PRODUCT CATALOG

INNOVATION MADE TO MEASURE

EPSYLON

Façades architecturales
Architectural façades

01 – THE COMPANY

02 – THE PRODUCTS

Series 50 – Conventional curtain walls

Series 60 – High-performance prefabricated curtain walls

Series 70 – Skylights and glass roofs

CREDITS

Project management and contents: Epsylon Concept (Tania Lefrançois)

Technical details and contents: Coarchitecture

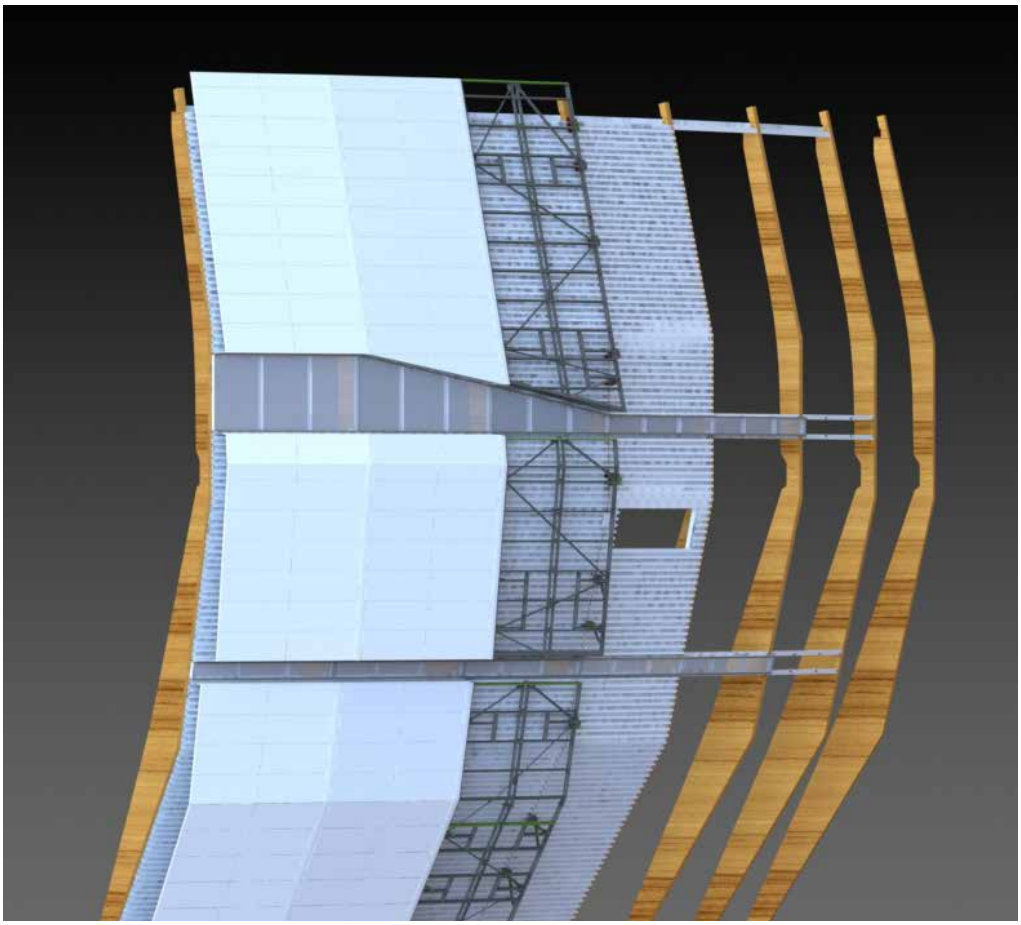
Assembly: Safran

THE COMPANY

1. Catalog introduction

INTRODUCTION

Innovation made to measure: this perfectly sums up the philosophy behind our product development. Always on the lookout for new trends and the latest technologies, and ensuring that our systems are defined by quality and performance, we work with you to develop solutions that are perfectly suited to your project's requirements. This document contains a non-exhaustive list of our basic products, aiming to help designers prepare specifications for volume analysis, modularity and choice of materials, from the performance criteria designed by the actual designer and his or her client. Designers are invited to get in touch with our team at any time to fully define their needs and allow us to suggest the best possible products for their project. There are many more options that those listed in this catalog – contact us to make your custom ideas a reality.



Installation steps for Videotron Centre (Quebec City)

2. Background, mission and vision

BACKGROUND

Epsylon's rapid growth is first and foremost due to Alain and Jean Lefrançois's expertise, as businessmen active and engaged in the field for over 35 years. With an aim to innovate and put their knowledge to work, they received support from three associates interested in building a high-performing, competitive and visionary company: Danny Tremblay, Daniel Labbé and Karl Moreau.

Established in Quebec City, the company took its growth to a new level with the acquisition a factory covering over 55,000 ft^2 in Quebec City and another with more than 35,000 ft^2 in Pompano Beach, Florida. Ultra high-performance and modern equipment support production operations, while quality control and supervision are a priority in daily operations. As it grew, Epsylon set up an estimation department, highly structured and supervised by one of its shareholders. The company also added a young team tasked with producing shop and production drawings, with aesthetics and innovation in mind. This unit is also led by one of the Epsylon associates. Producing designs that set you apart is a design challenge, and a significant asset for any builder who wishes to stand out.

Epsylon aims to develop sustainable business relationships with its clients. We believe that trust and mutual respect go hand in hand with our objectives of excellence and satisfaction.

MISSION AND VISION

Epsylon would like to strengthen its position as a leader in the design, fabrication and installation of prefabricated aluminum and glass curtain walls in the commercial, institutional and high-end condominium industry. We also aim to develop and maintain lasting relationships with a long-term, loyal clientèle.

3. Our product nomenclature

XX Series	XXX Tube width	2S or 4S # of faces of structural silicone	[Bronze, Silver, Gold or Platinum] Thermal performance
(A)	(B)	(C)	(D)

Example: 50.064 4S Platinum

A) SERIES (XX)

Epsylon curtain walls are categorized as follows:

SERIES 50 Conventional curtain walls (“stick” system).

SERIES 60 Factory prefabricated curtain walls (glazing, transoms and caps or gaskets installed on our factory assembly lines).

SERIES 70 Skylights and glass ceilings.

SERIES 80 FLEX curtain walls (coming).

SERIES 100 Aluminum architectural panels.

B) MULLION WIDTH (XXX)

The three numbers correspond to the width (mm) of the mullions or rafters or transoms used.

C) # OF FACES OF THE STRUCTURAL SILICONE (2S OR 4S)

- 2S means that the silicone is 2-sided (no cap) either vertically or horizontally. Pressure plates and decorative caps are therefore necessarily two-sided.
- 4S indicates that the curtain wall has 4 sides of structural silicone, so only the exterior gaskets or silicone seals serve as a watertight finish.
- If not specified, the curtain wall has 4 sides with decorative caps and pressure plates.

D) THERMAL PERFORMANCE

BRONZE: 3 mm gasket on the pressure plate

SILVER: 6 mm gasket on the pressure plate

GOLD: 10 mm gasket on the pressure plate

PLATINUM: Polyamide strip system

4. Quality guarantee

A market leader for over a decade, Epsylon specializes in the design, engineering, fabrication and installation of high-performing, prefabricated aluminum-framework curtain walls.

Depending on the level of thermal performance required and the budget allocated to the project, Epsylon designs and fabricates different classes of curtain walls: *bronze*, *silver*, *gold* and *platinum*, the latter providing the maximum thermal efficiency (High Energetic Efficiency, HEE). Nevertheless, the Epsylon curtain wall will be delivered following the highest standards of precision and long-term quality regarding long-term fabrication quality and system installation. Our teams of professionals have many years of experience in fabrication and on-site installation.

The organization and nomenclature of Epsylon products follow four simple, but precise criteria:

1. *Type (conventional or prefabricated curtain wall)*
2. *Number of structural silicone faces*
3. *Thermal performance*
4. *Acoustic performance*

Internally, we have developed an inspection and testing program (PIE) used during each production state in our assembly lines. The data is stored throughout our products' warranty periods and are available upon request. In addition, we have four CNC (6-axis computer numerical control) stations that guarantee precision down to a tenth of a millimetre for aluminum sections. This means that almost any shape is possible.

Finally, Epsylon oversees each step of the project process, from the initial design to the final delivery to the client. If a problem arises, it is taken care of by an in-house professional, not by a sub-contractor. We therefore guarantee quick, effective and consistent service.

We invite you to get in touch with one of our technical representatives, to appropriately identify your needs and help us prepare the required specifications to meet your objectives.

5. Research and development

At Epsylon, every department is constantly contributing to the improvement and development of cutting-edge products. The R&D process is implemented in several ways:

1. Entry into new markets and new product development

Our company is constantly invited to penetrate new markets and bid on increasingly complex projects. Our estimate and sales teams are therefore constantly working with our engineering and technical drawing teams in order to develop innovative products to fulfill the technical criteria (plans and specifications) and high-level requirements of our clients.

2. Development and fine-tuning of products in independent laboratories

Each of our new products is tested in independent laboratories in order to validate the performance of new systems. Additionally, in some cases, tests are also conducted as construction takes place at the work site in order to apply any correction to the envelope construction.

3. A constant eye on the international market

These days, technology evolves at a frantic pace, on a global scale. Our company has made a point to always be up-to-date on the latest developments in the curtain-wall industry, and to use the latest technologies and practices. We are constantly evolving and re-evaluating our procedures in order to remain an industry leader.

6. Sustainable development

Epsylon works in a responsible way to develop sustainable concepts, considering and studying the overall life cycle of its products. From the acquisition of primary materials, to development practices, production procedures, transportation, work site implementation practices and even the final elimination of built structures, Epsylon develops and is always up-to-date on environmentally responsible practices.

For several years, Epsylon's environmental impact track record has always benefited from a net reduction by optimizing downwards: energy expenditure, the use of primary materials, solid waste and water and air emissions.

The performance of our installed products reduces the environmental impact, due to their certified performance with regard to airtightness, watertightness, sound insulation and other performance characteristics.

LEED-CERTIFIED PROJECTS

Epsylon supports designers and developers who are trying to achieve LEED certification for their projects. We are very familiar with the certification systems and can help simplify the procedures to fulfill the requirements and credits for the desired level of LEED certification.

Without necessarily being limited to the following regading LEED certification, Epsylon:

- Participates as a manufacturing company, with credits associated with materials and resources. The recycled contents of some of our products, the impacts of regional materials, and their origins, influence the credits in the data calculation.
- Participates as a company working on construction sites, with credits associated with air quality management plan and indoor environment quality. Complying with management plans, with the criteria for low-VOC products and components, promotes the achievement of expected results.
- Participates as a company working on construction sites, in collaboration with General Contractors and Construction Managers, to achieve compliance with the erosion and sediment control management plan, responsibly manage waste and adequately dispose of it.

Epsylon is a state-of-the-art company, environmentally responsible in its design and construction, encouraging sustainable development in order to leave an equitable environmental footprint for future generations.

PRODUCTS

SERIES 50 CONVENTIONAL CURTAIN WALLS

1. Characteristics and design

SUPPORT - VISION

Series 50 in this section integrates selection criteria, associated with technologies, performance and visual characteristics.

This section's technical details show functional assemblies, specifically related to Epsylon curtain-wall systems. This section does not necessarily illustrate all possible details.

Epsylon guides visionaries in order to establish characteristics for construction projects, thus working to produce complete and high-performing systems suitable for each project.

In a responsible manner, Epsylon guides designers to fulfill the requirements, criteria and level of performance desired for projects.

Epsylon uses adequate methods and recognized procedures in order to achieve the sought-after characteristics.

SERIES 50 CHARACTERISTICS

Series 50 comes in four (4) classes associated with different levels of thermal performance.

The classes, in decreasing order of performance, are as follows: class levels Platinum, Gold, Silver and Bronze.

Class choice is directly related to project needs, performance characteristics and total budget. Epsylon will guide you and suggest solutions based on your needs.

1. Characteristics and design (continued)

SYSTEM DESIGN

Conventional

These are vertical aluminum frame curtain walls, composed of thermally broken extruded aluminum sections with self-supporting frames, calculated to meet necessary requirements, criteria and performance levels. They are fabricated in detached pieces and prefinished in the factory, and composed of vision glass, decorative spandrels, accessory elements, anchoring devices and other related constituent parts.

System design includes air and vapor barrier systems to form a continuous barrier and ensure continuity between the components, such as the aluminum, the watertight materials, the accessory materials, the glazing elements and the connected systems.

The system design uses the rain screen principle, and contains all constituent elements in order to provide complete construction systems.

System design allows individual vision panels and spandrels to be removed from the outside without having to disassemble the load-bearing and non-load-bearing mullions or transoms.

PROTOTYPES AND TESTS

Epsylon curtain walls meet the strictest industry standards and pass the tests completed by independent laboratories.

Prototypes can be made specially upon request for a given project.
As necessary, the prototypes will be submitted to specialized laboratories so the curtain walls can be tested for compliance to project-specific performance requirements:

- Airtightness performance, according to the ASTM E-283 test method,
- Smoke exfiltration performance, according to the ASTM E-1186 test method,
- Static watertightness performance, according to the ASTM E-331 test method,
- Dynamic watertightness performance, according to the AAMA 501.1 test method,
- Structural performance: strength and resistance, according to the ASTM E-330 test method,
- Resistance to condensation, according to the CAN/CSA A440 test method,

Using simulation software, Epsylon is able to test the energy performance of its curtain walls in order to exactly meet construction needs.

Epsylon guides designers in order to advise, develop and recommend the best energy strategies for construction projects.

2. Technical specifications

PRODUCT DESCRIPTION

High-quality curtain-wall system, conventional or prefabricated in a factory, designed for commercial, institutional or industrial buildings. Series 50: conventional curtain walls assembled at the construction site.

Deloitte Tower (Montreal)

FABRICATION

- All factory fabrication requires shop drawings previously approved by professionals (and the consultant if necessary) and technical drawings that comply with the criteria and performance and design levels required by the specifications.
- The pieces are cut, machined, fabricated and assembled by computer numerical control machines in order to ensure greater accuracy.
- All assembly joints are aligned with precision, and are rigid in order to ensure an optimal seal and an appearance to match the design. The joints also allow expansion and creep caused by movements in the building frame and temperature fluctuations.
- No trace of warping or distortion will be left visible by the welding work.
- The reinforcing steel will be coated in an anti-corrosion primer, along with the welded joints.
- Dissimilar materials will be separated by dielectric tape or a similar material.
- The glasses and glazing from the chosen manufacturer will comply with the specifications (equivalent), with the consultant's requirements and with the applicable standards and codes.
- The sealing products used in system assembly will comply with the manufacturer’s requirements for their application, and will be subject to regular tests throughout their fabrication to ensure optimal quality.

NOTE: Fabrication and factory assembly methods remain at Epsylon’s discretion and are subject to rigorous internal quality control.

2. Technical specifications (continued)

INSTALLATION

Preliminary work

- Shop drawings approved by professionals and in compliance with the architectural specifications provided by Epsylon.
- Engineering and production drawings of Epsylon systems (in coordination with on-site work).
- The curtain wall's anchors will be provided by Epsylon to be incorporated into the building's frame by the general contractor.
- Verification of levels (benchmarks) and the building's primary axes. The components will be provided and validated by the general contractor.
- Preparation of adequate openings at the construction site to ensure an adequate connection between the air and vapor barriers and the adjacent walls. The contractor must ensure that the materials used are compatible with those used in Epsylon's curtain walls.

Delivery and construction-site installation

- The curtain walls will be delivered on 100% reusable steel racks in order to minimize waste materials on site. If such racks cannot be used, the conventional curtain walls will be delivered on reusable wooden pallets, and they will be packaged in order to prevent any damage. The most vulnerable components will be protected using Blue Max™ protective film.
- All elements that make up the curtain wall will be installed, up to standard, straight and level. To this end, all aluminum anchorage parts designed and fabricated by Epsylon will be installed and connected to the steel parts already incorporated into the steel and concrete structure.
- Bolt down the mullions, transoms or prefabricated modules to the anchors while respecting the tolerances, thermal movements from the building frame and the seismic requirement if necessary.
- At their junctions, seal the perimeter elements of the curtain wall and the junction between the prefabricated modules with the rest of the building's envelope.
- Protect the most vulnerable members from damage caused by other work (scratches, etc.). However, the general contractor should take all possible precautions to avoid pouring any concrete on the aluminum and glass in general.
- Clean the aluminum and glass after construction is complete if required in the specifications.

NOTE: Fabrication and assembly methods remain at Epsylon's discretion.

2. Technical specifications (continued)

AVAILABILITY AND COSTS

Estimates are available quickly, based on a physical description provided by drawings and summary specifications, created using the technical specifications in section 08 of the NMS.

WARRANTIES

- Five (5) years for materials and labor;
- Five (5) or ten (10) years against loss of seal in sealed glazing and glazing gaskets;
- Ten (10) years for anodized finishes and twenty (20) years for Kynar 500-based finishes.

MAINTENANCE

Upon request, Epsylon will provide a maintenance manual for the glazing (glass, glazing gaskets, etc.), the sealant and aluminum or other materials incorporated into the construction in sections (e.g. copper, stainless steel) or panels (e.g. granite).

QUALITY CONTROL

Epsylon performs tests on its products in its own laboratories and in independent, recognized laboratories (reports are available upon request). The procedures of these tests comply with current standards and serve to test product quality based on performance criteria and levels specific to each project.

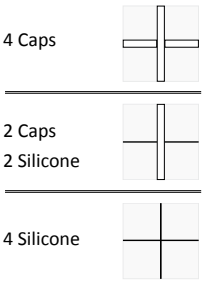
Moreover, before beginning construction on any project using our curtain walls, the silicone structural glazing sealant manufacturers perform adherence and shear strength tests on the sealant, testing its adhesion to the specific materials it must adhere to.

3. Thermal performance

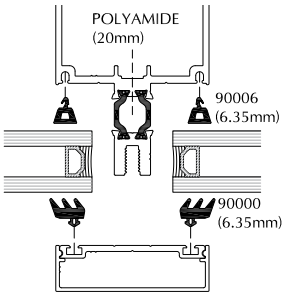
50 - Platinum

Most high-performing class in the conventional curtain-wall series. A high-performance polyamide thermal break ensures high energy efficiency by eliminating condensation.

CONFIGURATION



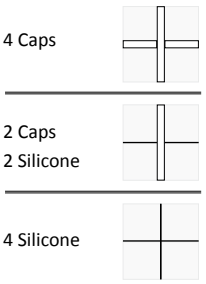
THERMAL PERFORMANCE



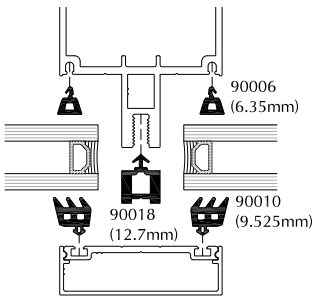
50 - Gold

High-performance class in the conventional curtain-wall series. An EPDM profile thermal break ensures high energy efficiency by eliminating condensation.

CONFIGURATION



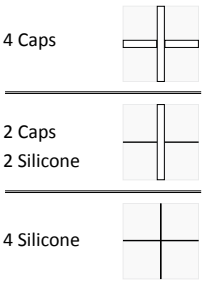
THERMAL PERFORMANCE



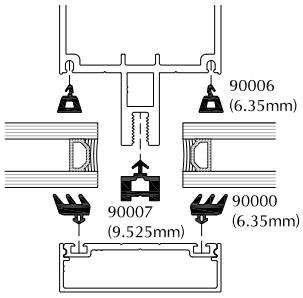
50 - Silver

Good class in the conventional curtain-wall series. An EPDM profile thermal break ensures energy efficiency by eliminating condensation.

CONFIGURATION



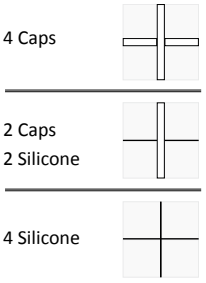
THERMAL PERFORMANCE



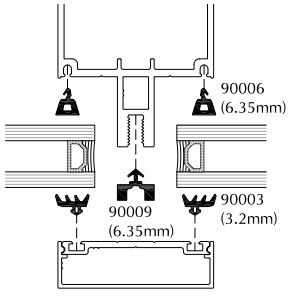
50 - Bronze

Cost-effective class in the conventional curtain-wall series. An EPDM profile thermal break ensures energy efficiency by eliminating condensation.

CONFIGURATION



THERMAL PERFORMANCE



To increase the various systems' performance, they can be adapted for use with triple-sealed units. Details available upon request.

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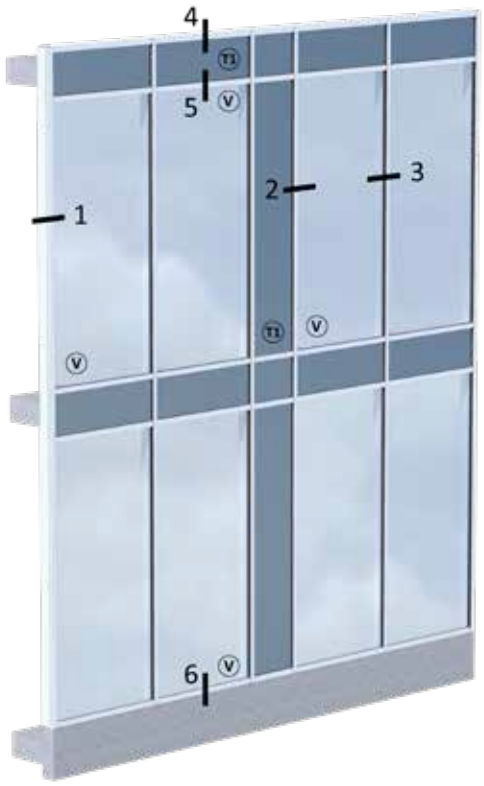
4. Performance requirements

Calculations of components and their dimensions are determined in a way that ensures that they can withstand dead loads and applicable loads. These calculations are also determined to ensure that they withstand seismic movement and horizontal deflections, according to calculations made in accordance with applicable codes. These curtain-wall systems are designed to withstand the following constraints, without damage to the elements or deterioration of the joints or sealant:

- Movement of the curtain wall's various components.
- Movement between the curtain wall's components and the building envelope's peripheral elements.
- Dynamic overload (application and removal).
- Bending of the load-bearing frame.
- Structural concrete shrinkage and creep.

