowable wall substrates	Metal or wood studs with exterior sheathing, masonry, core-filled CMU. For others, contact Sto Corp.
Substrate	Stud spacing for wall bracket mounting	16" o.c. (400 mm), 24" o.c. (600 mm), 32" o.c. (813mm), 48" o.c. (1219mm), depending upon wind loading.
Ventilation Cavity	Thickness of unobstructed air cavity between face of wall mounted insulation and attachment plane of StoVentec Agraffe profile	20 - 50mm (13/16" - 2")



Table 1.1 - System Information (cont'd)

Feature	Description	Value
Sub-Construction	Bracket sizing	Bracket required to extend past face of insulation by 20 mm ($13/16$ ") to ensure minimum ventilation cavity space.
Sub-Construction	Bracket type Width of Attachment x Flange x Height	Two types exist: small and large with substrate mounting footprints of 50mm x 75mm (2" x $2\frac{15}{16}$ ") and 50mm x 130mm (2" x $5\frac{1}{8}$ ") respectively.
Sub-Construction	Adjustability	Insertion of T/L profiles into brackets allow for 30mm ($1\frac{3}{16}$) of adjustability
Sub-Construction	Attachment locations of StoVentro T/L profiles to StoVentro Wall Brackets	To compensate for linear thermal expansion of T/L profiles, attach profiles to StoVentro Brackets through 5.5 x 20 mm oblong slots in bracket. This is referred to as a sliding point attachment.
Sub-Construction	Attachment locations of StoVentro T/L profiles to StoVentro Wall Brackets	For dead loads, attach T/L profiles to the StoVentro Wall bracket through holes in bracket. This is referred to as a "fixed point" (FP) attachment.
Sub-Construction	Attachment locations of horizontal StoVentro Agraffe profile to StoVentro T/L profile	5.5mm x 20mm ($3/16$ " x $13/16$ ") oblong slots are required to be added to StoVentro Agraffe profiles for mounting to T/L profiles to compensate for linear thermal expansion.
Sub-Construction	Recommended spacing between horizontal, end-to-end mounted StoVentro Agraffe profiles	10mm - 15 mm ($3/8$ " - $5/8$ ")
Sub-Construction	Recommended spacing between of adjacent vertical, end-to-end mounted StoVentro T/L profiles	10mm - 15 mm ($3/8$ " - $5/8$ ")
Sub-Construction	Maximum spacing of vertical mounted StoVentro T/L profiles	1219 mm (48")
Sub-Construction	Use of StoVentro Lintel brackets	Required for use at lintels and corners.
Deflection Limit	Recommended allowable deflection limit (varies by glass panel assembly size)	L/300
Fire Break	Required (Horizontal)	Refer to StoVentec Details for material and configuration.
Flashing	Recommended	Refer to StoVentec Details for material and configuration.
Panel Adjustment	Vertical adjustment of glass panel assembly after installation (leveling)	± 3 mm ($\sim\frac{3}{32}$ ')
Panel Retention	Elimination of lateral drift of glass panel assembly on wall mounted StoVentro Agraffe profile	Use of cotter pin (for ease of glass panel assembly maintenance/removal) or self drilling fastener.



Table 1.2 - Component Information

Feature	Description	Value
AMB	StoGuard® Air and Moisture Barrier (AMB)	Vapor permeable or impermeable per project specific requirement as manufactured by Sto Corp.
Insulation	Type, mineral wool	ASTM C612 (CAN/ULC S-702, Type I) compliant, non-combustible mineral fiber board classified into types and categories: Type IA, IB, IVA.
Insulation	Thickness	50mm (2") minimum
Insulation	Density	72.1 kg/m ³ (4.5 lb/ft ³)
Insulation	Thermal conductivity	0.033 W/cm•K (0.23 (BTU•in)/(hr•ft ² •°F), @ 75°F)
Insulation	Thermal resistance	R-Value = 4.3 per inch, RSI = 0.74 per 25mm of thickness
Glass	Weight: 6 mm glass panel assembly (standard)	29.98 kg/m ² (6.14 lb./ft ²)
Glass	Weight: 8 mm glass panel assembly (required for larger glass sizes and high load conditions)	34.96 kg/m ² (7.16 lb./ft ²)
Glass	Thickness: 6mm glass (standard)	6 mm (1/4")
Glass	Thickness: 8mm glass (required for larger glass sizes and high load conditions)	8 mm (5/16")
Glass	Thickness: total panel assembly (6mm glass) without: with integral StoVentro Agraffe profile	30 : 62 mm (1-3/16" - 2 7/16")
Glass	Thickness: total panel assembly (8mm glass) without: with integral StoVentro Agraffe profile	32 : 64 mm (1-1/4" - 2 1/2")
Glass	Minimum glass panel assembly size, width by height	100mm x 250mm (3-15/16" - 9 13/16") (portrait orientation) 250mm x 175mm (9-13/16" - 6 7/8") (landscape orientation)
Glass	Nominal aspect ratio, glass panel assembly, width : height	1:12
Glass	Max height, portrait orientation, rectangle shape of 6mm glass panel assembly: widths of 100 mm - 1500 mm	2800 mm (9' 2-1/4")
Glass	Max height, landscape orientation, rectangle shape of 6mm glass panel assembly widths of 100 mm - 2800 mm	1500 mm (4' 11-1/16")
Glass	Max height, portrait orientation, rectangle shape of 8mm glass panel assembly: widths of 100 mm - 1250 mm	4500 mm (14' 9-3/16")
Glass	Max height, portrait orientation, rectangle shape of 8mm glass panel assembly: widths of 1251 mm - 1500 mm	3750 mm (12' 3-5/8")
Glass	Max height, landscape orientation, rectangle shape of 8mm glass panel assembly: widths of 100 mm - 3750 mm	1500 mm (4' 11-1/16")



Table 1.2 - Component Information (cont'd)

Feature	Description	Value
Glass	Max height, portrait orientation, "near-square" shape of 6mm and 8mm glass panel assembly: widths of 100 mm - 2150 mm	2600 mm (8' 6-3/8")
Glass	Colors: Number of standard RAL	63, others upon request, contact Sto Corp.
Glass	Option: Low iron white glass	Standard is "green glass"
Glass	Option: Digital and Silkscreen printing	High resolution image format required: tiff, bmp, jpeg vector graphic: pdf, ps, eps, ai, pdf.
Glass	Option: Text, nomenclature, etc.	Standard is non-reflective
Glass	Option: Reflective coating (metal oxide coating on front face)	Standard is non-reflective
Glass	Option: Acid etched (matte finish)	Standard is gloss
Glass	Option: Non-square and non-rectangular shapes	Contact Sto Corp. for non-standard shapes.
Glass	Option: Holes and internal cut-outs	Hole diameter \geq glass thickness, contact Sto Corp. for other size requirements.
Glass	Option: Edge condition of integral StoVentec Carrier Board A+ (back-up structure for glass)	Square edge, 45° angle
Glass	Option: Glass overhang beyond integral StoVentec Carrier Board A+ back-up structure	25 mm (1")
Glass	Option: Metal trimmed/framed glass panels	Contact Sto Corp.



Table 1.3 - Sub-Construction Information

Feature	Description	Value
Brackets	Material	304 stainless steel
Brackets	Small StoVentro Bracket (GP) W x H x T ¹	50mm x 75mm x 2.0mm x variable depth (2" x 2 ^{15/16} " x 1/16")
Brackets	Large StoVentro Bracket (FP) W x H x T ¹	50mm x 130mm x 2.5mm x variable depth (2" x 5 ^{1/8} " x 1/8")
Brackets	Depth range	80mm - 360mm (3 1/8" x 14 1/8")
Brackets	Adjustability depth range	0mm - 30mm (0" x 1 3/16")
Brackets	Weight	Variable by size
Profiles	Material (StoVentro Agraffe profiles)	6063-T66
Profiles	Material (StoVentro L & T profile)	6063-T66 or 6005A-T5
Profiles	Size: StoVentro T-profile (3m length)	90mm x 53mm x 2.7mm (3 9/16" x 2 1/16" x 1/8")
Profiles	Size: StoVentro L-profile (3 m length)	50mm x 40mm x 2.7mm (2" x 1 9/16" x 1/8")
Profiles	Size: StoVentro Agraffe profile (3m length)	31mm x 65mm x 3.0mm (1 1/4" x 2 9/16" x 1/8")
Profiles	Weight/ft : StoVentro L-profile (approximate)	1.61 kg/m (0.33 lb./ft)
Profiles	Weight/ft : StoVentro T-profile (approximate)	2.64 kg/m (0.54 lb./ft)
Profiles	Weight/ft : StoVentro Agraffe profile (approximate)	3.52 kg/m (0.72 lb./ft)
Fastener	Bracket to StoVentro T/L profile attachment	Hex Head, Self drilling screw, 5.5mm Dia x 22mm L, with over torque feature, 304 SS. (3/16" x 7/8")
Fastener	StoVentro Agraffe profile to StoVentro T/L profile attachment	Hex Head, Self drilling screw, 5.5 mm Dia x 22 mm L, with over torque feature, 304 SS. (3/16" x 7/8")
Fastener	StoVentec Glass Panel assembly vertical adjustment	Socket Head , Internal Hex Drive Screw, M6 x 10 mm L, 304 SS
Fastener	Bracket to substrate attachment fastener (anchoring fastener). Calculations performed by qualified licensed engineer.	Project specific based on wind load, and substrate material, defined by structural calculations, material: 304 stainless steel

¹ Width of Attachment Flange x Bracket Height x Thickness



Table 1.4 - Testing & Listing Information

Feature	Description	Value	Rating
Listing	Fire Spread	NFPA 285, STO/CWP-30-02, CSI 07 02 43, Composite Wall Panels, 11/8/2019	Compliant
Listing	Fire Spread	CAN / ULC S134, STO/CWP 25-01, CSI 07 02 43, Composite Wall Panels, 11/8/2019. meets Article 3.1.5.5 of NBCC	Compliant
Listing	National Technical Approval/Structural Design Type Approval for Ventilated External Wall or Ceiling Cladding (Germany)	DIBt Z-10.3-720 Validity period 8/23/2018 - 8/23/2023	Compliant
Listing	Technical Approvals for Construction, UK	BBA, certificate 10/4792, dated 11/23/2010 and 6/28/2012	Compliant
Test	Fire Resistance of Wall Assemblies	Engineering Judgement, Jensen Hughes Fire Protection Consultants. No. 1JJB05184.001	Maintain fire resistance rating
Test	Water Penetration Resistance	AAMA 509, water penetration	Class W1
Test	Ventilation	AAMA 509, ventilation	Class V2
Test	Wind Load Resistance	ASTM E330	Ultimate load - 100 lb.ft2 (4.78 kN/m2)
Test	Wind Load Resistance	DIBt Z-10.3-720 Validity period 8/23/2018 - 8/23/2023	See documents for specific ratings
Test	Thermal toughened safety glass (Heat Soak Tested)	EN 14179	Compliant
Test	Adhesion of StoVentec Glass Panel assembly	DIN 18156-2, section 2.2.1.5	≥ 36 psi (0.25 N/mm2)
Test	Smoke Emission Test	BS 6853	Compliant
Test	Hard Body Impact Test	BS 8200, solid steel ball of 62.5mm diameter and mass of 1 kg	Compliant Category B
Test	Soft Body Impact Test	BS 6206, soft bag with mass of 45 kg @ 3m suspension	Compliant Category A
Test	Soft Body Impact Test	BS 12600, tire of 50 kg	Compliant, Class 1
Test	Soft Body Impact Test	BS 8200, soft bag of 400 mm diameter and mass of 50 kg @ 3m suspension	Compliant Category B
Test	Drop Ball Test	BS EN 356, with steel ball of 100 mm diameter and mass of 4.1 kg	Compliant, Class P2A, P3A, P4A
Test	Bomb Blast Test	ISO 16933, 10 kg of TNT @ 6m, 100 kg of TNT @ 15m and 25m	Compliant
Test	Seismic Test	CSTB, Marne-La-Valee, France, Test Report EEM 10 26030315, Eurocode 8, PS 92, 8 test phases, 30 cycles/phase, 2 - 15 Hz	No damage observed



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Outside Corners with panel edge type B	90.G.411
Outside Corners with panel edge type C	90.G.412
Outside Corners with panel edge type D	90.G.413
Outside Corner to Alternative Facade with Aluminum profile	90.G.419

Installation at Glass Panel Joints

Vertical StoVentec Glass Panel joint at T-Profile	90.G.460
Vertical StoVentec Glass Panel joint offset from T-Profile	90.G.461
Vertical StoVentec Glass Panel edge to Alternative facade (edge type A)	90.G.470

**Installation at Glass Panel Joint (continued)**

Vertical StoVentec Glass Panel edge to Alternative facade (edge type B)	90.G.471
Vertical StoVentec Glass Panel edge to Alternative facade (edge type C)	90.G.472
Vertical StoVentec Glass Panel edge to Alternative facade (edge type D)	90.G.473
Returning flashing to Alternative Facade	90.G.474

Panel Installation at Dissimilar Materials

Horizontal transition to Alternative facade/wall substrate above	90.G.475
Horizontal transition of StoVentec Glass Panel under alternative facade/wall substrate	90.G.476
Horizontal transition of StoVentec Glass Panel above alternative facade/wall substrate(Glass Panel proud 40mm)	90.G.477
Horizontal transition of StoVentec Glass Panel above alternative facade/wall substrate (Glass Panel flush)	90.G.478
Horizontal transition of StoVentec Glass Panel above alternative facade/wall substrate(Glass Panel proud 20mm)	90.G.479
Horizontal transition of StoVentec Glass Panel above alternative facade/wall substrate (Glass Panel flush with no flashing) ..	90.G.480
Vertical Transition of StoVentec Glass, flush to StoVentec Render	90.G.485
Vertical Transition StoVentec Glass Panel to Alternative facade/wall substrate	90.G.486
Inside Corner to Alternative façade/wall substrate	90.G.490

Fire Protection

Fire Protection at floor lines with Lamella Fire Break [NFPA 285] Compliant (US Standards)	90.G.550
Fire Protection at floor lines with Dual Dynamic Fire Break [ULC S134 and NFPA 285] Compliant (CAN & US Standards).....	90.G.551
Fire Protection at window head with Lamella Fire Break [NFPA 285] Compliant	90.G.555

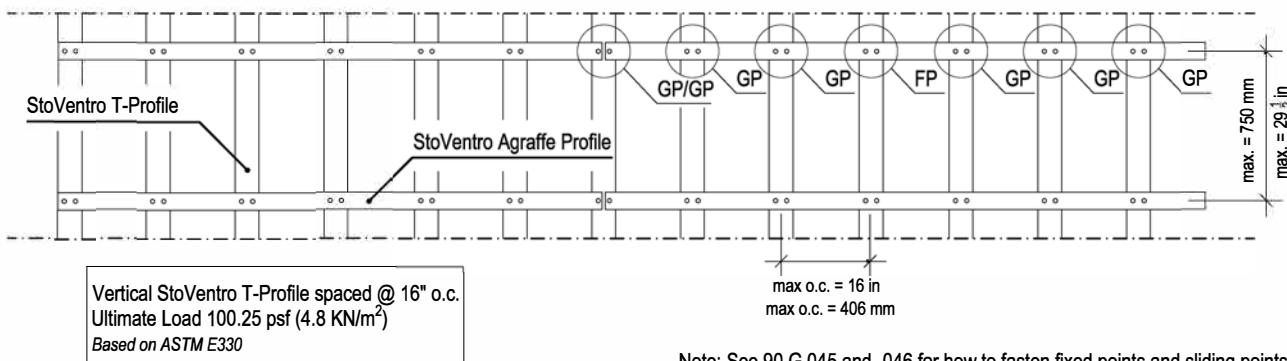
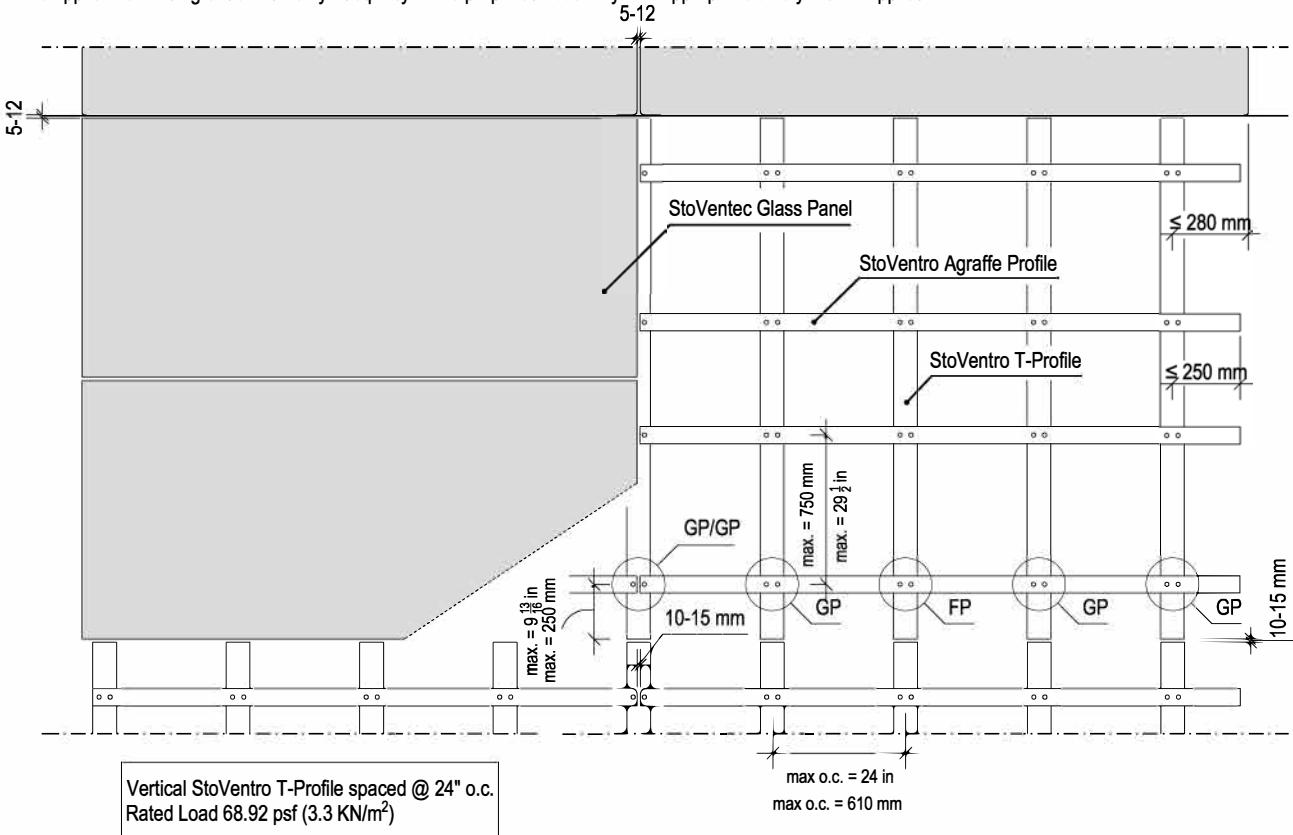
StoVentec™ Glass

Landscape Panel Installation, Vertical StoVentro™ T-Profile spacing,
16" o.c. & 24" o.c. Vertical Glass Panel edge, supported by StoVentro™ T-Profile
Elevation View

Date: March 2020

Detail No.: 90.G.001

Rated wind loads based on DIBt approval. A qualified licensed engineer must determine project specific wind loads in accordance with the applicable building code and verify adequacy of the proposed assembly with appropriate safety factors applied



Note: See 90.G.045 and -046 for how to fasten fixed points and sliding points.

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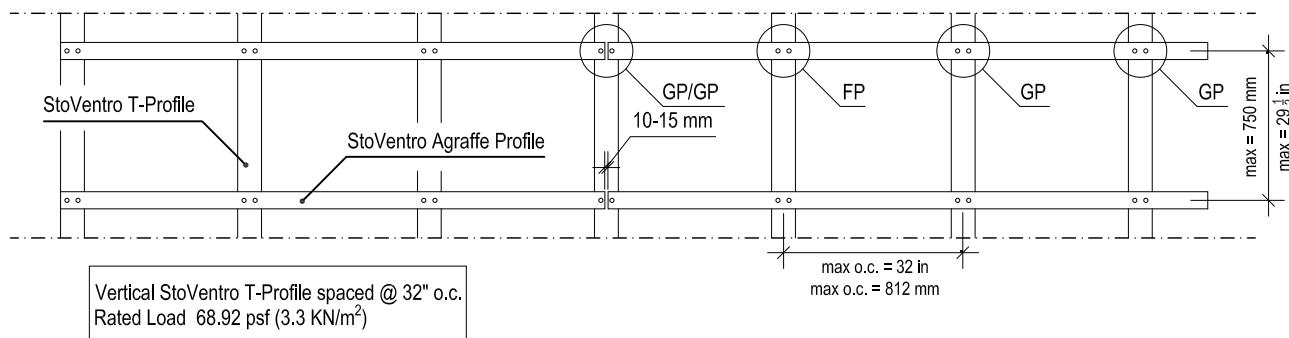
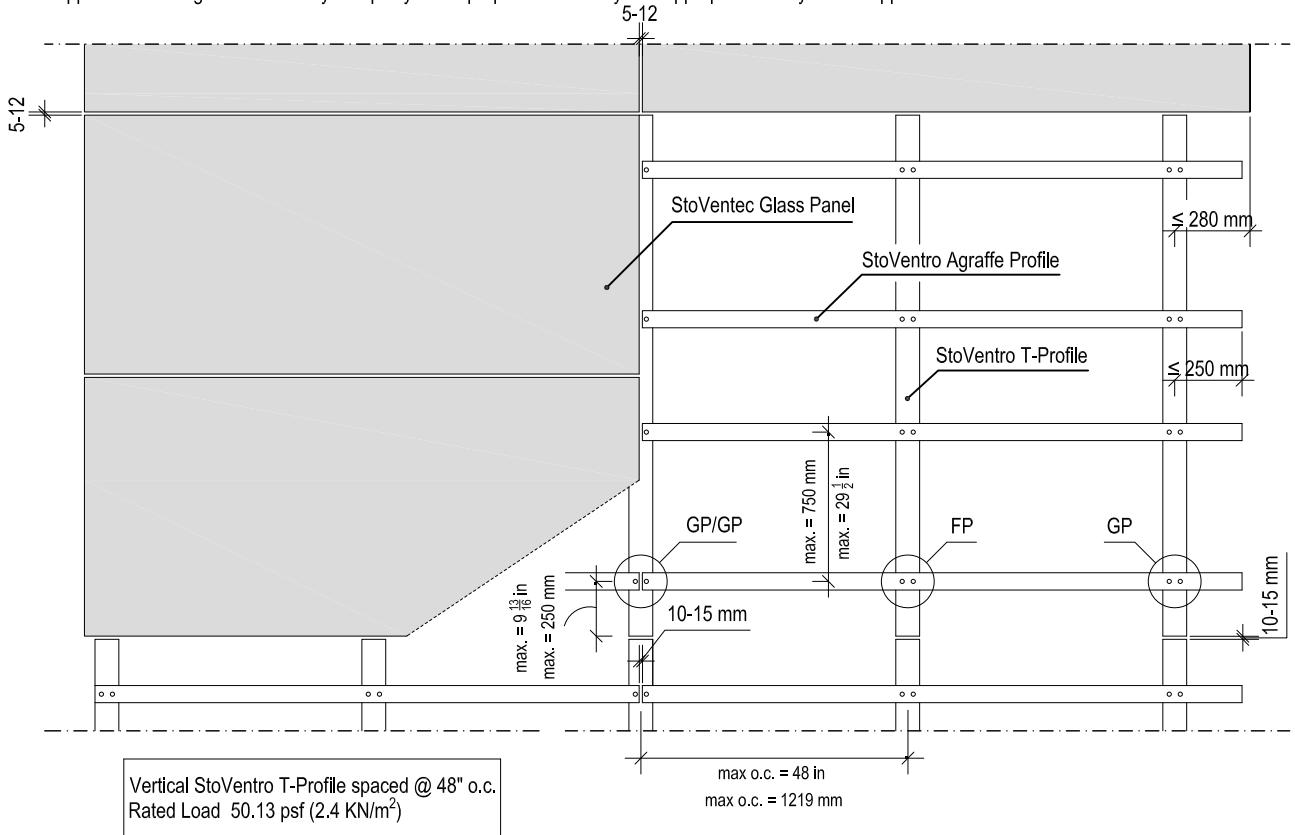
StoVentec™ Glass

Landscape Panel Installation, Vertical StoVentro™ T-Profile spacing,
32" o.c. & 48" o.c. Vertical Glass Panel edge, supported by StoVentro™ T-Profile
Elevation View

Date: March 2020

Detail No.: 90.G.002

Rated wind loads based on DIBt approval. A qualified licensed engineer must determine project specific wind loads in accordance with the applicable building code and verify adequacy of the proposed assembly with appropriate safety factors applied



Note: See 90.G.045 and -046 for how to fasten fixed points and sliding points.