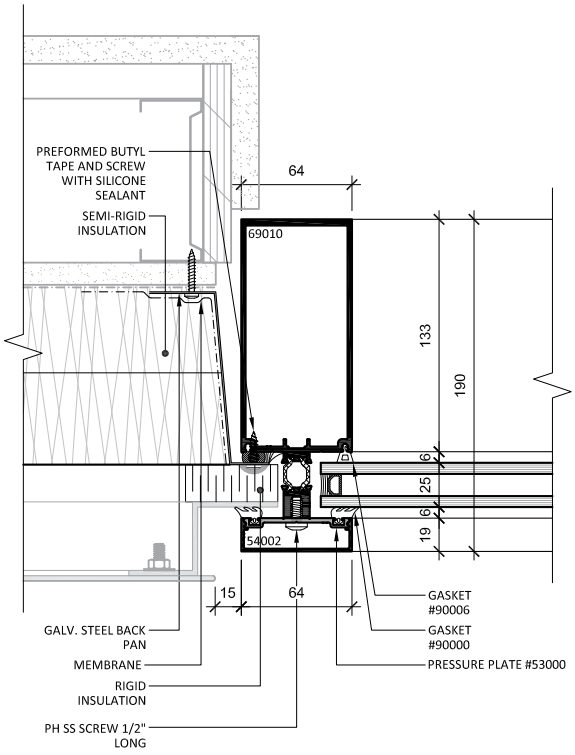
Deloitte Tower (Montreal)

5. Typical curtain wall details



V VISION SECTION

T1 SINGLE SPANDREL PANEL

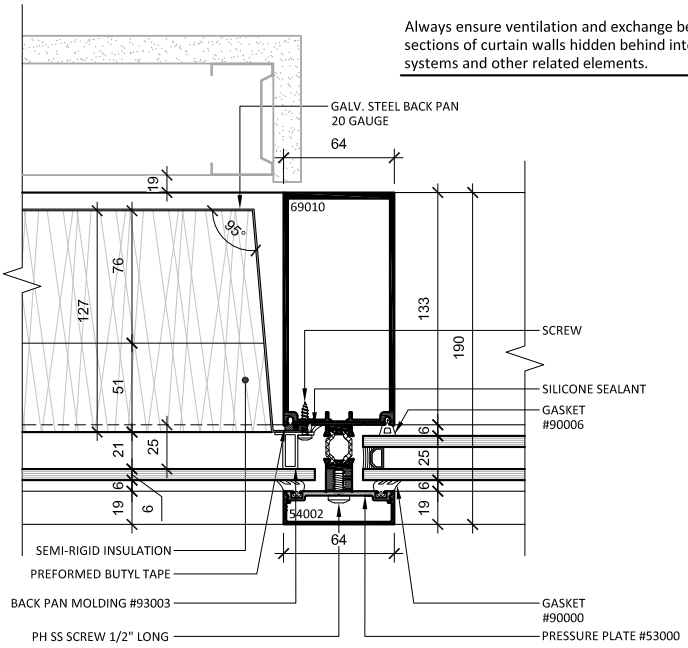


The typical details depicted here are formed by assembling different types of mullions and caps.
See "Accessory elements" sections for other cap options.
*All of the mullions pictured here are from the platinum class.

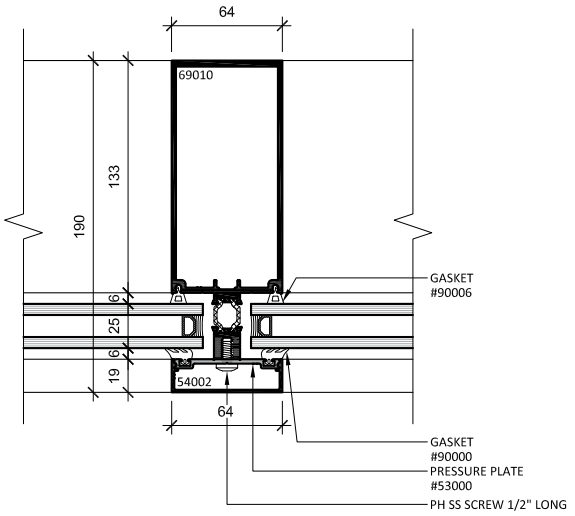
The connected elements depicted in pale lines are constructed by others.

Always ensure ventilation and exchange behind sections of curtain walls hidden behind interior systems and other related elements.

1 MULLION
CONNECTED ELEMENTS
VISION SECTION



2 MULLION
SPANDREL PANEL
VISION SECTION

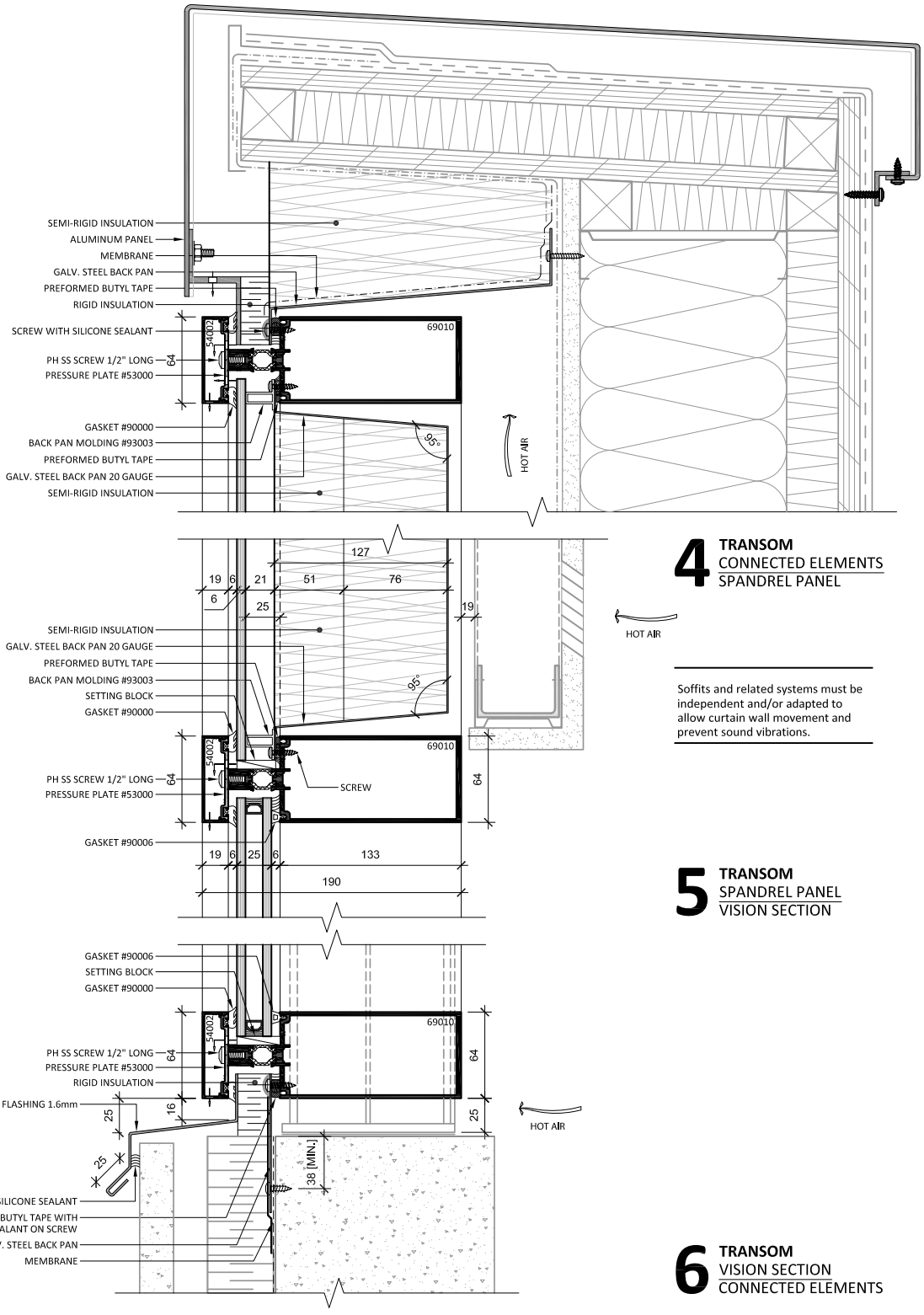


3 MULLION
VISION SECTION
VISION SECTION

SCALE: 1 : 4

EPSYLON
Façades architecturales
Architectural façades

5. Typical curtain wall details (continued)



Soffits and related systems must be independent and/or adapted to allow curtain wall movement and prevent sound vibrations.

SCALE: 1:4

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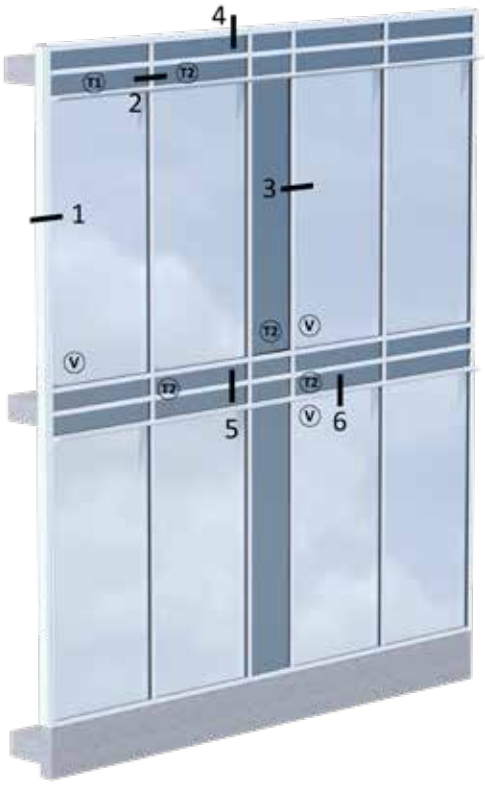
Façades architecturales
Architectural façades

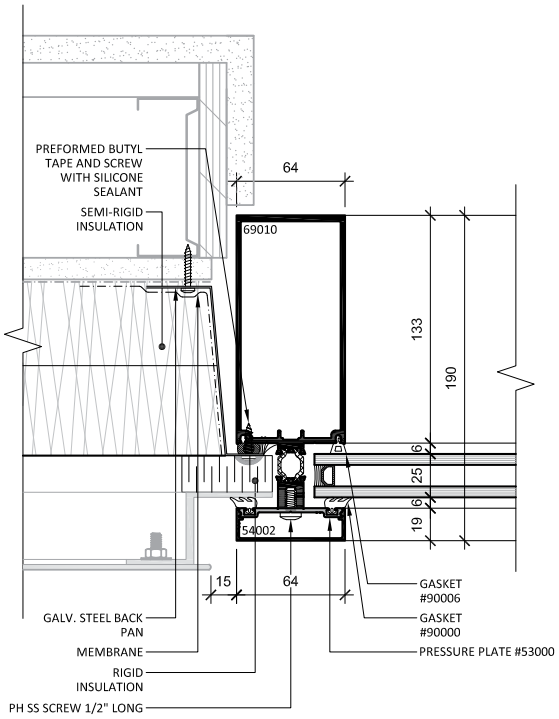
5. Typical curtain wall details (continued)



V VISION SECTION

T1 SINGLE SPANDREL PANEL

T2 DOUBLE SPANDREL PANEL



Always ensure ventilation and exchange behind sections of curtain walls hidden behind interior systems and other related elements.

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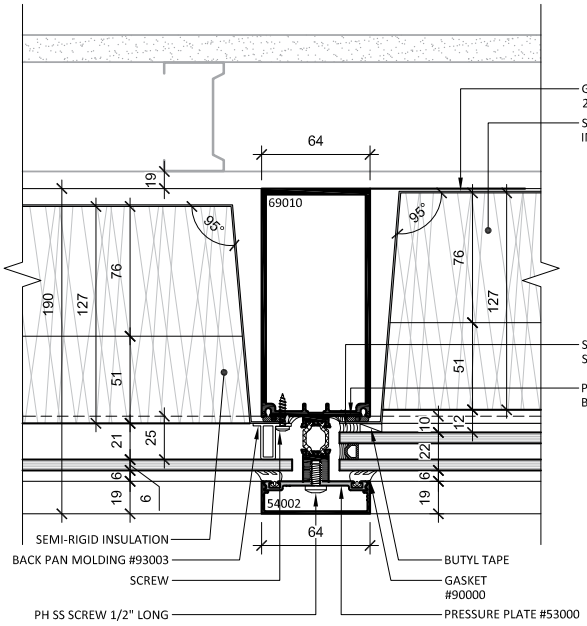
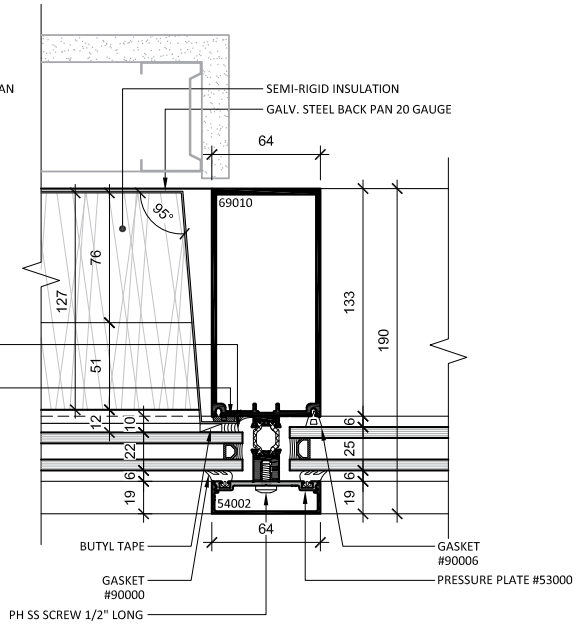
1 **MULLION**
CONNECTED ELEMENTS
VISION SECTION



2 **MULLION**
SPANDREL PANEL
SPANDREL PANEL

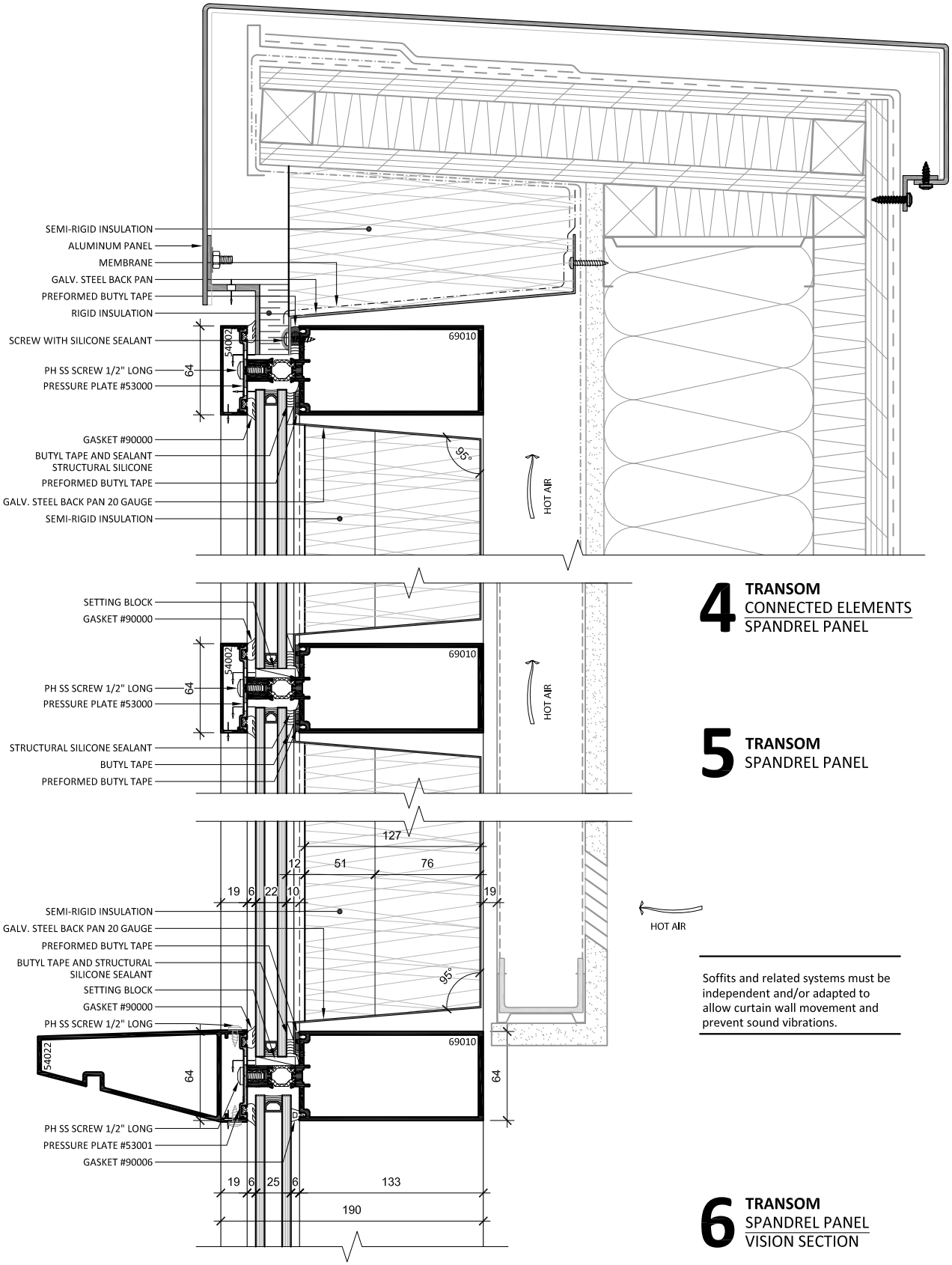


3 **MULLION**
SPANDREL PANEL
VISION SECTION

SCALE: 1 : 4

EPSYLON
Façades architecturales
Architectural façades

5. Typical curtain wall details (continued)



4 **TRANSOM**
CONNECTED ELEMENTS
SPANDREL PANEL

5 **TRANSOM**
SPANDREL PANEL

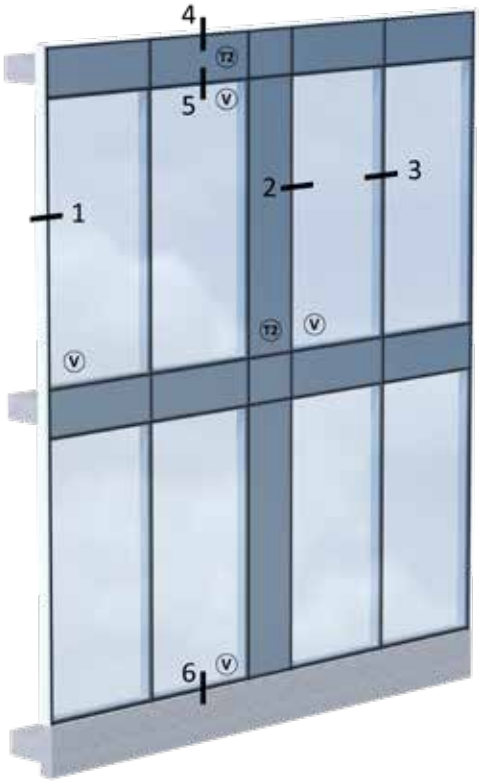
Soffits and related systems must be independent and/or adapted to allow curtain wall movement and prevent sound vibrations.

6 **TRANSOM**
SPANDREL PANEL
VISION SECTION

SCALE: 1:4

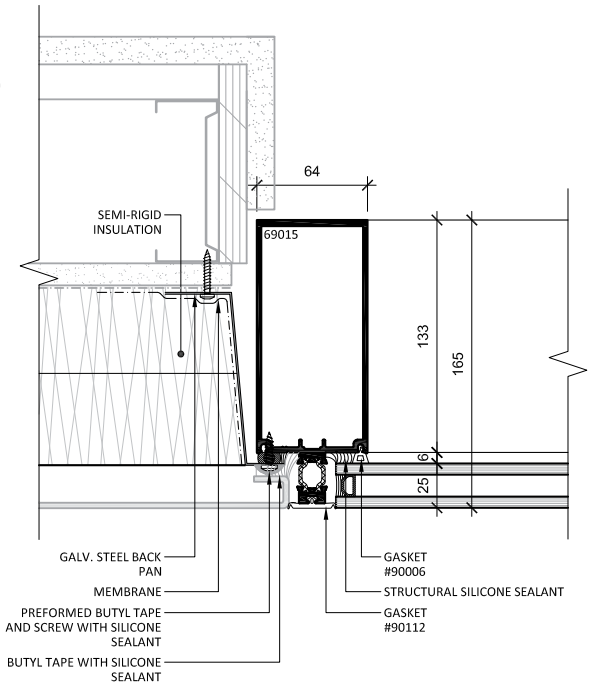
EPSYLON
Façades architecturales
Architectural façades

5. Typical curtain wall details (continued)



V VISION SECTION

T2 DOUBLE SPANDREL PANEL



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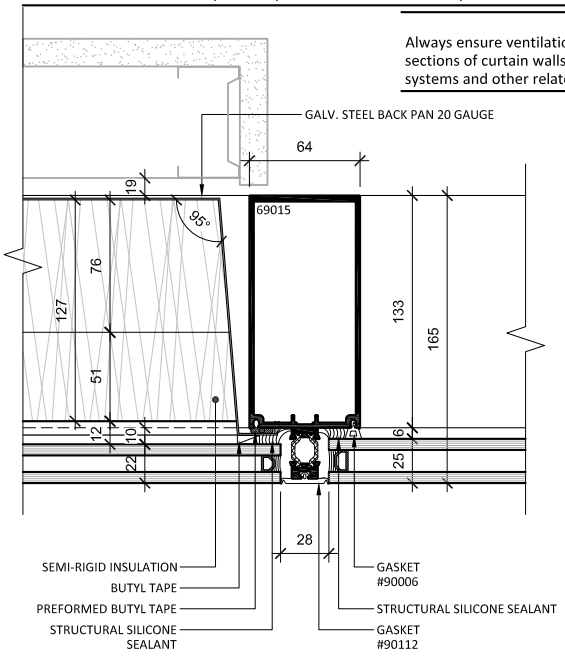
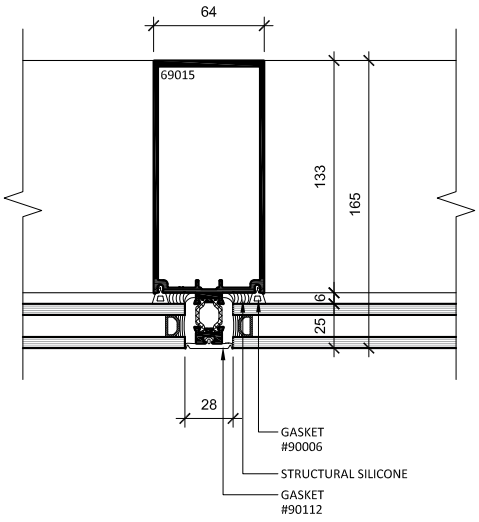
CONNECTED ELEMENTS
VISION SECTION



2 **MULLION**
SPANDREL PANEL
VISION SECTION

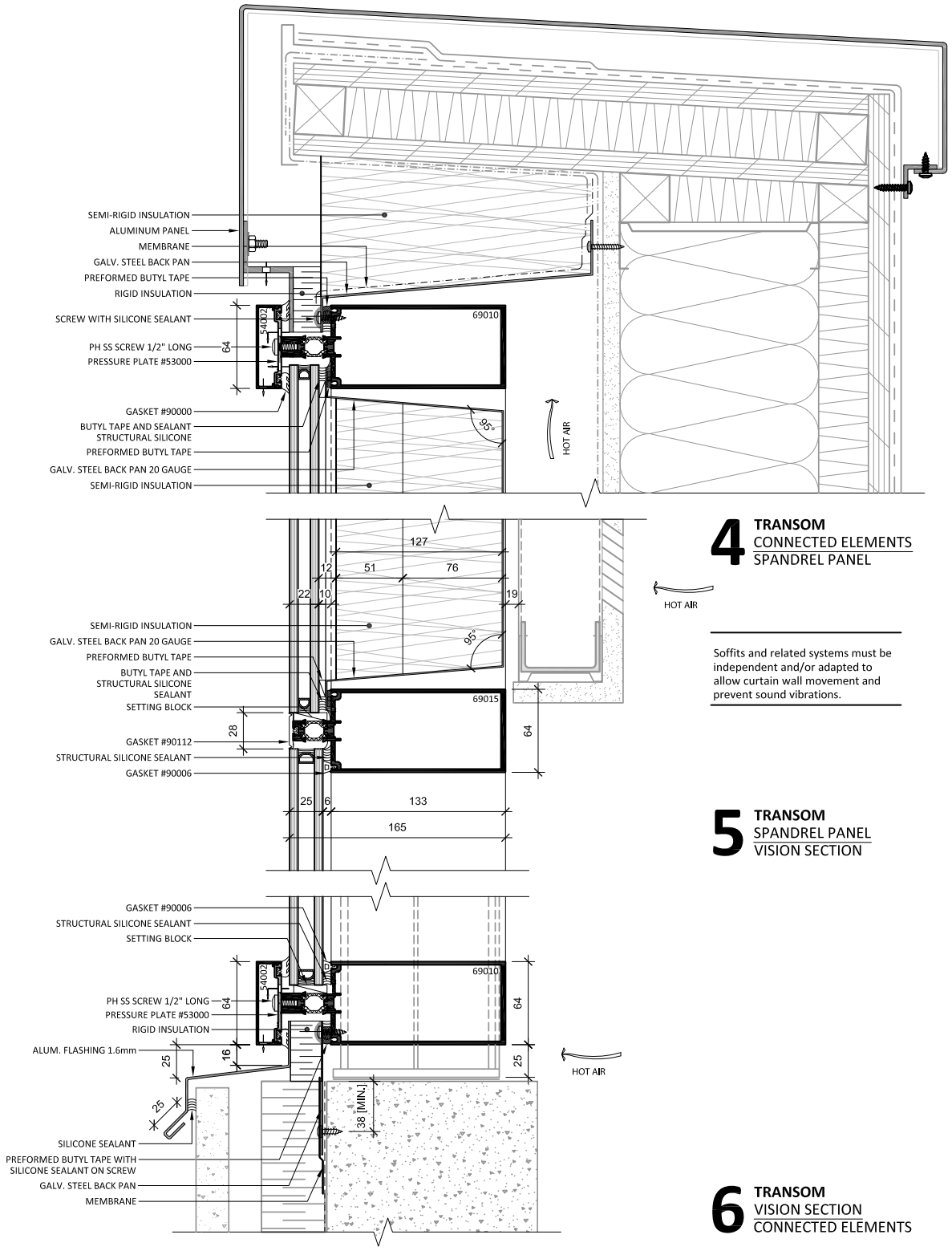


3 **MULLION**
VISION SECTION
VISION SECTION

SCALE: 1 : 4

EPSYLON
Façades architecturales
Architectural façades

5. Typical curtain wall details (continued)



4 **TRANSOM**
CONNECTED ELEMENTS
SPANDREL PANEL

Soffits and related systems must be independent and/or adapted to allow curtain wall movement and prevent sound vibrations.

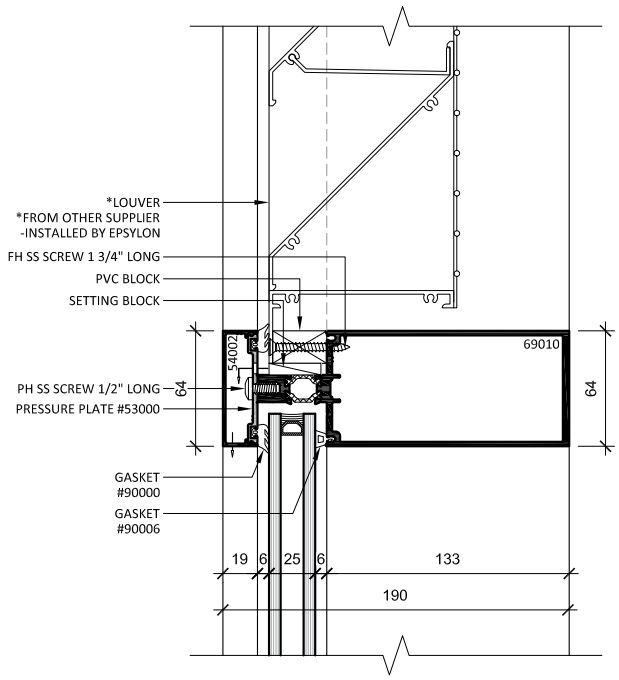
5 **TRANSOM**
SPANDREL PANEL
VISION SECTION

6 **TRANSOM**
VISION SECTION
CONNECTED ELEMENTS

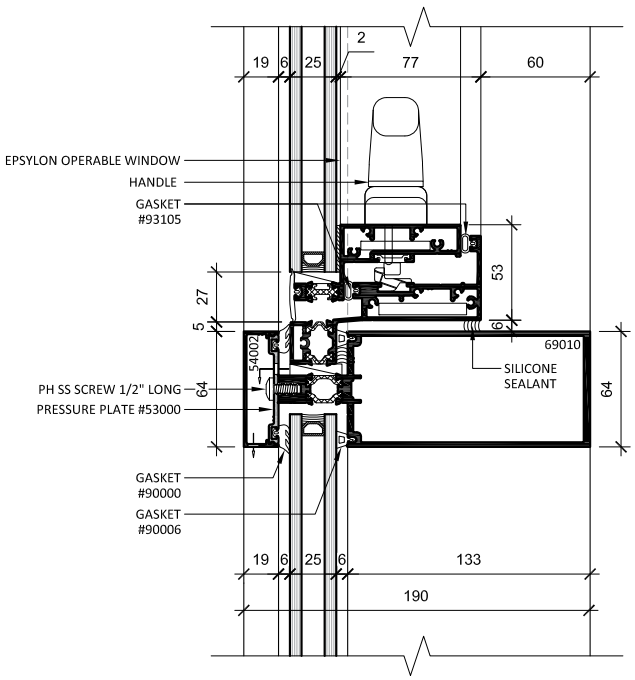
SCALE: 1:4

EPSYLON
Façades architecturales
Architectural façades

5. Typical curtain wall details (continued)



1 TRANSOM
LOUVER INSERT
VISION SECTION

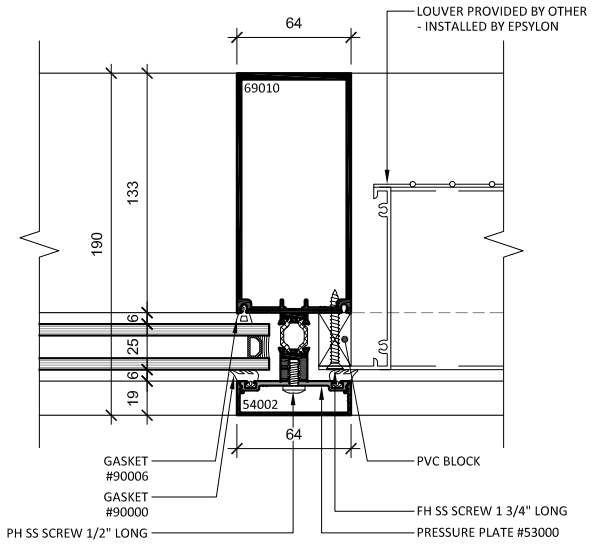


2 TRANSOM
OPERABLE WINDOW
VISION SECTION

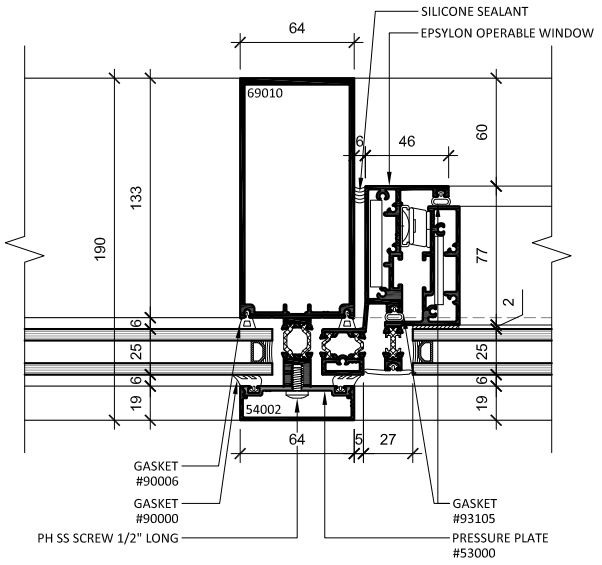
SCALE: 1 : 4

EPSYLON
Façades architecturales
Architectural façades

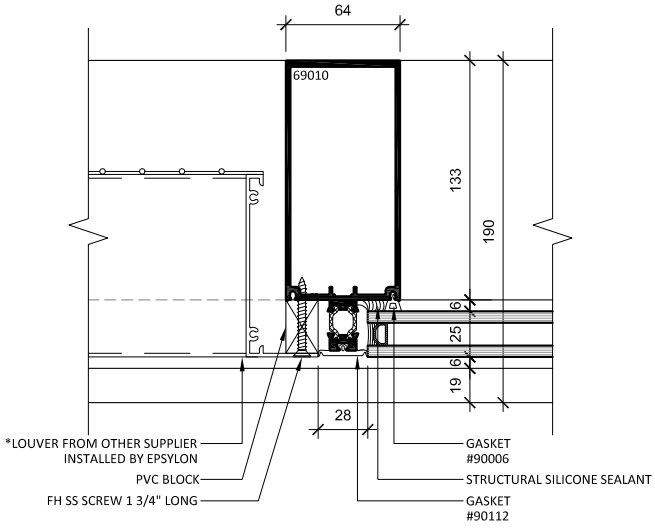
5. Typical curtain wall details (continued)



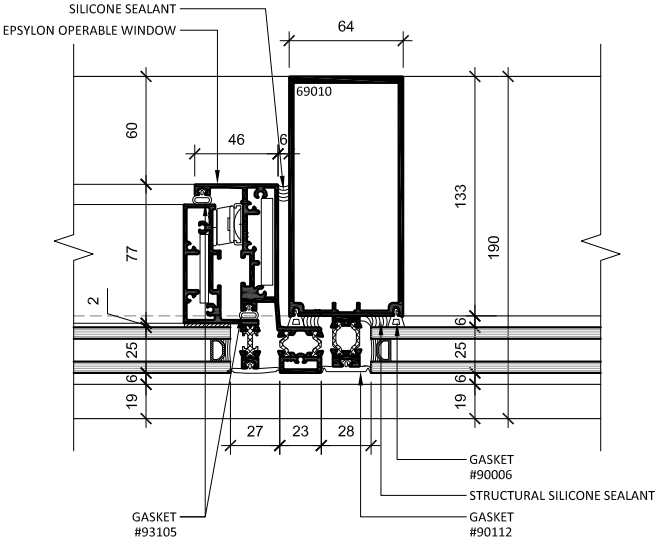
3 MULLION
VISION SECTION
LOUVER INSERT



4 MULLION
VISION SECTION
OPERABLE WINDOW



5 MULLION
LOUVER INSERT
VISION SECTION

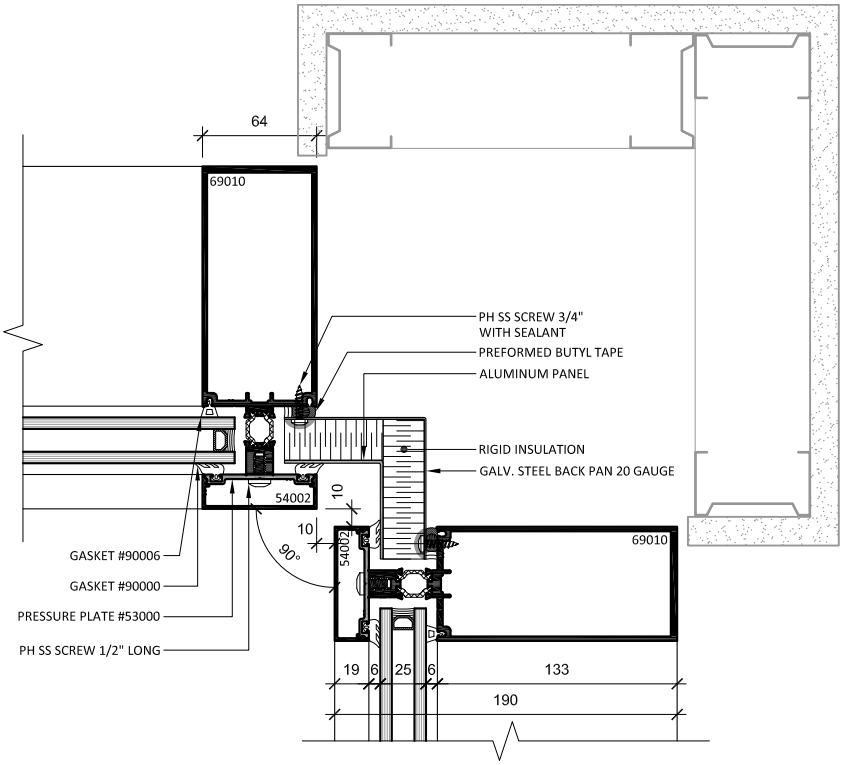


6 MULLION
OPERABLE WINDOW
VISION SECTION

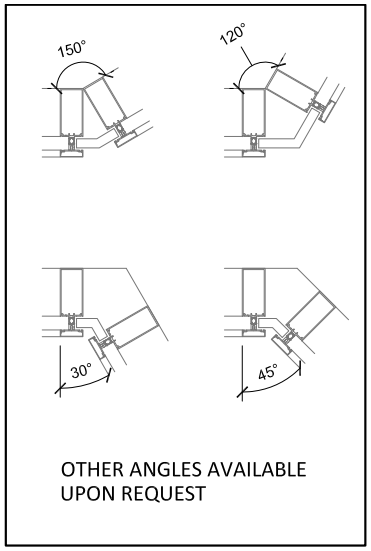
SCALE: 1:4

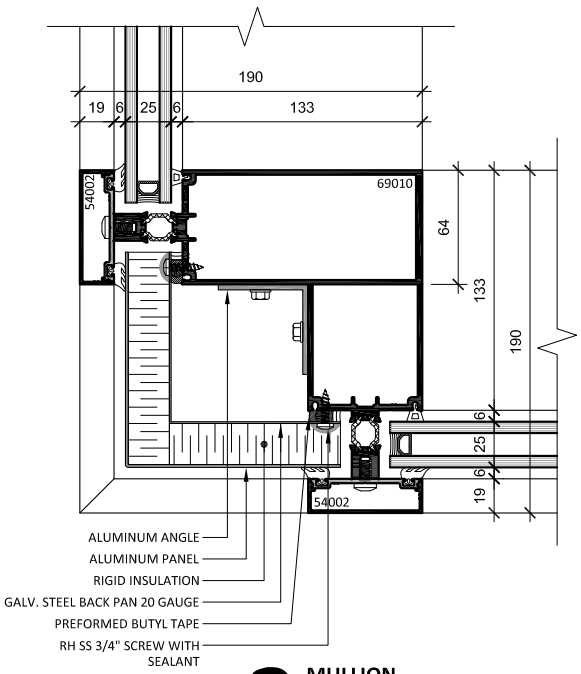
EPSYLON
Façades architecturales
Architectural façades

5. Typical curtain wall details (continued)

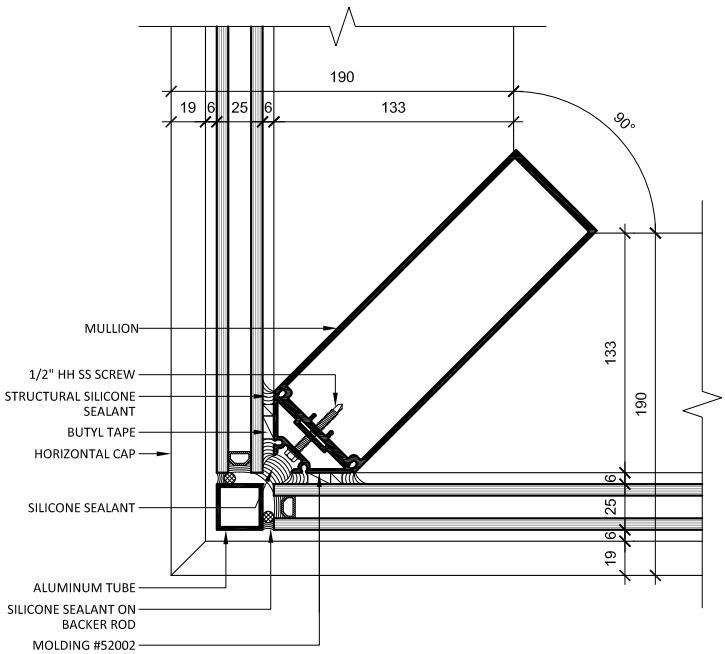


1 **MULLION**
90° INNER CORNER CAP





2 **MULLION**
90° OUTER CORNER CAP



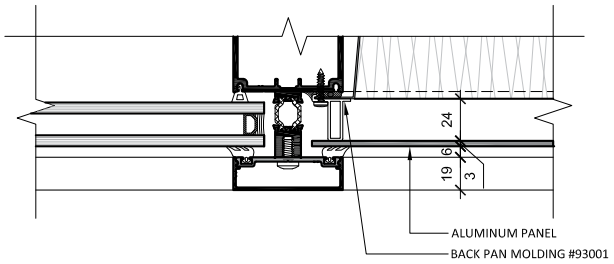
3 **MULLION**
90° OUTER CORNER STRUCTURAL SILICONE

SCALE: 1 : 4

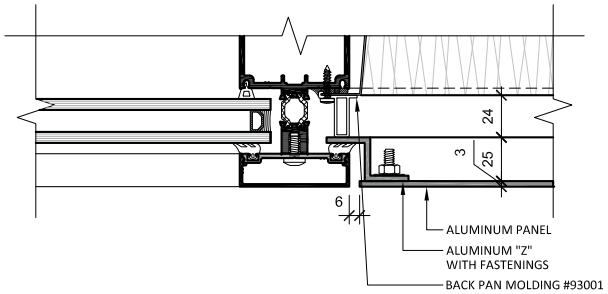
EPSYLON
Façades architecturales
Architectural façades

5. Typical curtain wall details (continued)

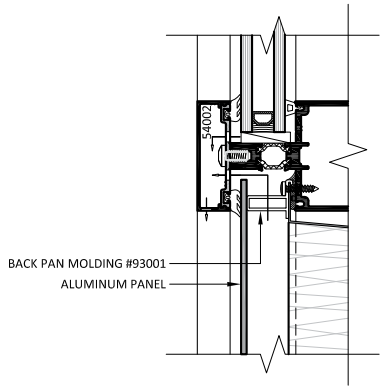
V VISION SECTION
A1 ALUMINUM PANEL 1
A2 ALUMINUM PANEL 2