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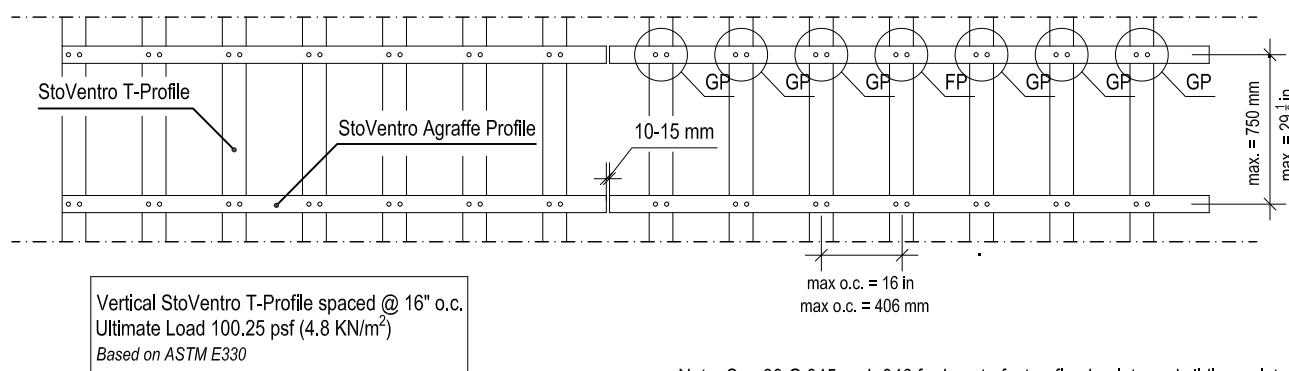
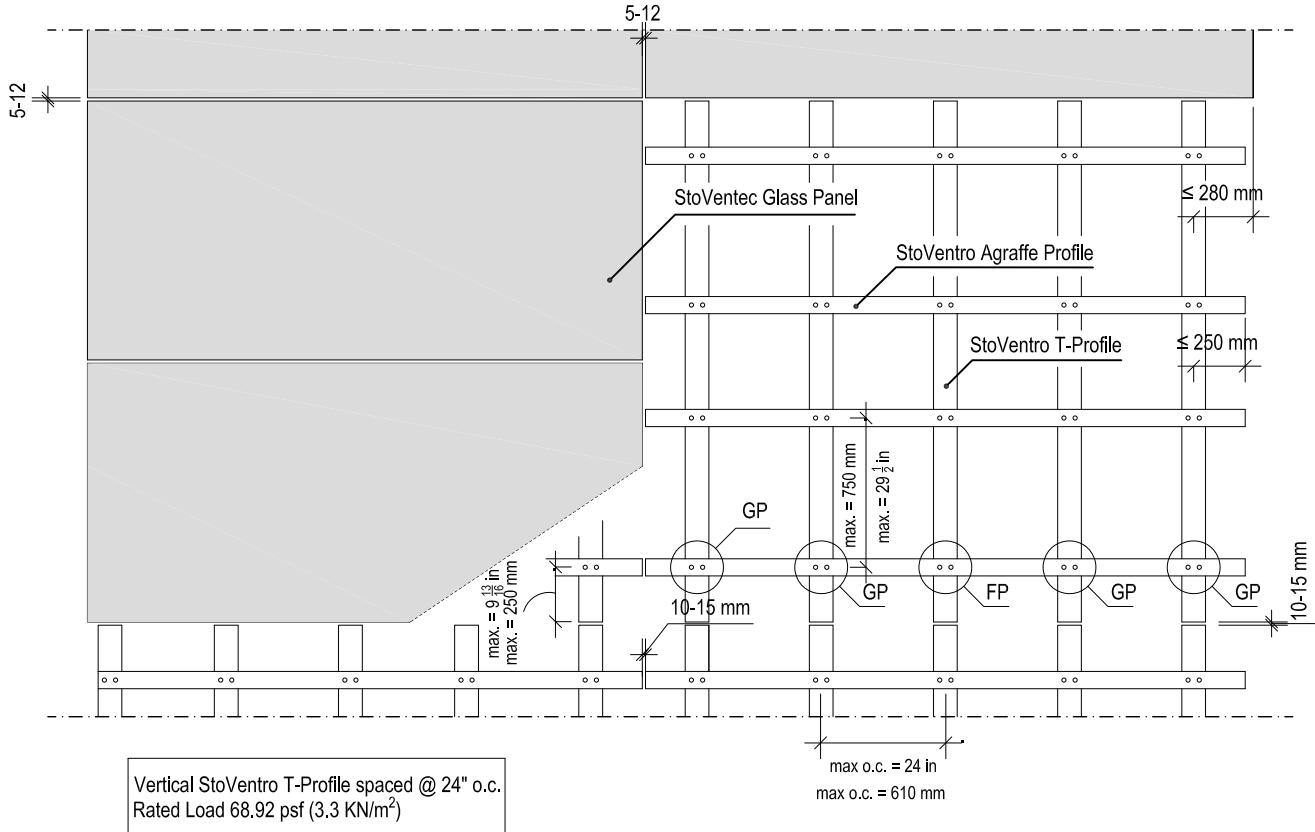
StoVentec™ Glass

Landscape Panel Installation, Vertical StoVentro™ T-Profile spacing,
16" o.c. & 24" o.c. Vertical Glass Panel edge, cantilevered over StoVentro™ T-Profile
Elevation View

Date: March 2020

Detail No.: 90.G.003

Rated wind loads based on DIBt approval. A qualified licensed engineer must determine project specific wind loads in accordance with the applicable building code and verify adequacy of the proposed assembly with appropriate safety factors applied



Note: See 90.G.045 and -046 for how to fasten fixed points and sliding points.

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StoVentec™ Glass

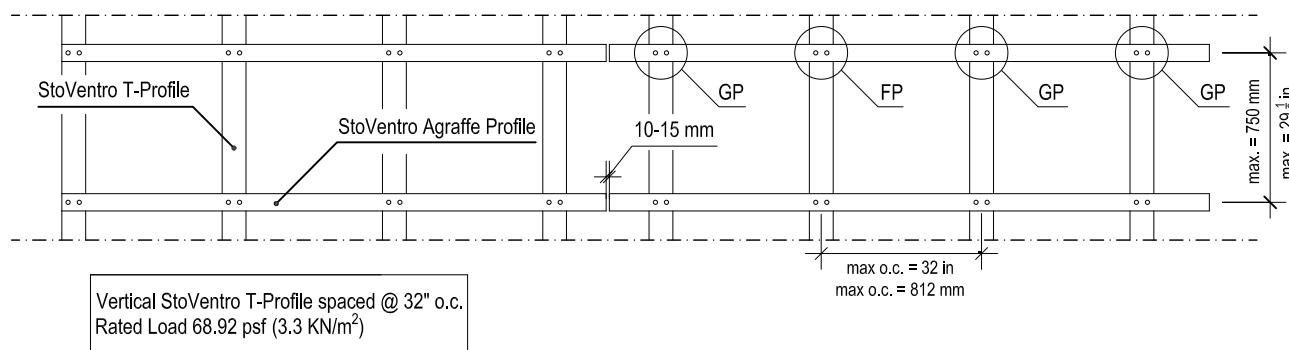
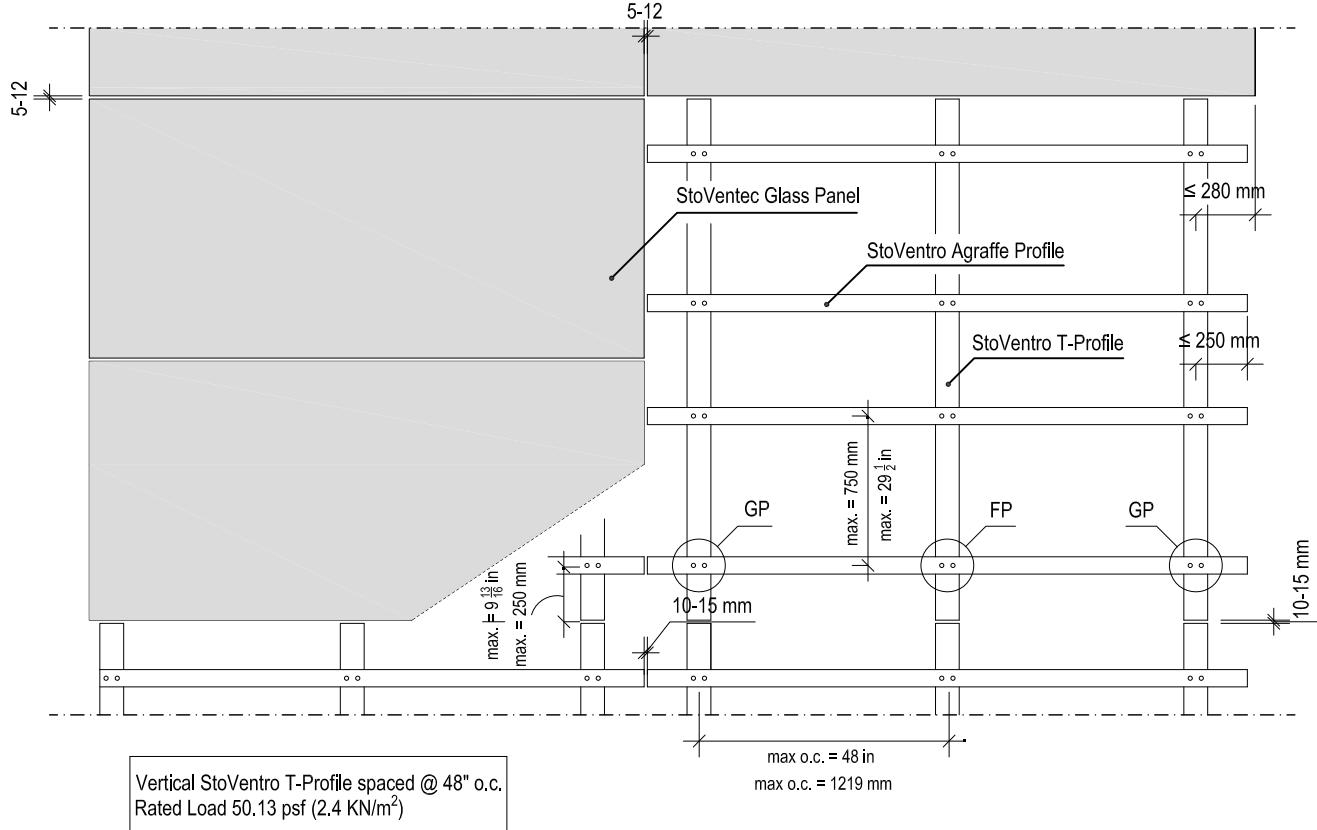
Landscape Panel Installation, Vertical StoVentro™ T-Profile spacing,
32" o.c. & 48" o.c. Vertical Glass Panel edge, cantilevered over StoVentro™ T-Profile

Elevation View

Date: March 2020

Detail No.: 90.G.004

Rated wind loads based on DIBt approval. A qualified licensed engineer must determine project specific wind loads in accordance with the applicable building code and verify adequacy of the proposed assembly with appropriate safety factors applied



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StoVentec™ Glass

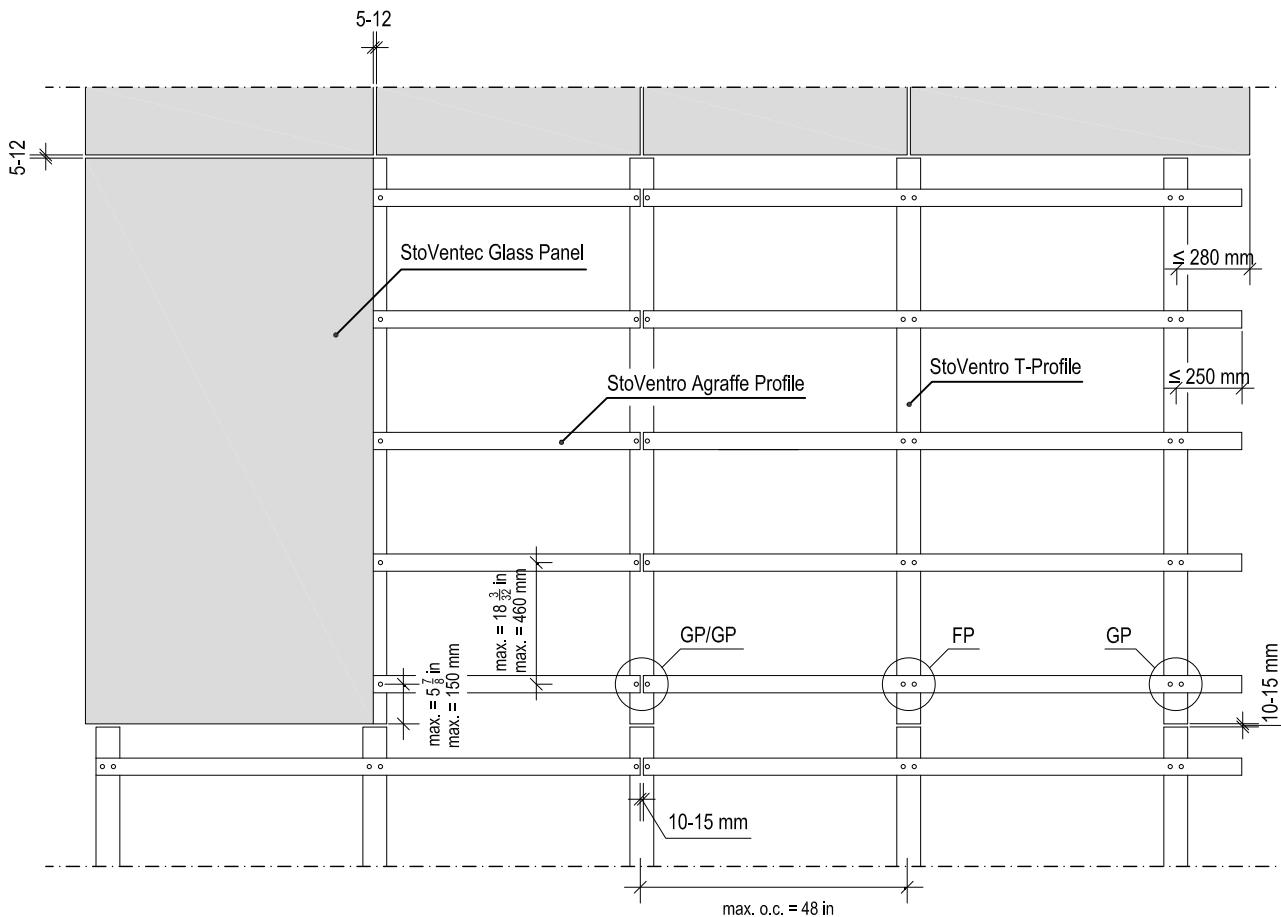
Portrait Panel Installation, StoVentro™ Vertical T-Profile spacing 48" o.c. (1219 mm),
Horizontal StoVentro™ Agraffe spacing 460mm. Vertical StoVentec™ Glass Panel edge
supported by StoVentro™ T-Profile

Elevation View

Date: March 2020

Detail No.: 90.G.005

Rated wind loads based on DIBt approval. A qualified licensed engineer must determine project specific wind loads in accordance with the applicable building code and verify adequacy of the proposed assembly with appropriate safety factors applied



Note: See 90.G.045 and -046 for how to fasten fixed points and sliding points.

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StoVentec™ Glass

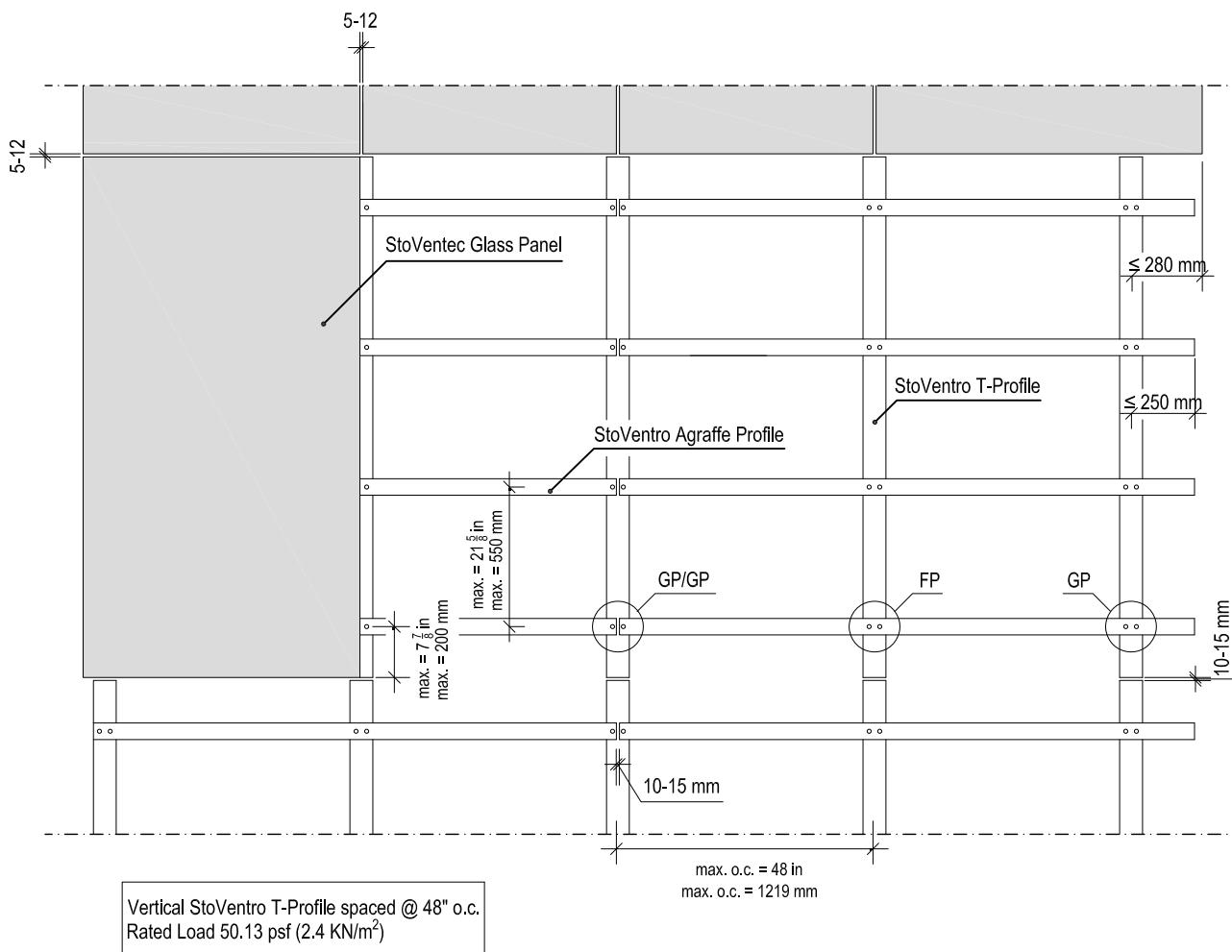
Portrait Panel Installation, StoVentec™ Vertical T-Profile spacing 48" o.c. (1219 mm),
Horizontal StoVentec™ Agraffe spacing 550mm. Vertical StoVentec™ Glass Panel edge
supported by StoVentec™ T-Profile

Elevation View

Date: March 2020

Detail No.: 90.G.006

Rated wind loads based on DIBt approval. A qualified licensed engineer must determine project specific wind loads in accordance with the applicable building code and verify adequacy of the proposed assembly with appropriate safety factors applied



Note: See 90.G.045 and -046 for how to fasten fixed points and sliding points.

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StoVentec™ Glass

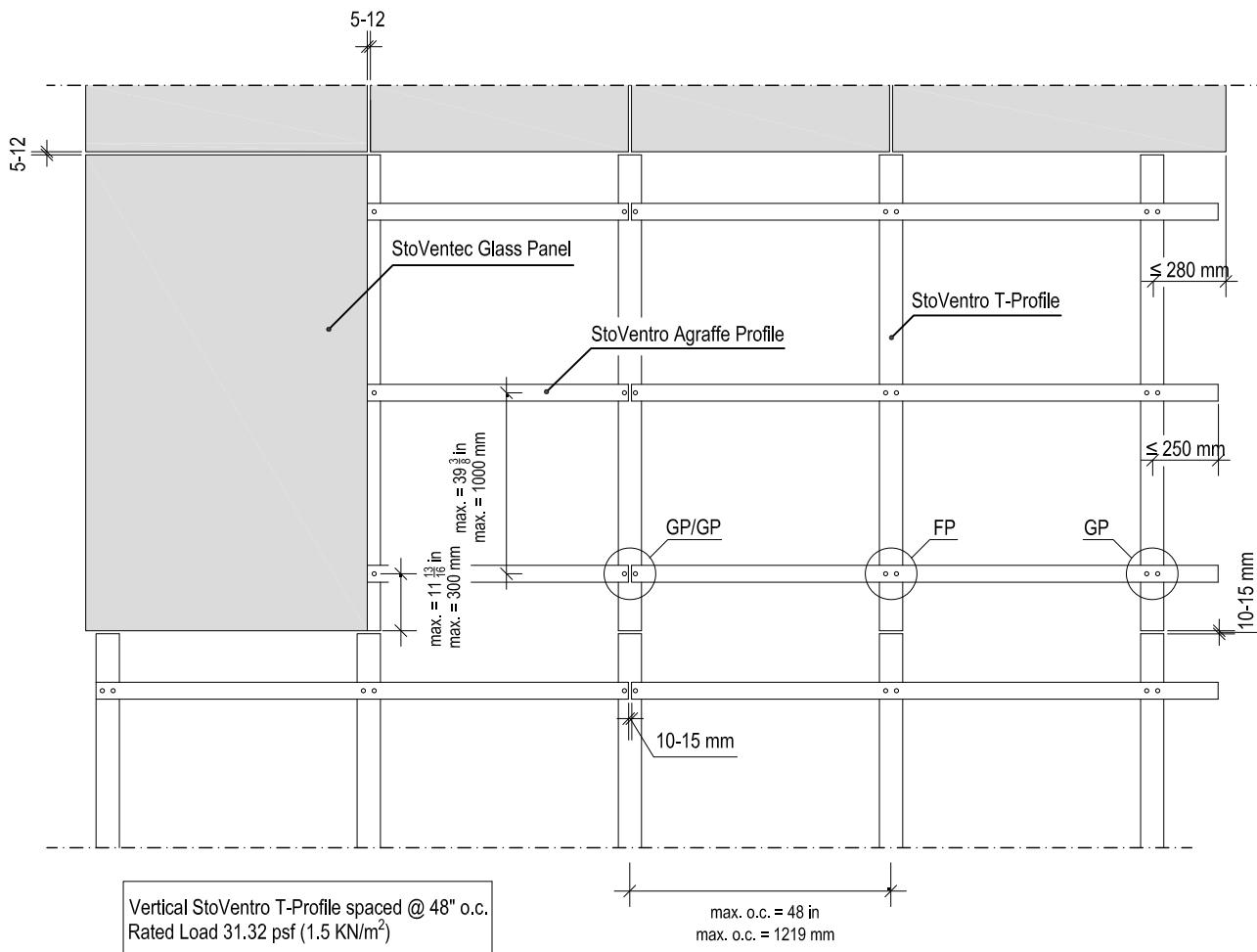
Portrait Panel Installation, StoVentro™ Vertical T-Profile spacing 48" o.c. (1219 mm),
Horizontal StoVentro™ Agraffe spacing 1000mm. Vertical StoVentec™ Glass Panel edge
supported by StoVentro™ T-Profile

Elevation View

Date: March 2020

Detail No.: 90.G.007

Rated wind loads based on DIBt approval. A qualified licensed engineer must determine project specific wind loads in accordance with the applicable building code and verify adequacy of the proposed assembly with appropriate safety factors applied



Note: See 90.G.045 and -046 for how to fasten fixed points and sliding points.