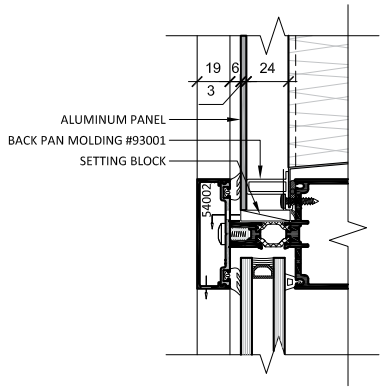
1 MULLION
A1 ALUMINUM PANEL



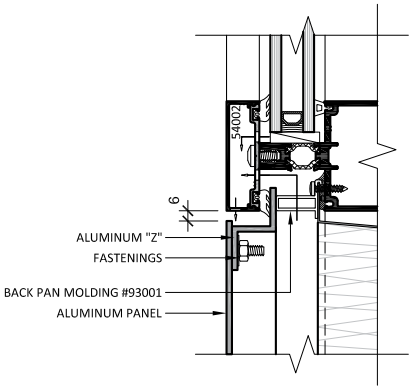
2 MULLION
A2 ALUMINUM PANEL



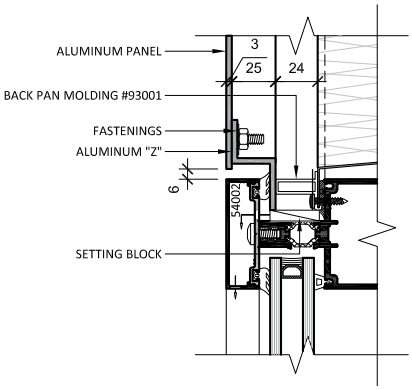
3 TRANSOM
A1 ALUMINUM
PANEL HEAD



4 TRANSOM
A1 ALUMINUM
PANEL BASE



5 TRANSOM
A2 ALUMINUM
PANEL HEAD

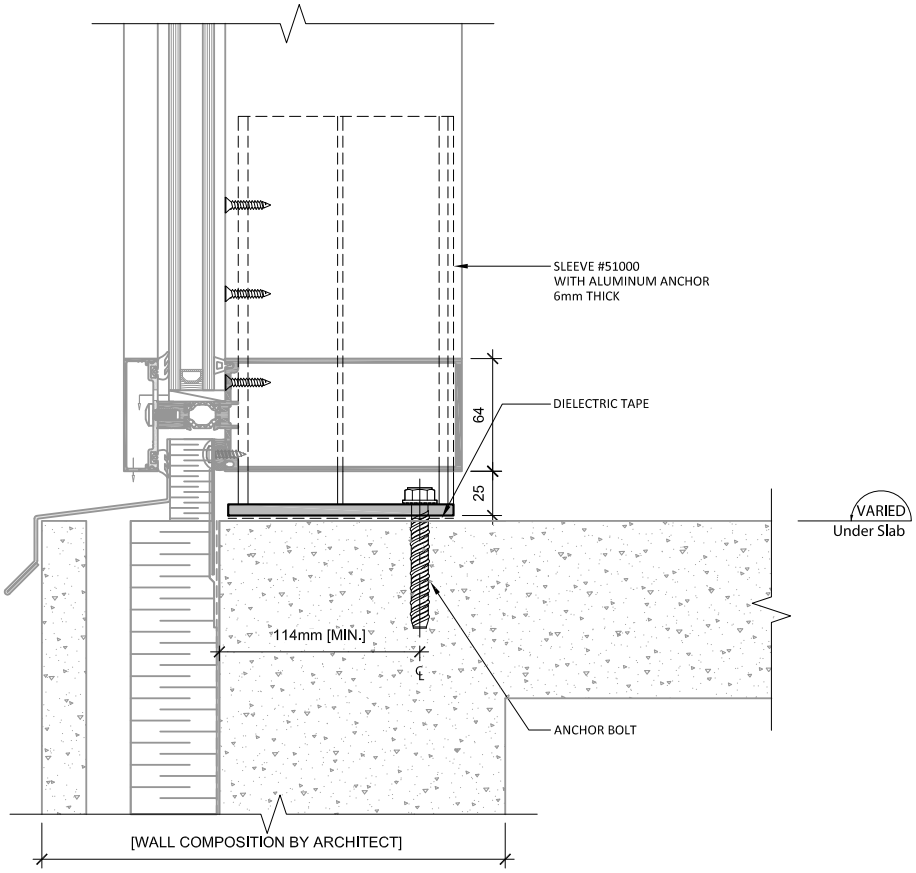


6 TRANSOM
A2 ALUMINUM
PANEL BASE

SCALE: 1 : 4

EPSYLON
Façades architecturales
Architectural façades

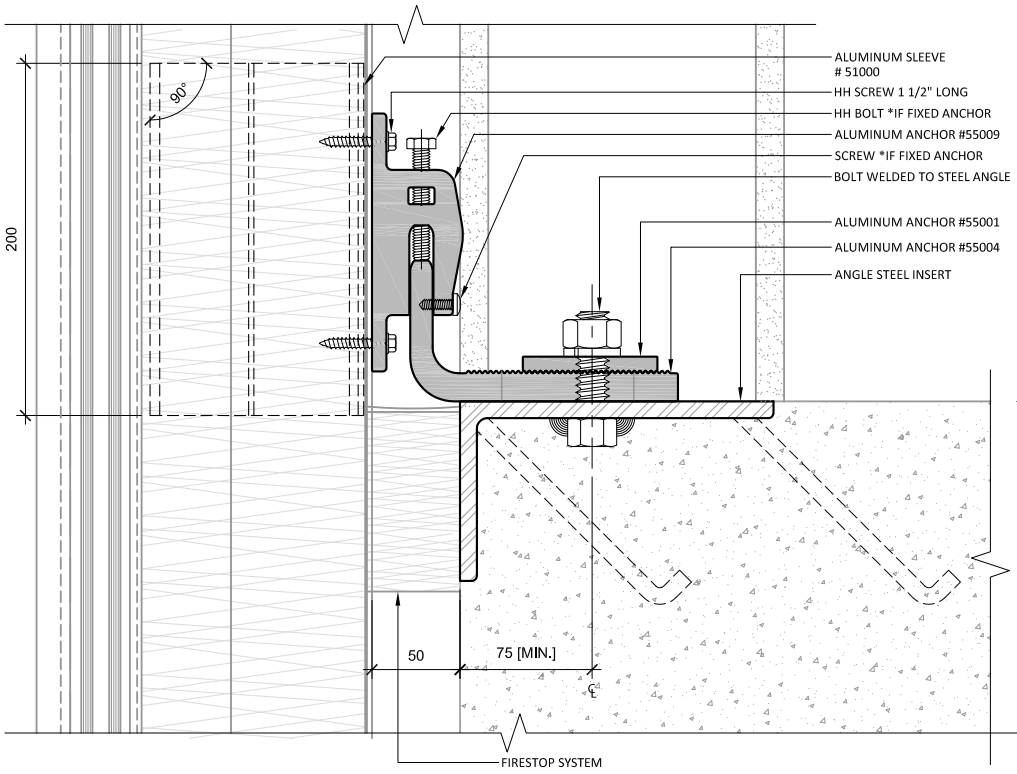
6. Typical anchorage details



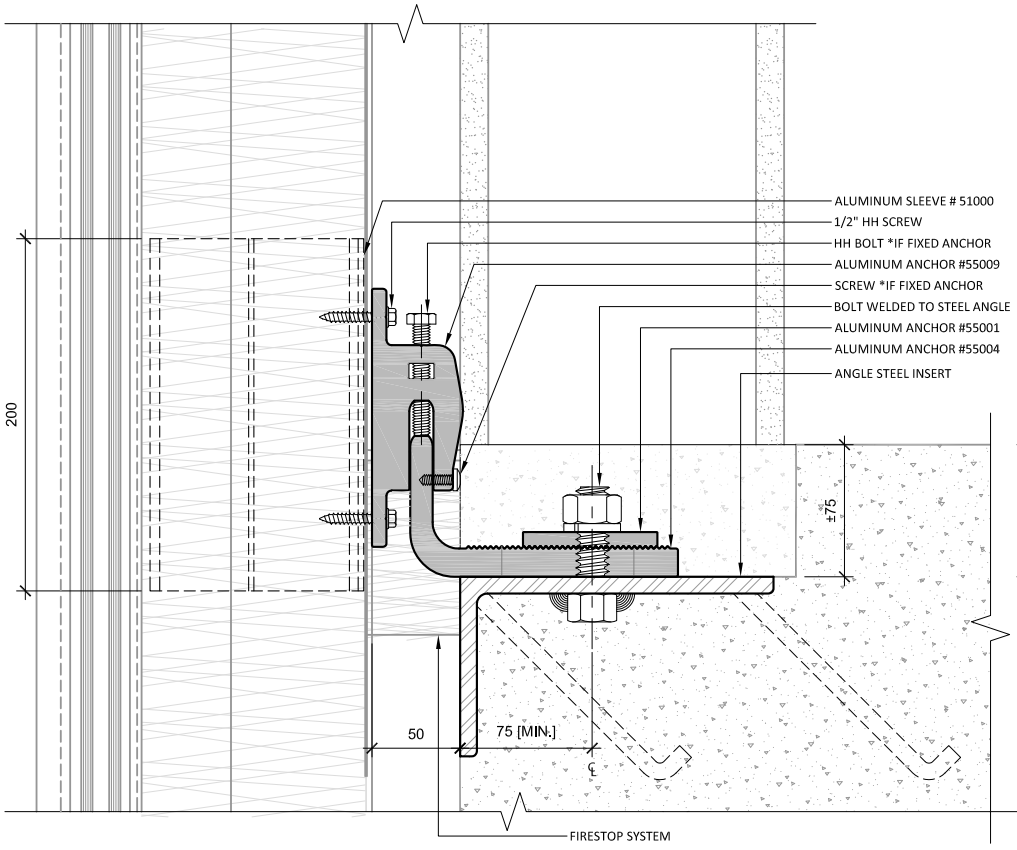
1 **ALUMINUM ANCHOR WALL BASE** (FIXED)

SCALE: 1 : 4

6. Typical anchorage details (continued)



2 ALUMINUM ANCHOR ON SLAB



3 ALUMINUM ANCHOR ON SLAB WITH POCKET

SCALE: 1:4

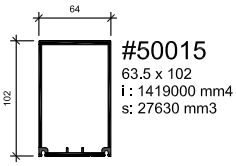
EPSYLON
Façades architecturales
Architectural façades

7. Structural limit charts

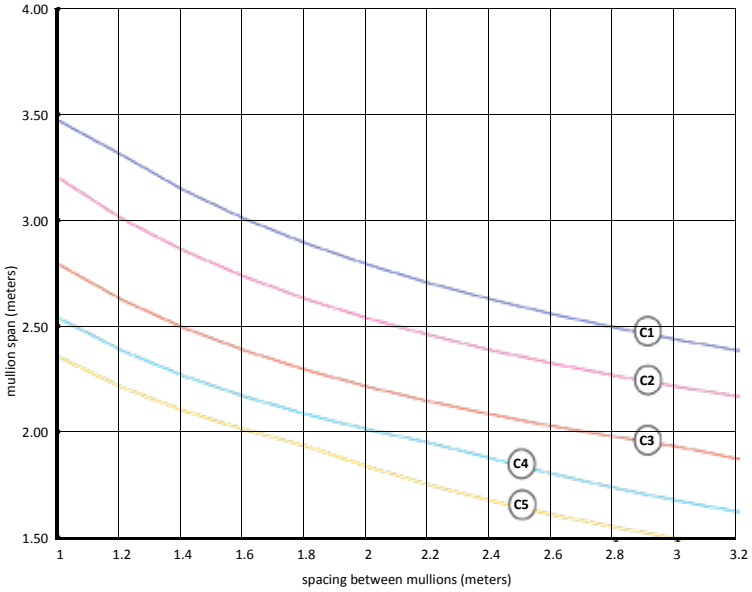
4-sided structural silicone assembly

Vertical mullions

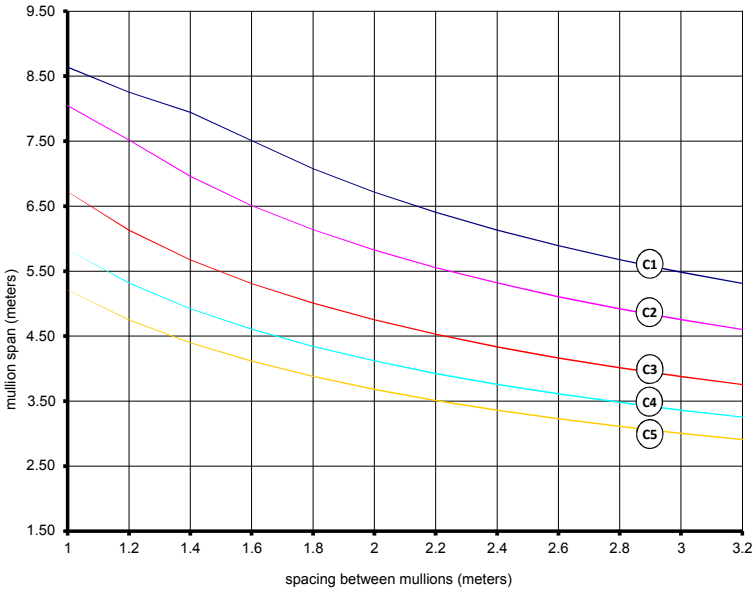
	PRESSURE		WIND SPEED	
	kPa	lbs/pi2	km/h	mph
C1	1.00	21	141	88
C2	1.33	28	163	100
C3	2.00	42	200	125
C4	2.66	56	230	143
C5	3.33	70	260	160

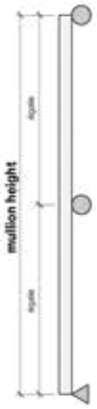


Single span



Twin span





Note: These curves take into consideration that the vertical tube (mullion) will be supported by two supports and a sleeve to ensure structural continuity. They follow the strength criterion that stipulates that the maximum deflection must not exceed L/175 or 19 mm (whichever is less) and the maximum constraint calculated using standard CAN-S157 for 6063-T6 alloy.

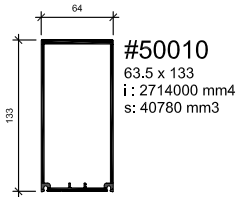
EPSYLON
Façades architecturales
Architectural façades

7. Structural limit charts

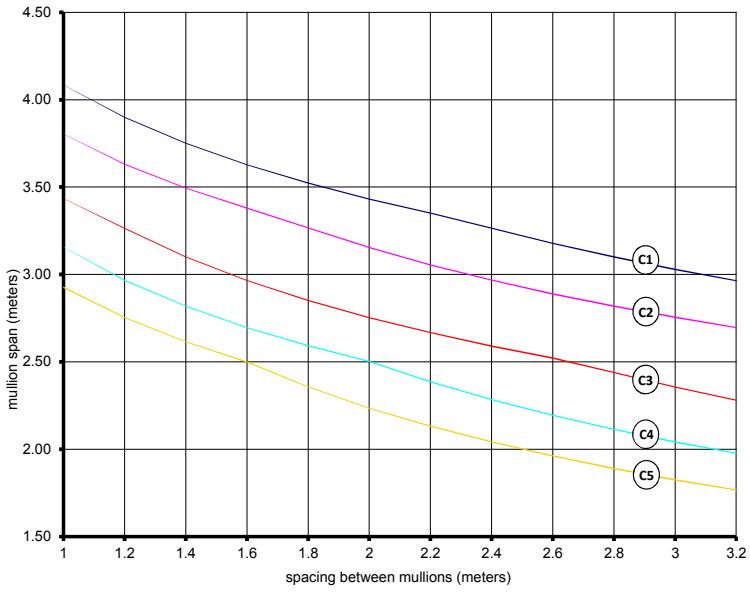
4-sided structural silicone assembly

Vertical mullions

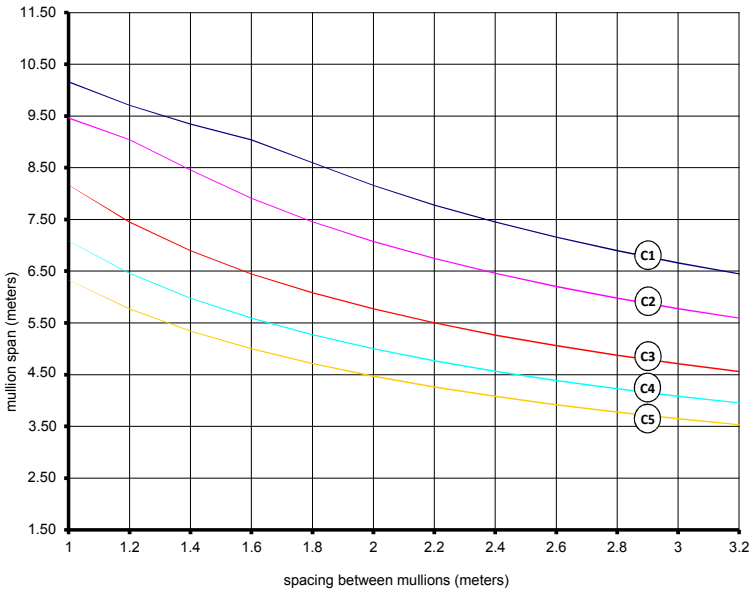
	PRESSURE		WIND SPEED	
	kPa	lbs/pi2	km/h	mph
C1	1.00	21	141	88
C2	1.33	28	163	100
C3	2.00	42	200	125
C4	2.66	56	230	143
C5	3.33	70	260	160

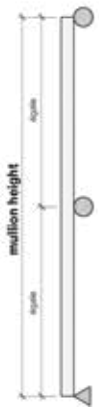


Single span



Twin span





Note: These curves take into consideration that the vertical tube (mullion) will be supported by two supports and a sleeve to ensure structural continuity. They follow the strength criterion that stipulates that the maximum deflection must not exceed L/175 or 19 mm (whichever is less) and the maximum constraint calculated using standard CAN-S157 for 6063-T6 alloy.

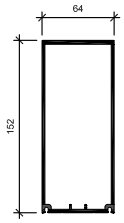
EPSYLON
Façades architecturales
Architectural façades

7. Structural limit charts

4-sided structural silicone assembly

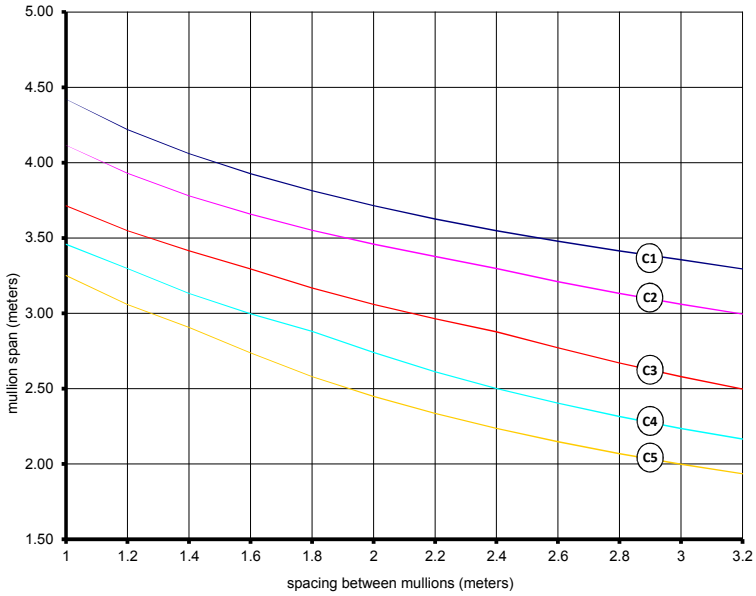
Vertical mullions

	PRESSURE		WIND SPEED	
	kPa	lbs/pi2	km/h	mph
C1	1.00	21	141	88
C2	1.33	28	163	100
C3	2.00	42	200	125
C4	2.66	56	230	143
C5	3.33	70	260	160

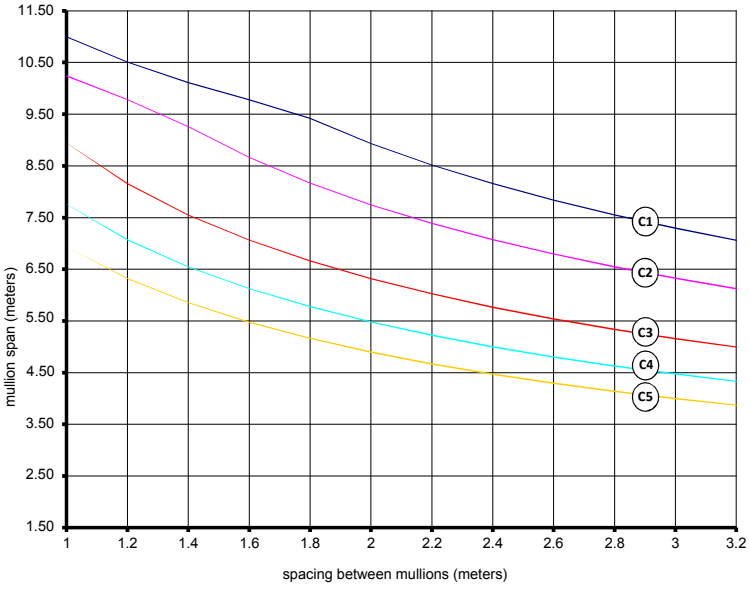


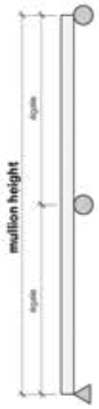
#50016
63.5 x 152
i : 3723000 mm4
s: 48900 mm3

Single span



Twin span





Note: These curves take into consideration that the vertical tube (mullion) will be supported by two supports and a sleeve to ensure structural continuity. They follow the strength criterion that stipulates that the maximum deflection must not exceed L/175 or 19 mm (whichever is less) and the maximum constraint calculated using standard CAN-S157 for 6063-T6 alloy.