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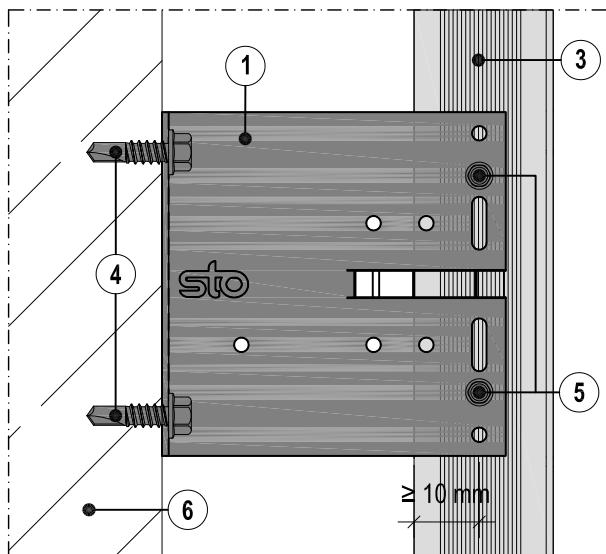
StoVentec™ Glass

StoVentro™ Brackets - Large (FP) and Small (GP),
with attachment locations for fixed points and sliding points

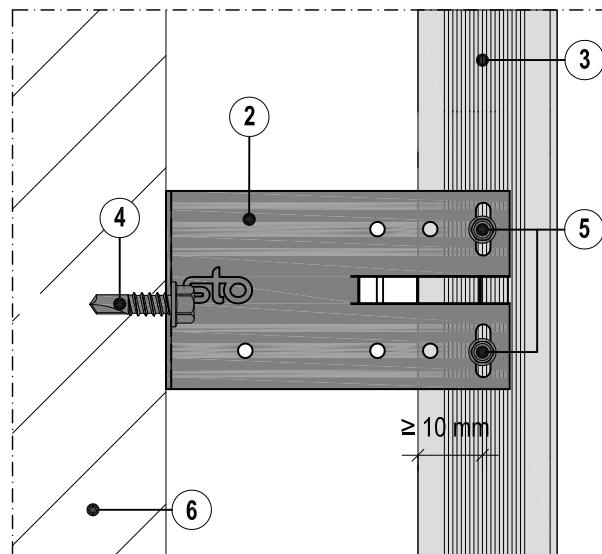
Section View

Date: March 2020

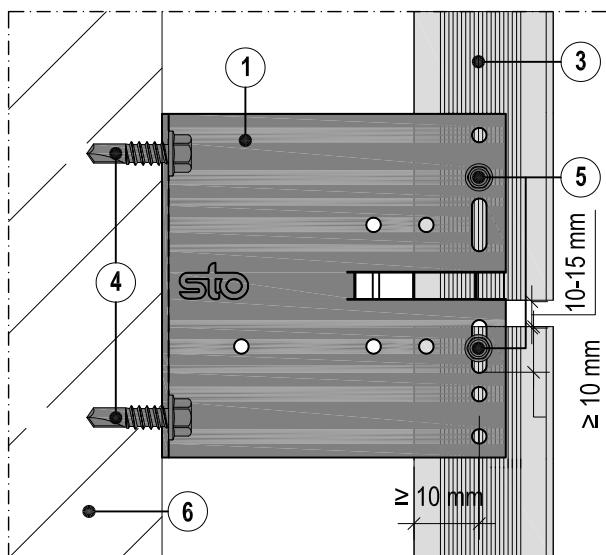
Detail No.: 90.G.045



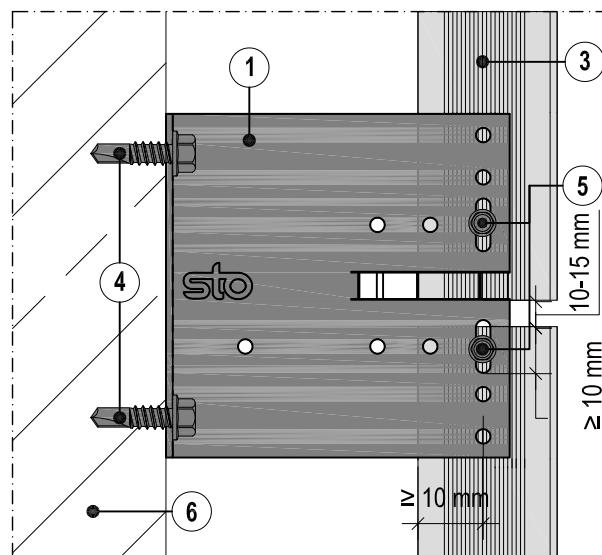
StoVentro™ Bracket - Large (FP) | Fixed point fastening



StoVentro™ Bracket - Small (GP) | Sliding point fastening



StoVentro™ Bracket - Large (FP) | Fixed & sliding point fastening



StoVentro™ Bracket - Large (FP) | Sliding point fastening

① StoVentro™ Bracket
Large (FP)

② StoVentro™ Bracket
Small (GP)

③ StoVentro™ T-Profile

④ Anchoring element in accordance
with structural analysis

⑤ StoVentro™ Sub-construction Screw with self-drilling
and over-tightening protection (5.5 x 22 mm)

⑥ Structural wall assembly
(concrete, masonry, stud wall with sheathing)

ATTENTION

Note: All values are subject to structural analysis.

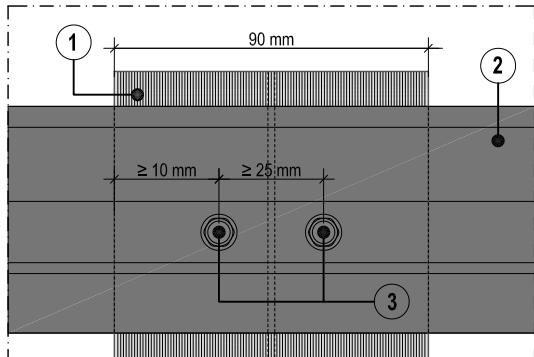
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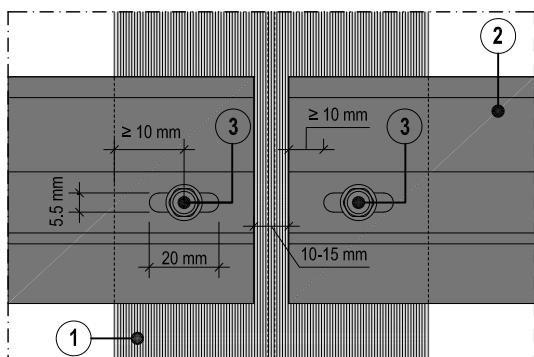
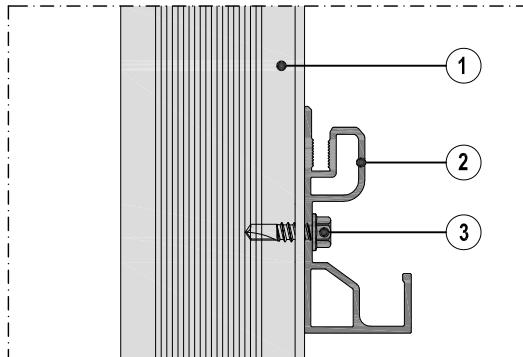
StoVentec™ Glass

StoVentro™ Agraffe Profile attachment locations

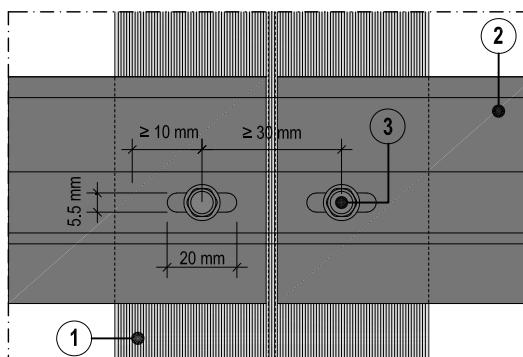
Fixed points and sliding points

Elevation & Section Views**Date: March 2020****Detail No.: 90.G.046**

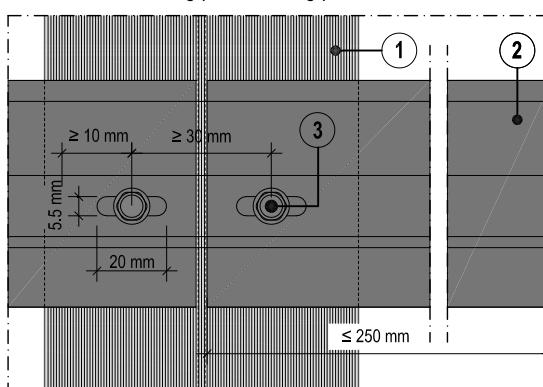
fixed point



sliding point / sliding point



sliding point



sliding point / sliding point

①

StoVentro™ T-Profile

②

StoVentro™ Agraffe Profile

③

StoVentro™ Sub-construction Screw
with self-drilling and over-tightening protection (5.5 x 22 mm)**ATTENTION**

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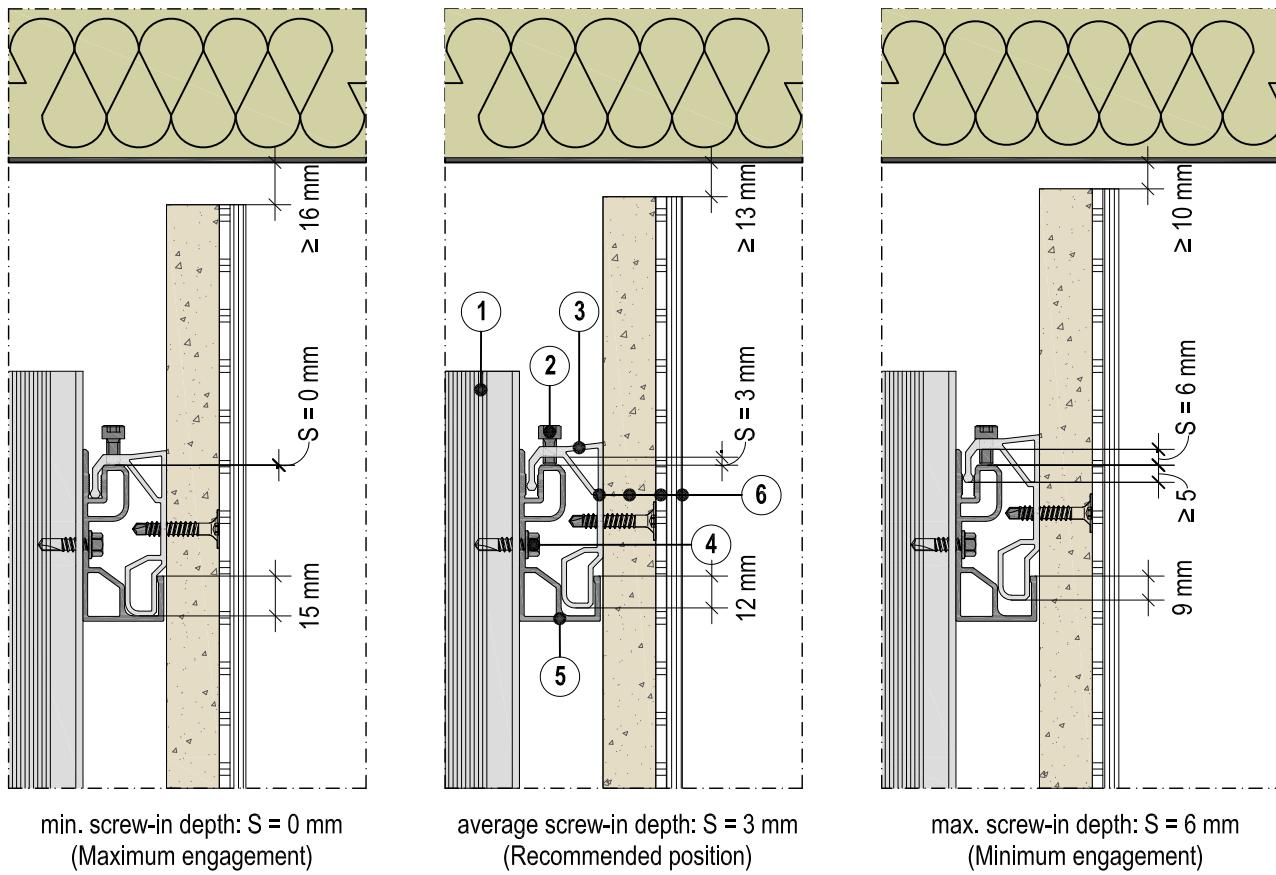
StoVentec™ Glass

StoVentro™ Agraffe Profile, Adjustment Tolerances

Date: March 2020

Section View

Detail No.: 90.G.047



- ⑧ Screw-in depth of the StoVentro™ Adjustment Screw
- ① StoVentro™ T-Profile
- ② StoVentro™ Adjustment Screw (M5 x 10)
- ③ StoVentro™ Panel Profile
- ④ StoVentro™ Sub-construction Screw with self-drilling and over-tightening protection (5.5 x 22 mm)
- ⑤ StoVentro™ Agraffe Profile
- ⑥ StoVentec™ Glass Panel

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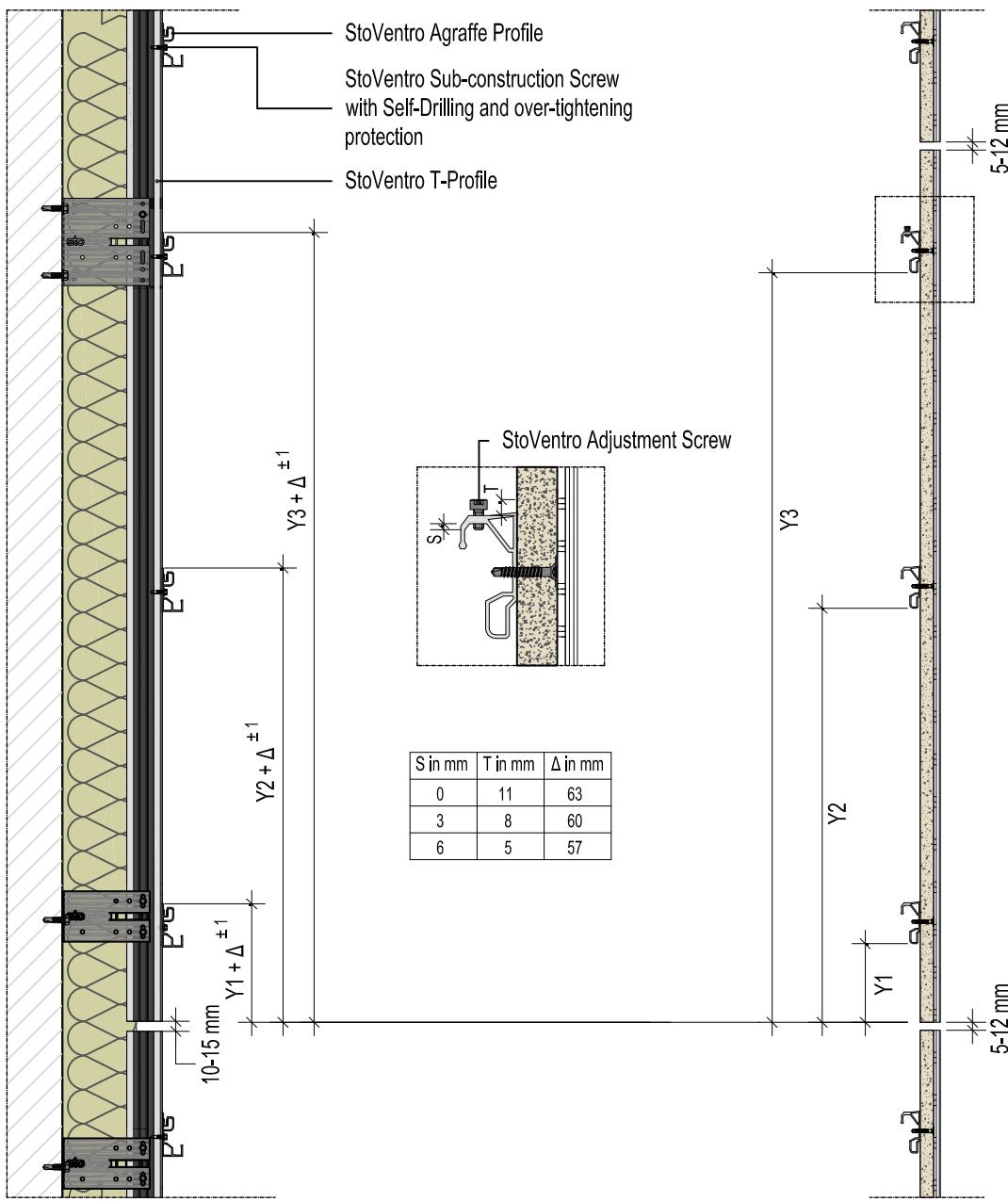
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StoVentec™ Glass

StoVentro™ Agraffe Profile configuration, StoVentec™ Glass Panel to substrate
Section View

Date: March 2020

Detail No.: 90.G.048



S	Screw-in depth of the StoVentro Adjustment Screw
T	Projection of the StoVentro Adjustment Screw
Y	Distance between the StoVentro Panel Profile and the edge of the StoVentec Glass Panel in accordance with project specific shop drawings

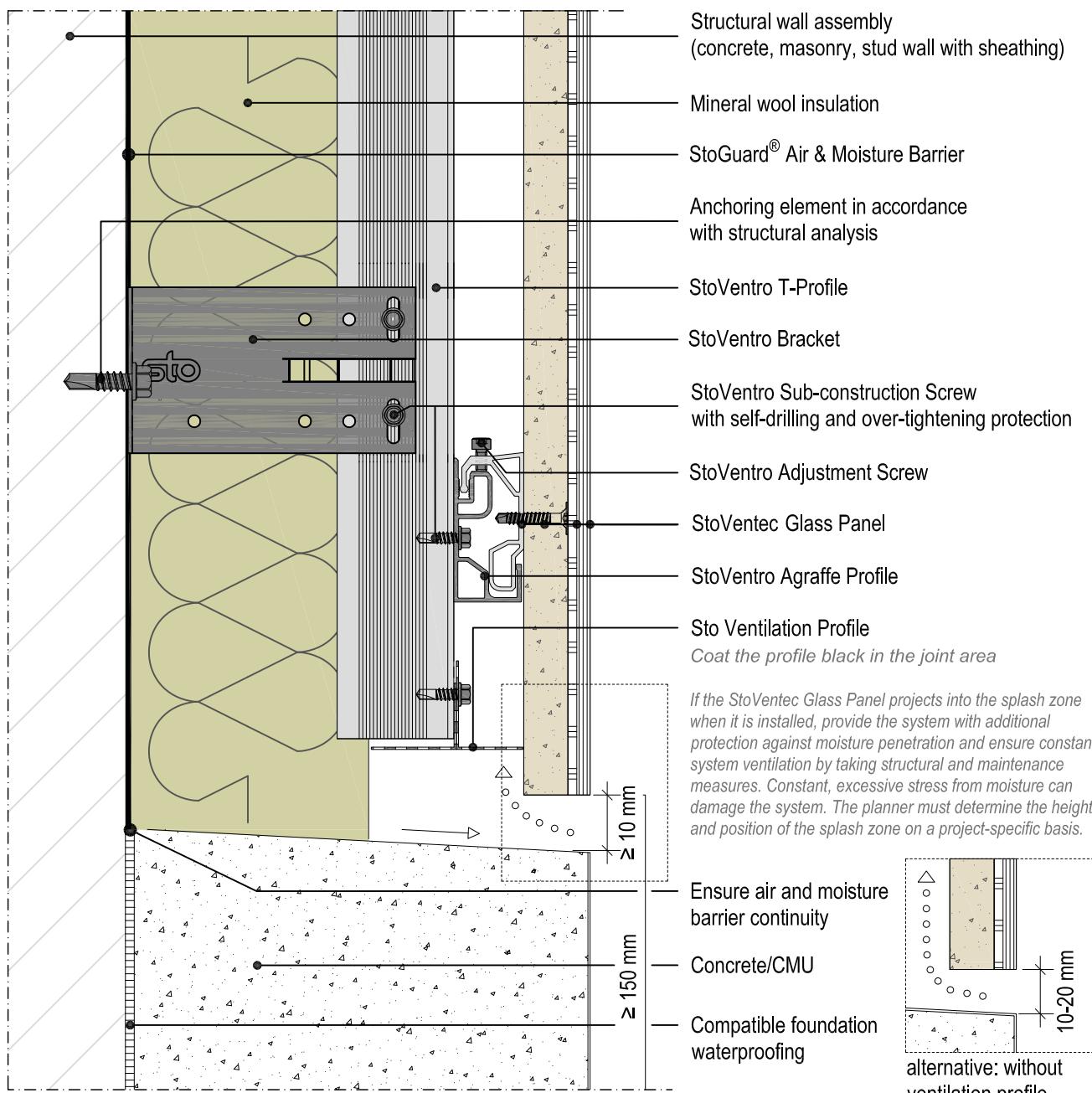
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StoVentec™ Glass

Panel installation at grade with Sto Ventilation Profile
(StoVentec™ Glass Panel flush with concrete curb)

Section View**Date: March 2020****Detail No.: 90.G.050****ATTENTION**

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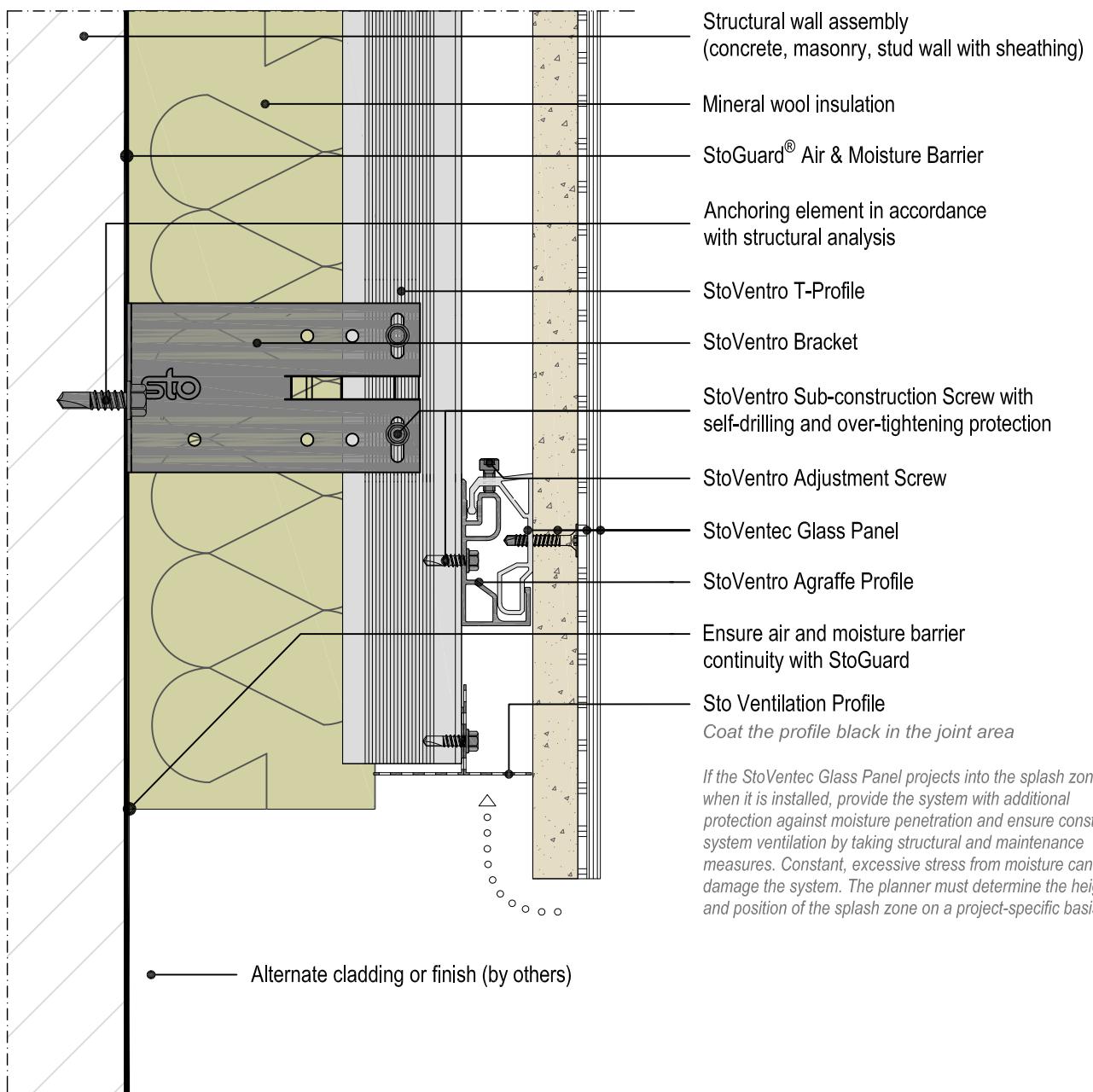
StoVentec™ Glass

Panel insulation at grade with Sto Ventilation Profile
(exposed substrate at grade)

Section View

Date: March 2020

Detail No.: 90.G.055

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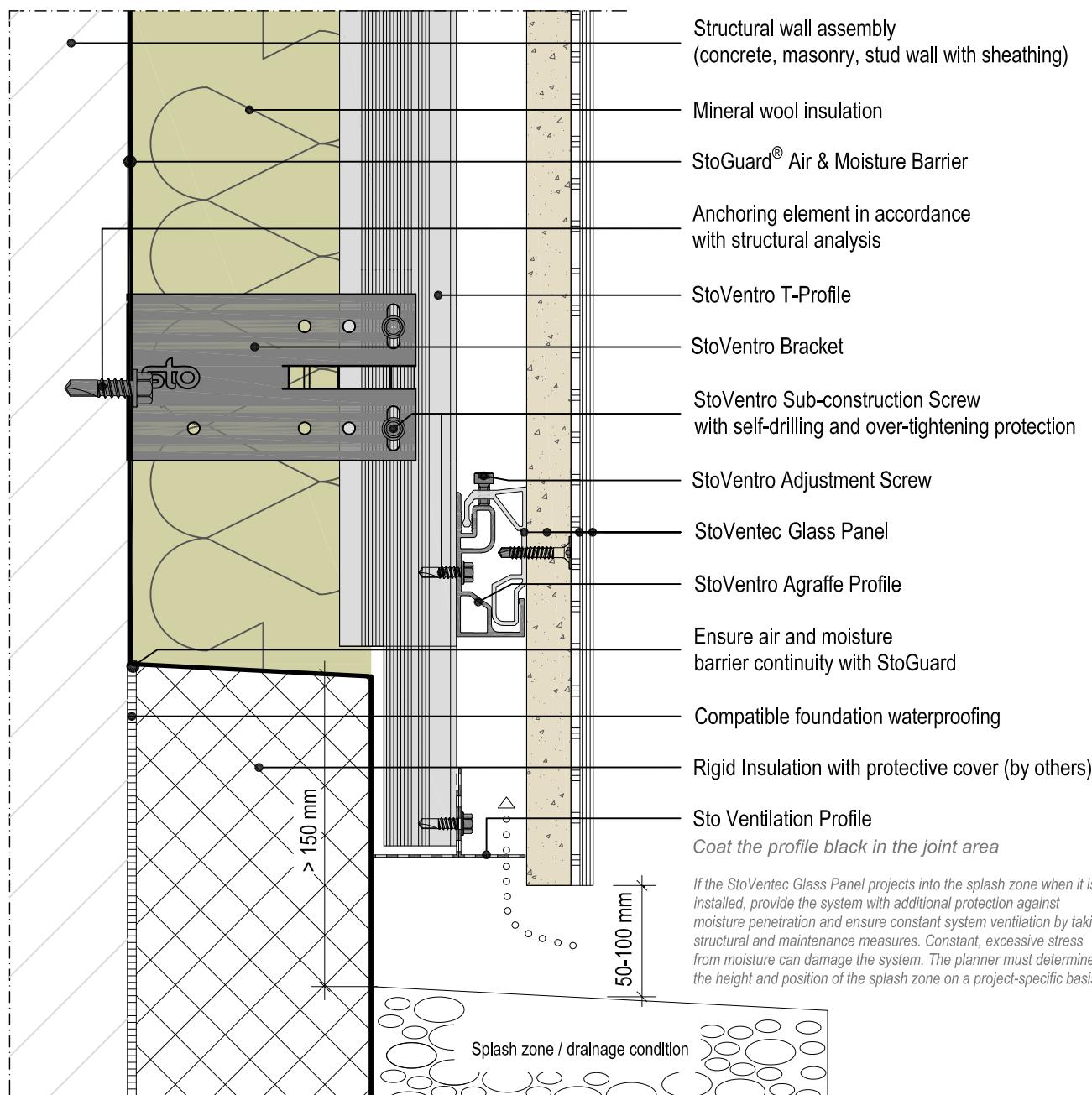
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StoVentec™ Glass