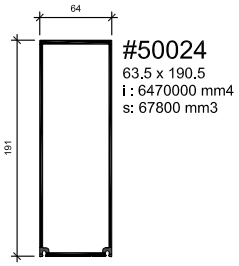
EPSYLON
Façades architecturales
Architectural façades

7. Structural limit charts

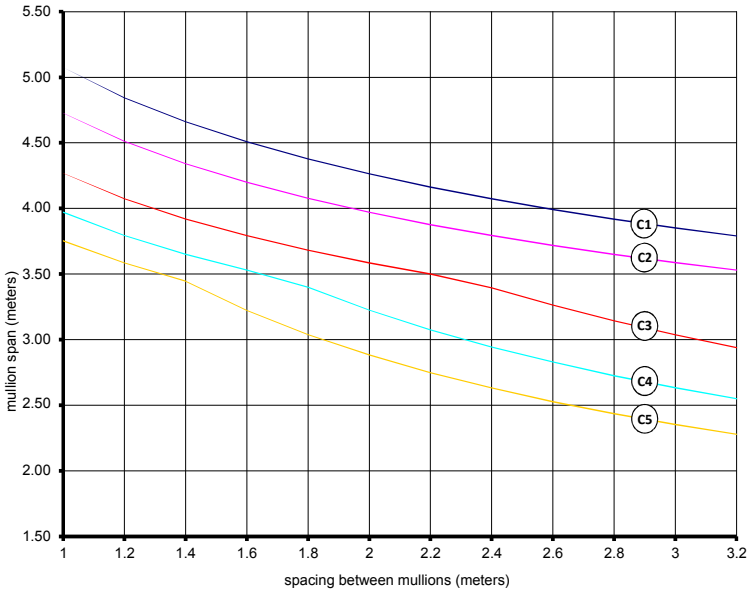
4-sided structural silicone assembly

Vertical mullions

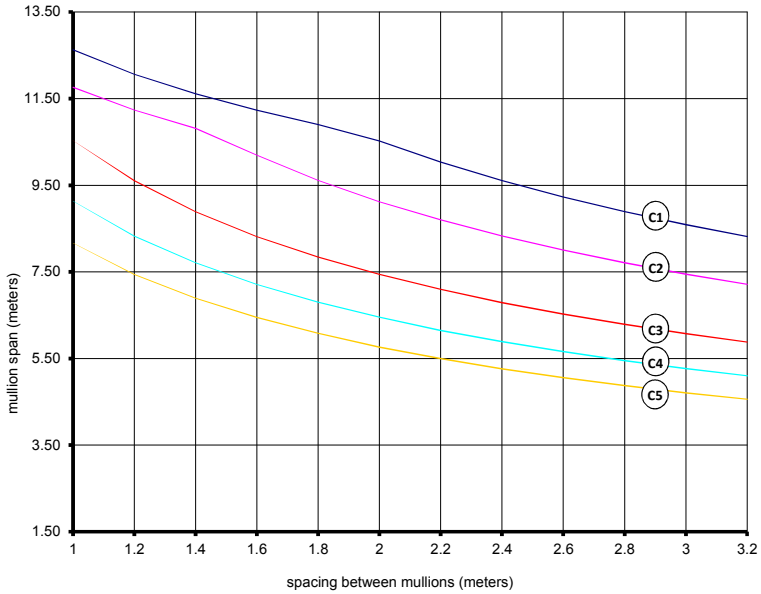
	PRESSURE		WIND SPEED	
	kPa	lbs/pi2	km/h	mph
C1	1.00	21	141	88
C2	1.33	28	163	100
C3	2.00	42	200	125
C4	2.66	56	230	143
C5	3.33	70	260	160

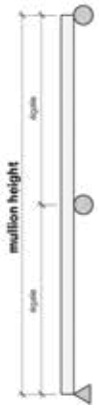


Single span



Twin span



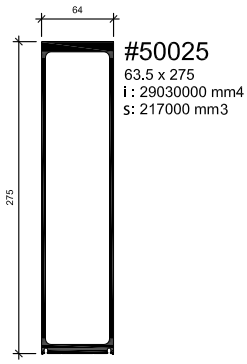


Note: These curves take into consideration that the vertical tube (mullion) will be supported by two supports and a sleeve to ensure structural continuity. They follow the strength criterion that stipulates that the maximum deflection must not exceed L/175 or 19 mm (whichever is less) and the maximum constraint calculated using standard CAN-S157 for 6063-T6 alloy.

7. Structural limit charts

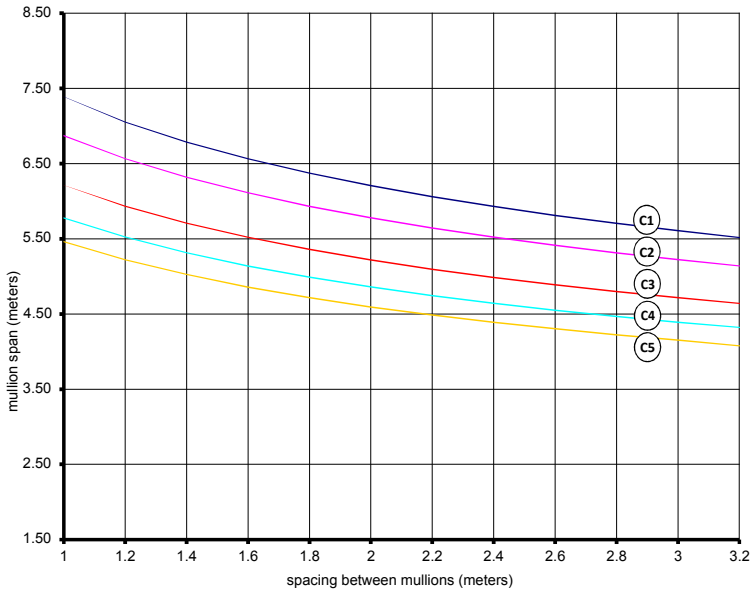
4-sided structural silicone assembly

Vertical mullions

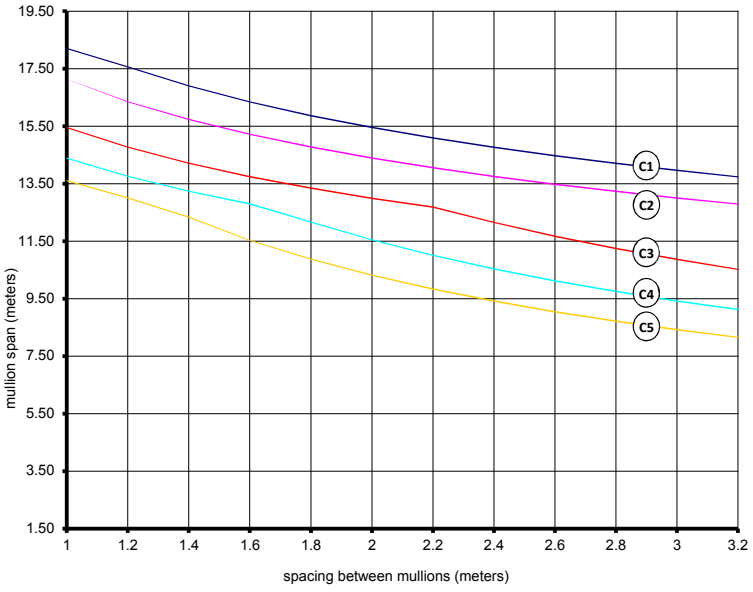


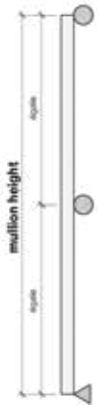
	PRESSURE		WIND SPEED	
	kPa	lbs/pi2	km/h	mph
C1	1.00	21	141	88
C2	1.33	28	163	100
C3	2.00	42	200	125
C4	2.66	56	230	143
C5	3.33	70	260	160

Single span



Twin span





Note: These curves take into consideration that the vertical tube (mullion) will be supported by two supports and a sleeve to ensure structural continuity. They follow the strength criterion that stipulates that the maximum deflection must not exceed L/175 or 19 mm (whichever is less) and the maximum constraint calculated using standard CAN-S157 for 6063-T6 alloy.

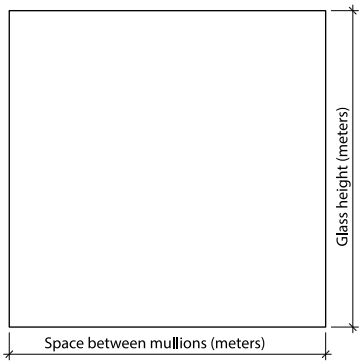
EPSYLON
Façades architecturales
Architectural façades

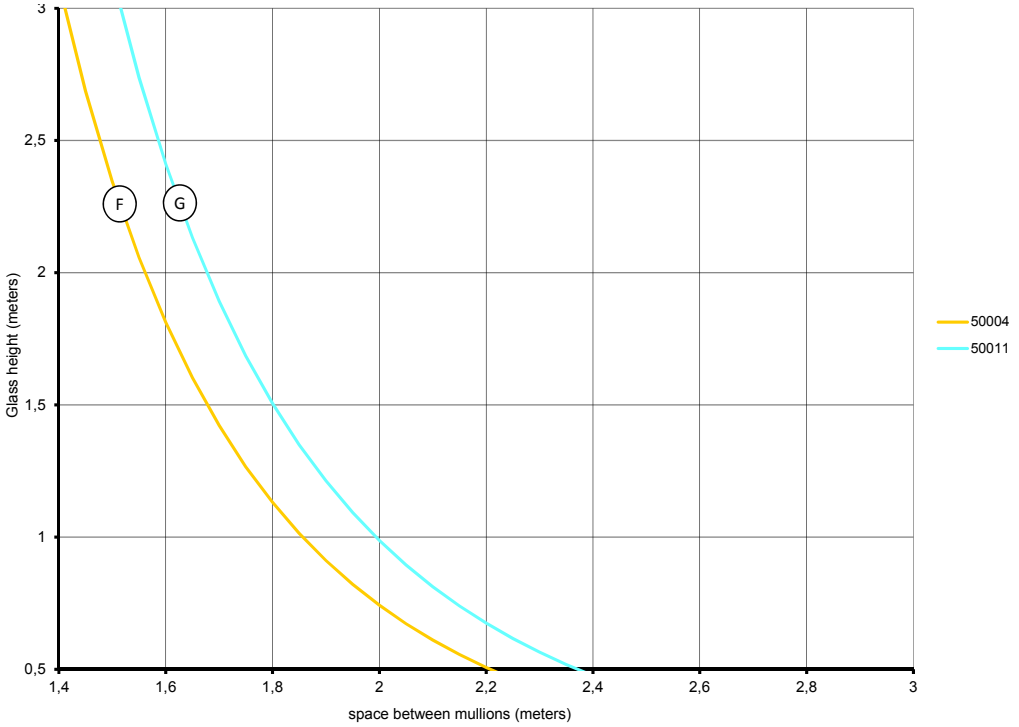
7. Structural limit charts

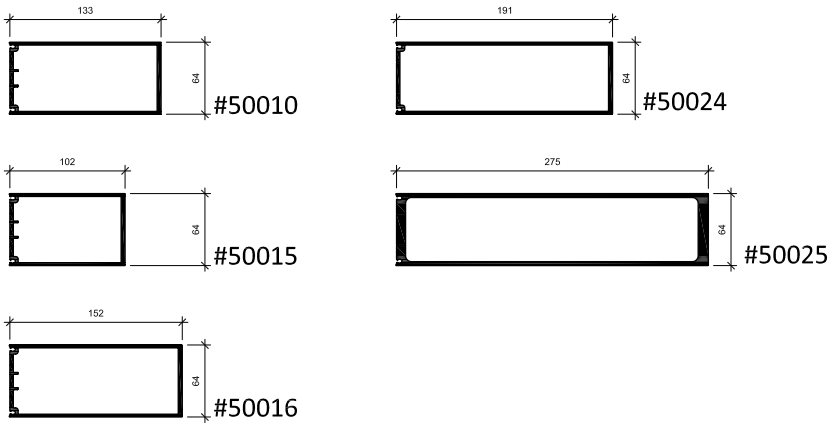
4-sided structural silicone assembly

Horizontal cross members

CURVES	TRANSOM		
	#	i (mm4)	s (mm3)
H	50015	594536	18726
J	50010	742309	23380
K	50016	829103	26113
L	50024	1008277	31757
M	50025	1986352	62562







Note: The curves were drawn based on 25 mm sealed units, made up of two 6 mm glass panes supported at 1/4 of the span of the horizontal tube (transom), with a maximum deflection of 3.2 mm.

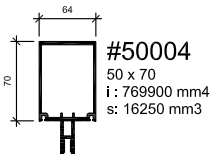
EPSYLON
Façades architecturales
Architectural façades

7. Structural limit charts

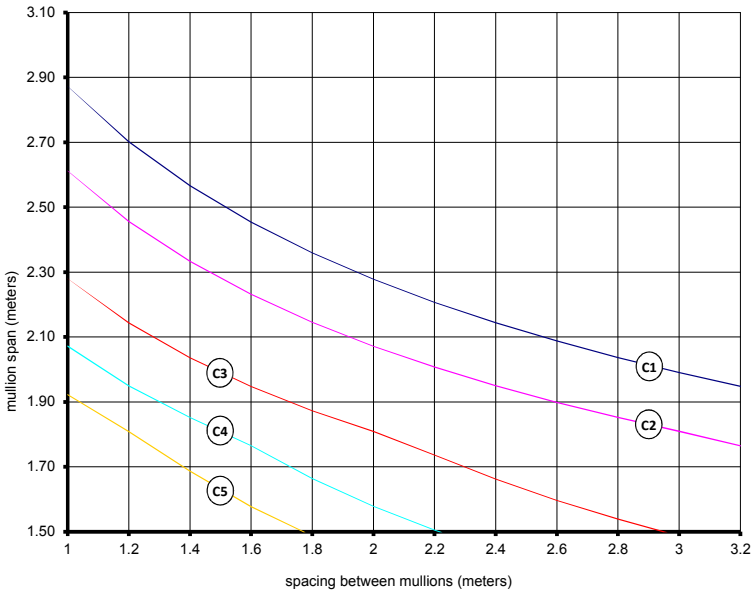
Type of assembly with caps and pressure plates

Vertical mullions

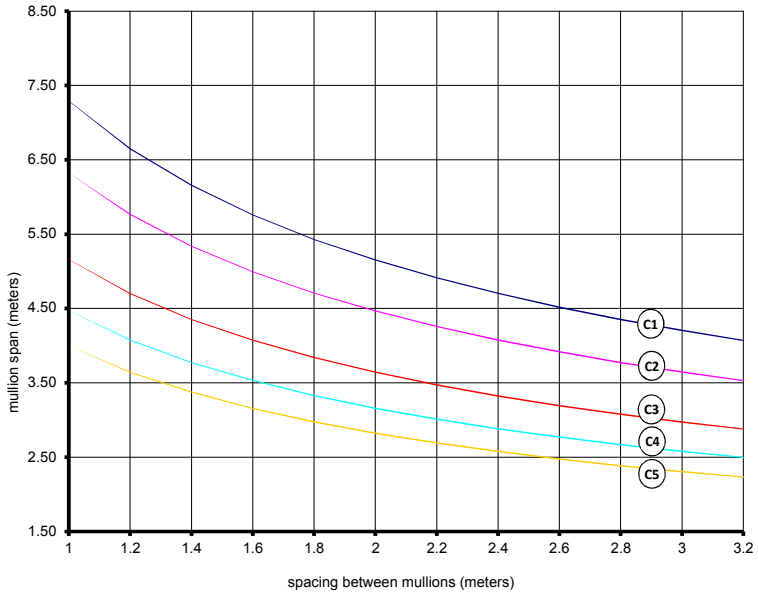
	PRESSURE		WIND SPEED	
	kPa	lbs/pi2	km/h	mph
C1	1.00	21	141	88
C2	1.33	28	163	100
C3	2.00	42	200	125
C4	2.66	56	230	143
C5	3.33	70	260	160

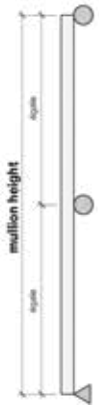


Single span



Twin span





Note: These curves take into consideration that the vertical tube (mullion) will be supported by two supports and a sleeve to ensure structural continuity. They follow the strength criterion that stipulates that the maximum deflection must not exceed L/175 or 19 mm (whichever is less) and the maximum constraint calculated using standard CAN-S157 for 6063-T6 alloy.

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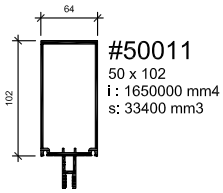
7. Structural limit charts

Type of assembly with caps and pressure plates

Vertical mullions

	PRESSURE		WIND SPEED	
	kPa	lbs/pi2	km/h	mph
C1	1.00	21	141	88
C2	1.33	28	163	100
C3	2.00	42	200	125
C4	2.66	56	230	143
C5	3.33	70	260	160



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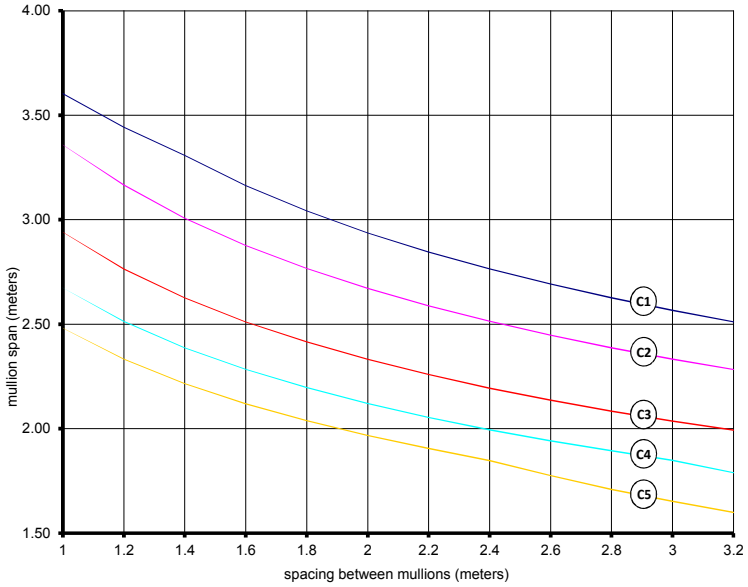
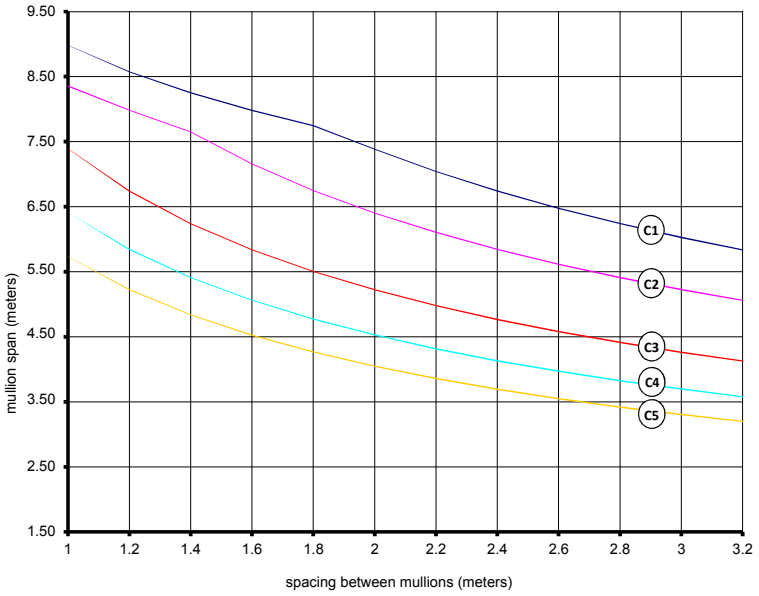
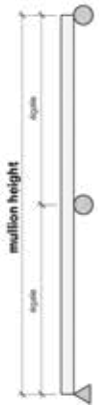


Twin span





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7. Structural limit charts

Type of assembly with caps and pressure plates

Vertical mullions

	PRESSURE		WIND SPEED	
	kPa	lbs/pi2	km/h	mph
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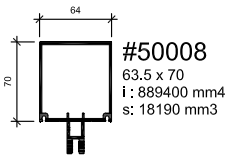
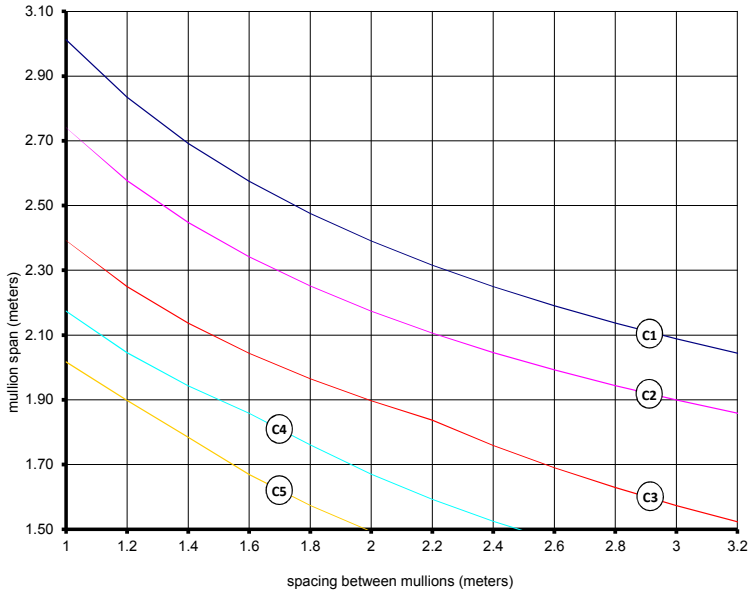
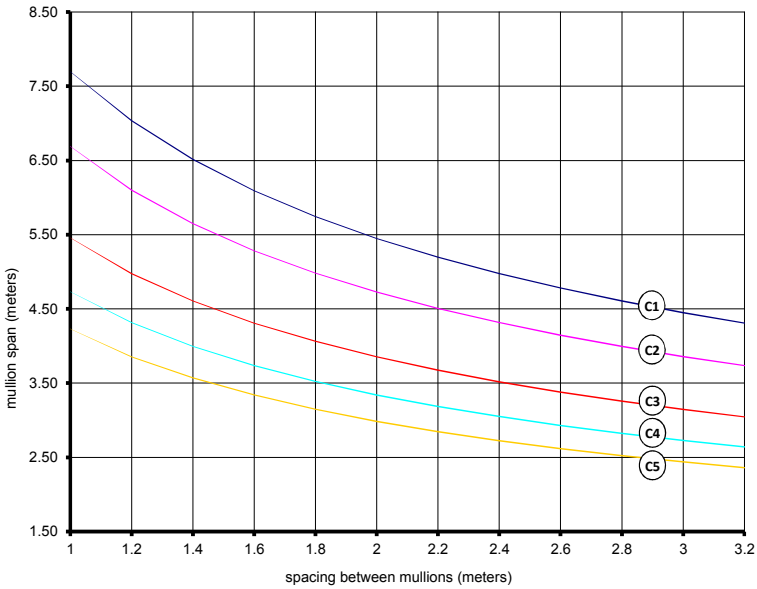
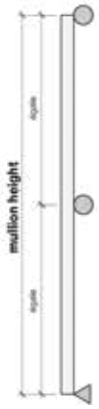