Panel installation at grade with Sto Ventilation Profile
(alternative splash zone for termination at grade less than 150mm)
Section View

Date: March 2020

Detail No.: 90.G.065



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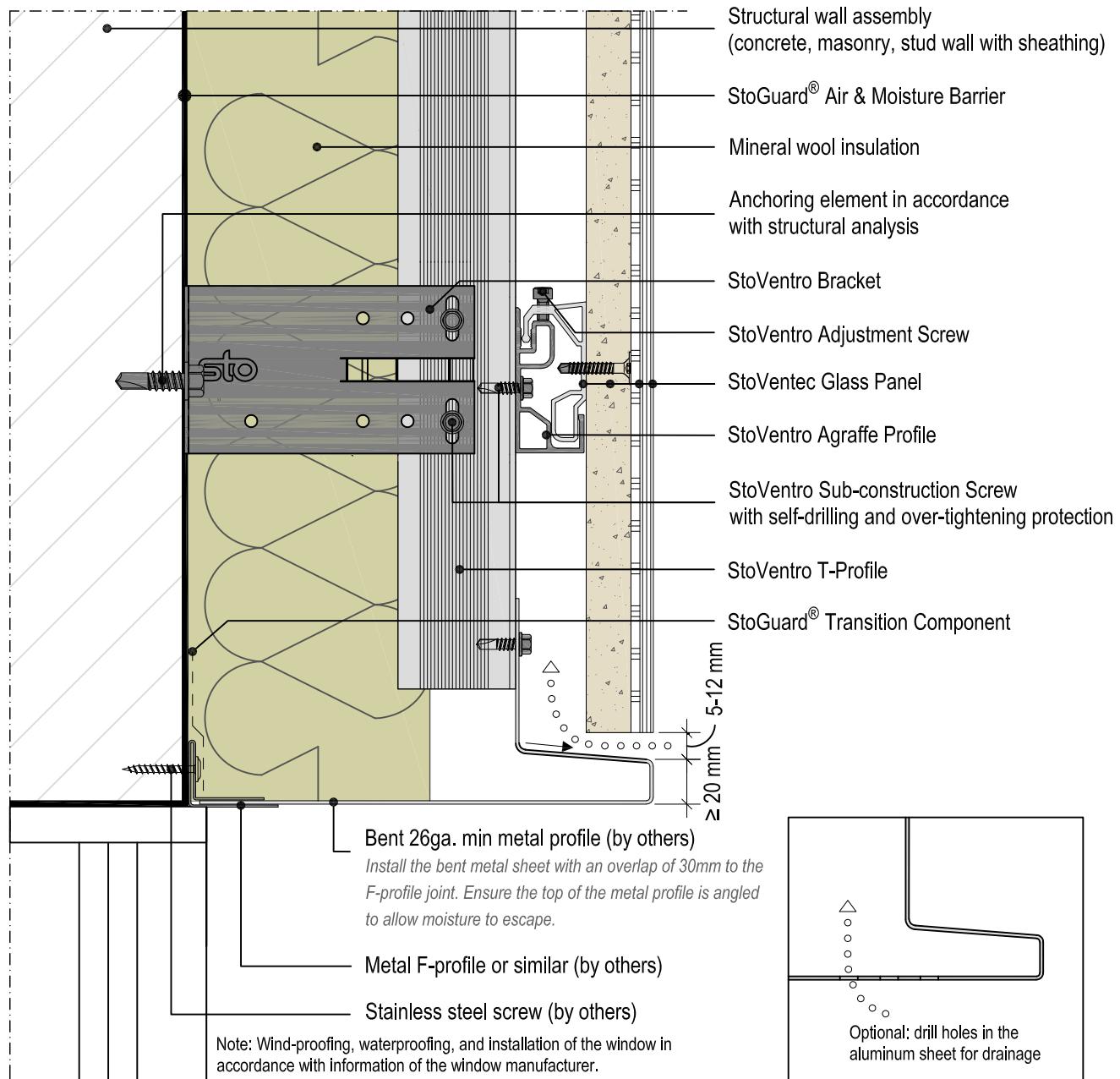
StoVentec™ Glass

Panel Installation - Window Head with metal flashing

Date: March 2020

Section View

Detail No.: 90.G.080



ATTENTION

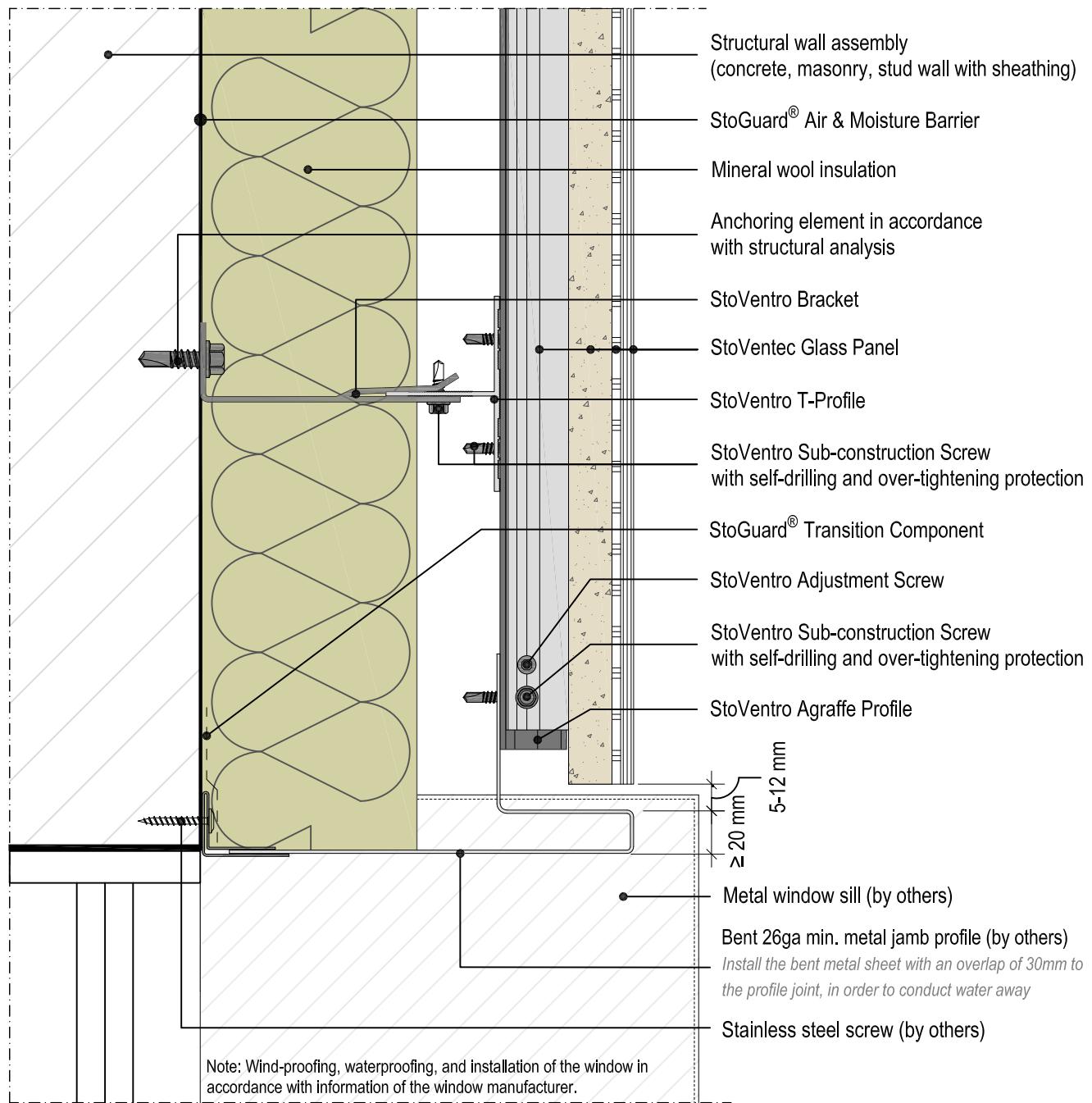
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StoVentec™ Glass

Panel Installation at Window Jamb with metal flashing

Date: March 2020

Plan View**Detail No.: 90.G.085****ATTENTION**

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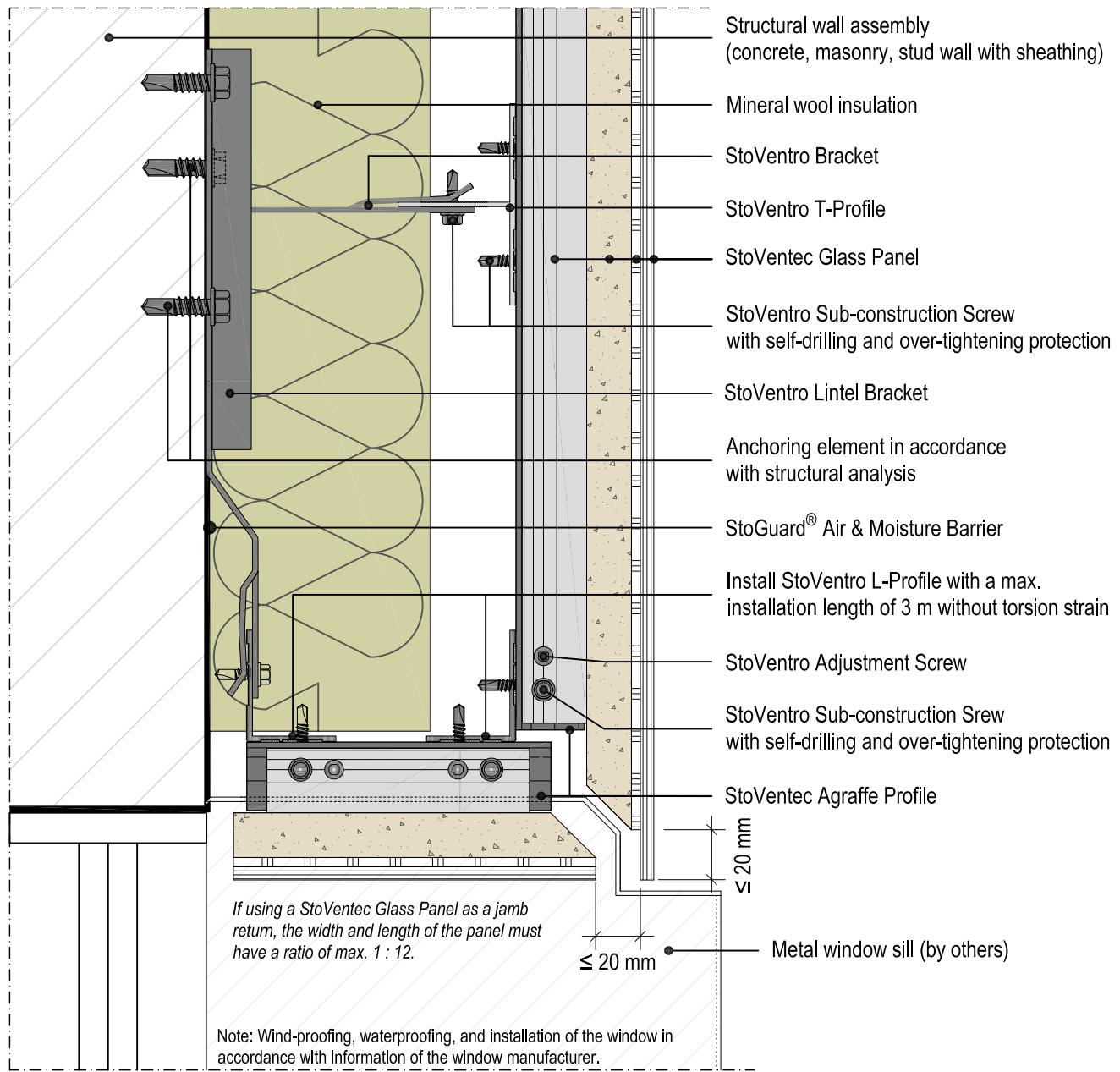
StoVentec™ Glass

Panel Installation - Window Jamb with StoVentec™ Glass Panel

Date: March 2020

Plan View

Detail No.: 90.G.086

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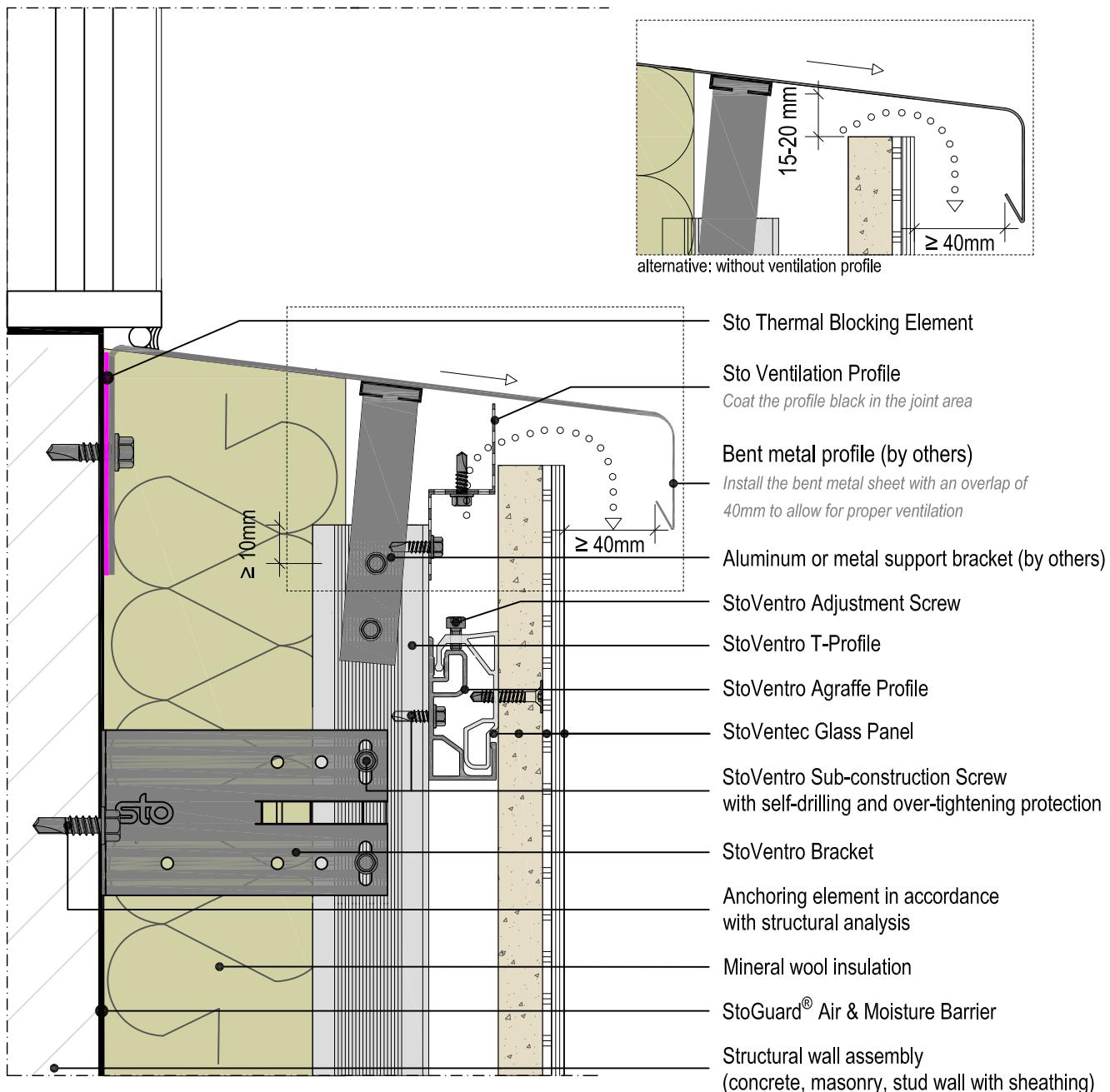
StoVentec™ Glass

Panel Installation - Window Sill with metal flashing

Date: March 2020

Section View

Detail No.: 90.G.090



ATTENTION

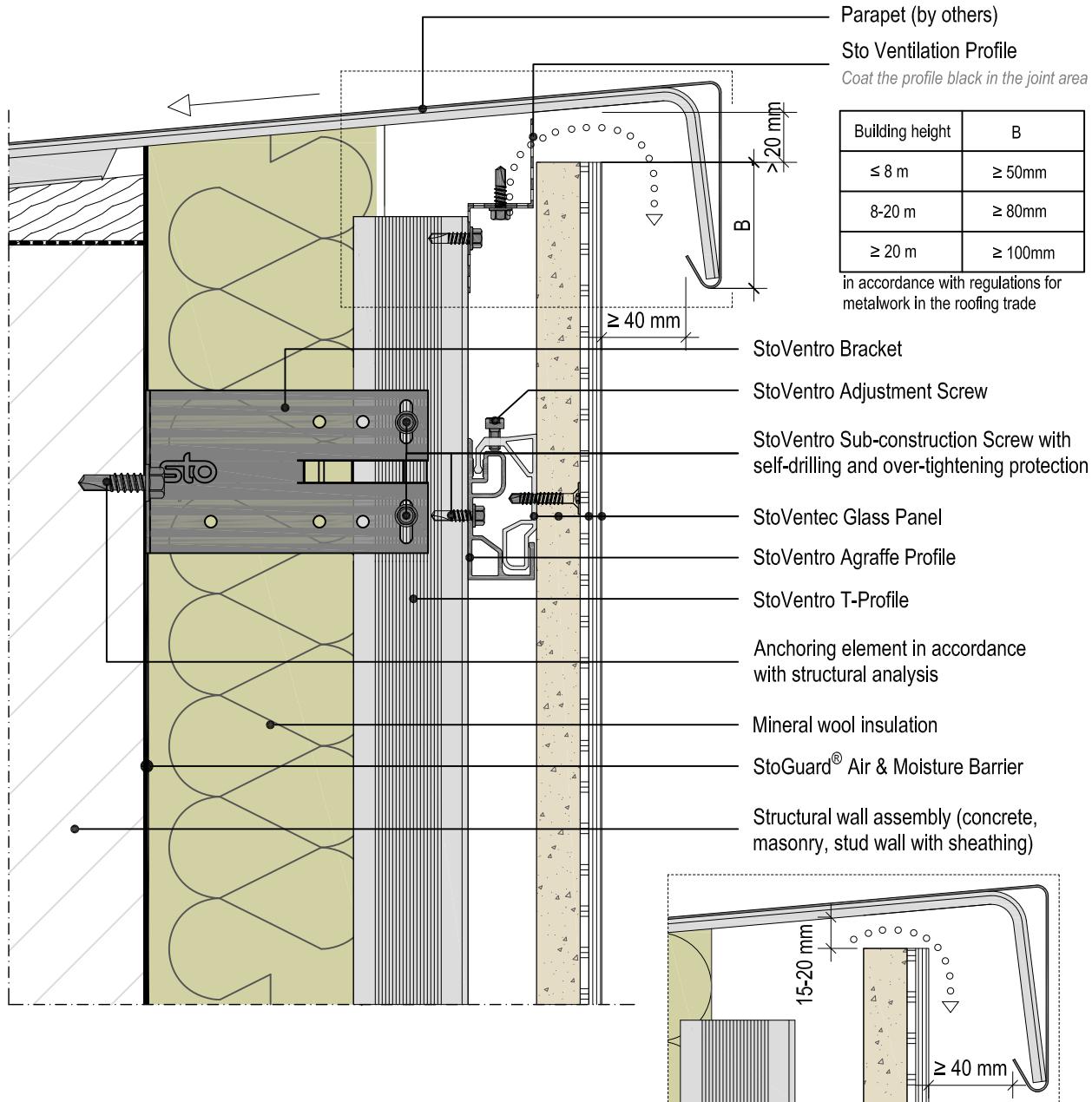
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StoVentec™ Glass

Panel Installation at parapet with 40mm ventilation gap

Date: March 2020

Section View**Detail No.: 90.G.180****ATTENTION**

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VGP-SAR-0300

StoVentec™ Glass

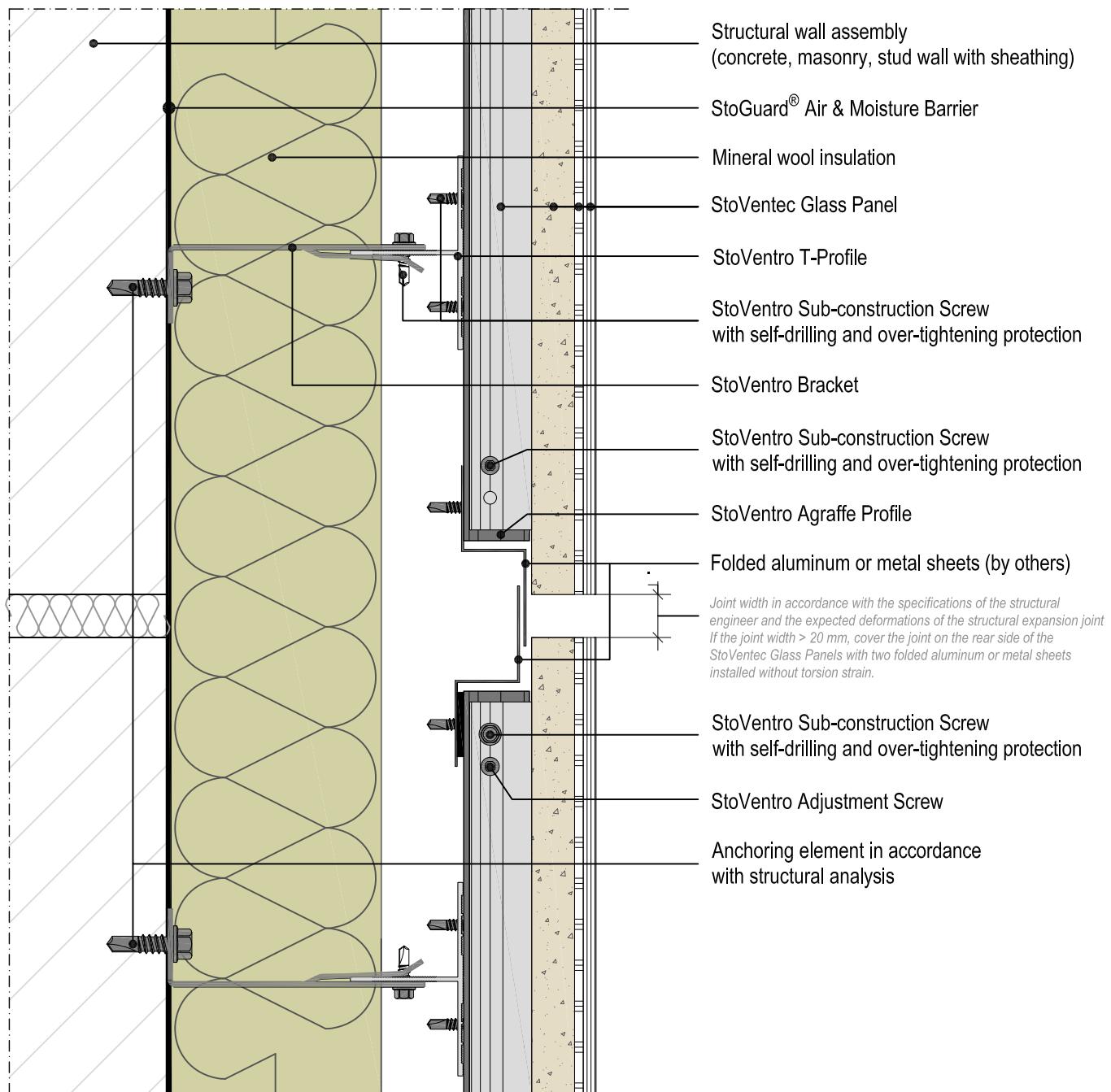
Panel Installation at Wall Structural Joint

StoVentec™ Glass Panel joint with folded aluminum or metal sheets

Plan View

Date: March 2020

Detail No.: 90.G.390



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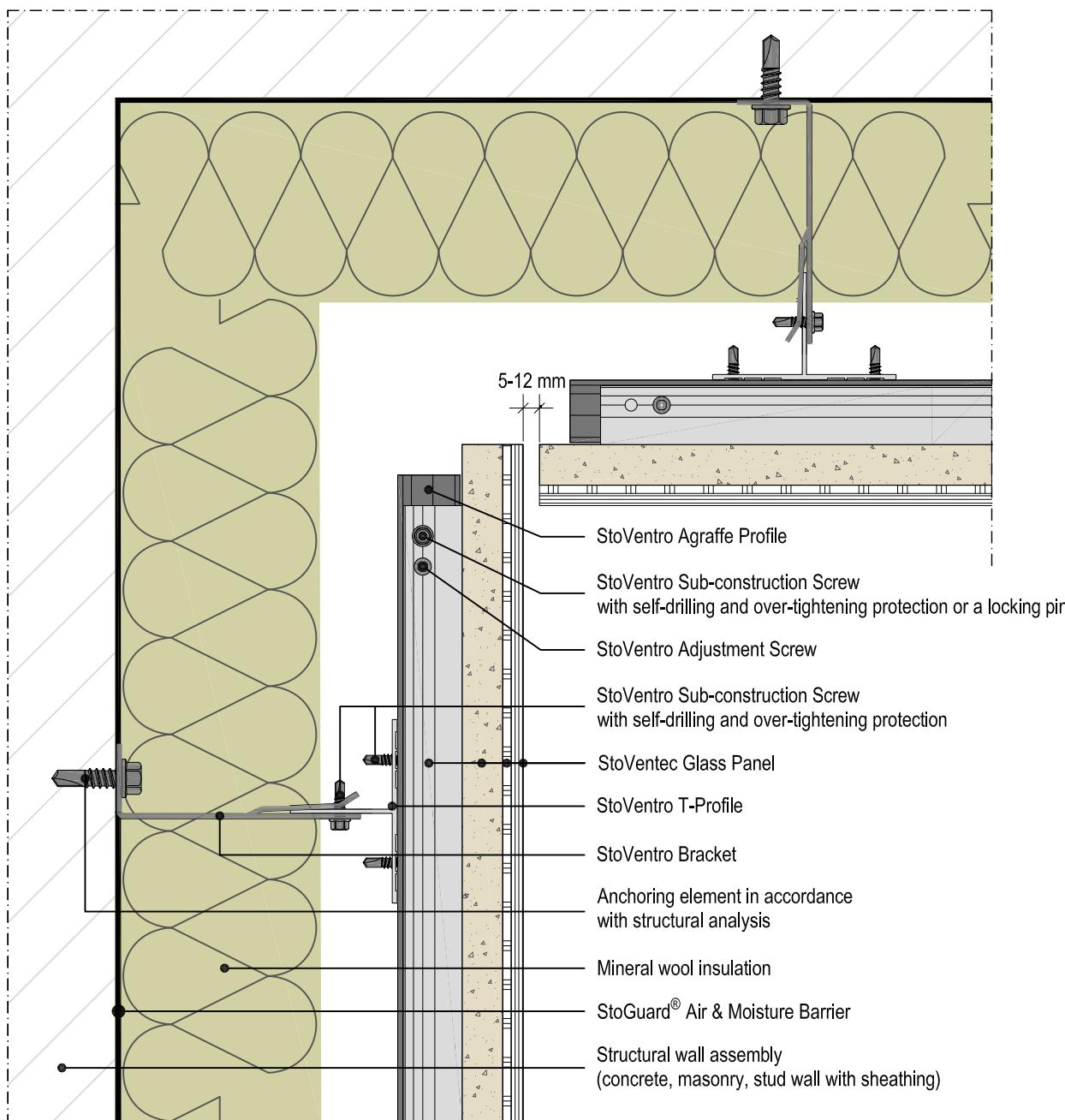
StoVentec™ Glass

Panel installation - Inside corner

Date: March 2020

Plan View

Detail No.: 90.G.400



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StoVentec™ Glass

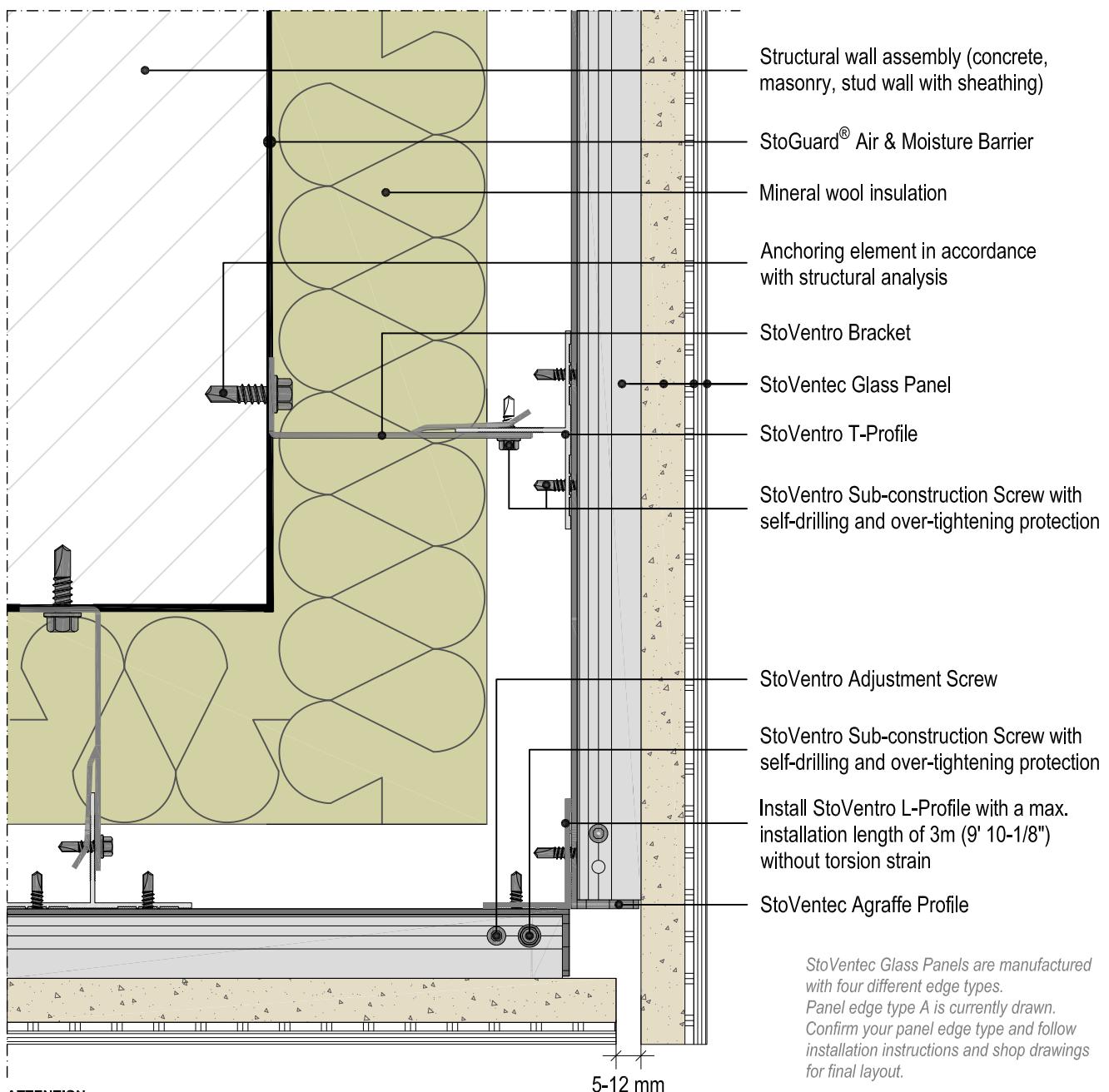
Panel installation - Outside Corner using supplemental bracing

Panel edge type A to Panel edge type A

Plan View

Date: March 2020

Detail No.: 90.G.410

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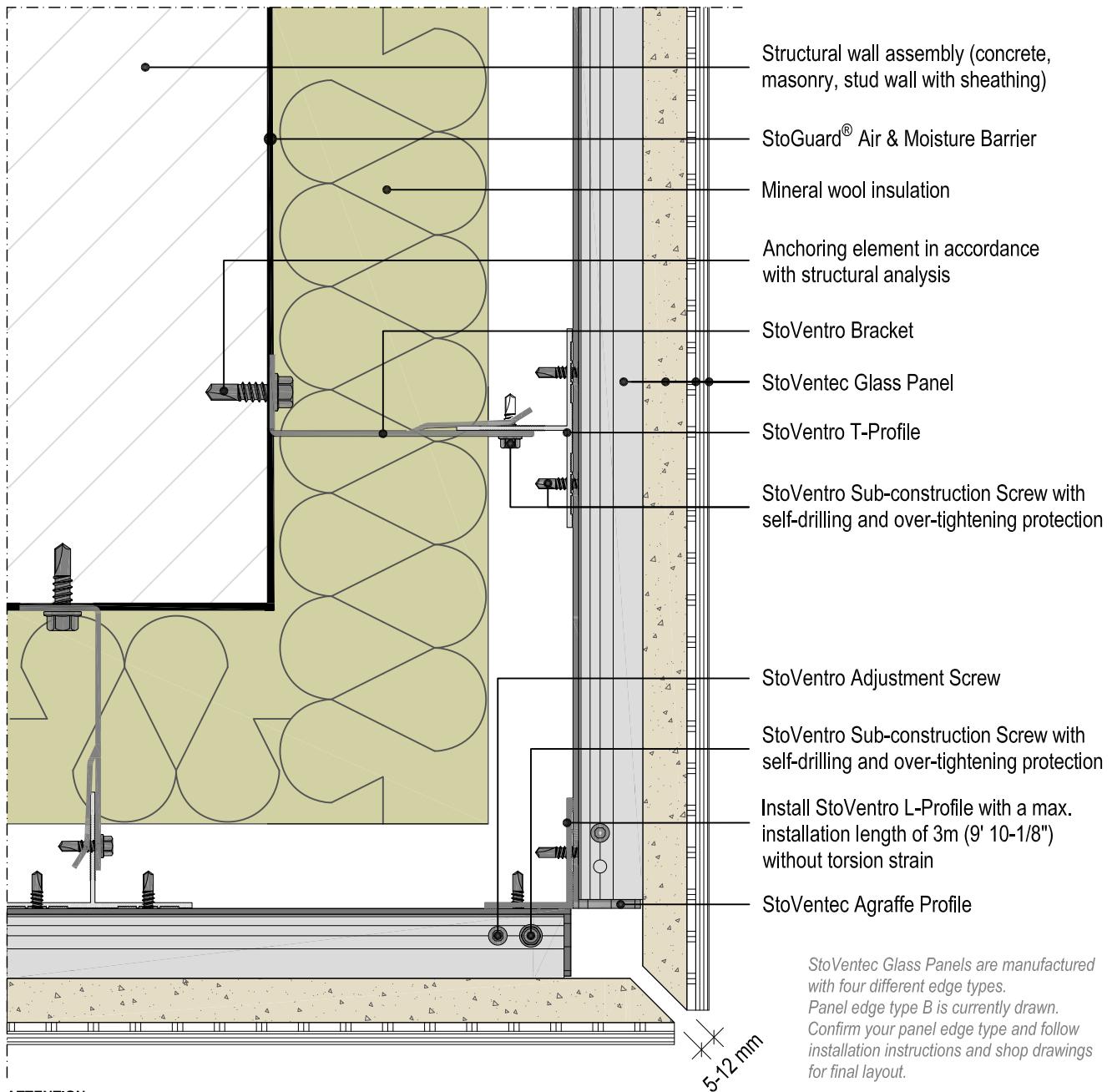
StoVentec™ Glass

Panel installation - Outside Corner using supplemental bracing
Panel edge type B to Panel edge type B

Plan View

Date: March 2020

Detail No.: 90.G.411



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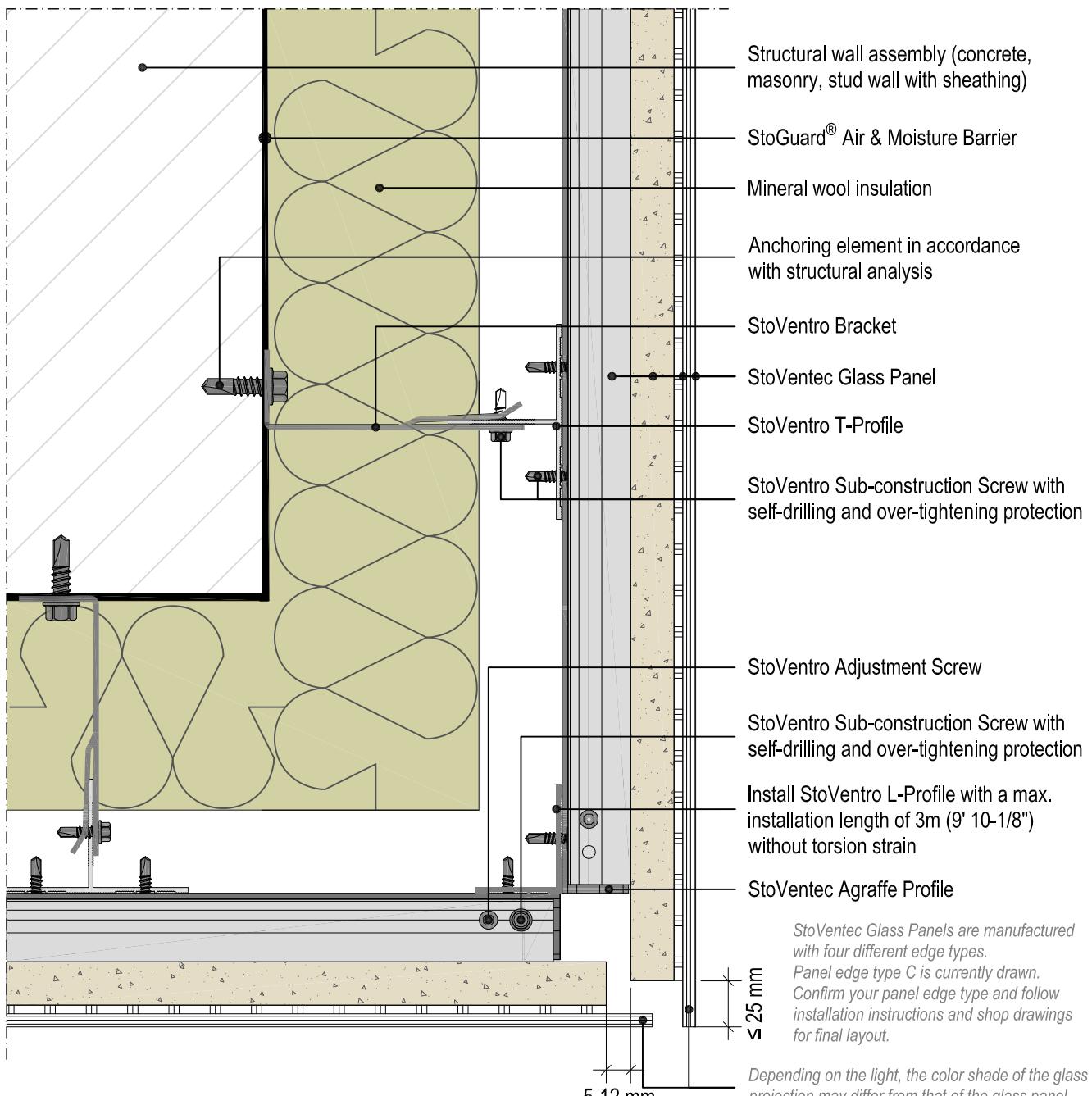
StoVentec™ Glass

Panel installation - Outside Corner using supplemental bracing
Panel edge type C to Panel edge type C

Plan View

Date: March 2020

Detail No.: 90.G.412



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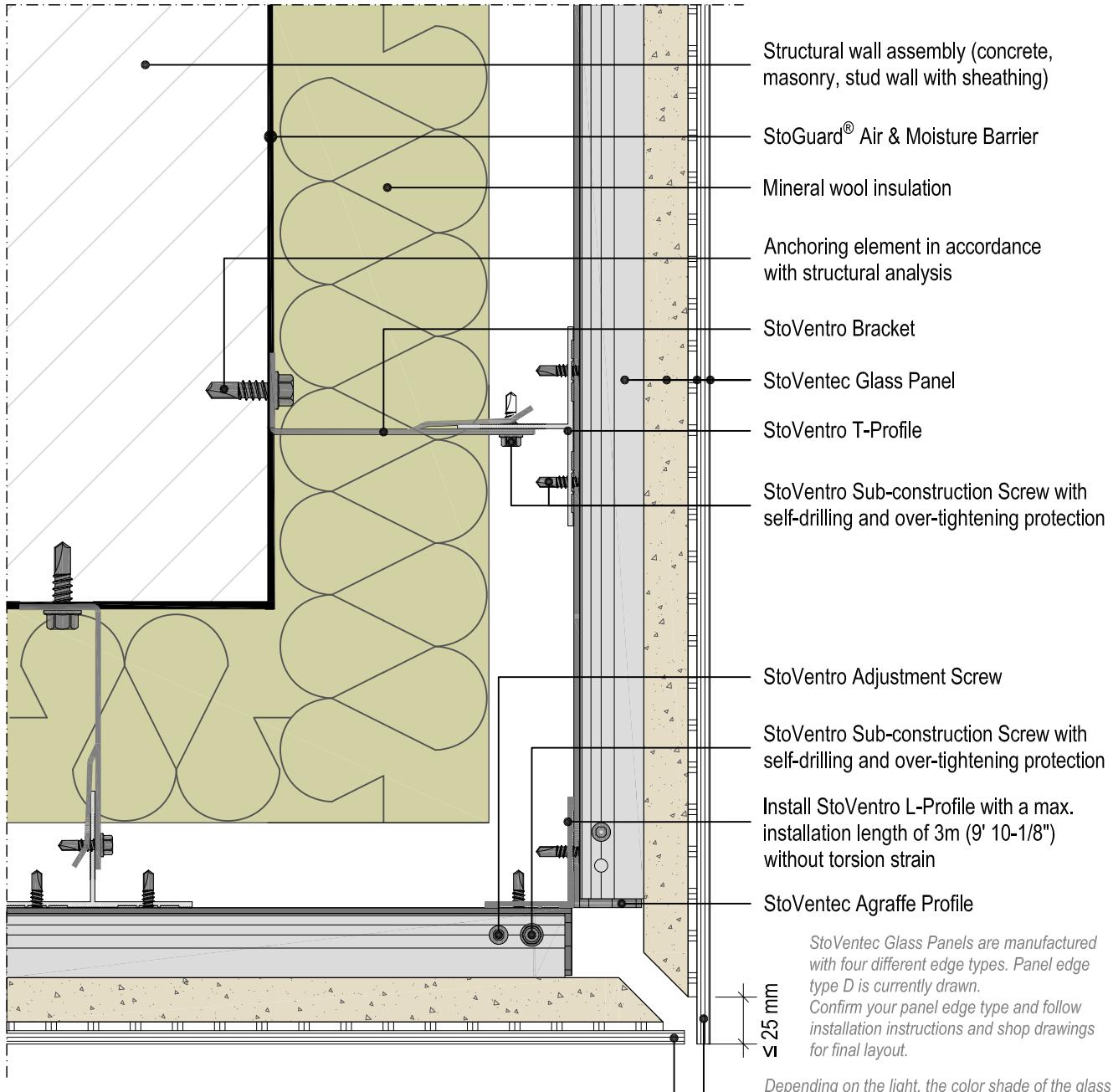
StoVentec™ Glass

Panel installation - Outside Corner using supplemental bracing
Panel edge type D to Panel edge type D

Plan View

Date: March 2020

Detail No.: 90.G.413

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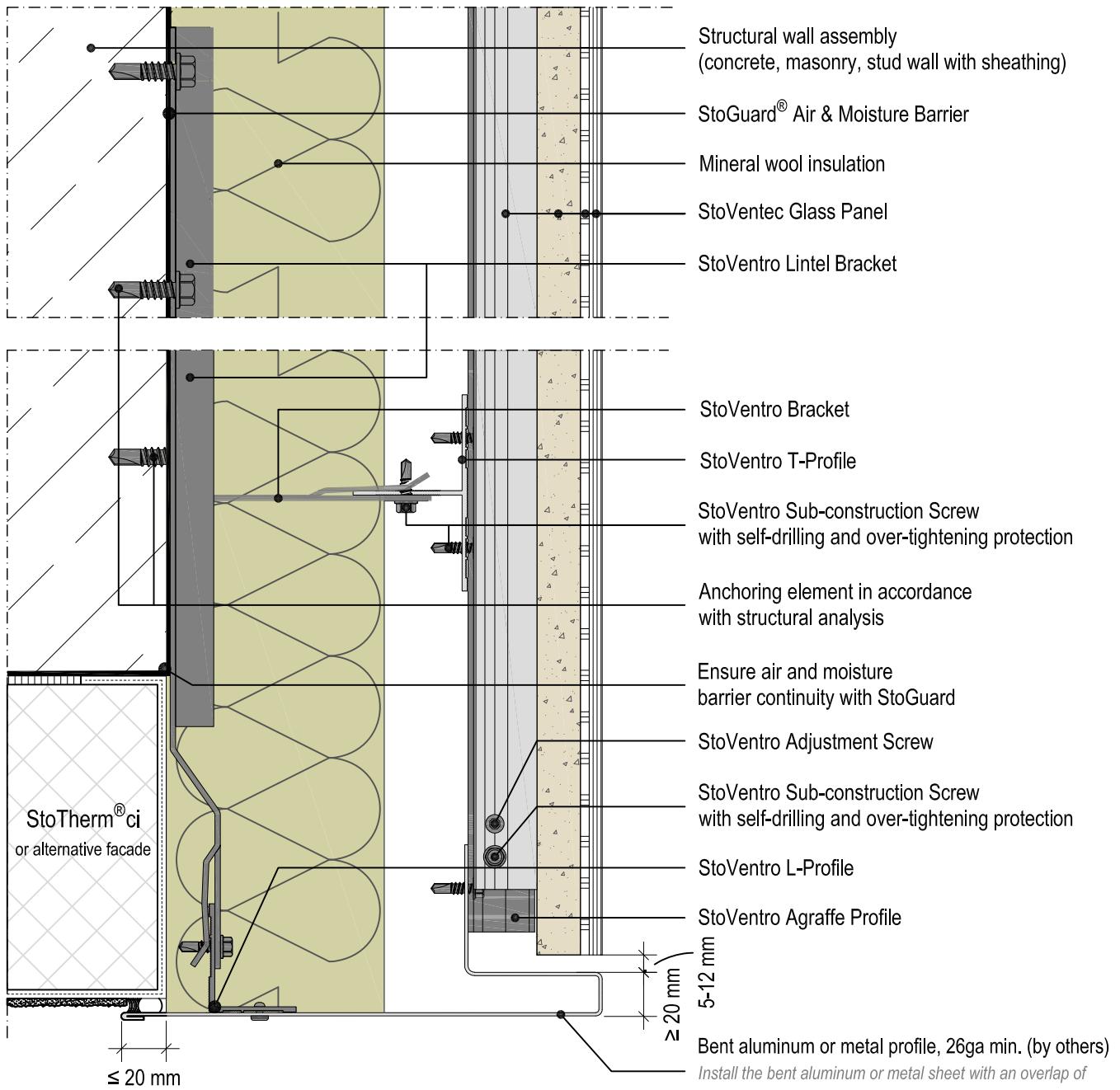
StoVentec™ Glass

Panel Installation at Outside Corner to alternative facade with aluminum or metal profile Plan View

Date: March 2020

Detail No.: 90.G.419

Note: Complete alternative facade before installing the StoVentec Glass Panels.