Single span



Twin span





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7. Structural limit charts

Type of assembly with caps and pressure plates

Vertical mullions

	PRESSURE		WIND SPEED	
	kPa	lbs/pi2	km/h	mph
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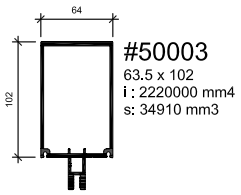

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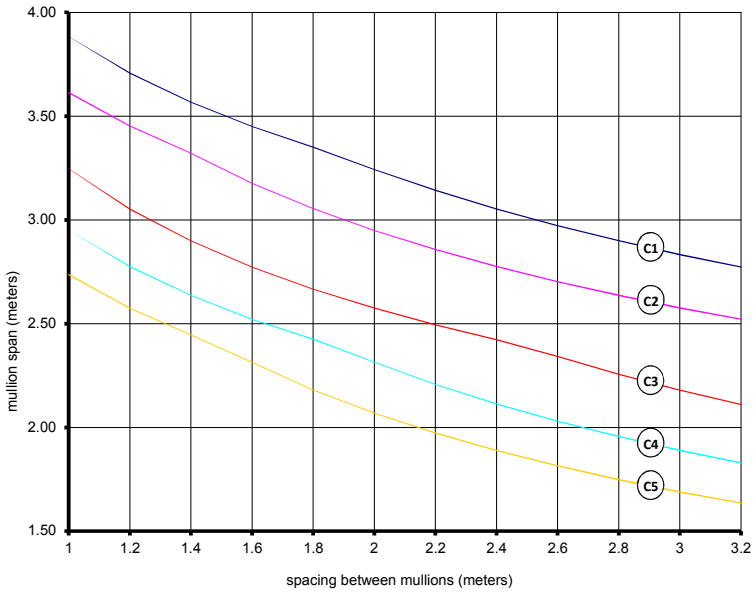

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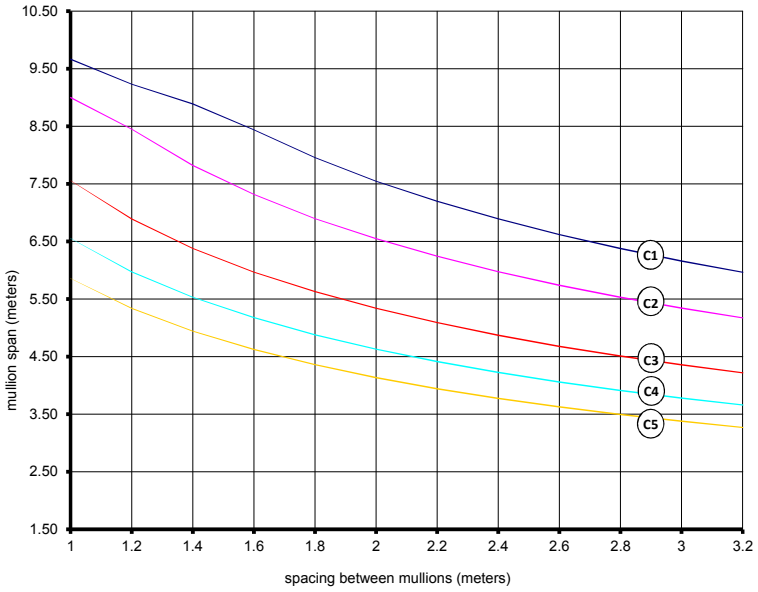

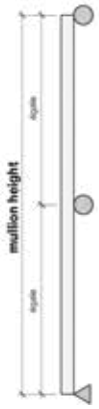

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7. Structural limit charts

Type of assembly with caps and pressure plates

Vertical mullions

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	kPa	lbs/pi2	km/h	mph
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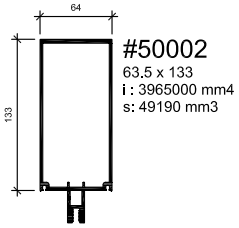

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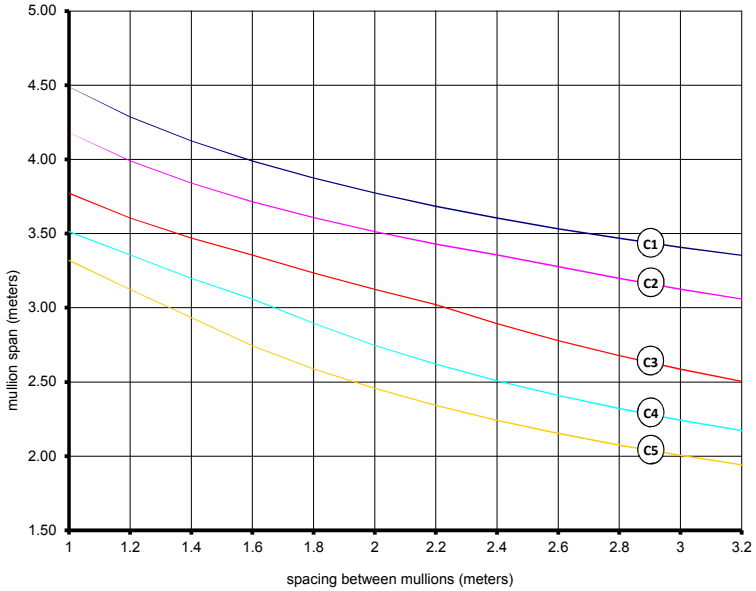

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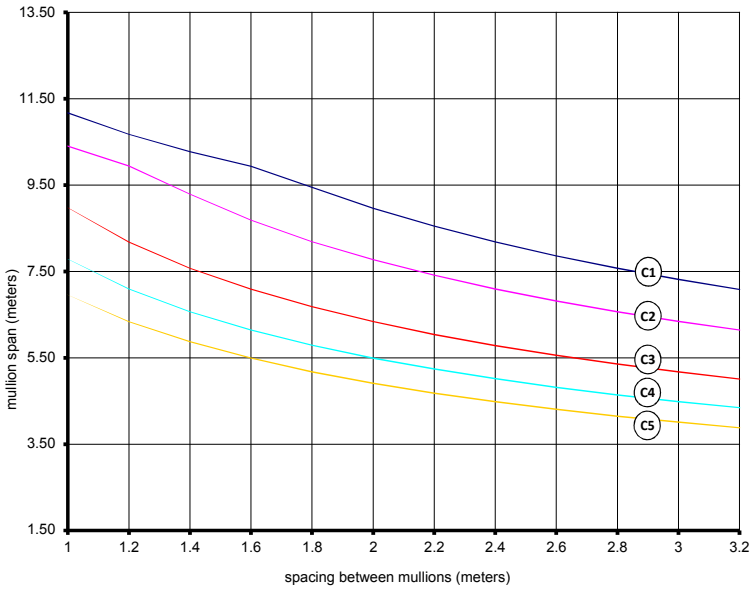

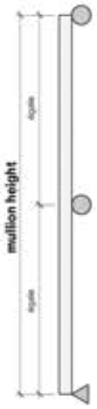

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7. Structural limit charts

Type of assembly with caps and pressure plates

Vertical mullions

	PRESSURE		WIND SPEED	
	kPa	lbs/pi2	km/h	mph
C1	1.00	21	141	88
C2	1.33	28	163	100
C3	2.00	42	200	125
C4	2.66	56	230	143
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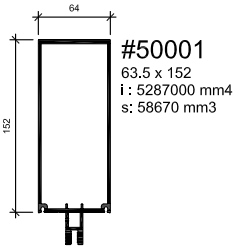
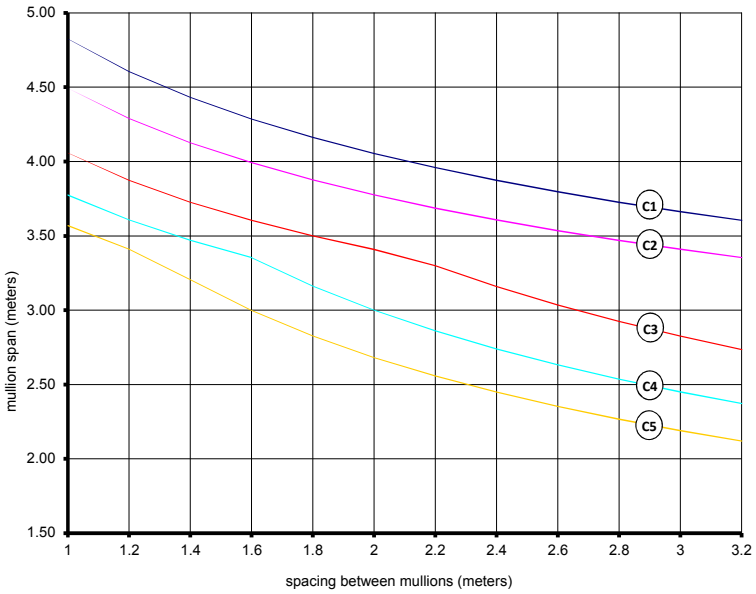
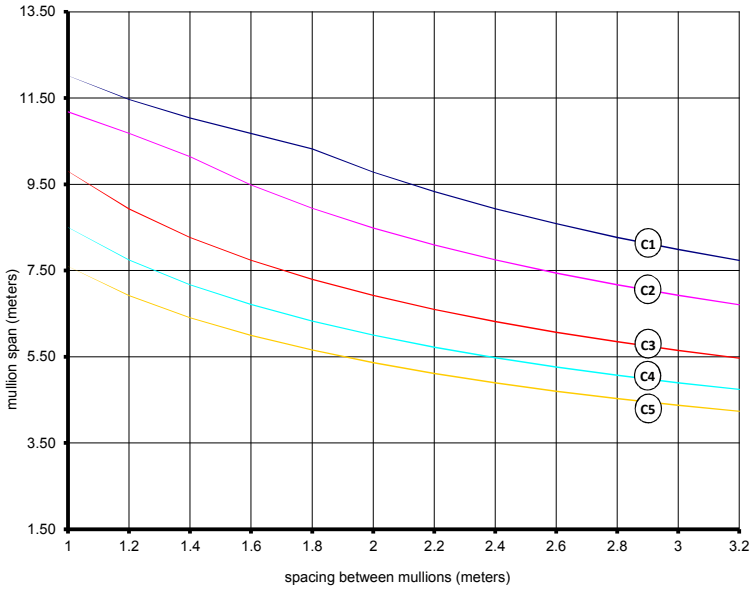
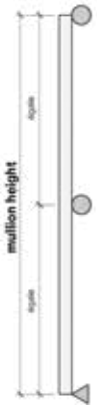


Single span



Twin span





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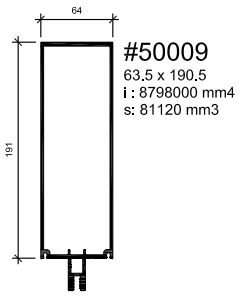
7. Structural limit charts

Type of assembly with caps and pressure plates

Vertical mullions



	PRESSURE		WIND SPEED	
	kPa	lbs/pi2	km/h	mph
C1	1.00	21	141	88
C2	1.33	28	163	100
C3	2.00	42	200	125
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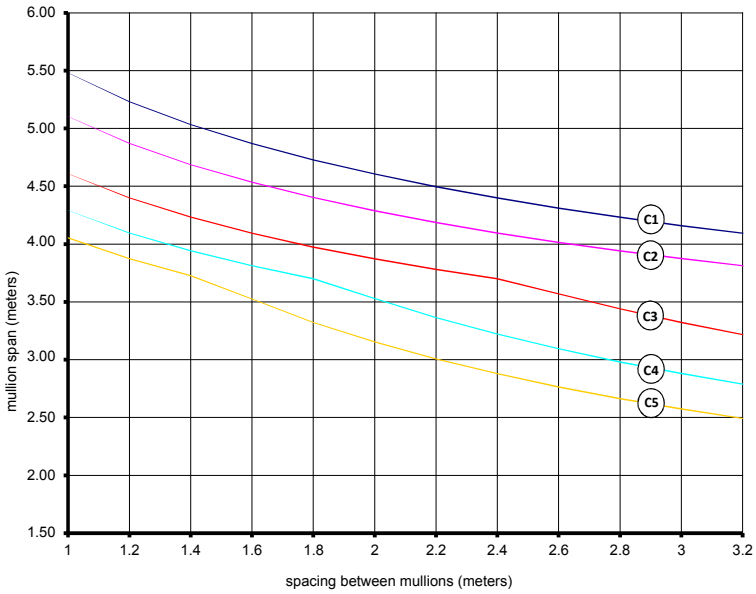
Single span



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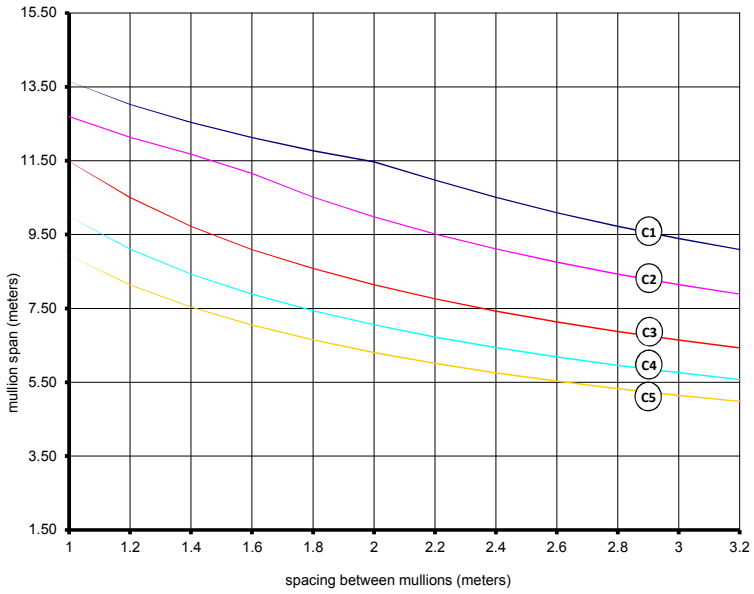

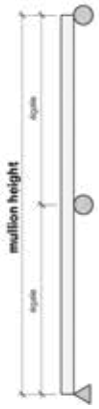

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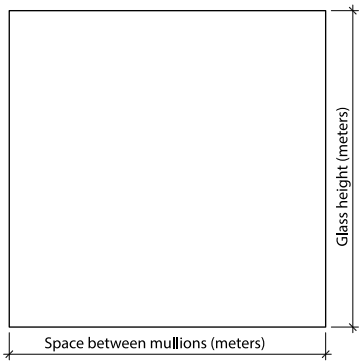
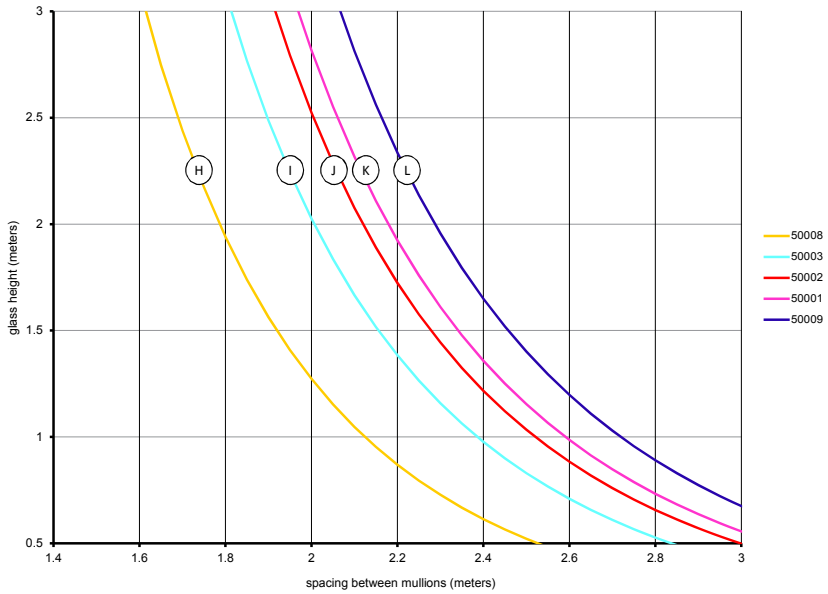
7. Structural limit charts

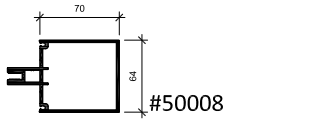
Type of assembly with caps and pressure plates

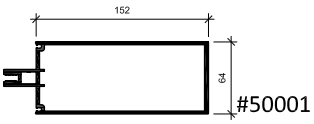
Horizontal cross members

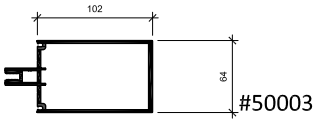
	PRESSURE		WIND SPEED	
	kPa	lbs/pi2	km/h	mph
C1	1.00	21	141	88
C2	1.33	28	163	100
C3	2.00	42	200	125
C4	2.66	56	230	143
C5	3.33	70	260	160

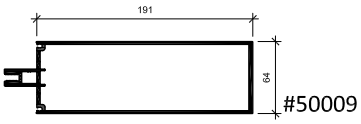


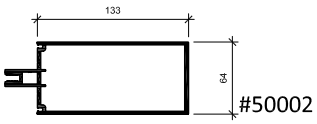












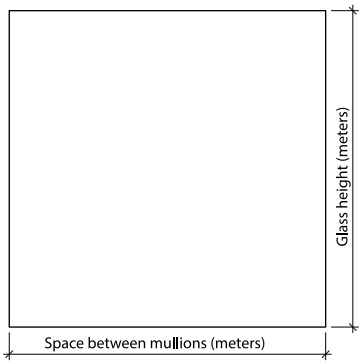
Note: The curves were drawn based on 25 mm sealed units, made up of two 6 mm glass panes supported at 1/4 of the span of the horizontal tube (transom), with a maximum deflection of 3.2 mm.

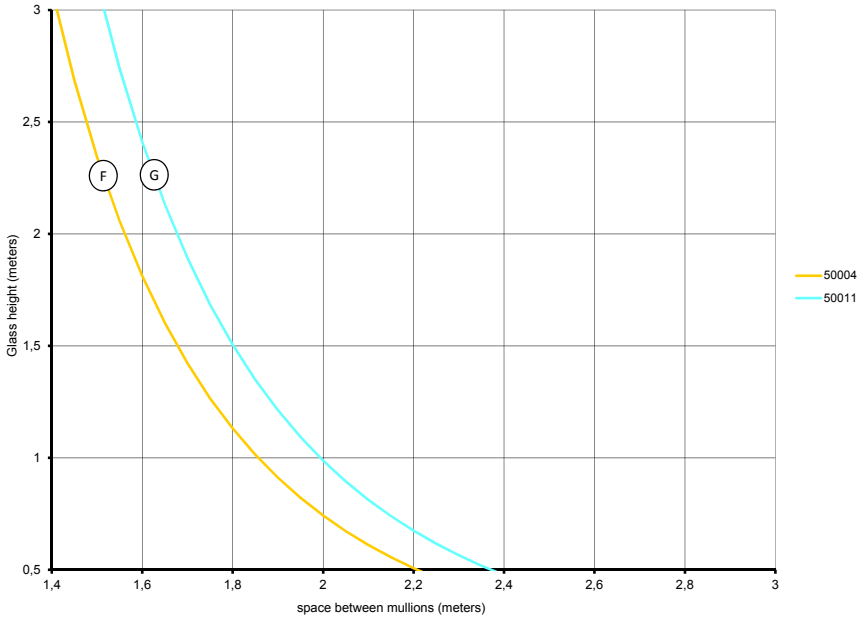
7. Structural limit charts

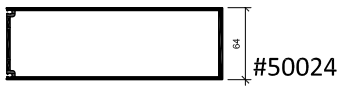
Type of assembly with caps and pressure plates

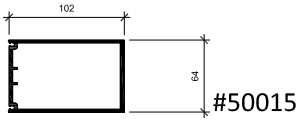
Horizontal cross members

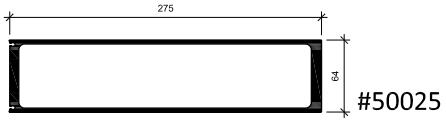
CURVES	TRANSOM		
	#	i (mm4)	s (mm3)
H	50015	594536	18726
J	50010	742309	23380
K	50016	829103	26113
L	50024	1008277	31757
M	50025	1986352	62562

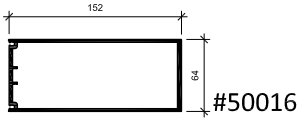












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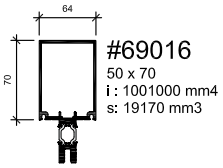
EPSYLON
Façades architecturales
Architectural façades