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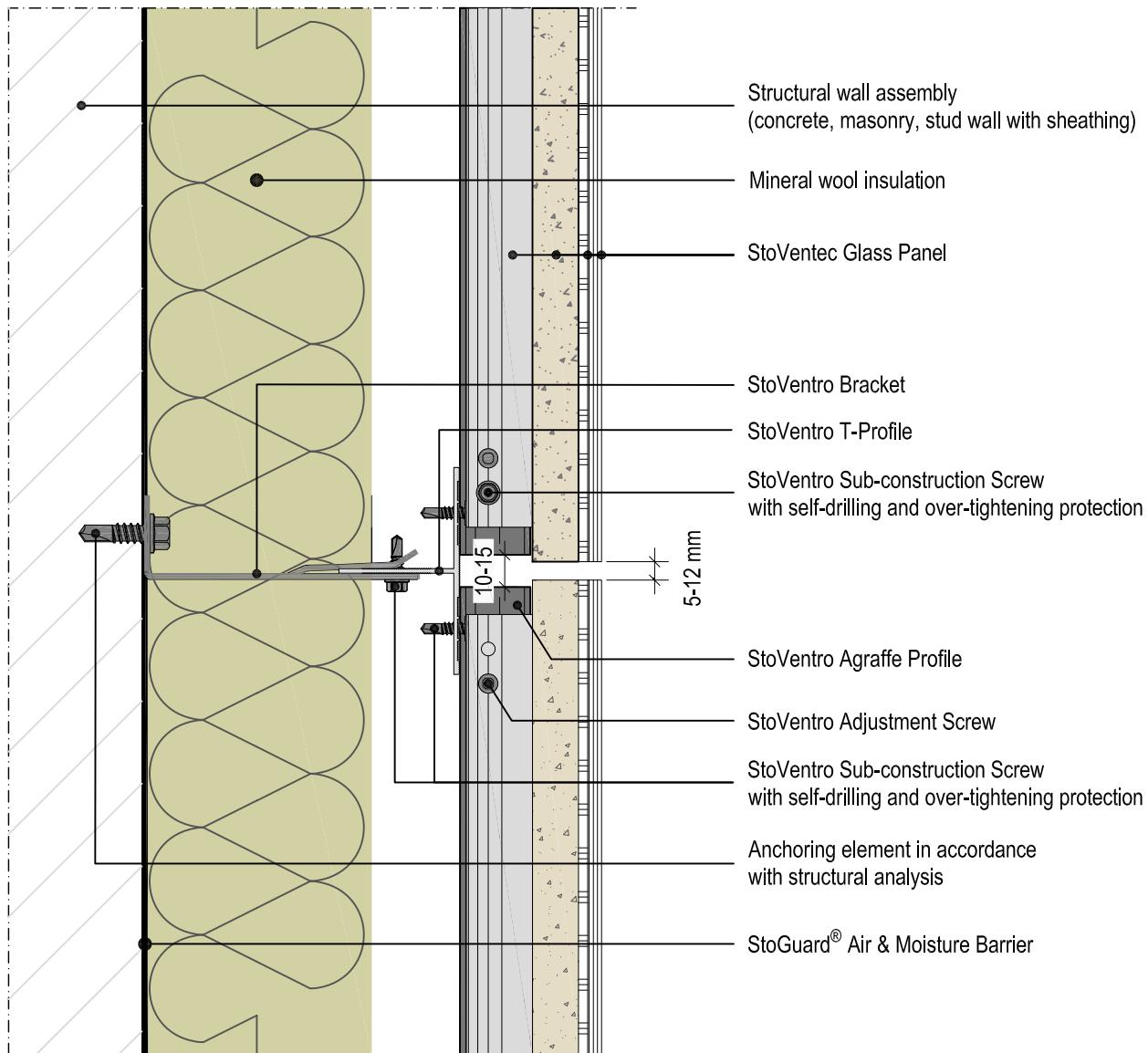
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StoVentec™ GlassPanel Installation - Vertical StoVentec Glass Panel joint
at StoVentro™ T-Profile

Plan View

Date: March 2020

Detail No.: 90.G.460

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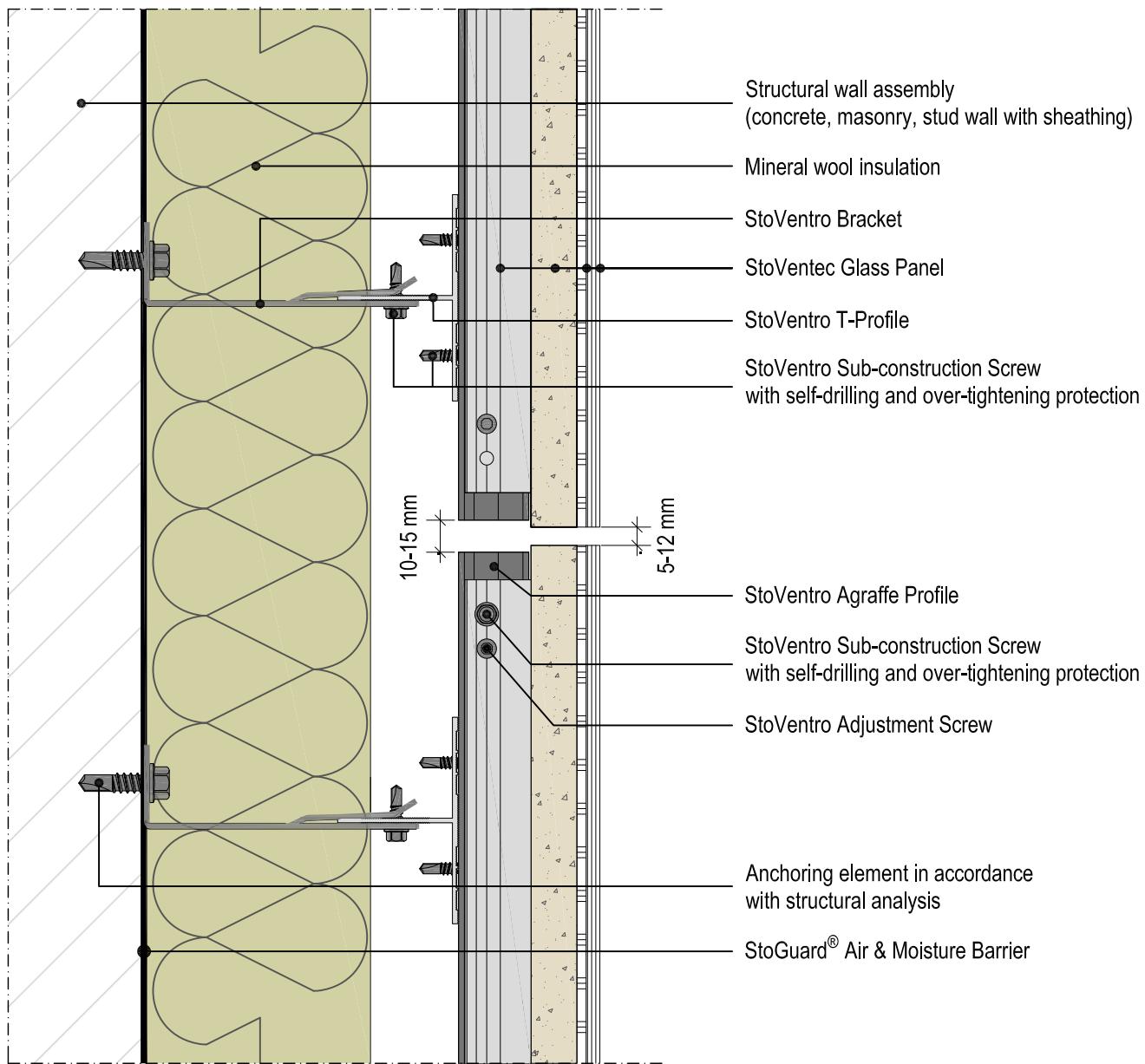
StoVentec™ Glass

Panel Installation - Vertical StoVentec Glass Panel joint offset
from StoVentro™ T-Profile

Plan View

Date: March 2020

Detail No.: 90.G.461



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StoVentec™ Glass

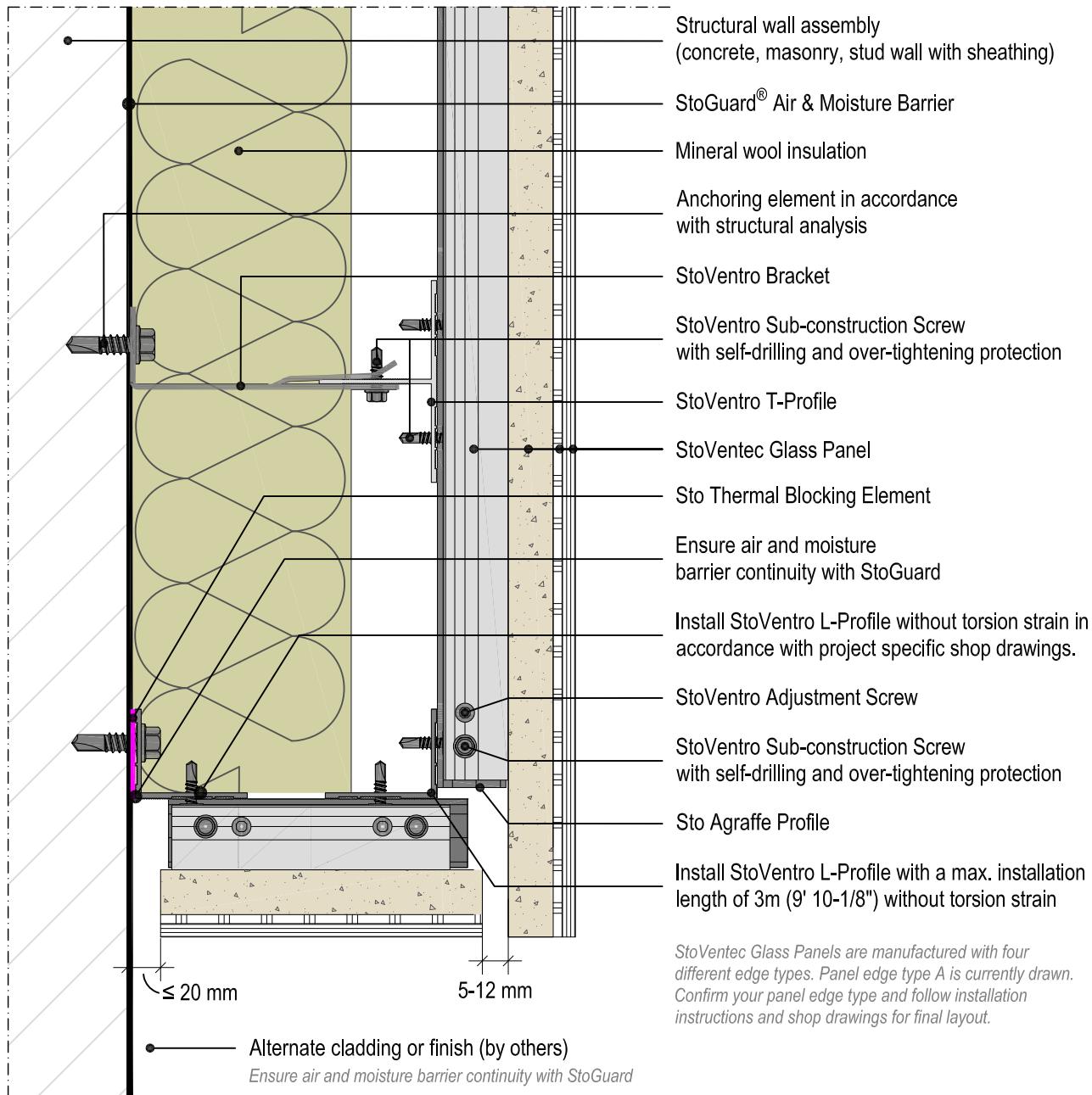
Panel Installation - Returning StoVentec Glass Panel to Alternative Facade
Panel edge type A to Panel edge type A

Plan View

Date: March 2020

Detail No.: 90.G.470

Note: Min. StoVentec Glass Panel size, 100mm (4") or the width and length of the panel must have a ratio of max. 1 : 12.



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StoVentec™ Glass

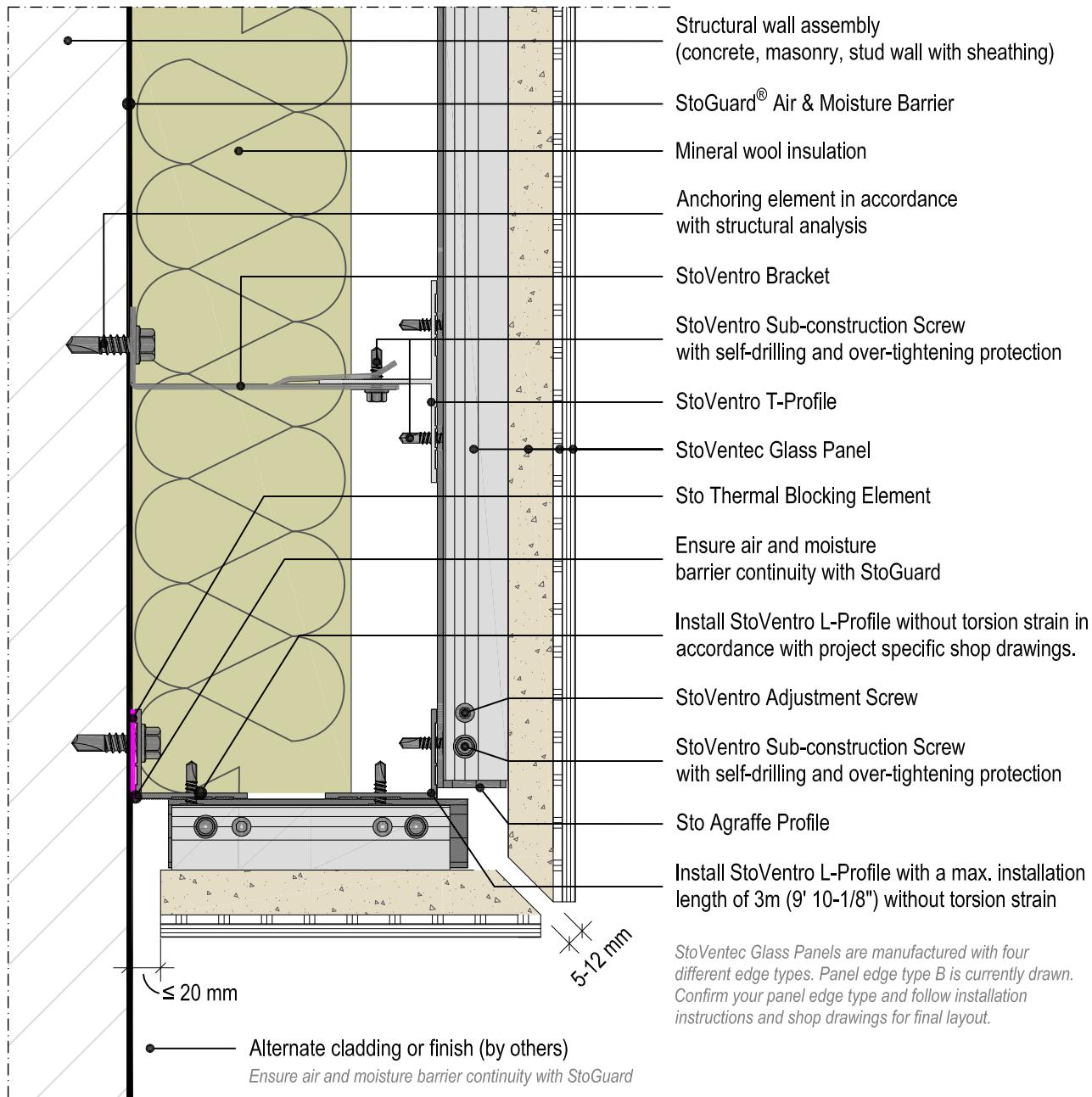
Panel Installation - Returning StoVentec Glass Panel to Alternative Facade
Panel edge type B to Panel edge type B

Plan View

Date: March 2020

Detail No.: 90.G.471

Note: Min. StoVentec Glass Panel size, 100mm (4") or the width and length of the panel must have a ratio of max. 1 : 12.



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StoVentec™ Glass

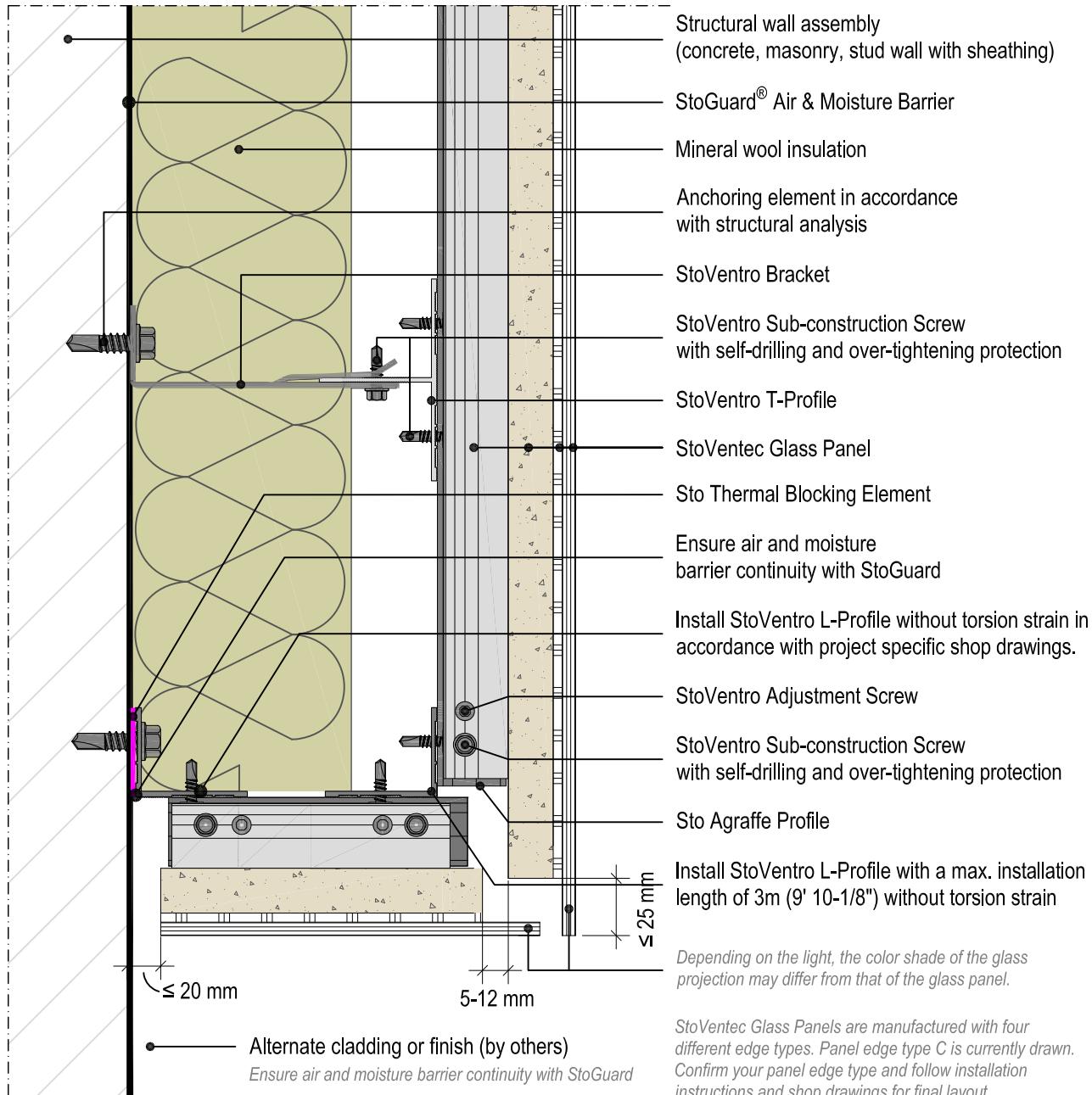
Panel Installation - Returning StoVentec Glass Panel to Alternative Facade
Panel edge type C to Panel edge type C

Plan View

Date: March 2020

Detail No.: 90.G.472

Note: Min. StoVentec Glass Panel size, 100mm (4") or the width and length of the panel must have a ratio of max. 1 : 12.



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StoVentec™ Glass

Panel Installation - Returning StoVentec Glass Panel to Alternative Facade

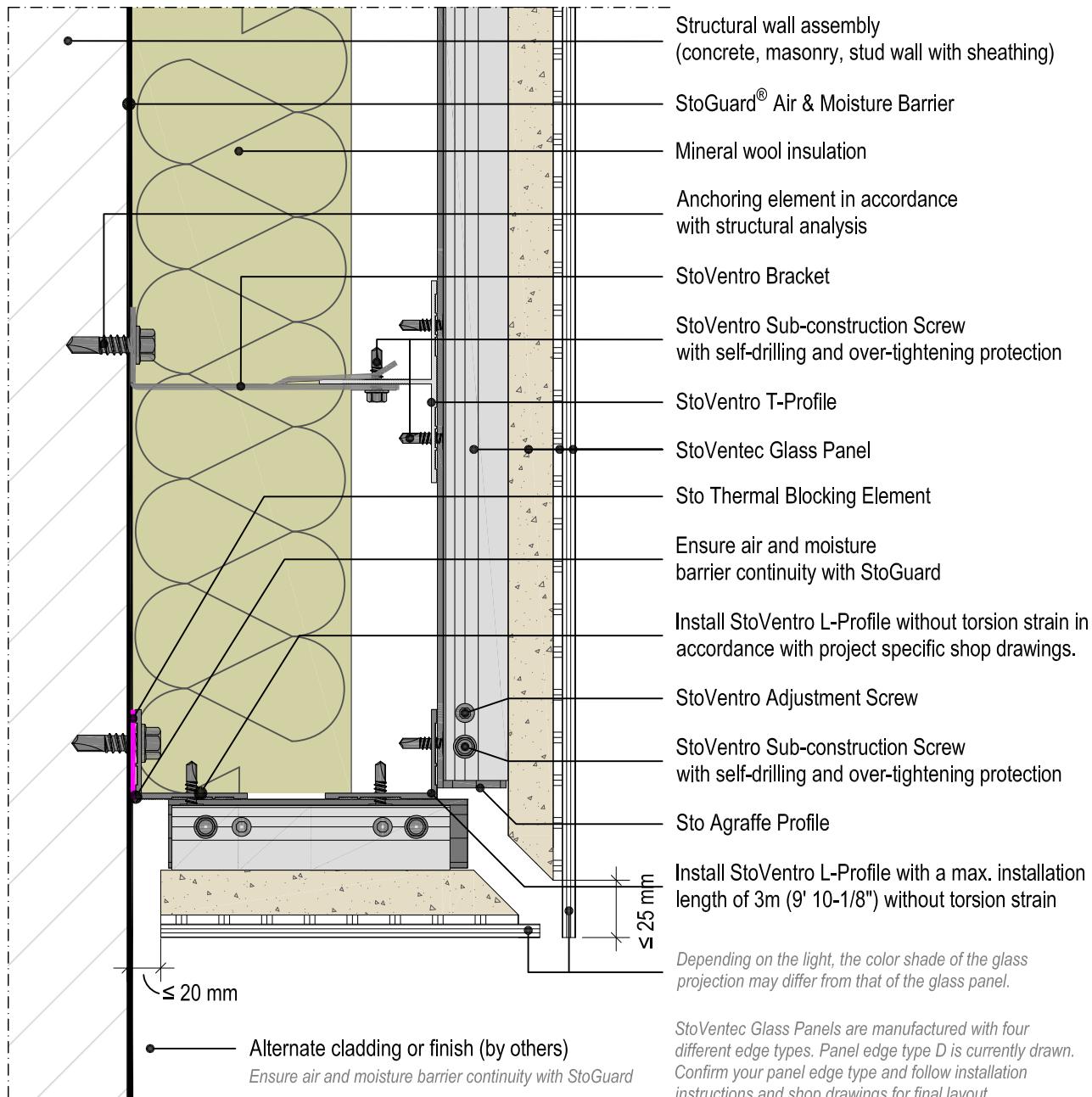
Panel edge type D to Panel edge type D

Plan View

Date: March 2020

Detail No.: 90.G.473

Note: Min. StoVentec Glass Panel size, 100mm (4") or the width and length of the panel must have a ratio of max. 1 : 12.



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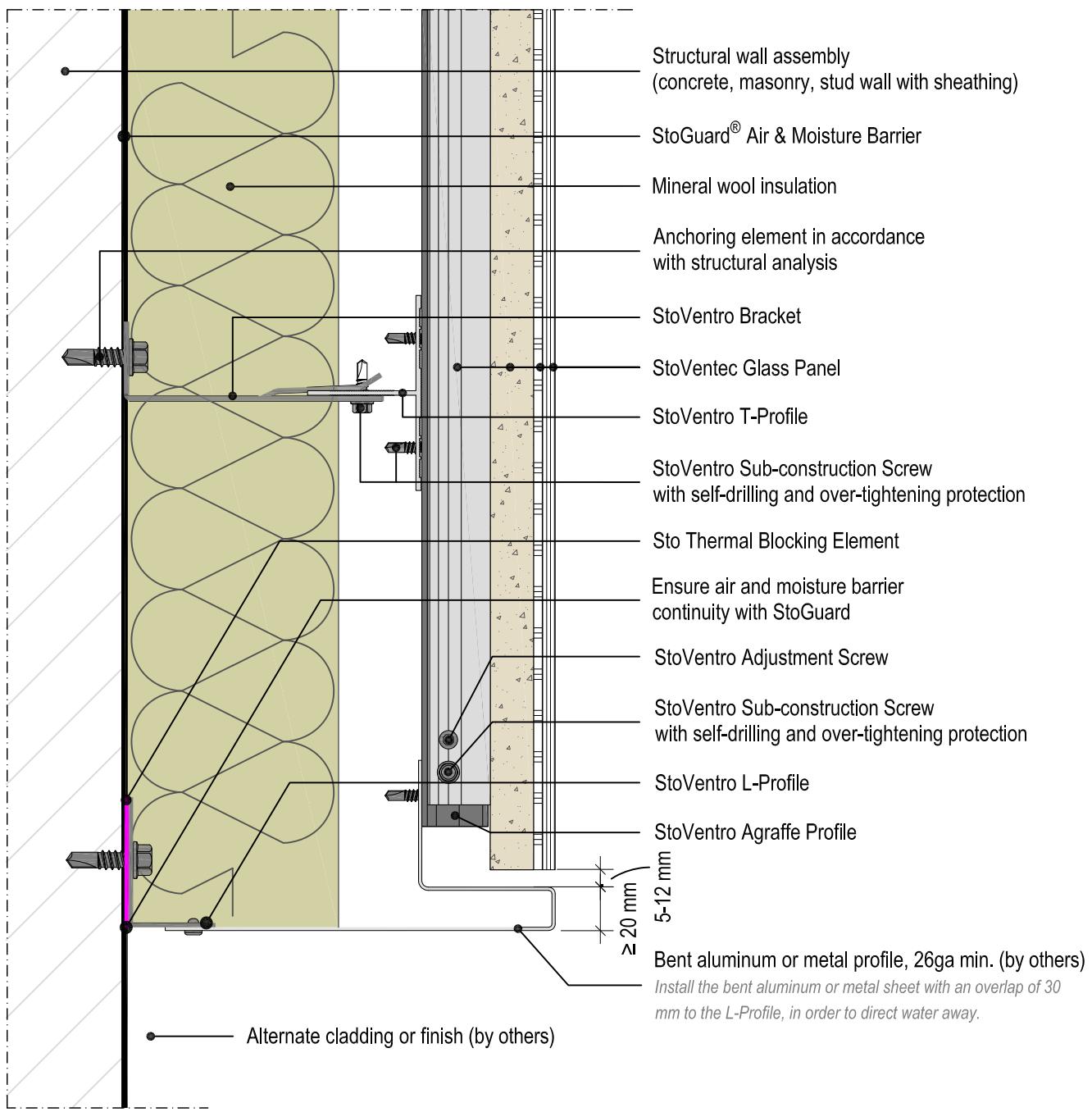
StoVentec™ Glass

Panel Installation - Returning aluminum or metal flashing to Alternative Facade

Plan View

Date: March 2020

Detail No.: 90.G.474



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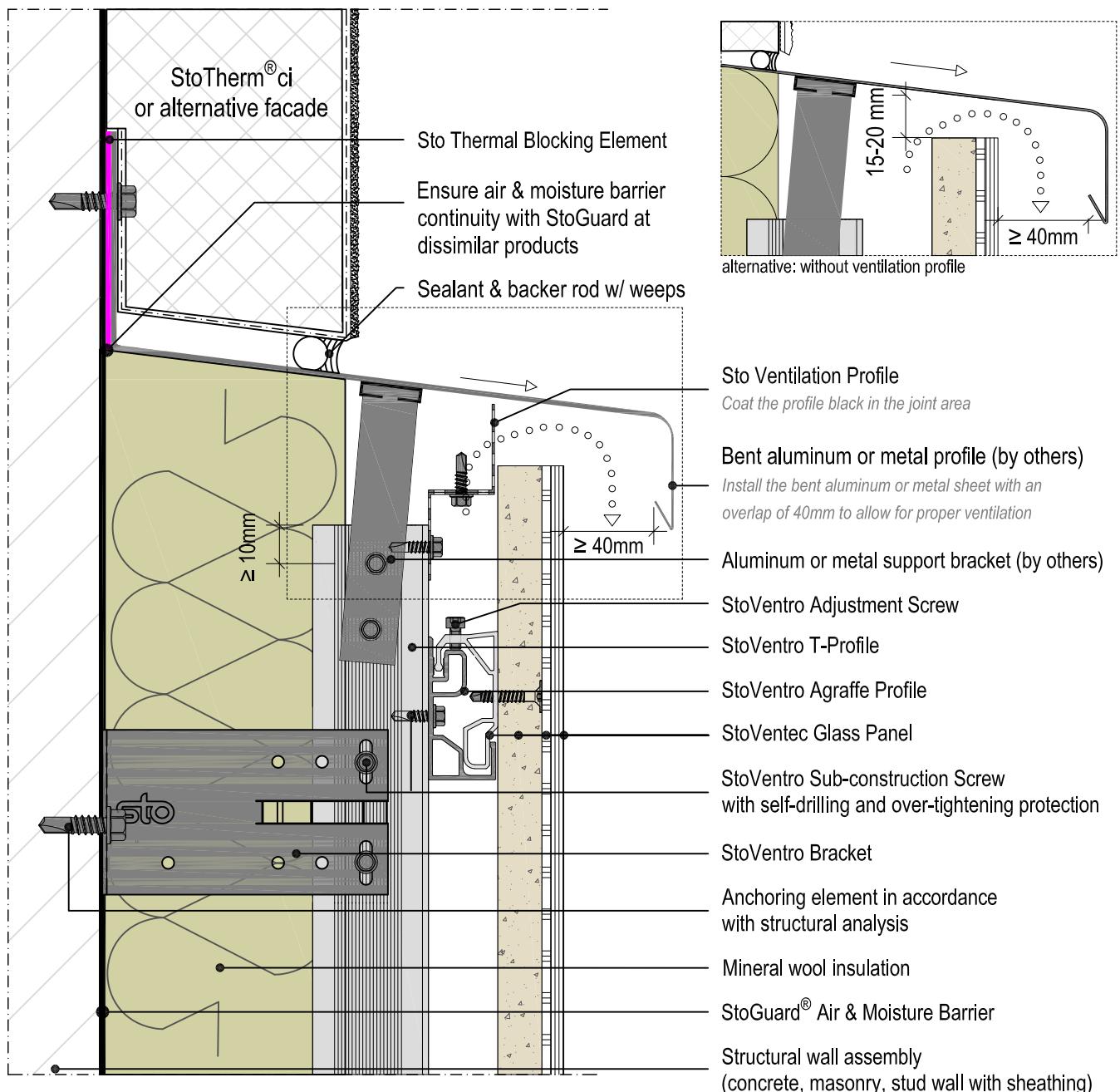
StoVentec™ Glass

Panel Installation - Horizontal transition to alternative facade/wall substrate above (with ventilation profile)
Section View

Date: March 2020

Detail No.: 90.G.475

Note: Complete alternative facade before installing the StoVentec Glass system.



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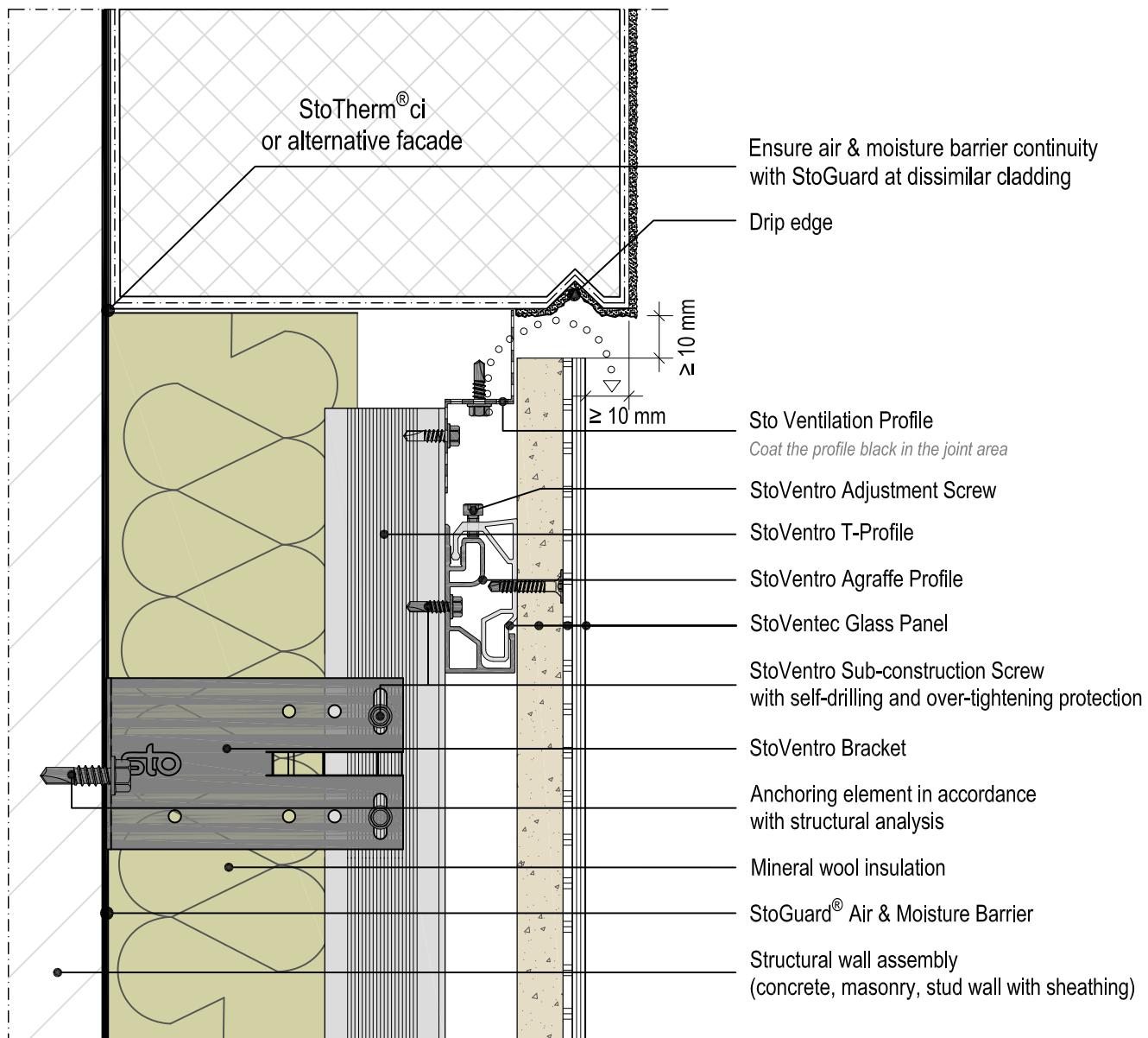
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StoVentec™ Glass

Panel Installation - Horizontal Transition of StoVentec Glass Panel under alternative facade/wall substrate

Section View**Date: March 2020****Detail No.: 90.G.476**

Note: Complete alternative facade before installing the StoVentec Glass system.

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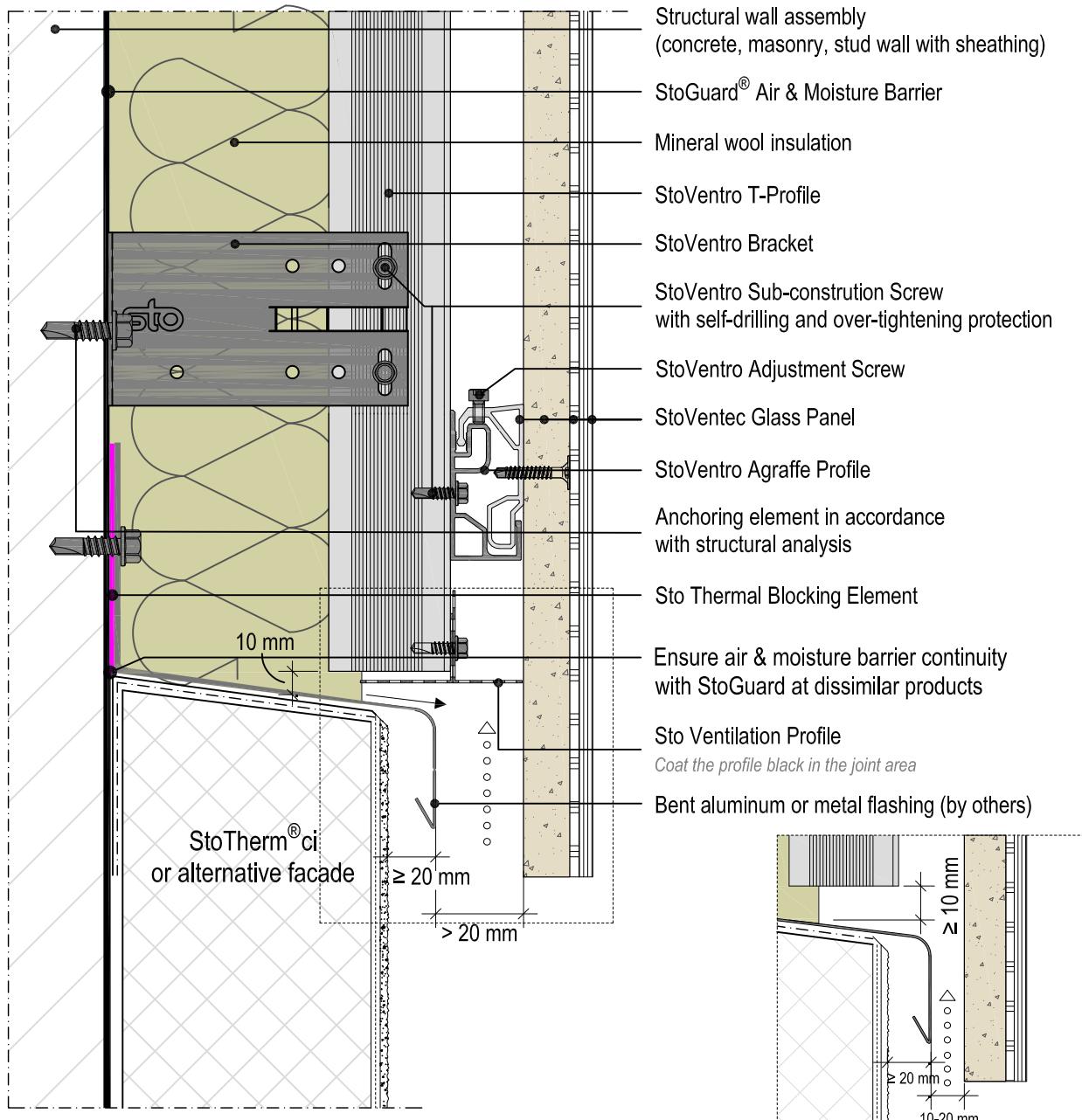
StoVentec™ Glass

Panel Installation - Horizontal Transition of StoVentec Glass Panel above alternative facade/wall substrate (Glass Panel proud 40mm)
Section View

Date: March 2020

Detail No.: 90.G.477

Note: Complete alternative facade before installing the StoVentec Glass system.



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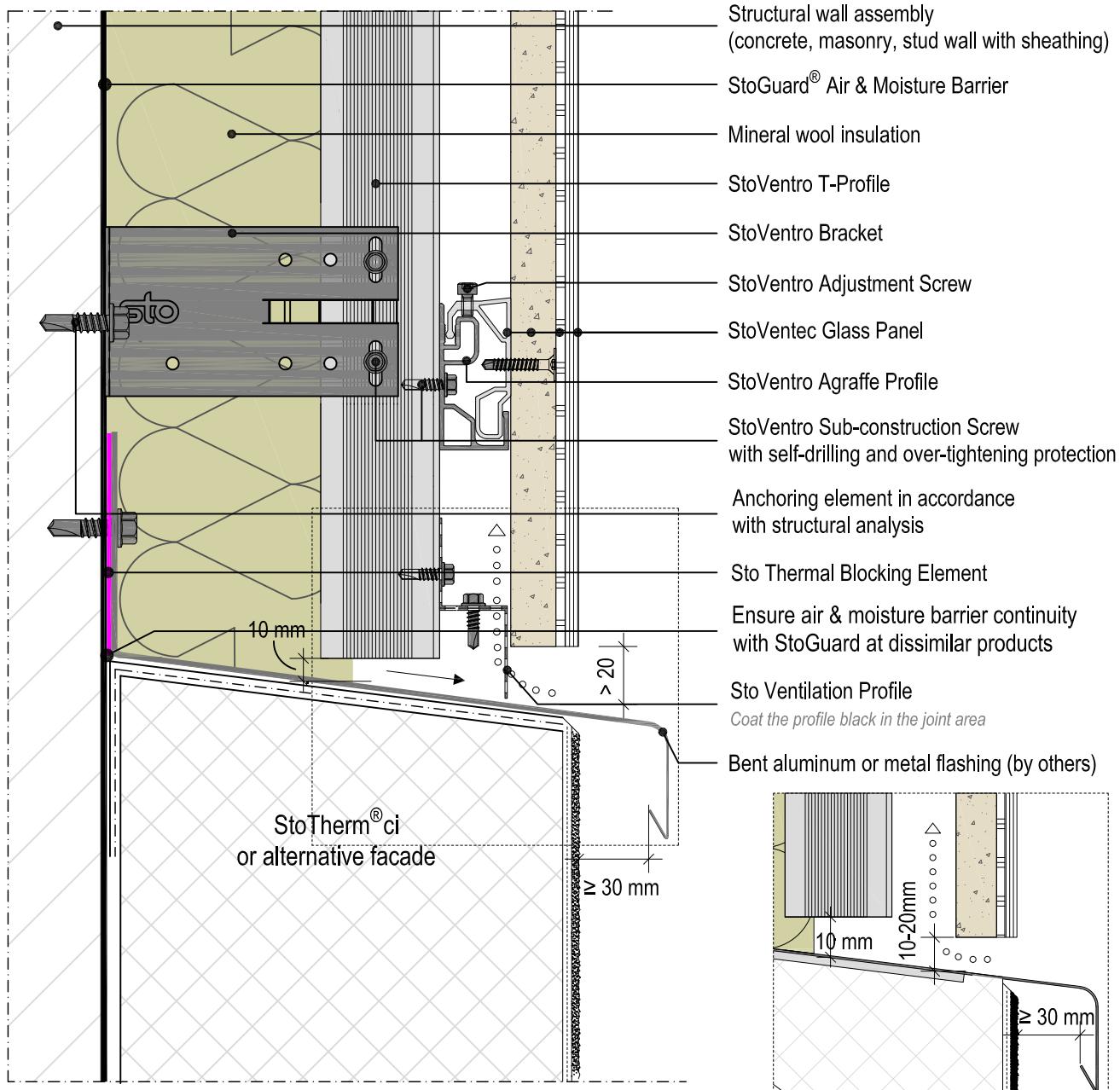
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StoVentec™ Glass

Panel Installation - Horizontal transition of StoVentec Glass Panel above alternative facade/wall substrate (Glass Panel flush)

Section View**Date: March 2020****Detail No.: 90.G.478**

Note: Complete alternative facade before installing the StoVentec Glass system.

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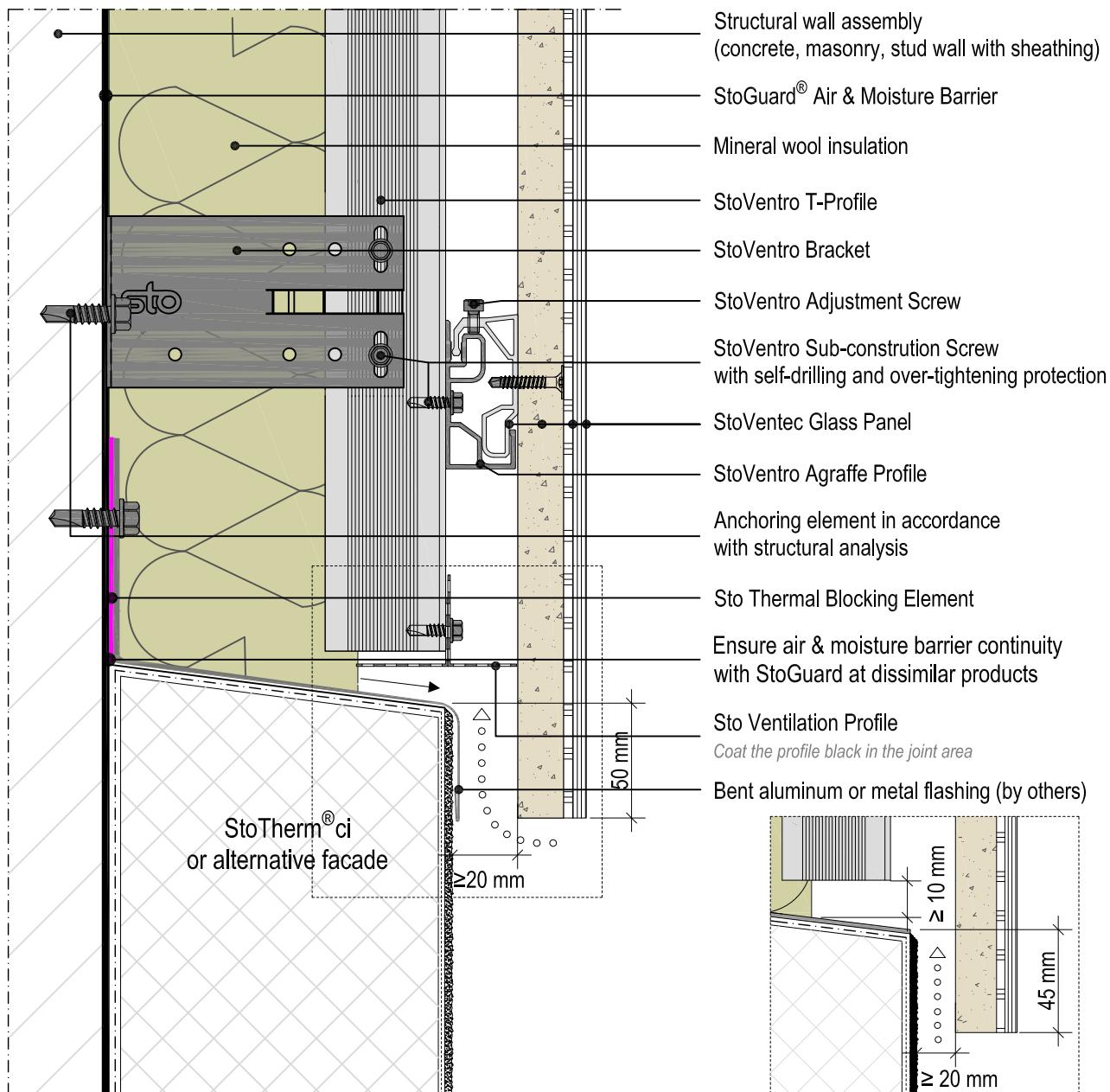
StoVentec™ Glass

Panel Installation - Horizontal Transition of StoVentec Glass Panel above alternative facade/wall substrate (Glass Panel proud 20mm)
Section View

Date: March 2020

Detail No.: 90.G.479

Note: Complete alternative facade before installing the StoVentec Glass system.



alternative: without ventilation profile

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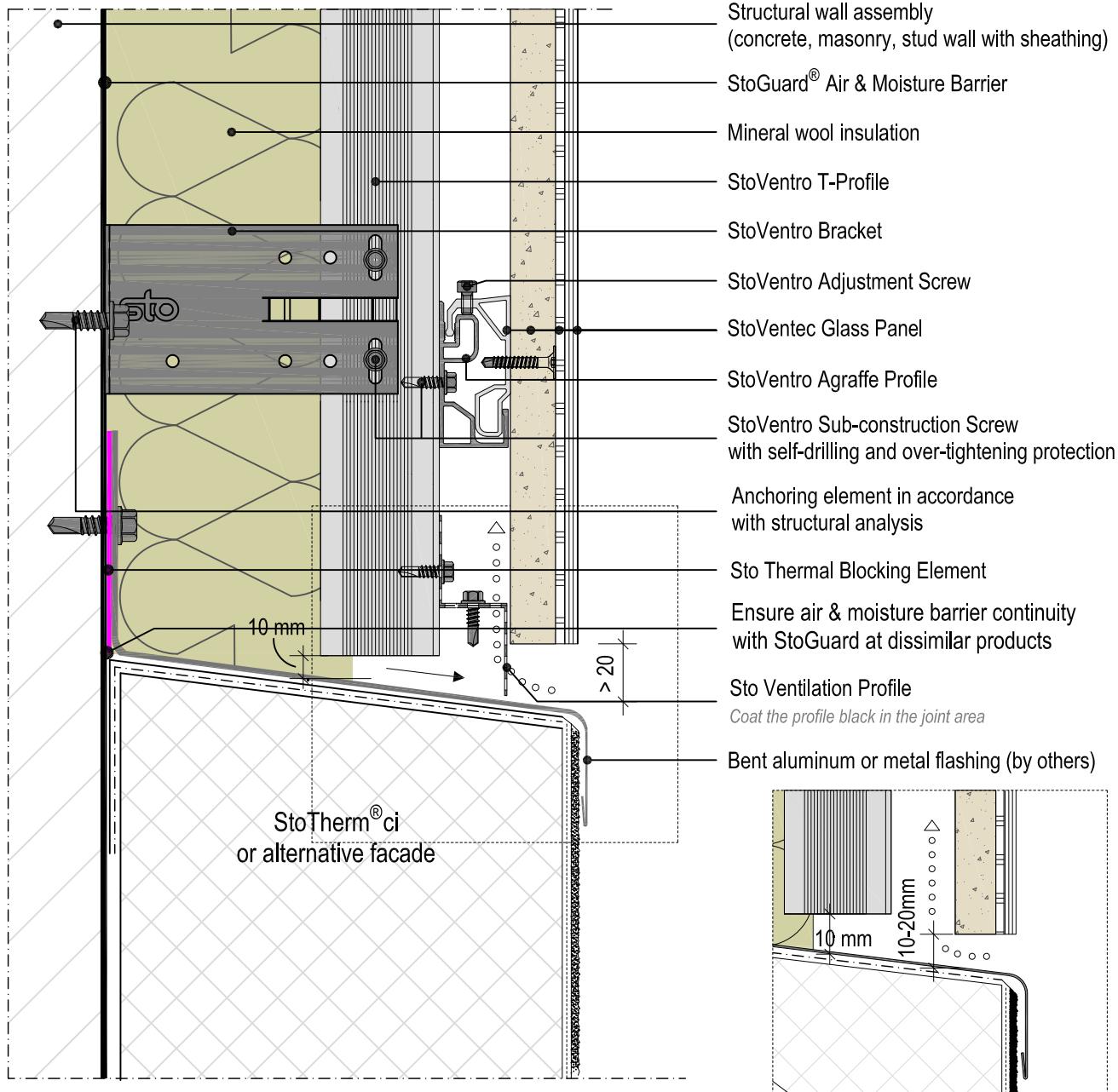
StoVentec™ Glass

Panel Installation - Horizontal transition of StoVentec Glass Panel above alternative facade/wall substrate (Glass Panel flush) no flashing overhang
Section View

Date: March 2020

Detail No.: 90.G.480

Note: Complete alternative facade before installing the StoVentec Glass system.