7. Structural limit charts

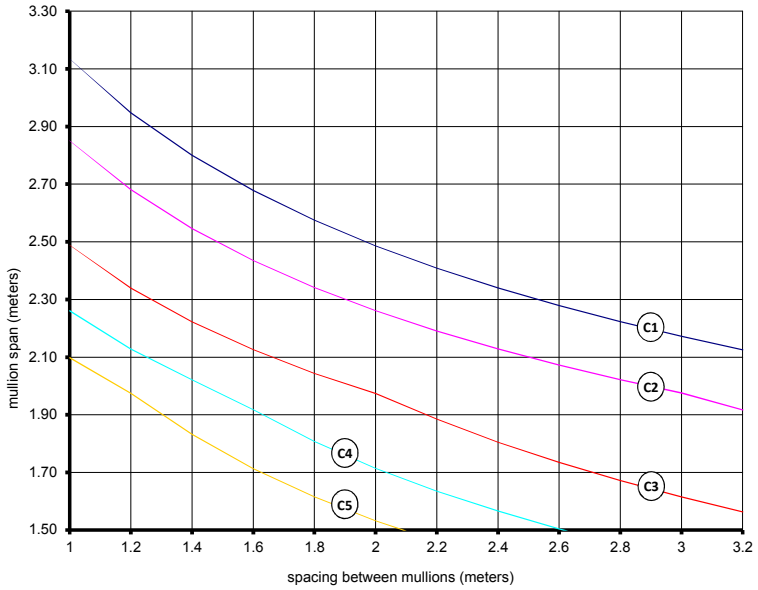
Type of assembly with polyamide

Vertical mullions

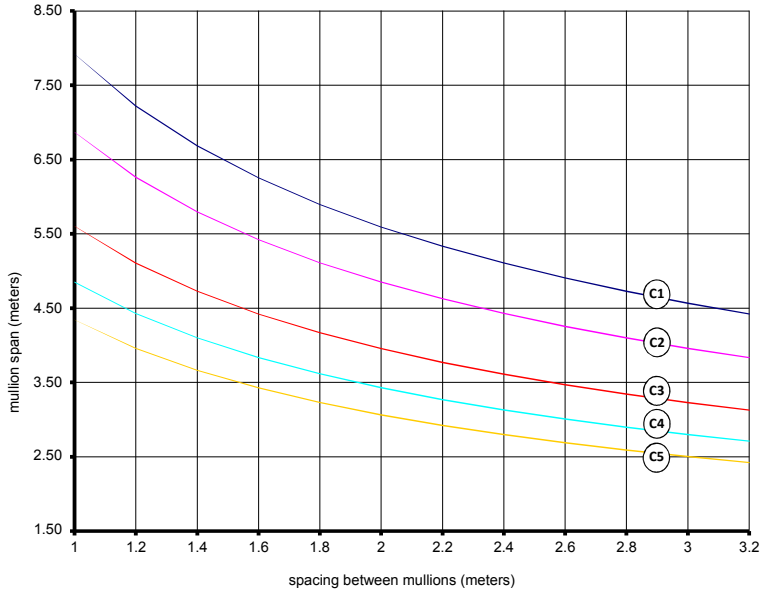
	PRESSURE		WIND SPEED	
	kPa	lbs/pi2	km/h	mph
C1	1.00	21	141	88
C2	1.33	28	163	100
C3	2.00	42	200	125
C4	2.66	56	230	143
C5	3.33	70	260	160

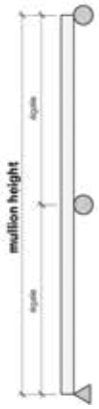


Single span



Twin span





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7. Structural limit charts

Type of assembly with polyamide

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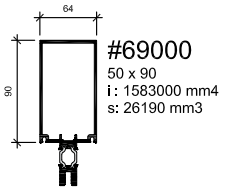
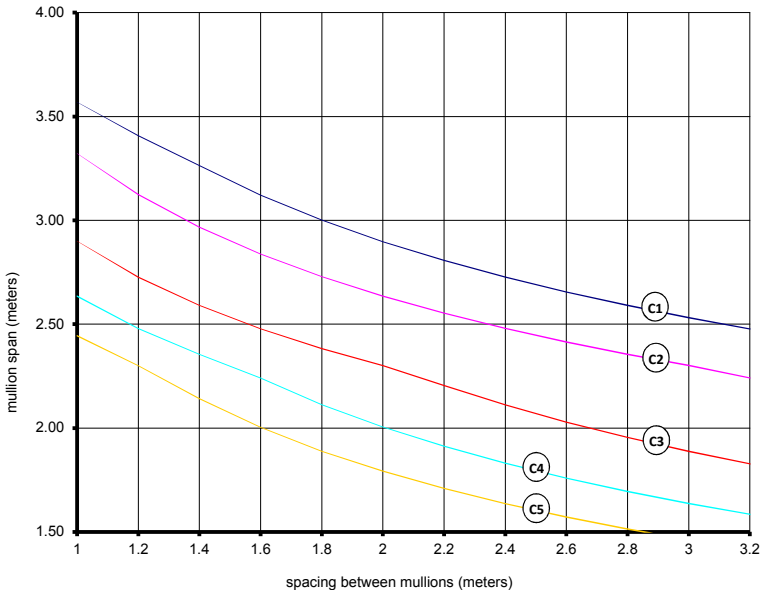
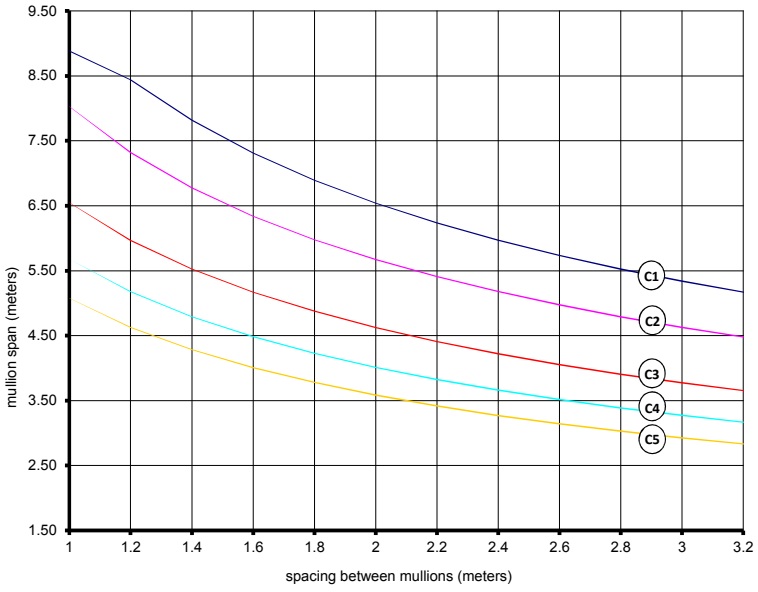
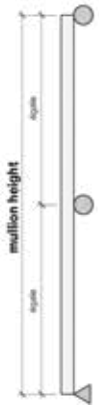


Single span



Twin span





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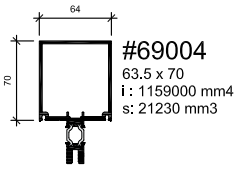
EPSYLON
Façades architecturales
Architectural façades

7. Structural limit charts

Type of assembly with polyamide

Vertical mullions

	PRESSURE		WIND SPEED	
	kPa	lbs/pi2	km/h	mph
C1	1.00	21	141	88
C2	1.33	28	163	100
C3	2.00	42	200	125
C4	2.66	56	230	143
C5	3.33	70	260	160



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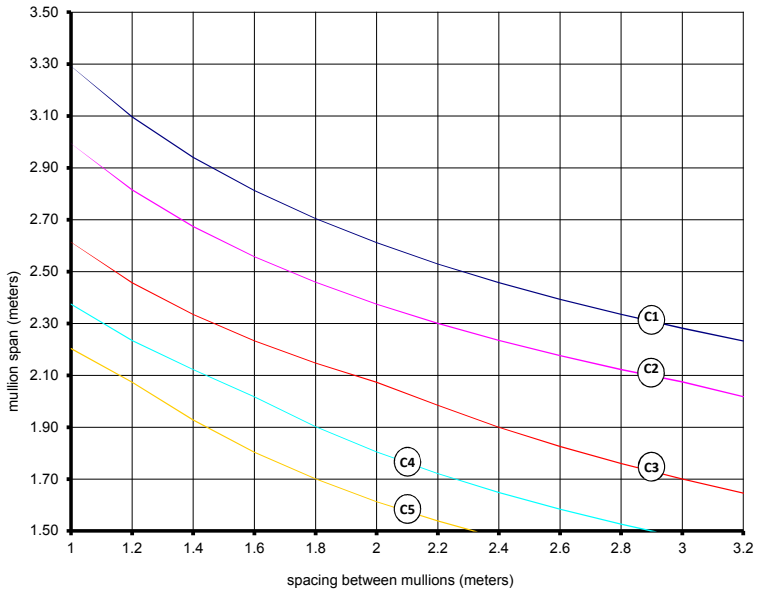

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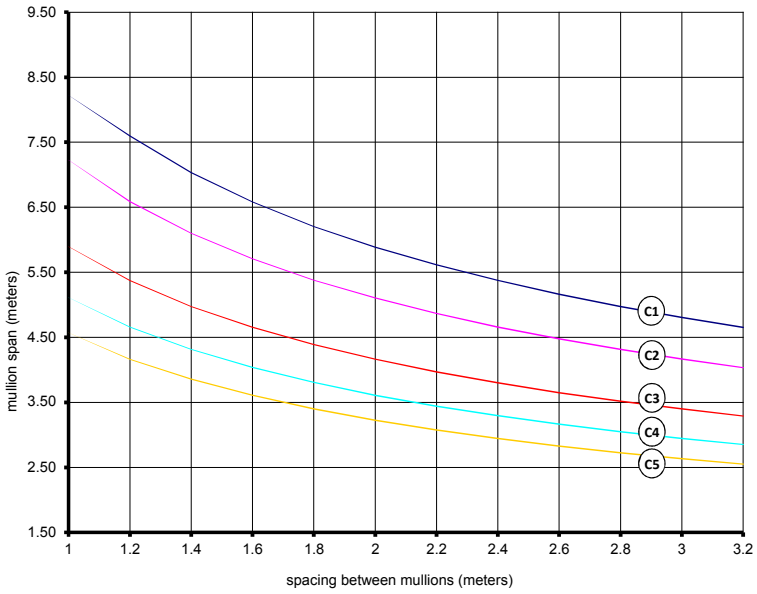

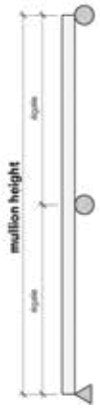

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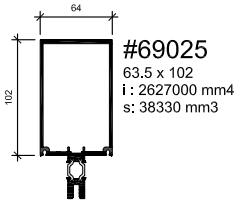

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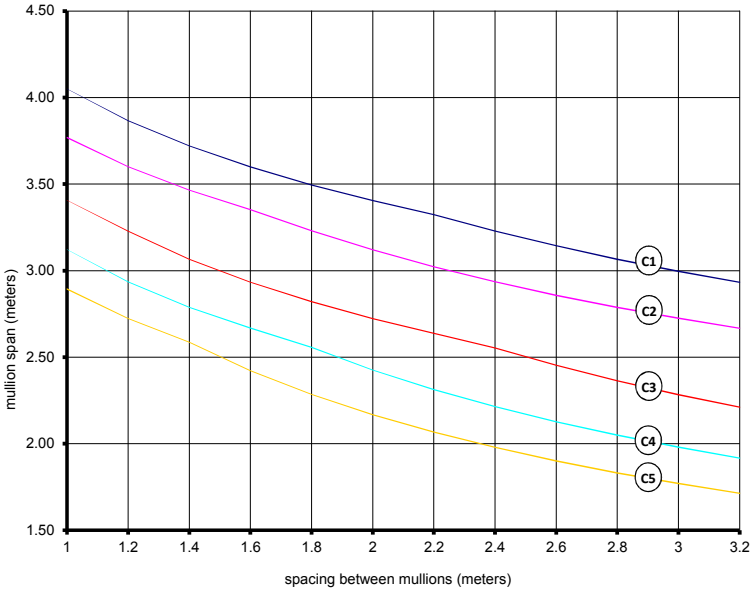

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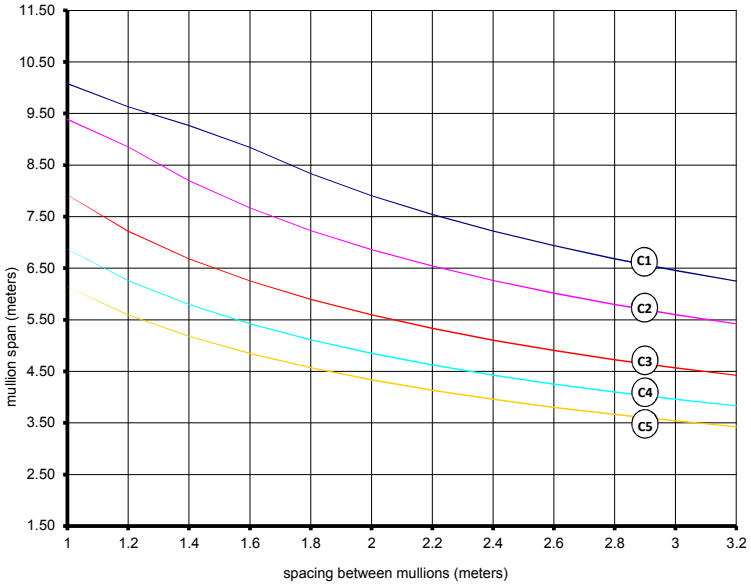

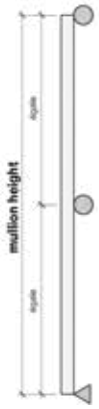

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7. Structural limit charts

Type of assembly with polyamide

Vertical mullions

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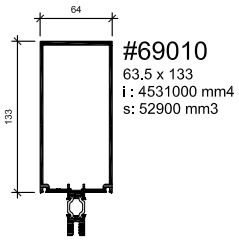

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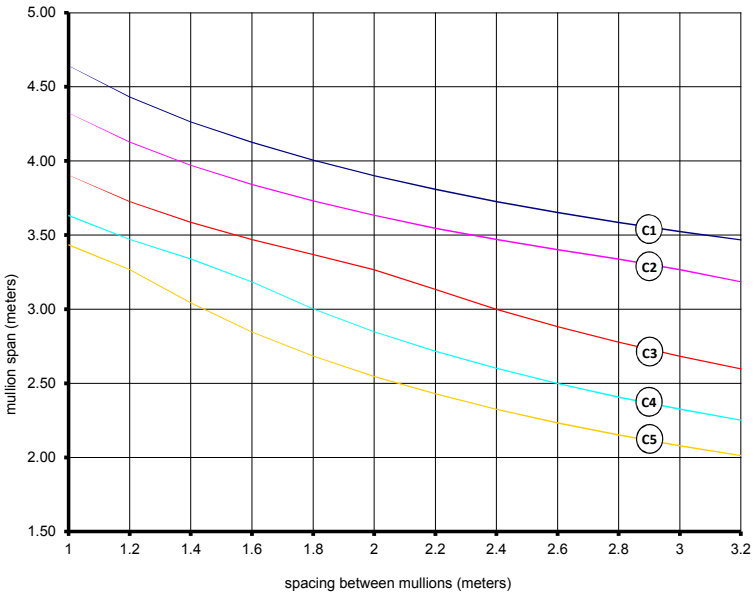

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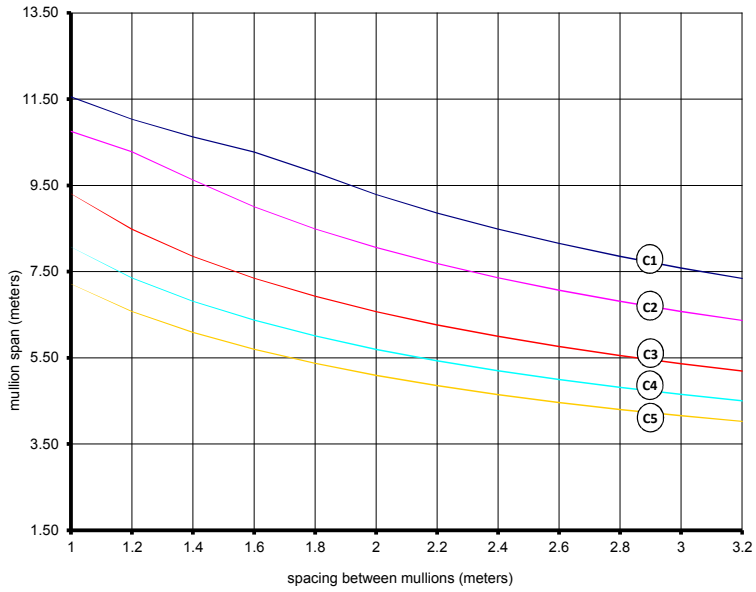

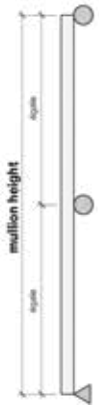

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7. Structural limit charts

Type of assembly with polyamide

Vertical mullions

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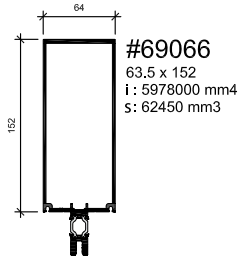

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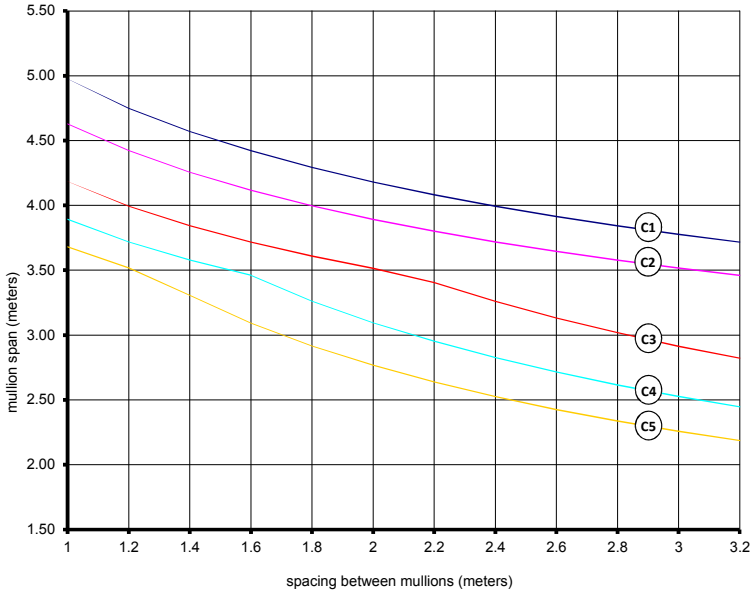

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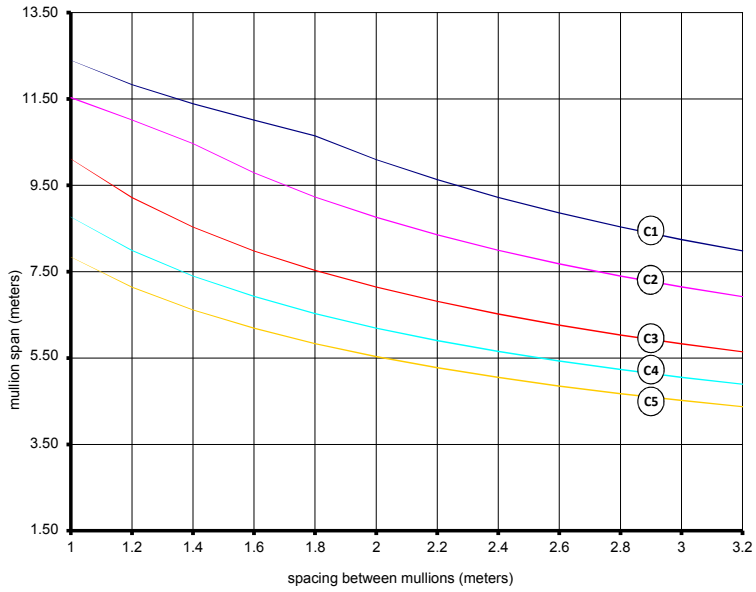

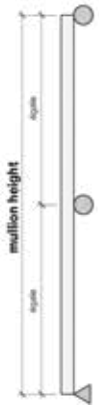

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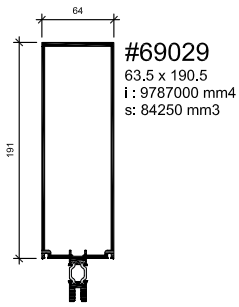
7. Structural limit charts

Type of assembly with polyamide

Vertical mullions



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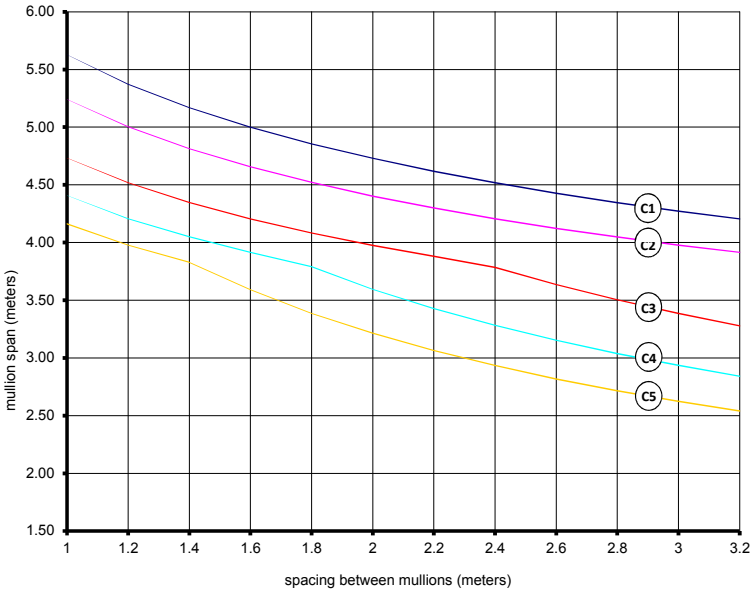

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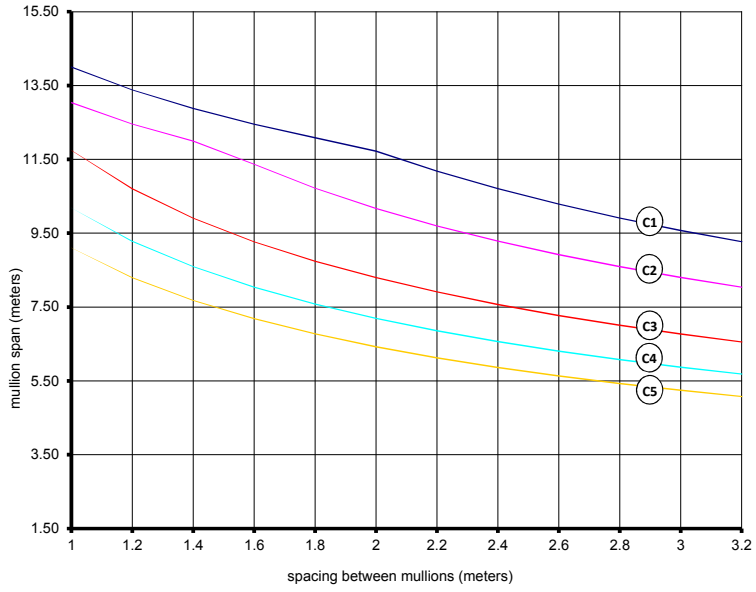