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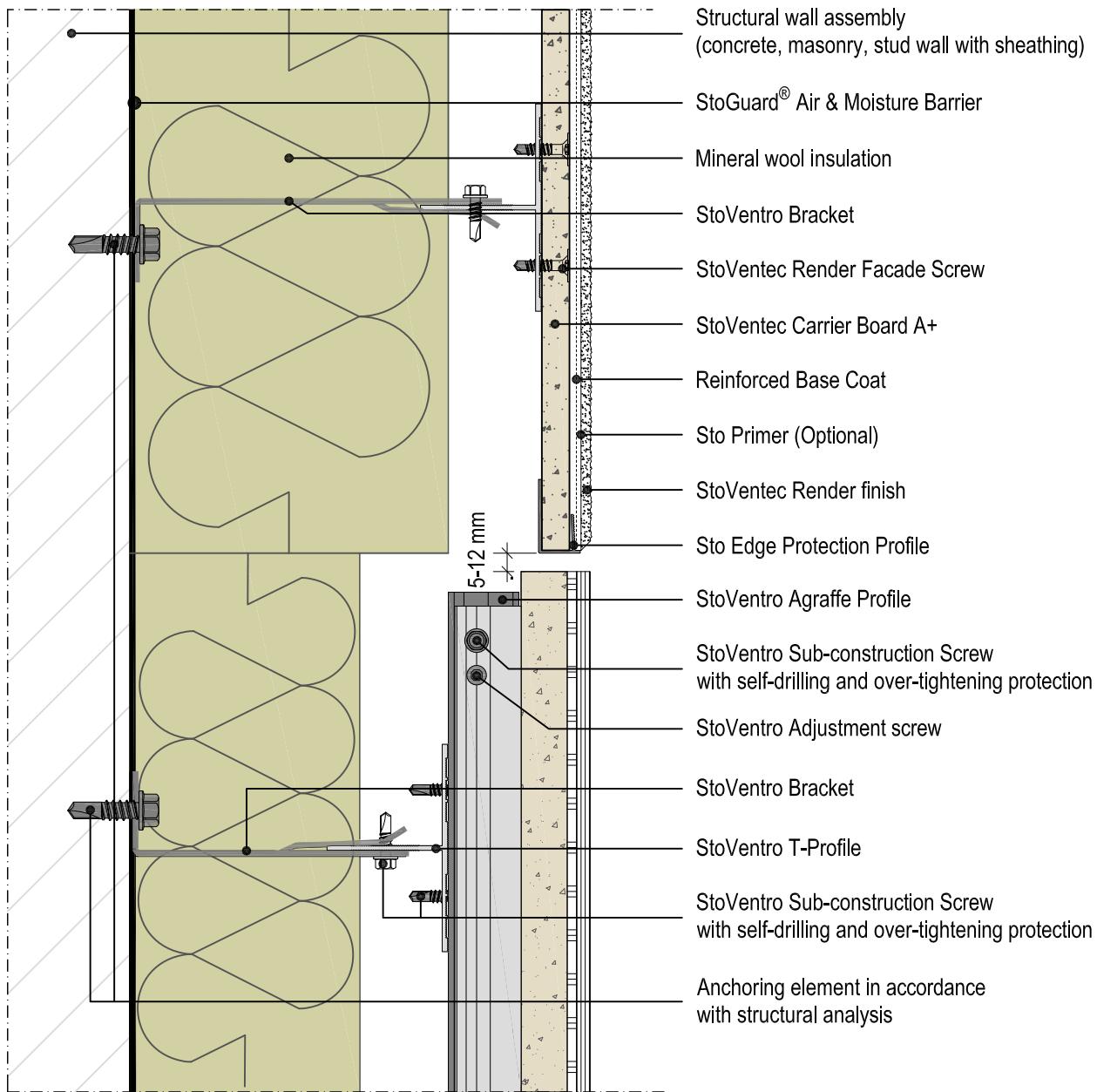
StoVentec™ Glass

Panel Installation - Vertical Transition of StoVentec™ Glass, flush to StoVentec™ Render

Plan View

Date: March 2020

Detail No.: 90.G.485



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StoVentec™ Glass

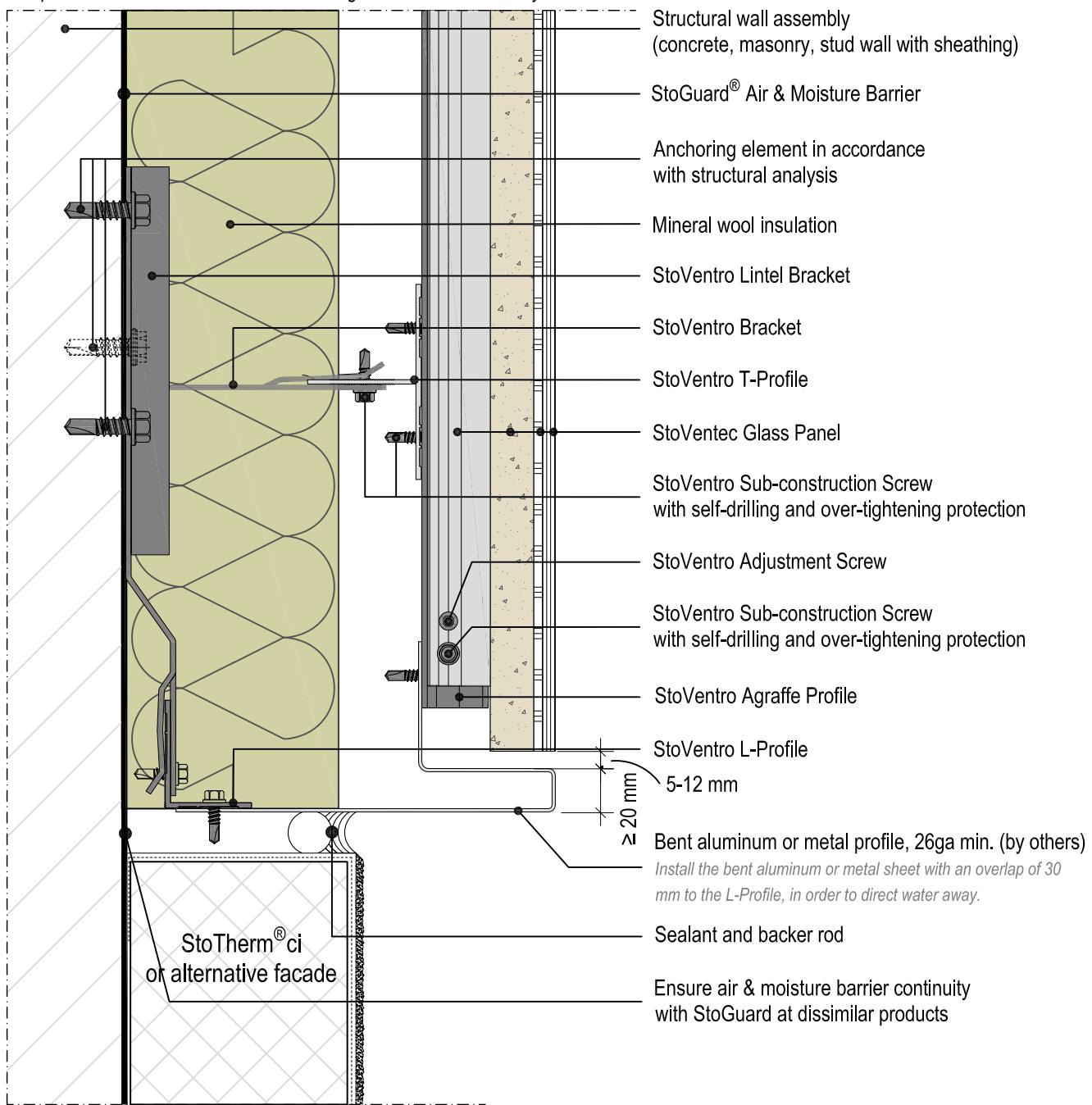
Panel installation - Vertical Transition of StoVentec Glass Panel to Alternative Facade/wall substrate (Glass Panel proud)

Plan View

Date: March 2020

Detail No.: 90.G.486

Note: Complete Alternative Facade before installing the StoVentec Glass system.



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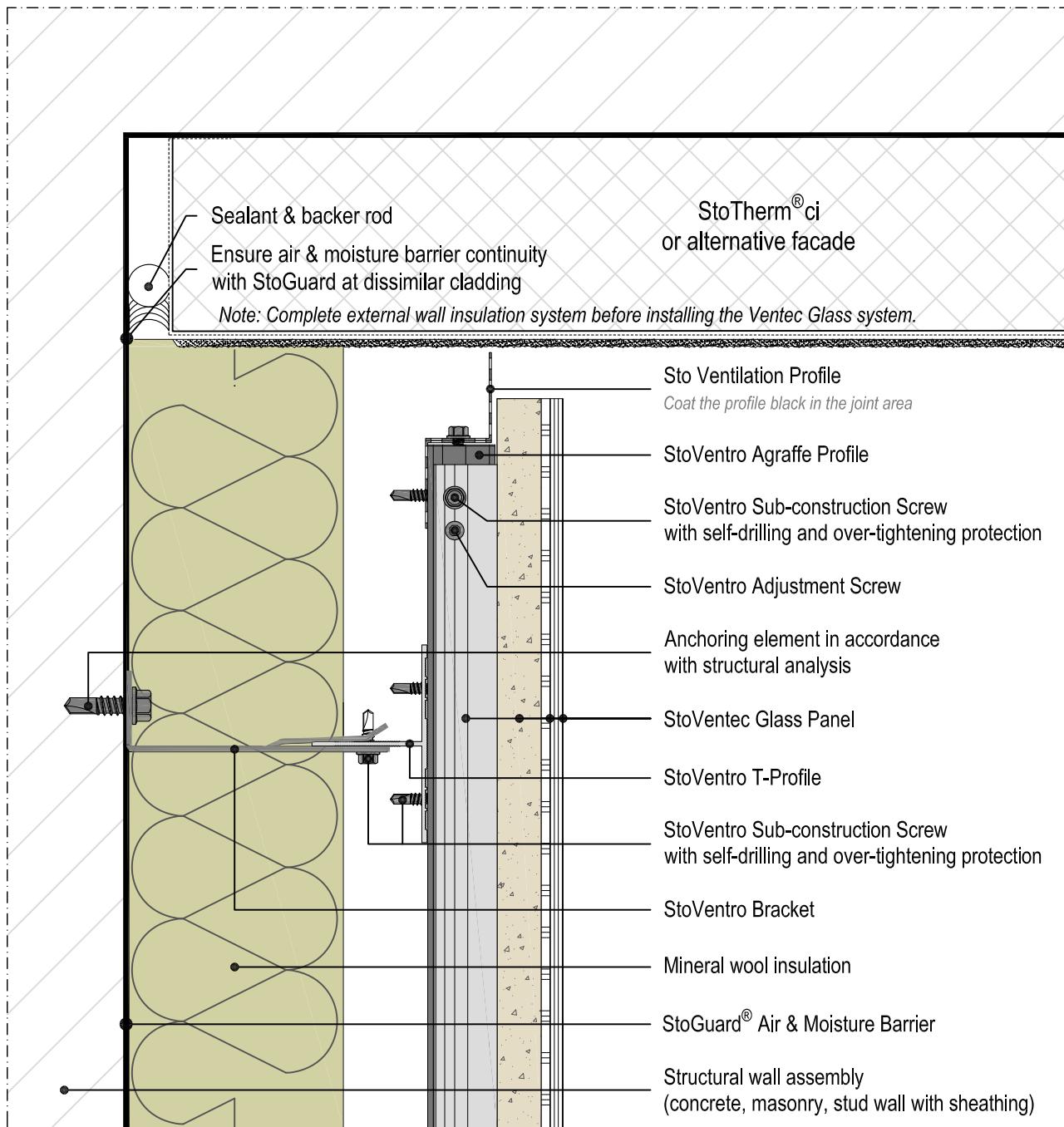
StoVentec™ Glass

Panel installation - Inside corner to alternative facade/wall substrate
(with ventilation profile)

Plan View

Date: March 2020

Detail No.: 90.G.490



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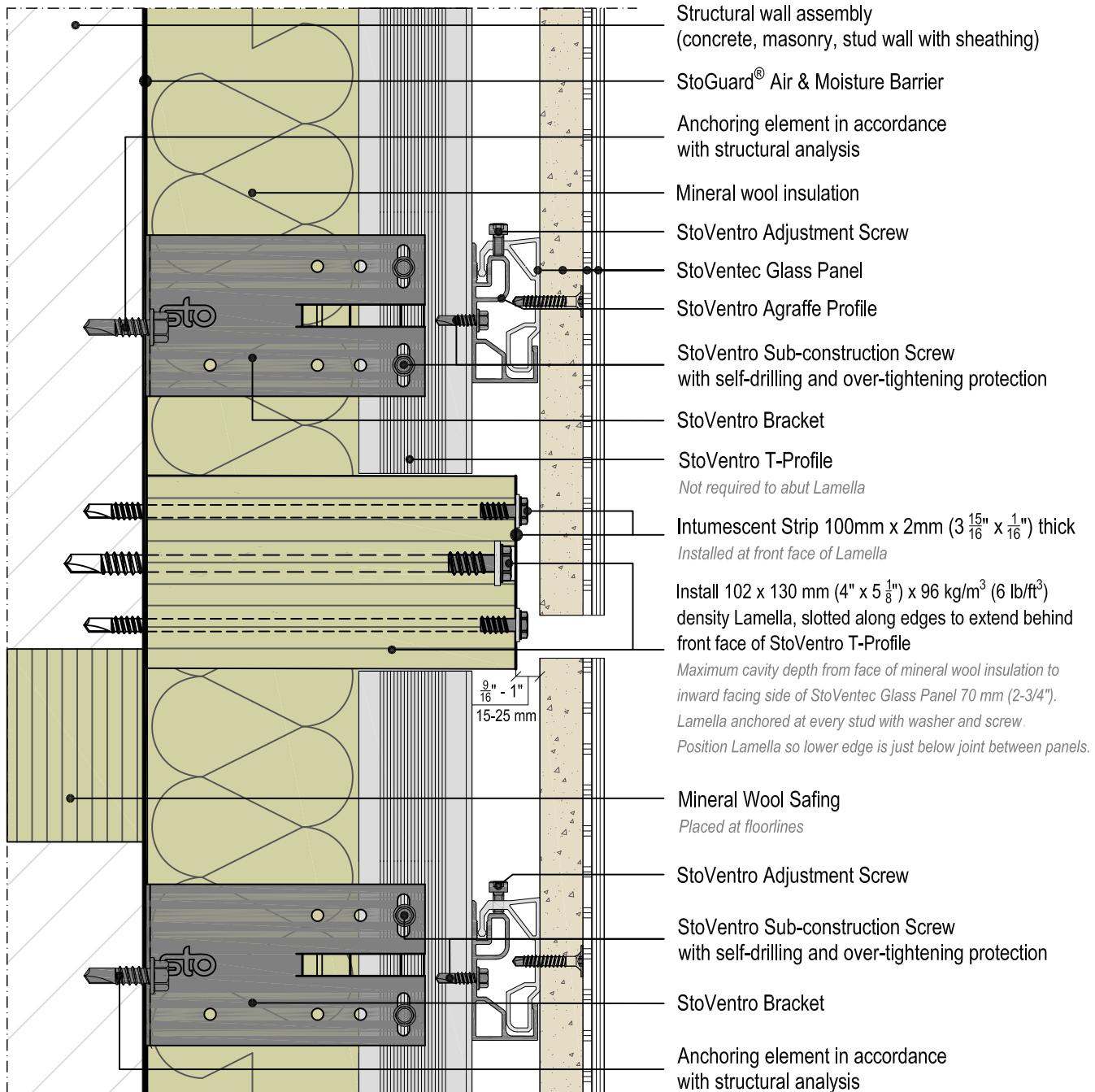
StoVentec™ Glass

Fire Protection at Floor Lines with Lamella and Intumescent Tape Fire Break
NFPA 285 Compliant, Intertek Design listing No. STO/CWP 30-02

Section View

Date: March 2020

Detail No.: 90.G.550



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StoVentec™ Glass

Fire protection at Floor Lines with Dynamic Dual Barrier Fire Break

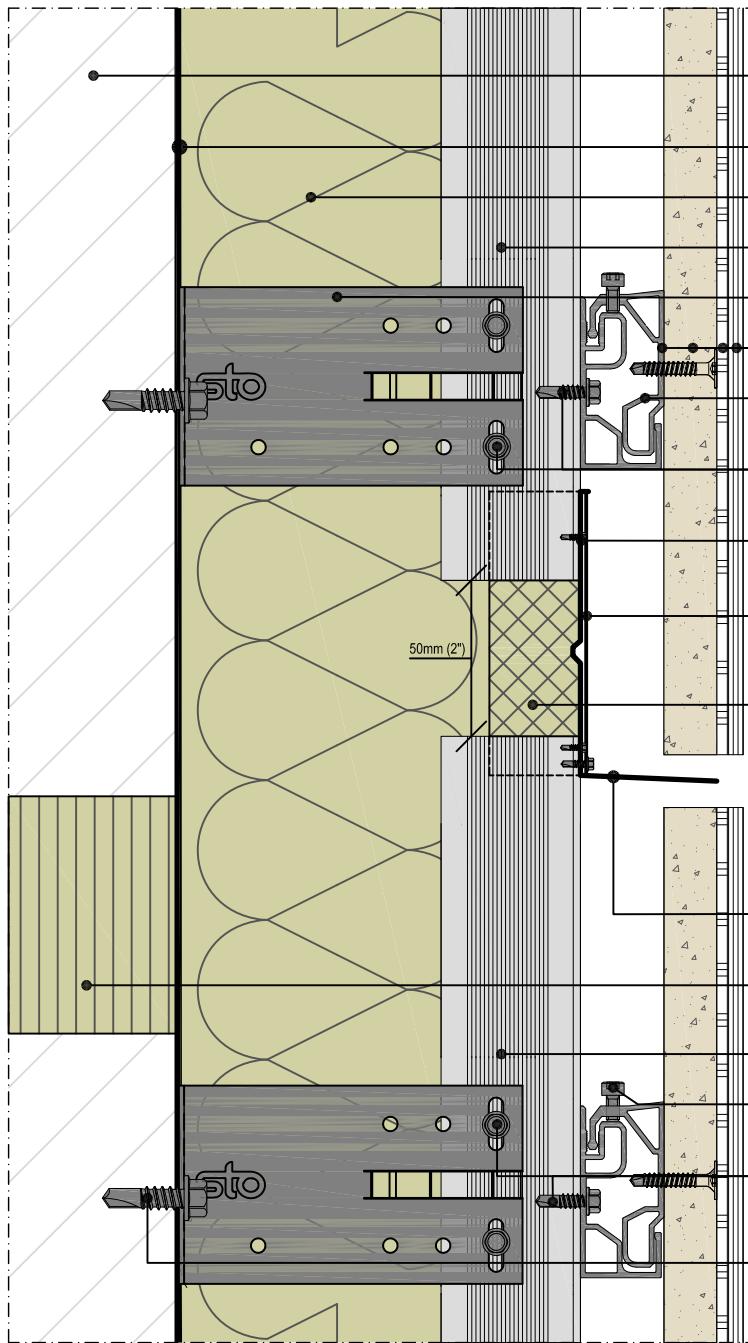
CAN ULC S134 Compliant, Intertek Design Listing No. STO/CWP 25-01

NFPA 285 Compliant, Intertek Design Listing No. STO/CWP 30-02

Section View

Date: March 2020

Detail No.: 90.G.551



Structural wall assembly
(concrete, masonry, stud wall with sheathing)

StoGuard® Air & Moisture Barrier

Mineral wool insulation

StoVentro T-Profile

StoVentro Bracket

StoVentec Glass Panel

StoVentro Agraffe Profile

StoVentro Sub-construction Screw
with self-drilling and over-tightening protection

Fire Break - fasten two screws per T-Profile
Slotted connection to upper T-Profile

Intumescent Strip 50 mm x 2 mm (2" x $\frac{1}{16}$ ") thick
Installed over Metal Fire Break, fasten at bottom

Install Safing Insulation over wall insulation
and held in place by metal break.

Install Safing Insulation a min. depth of 10 mm ($\frac{3}{8}$) larger than the
distance from the face of the mineral wool to the face of the T-Profile
to ensure a compression fit. Safing 96 kg/m³ (6.0 lb/ft³) density.
Install Metal Fire Break a min. height of 100 mm (4").
Gap between T-Profiles 50mm (2").

Metal Fire Break

Flange to have min. 2° slope

Mineral Wool Safing

Placed at floorlines

StoVentro T-Profile

StoVentro Adjustment Screw

StoVentro Sub-construction Screw
with self-drilling and over-tightening protection

Anchoring element in accordance
with structural analysis

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StoVentec™ Glass

Fire protection at Window Head with Lamella and Intumescent Tape

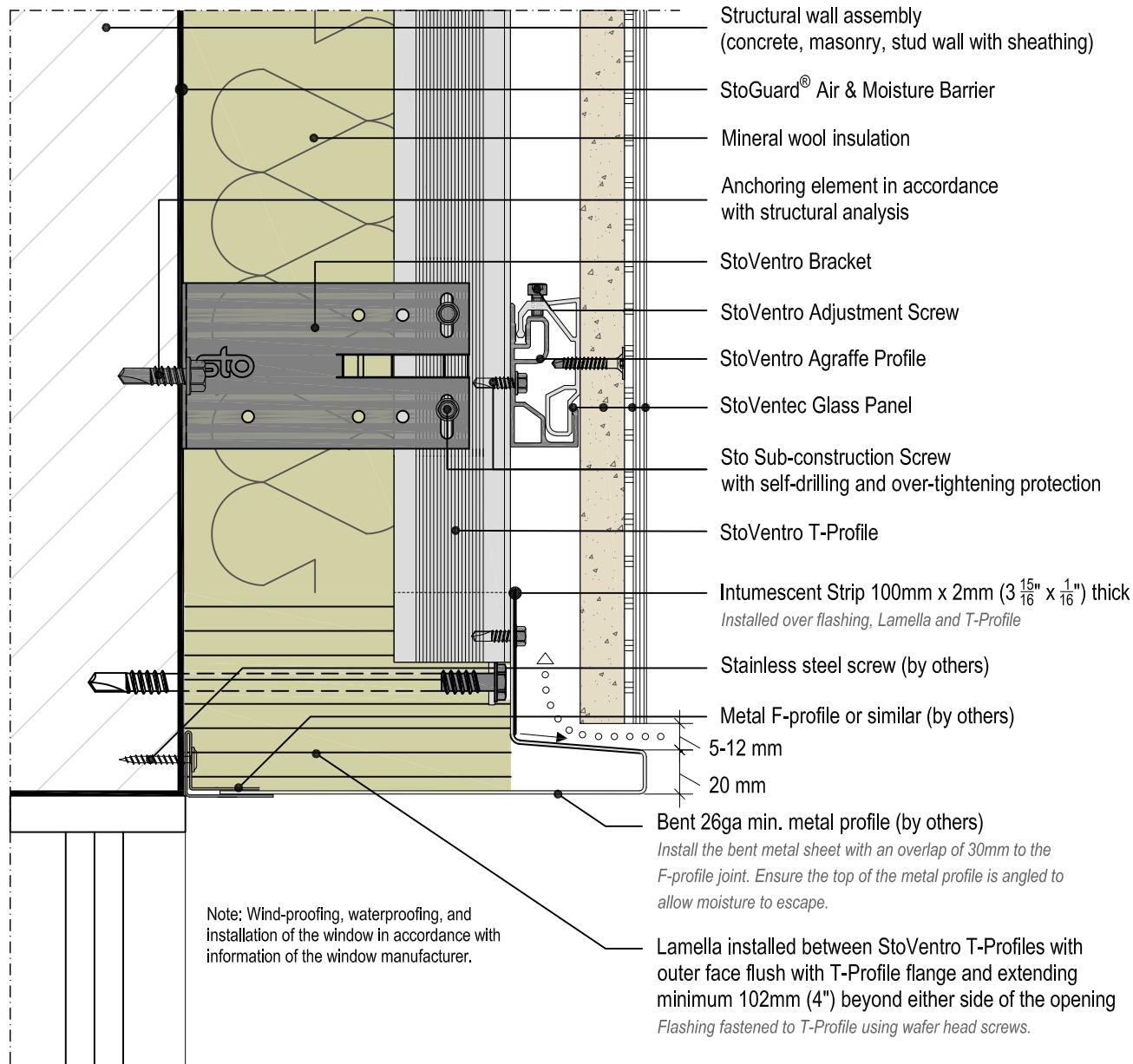
CAN ULC S134 Compliant, Intertek Design Listing No. STO/CWP 25-01

NFPA 285 Compliant, Intertek Design Listing No. STO/CWP 30-02

Section View

Date: March 2020

Detail No.: 90.G.555



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