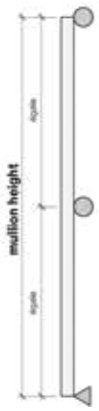

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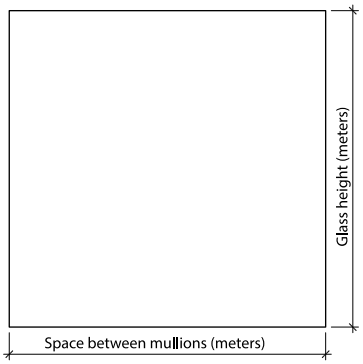
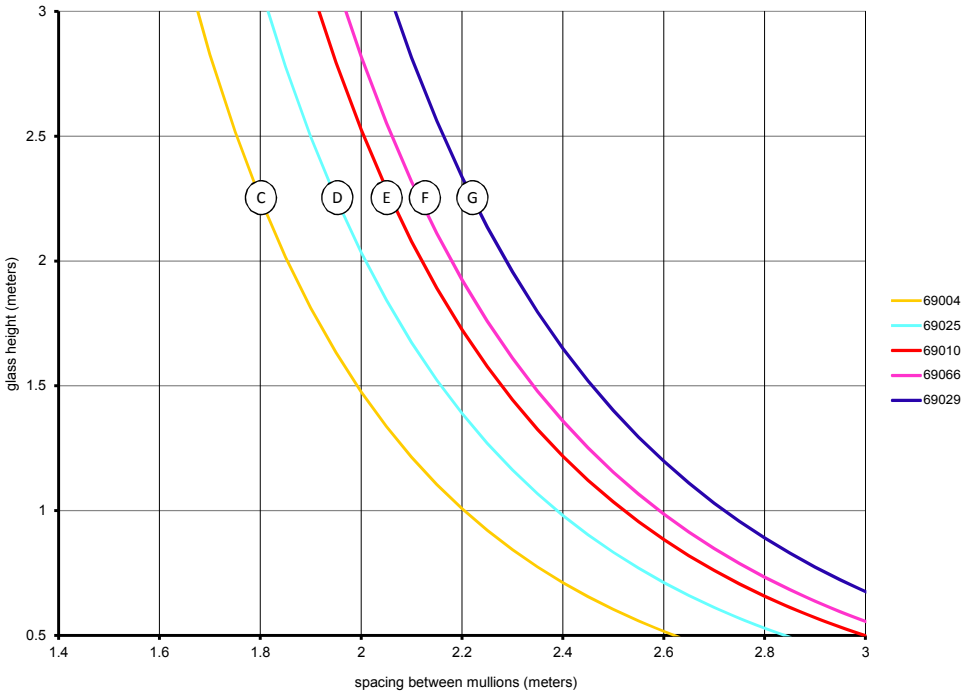
7. Structural limit charts

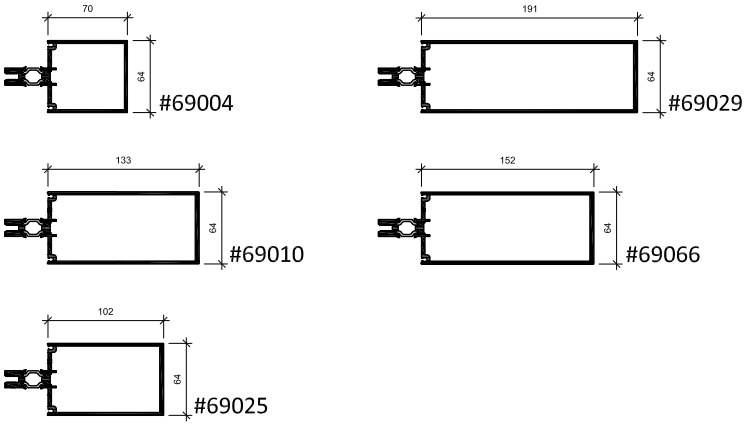
Type of assembly with polyamide

Horizontal cross members

CURVES	TRANSOM		
	#	i (mm4)	s (mm3)
C	69004	437855	13791
D	69025	603511	19008
E	69010	749409	23603
F	69066	836099	26334
G	69029	1015211	31975







Note: The curves were drawn based on 25 mm sealed units, made up of two 6 mm glass panes supported at 1/4 of the span of the horizontal tube (transom), with a maximum deflection of 3.2 mm.

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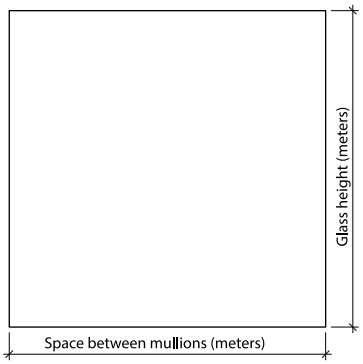
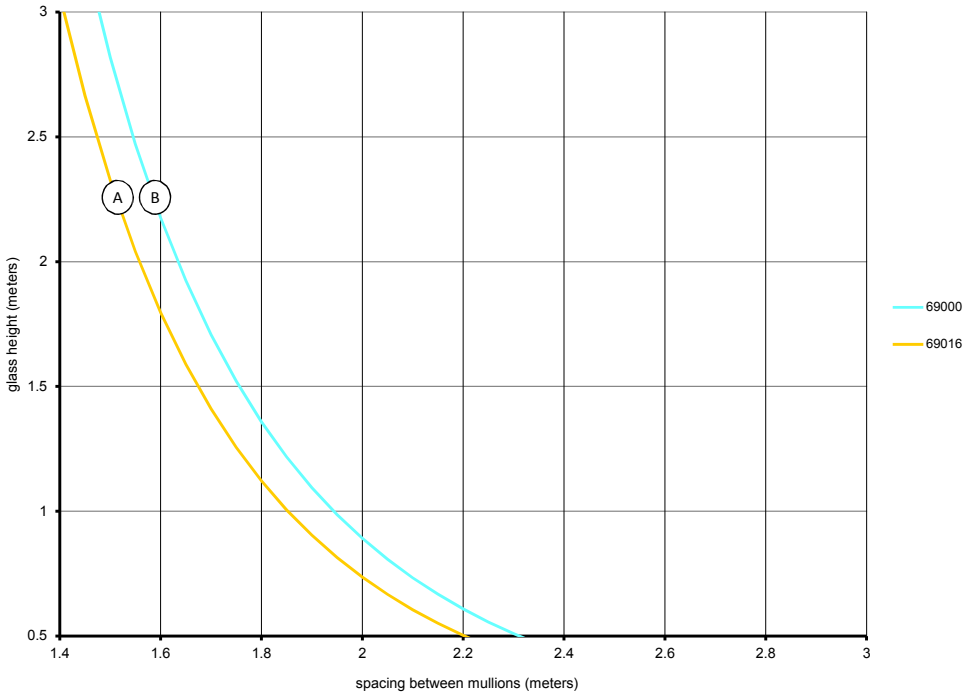
7. Structural limit charts

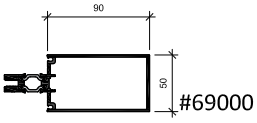
Type of assembly with polyamide

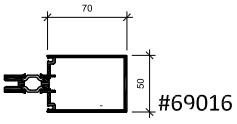
Horizontal cross members

CURVES	TRANSOM		
	#	i (mm4)	s (mm3)
A	69016	218374	8735
B	69000	264474	10579









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8. System selection matrix

At Epsylon, we know that every one of your projects is unique and requires custom solutions. That's why we have developed this system selection tool, allowing you to gather all of your data and get advice for any application that is not illustrated in the previous section of structural limit charts.

Don't hesitate to contact us and send your data to the Epsylon engineering department.

SELECTING MULLIONS AND SYSTEMS		
ELEMENT	UNIT	DATA
Vertical mullion free span	mm	
Spacing between mullions	mm	
Design pressure	kPa	
Project location (applicable code)	City	
Location on the building	Ground floor, multiple stories or roof/ parapet	
Mid-span slab deflection (stacking joint)	mm	
Use of an exterior cap	Horizontal, vertical, N/A	
Use of an exterior silicone joint	Horizontal, vertical, N/A	

SERIES 60 PREFABRICATED CURTAIN WALLS

1. Characteristics and design

SUPPORT - VISION

Series 60 in this section integrates selection criteria, associated with technologies, performance and visual characteristics.

This section's technical details show functional assemblies, specifically related to Epsylon curtain-wall systems. This section does not necessarily illustrate all possible details.

Epsylon guides visionaries in order to establish characteristics for construction projects, thus working to produce complete and high-performing systems suitable for each project.

In a responsible manner, Epsylon guides designers to fulfill the requirements, criteria and level of performance desired for projects.

Epsylon uses adequate methods and recognized procedures in order to achieve the sought-after characteristics.

SERIES 60 CHARACTERISTICS

Series 60 comes with a Platinum level of thermal performance.

Pre-assembling and pre-glazing the curtain-wall sections in the factory ensures that the modules are assembled in controlled, optimal conditions.

Plans for controlled factory prefabrication are based on the work surfaces to cover and factory scheduling.

Epsylon guides you and recommends solutions based on your needs.

1. Characteristics and design (continued)

SYSTEM DESIGN

Prefabricated

Curtain-wall system design for vertical aluminum frame curtain walls is composed of thermally broken extruded aluminum sections with self-supporting frames, calculated to meet necessary requirements, criteria and performance levels. They are prefabricated and prefinished in the factory, and composed of vision glass, decorative spandrels, accessory elements, anchoring devices and other related constituent parts.

System design includes air and vapor barrier systems to form a continuous barrier and ensure continuity between the components, such as the aluminum, the watertight materials, the accessory materials, the glazing elements and the connected systems.

The system design uses the rain screen principle, and contains all constituent elements in order to provide complete construction systems.

System design allows individual vision panels and spandrels to be removed from the outside without having to disassemble the load-bearing and non-load-bearing mullions or cross members.

PROTOTYPES AND TESTS

Epsylon curtain walls meet the strictest industry standards and pass the tests completed by independent laboratories.

Prototypes can be made specially upon request for a given project.
As necessary, the prototypes will be submitted to specialized laboratories so the curtain walls can be tested for compliance to project-specific performance requirements:

- Airtightness performance, according to the ASTM E-283 test method,
- Smoke exfiltration performance, according to the ASTM E-1186 test method,
- Static watertightness performance, according to the ASTM E-331 test method,
- Dynamic watertightness performance, according to the AAMA 501.1 test method,
- Structural performance: strength and resistance, according to the ASTM E-330 test method,
- Condensation resistance, according to the CAN/CSA A440 test method,

Using simulation software, Epsylon is able to test the energy performance of its curtain walls in order to exactly meet construction needs.

Epsylon guides designers in order to advise, develop and recommend the best energy strategies for construction projects.

2. Technical specifications

PRODUCT DESCRIPTION

High-quality curtain-wall system, conventional or prefabricated in a factory, designed for commercial, institutional or industrial buildings.

Series 60: factory prefabricated curtain walls (glass, aluminum panels, natural stone, ceramic terra cotta in sections and/or stainless steel).

Headquarters of La Capitale (Quebec City)

FABRICATION

- All factory fabrication requires shop drawings previously approved by professionals (and the consultant if necessary) and technical drawings that comply with the criteria and performance and design levels required on the estimate.
- The pieces are cut, machined, fabricated and assembled by computer numerical control machines in order to ensure greater accuracy.
- All assembly joints are aligned with precision, and are rigid in order to ensure an optimal seal and an appearance to match the design. The joints also allow expansion and creep caused by movements in the building frame and temperature fluctuations.
- No trace of warping or distortion will be left visible by the welding work.
- The reinforcing steel will be coated in an anti-corrosion primer, along with the welded joints.

  Dissimilar materials will be separated by dielectric tape or a similar material.
- The glasses and glazing from the chosen manufacturer will comply with the estimate (equivalent), with the consultant's requirements and with the applicable standards and codes.
- The sealing products used in system assembly will comply with the manufacturer’s requirements for their application, and will be subject to regular tests throughout their fabrication to ensure optimal quality.

NOTE: fabrication and factory assembly methods remain at Epsylon’s discretion and are subject to rigorous internal quality control.

2. Technical specifications (continued)

INSTALLATION

Preliminary work

- Shop drawings approved by professionals and in compliance with the architectural specifications provided by Epsylon.
- Engineering and production drawings of Epsylon systems (in coordination with on-site work).
- The curtain wall's anchors will be provided by Epsylon to be incorporated into the building's frame by the general contractor.
- Verification of levels (benchmarks) and the building's primary axes. The components will be provided and validated by the general contractor.
- Preparation of adequate openings at the construction site to ensure an adequate connection between the air and vapor barriers and the adjacent walls. The contractor must ensure that the materials used are compatible with those used in Epsylon's curtain walls.

Delivery and construction-site installation

- The curtain walls will be delivered on 100% reusable steel racks in order to minimize waste materials on site. If such racks cannot be used, the conventional curtain walls will be delivered on reusable wooden pallets, and they will be packaged in order to prevent any damage. The most vulnerable components will be protected using Blue Max™ protective film.
- All elements that make up the curtain wall will be installed, up to standard, straight and level. To this end, all aluminum anchorage parts designed and fabricated by Epsylon will be installed and connected to the steel parts already incorporated into the steel and concrete structure.
- Bolt down the mullions, transoms or prefabricated modules to the anchors while respecting the tolerances, thermal movements from the building frame and the seismic requirement if required.
- At their junctions, seal the perimeter elements of the curtain wall and the junction between the prefabricated modules with the rest of the building's envelope.
- Protect the most vulnerable members from damage caused by other work (scratches, etc.). However, the general contractor should take all possible precautions to avoid pouring concrete on the aluminum and glass in general.
- Clean the aluminum and glass at the end of the work if required in the specification.

NOTE: Fabrication and assembly methods remain at Epsylon's discretion.

2. Technical specifications (continued)

AVAILABILITY AND COSTS

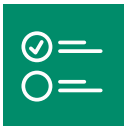
Estimates are available quickly, based on a physical description provided by drawings and brief specifications, created using the technical specifications in section 08 of the DDN.

WARRANTIES

- Five (5) years for materials and labor;
- Five (5) or ten (10) years against loss of seal in sealed glazing and glazing gaskets;
- Ten (10) years for anodized finishes and twenty (20) years for Kynar 500-based finishes.

MAINTENANCE

Upon request, Epsylon will provide a maintenance manual for the glazing (glass, glazing gaskets, etc.), the sealant and aluminum or other materials incorporated into the construction in sections (e.g. copper, stainless steel) or panels (e.g. granite).



QUALITY CONTROL

Epsylon performs tests on its products in its own laboratories and in independent, recognized laboratories (the reports are available upon request). The procedures of these tests comply with current standards and serve to test product quality based on performance criteria and levels specific to each project.

Moreover, before every project using our curtain walls begins construction, the silicone structural glazing sealant manufacturers perform adherence and shear strength tests on the sealant on the specific materials it must adhere to.

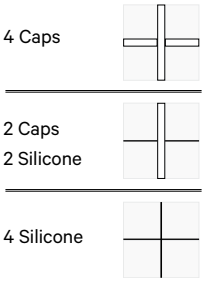
3. Thermal performance

60 – PLATINUM

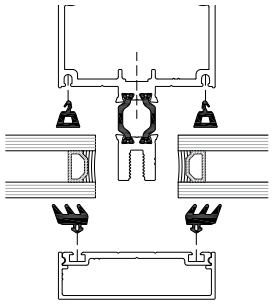
Prefabricated curtain walls are only available in the highest performing thermal resistance class.

A high-performance polyamide thermal break ensures high energy efficiency by eliminating condensation.

CONFIGURATION



THERMAL PERFORMANCE



To increase the various systems' performance, they can be adapted for use with triple-sealed units. Details available upon request.

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4. Performance requirements

Calculations of components and their dimensions are determined in a way that ensures that they can withstand dead loads and applicable overloads.

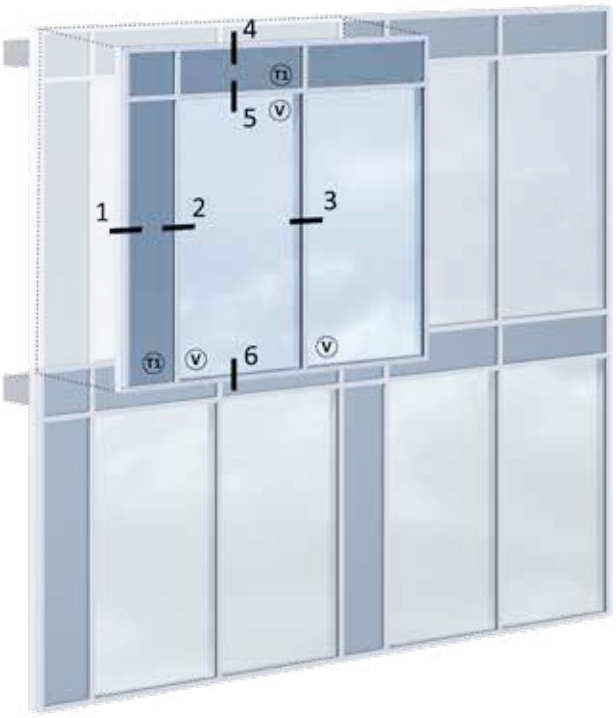
These calculations are also determined to ensure that they withstand seismic movement and horizontal deflections, according to calculations made in accordance with applicable codes.

These curtain-wall systems are designed to withstand the following constraints, without damage to the elements or deterioration of the joints or sealant:

- Movement of the curtain wall's various components.
- Movement between the curtain wall's components and the building envelope's peripheral elements.
- Dynamic overload (application and removal).
- Bending of the load-bearing frame.
- Structural concrete shrinkage and creep.

Desjardins Campus (Lévis)

5. Typical curtain wall details



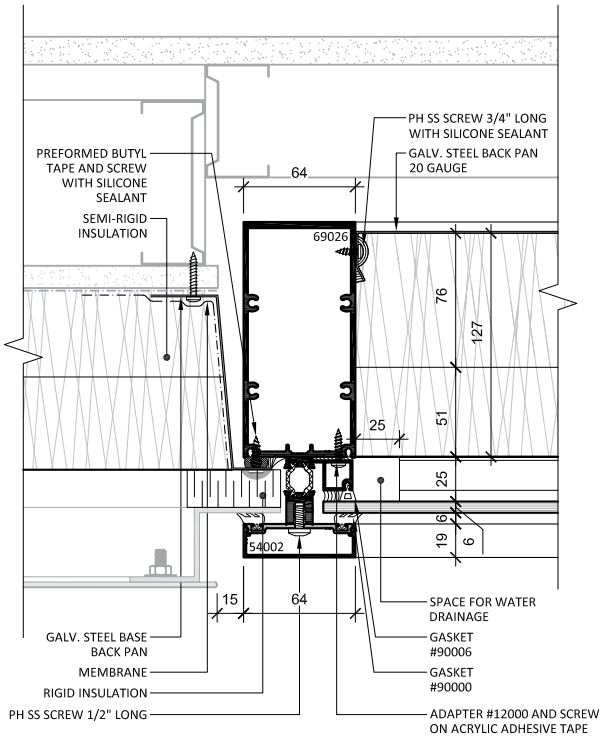
V VISION SECTION

T1 SINGLE SPANDREL PANEL

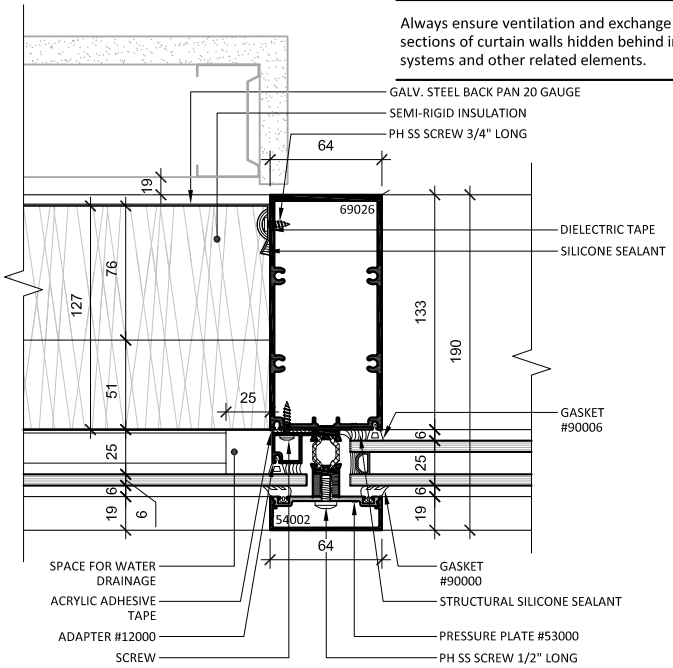
The typical details depicted here are formed by assembling different types of mullions and caps.
See "Accessory elements" sections for other cap options.
*All of the mullions pictured here are from the platinum class.

The connected elements depicted in pale lines are constructed by others.

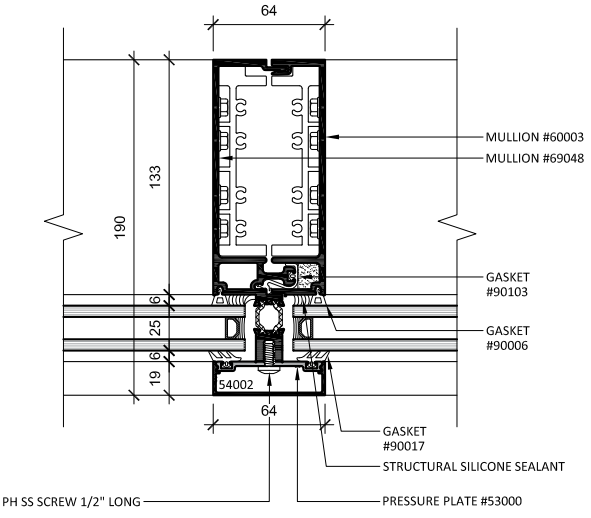
Always ensure ventilation and exchange behind sections of curtain walls hidden behind interior systems and other related elements.



1 MULLION
CONNECTED ELEMENTS
SPANDREL PANEL



2 INTERMEDIARY MULLION
SPANDREL PANEL
VISION SECTION

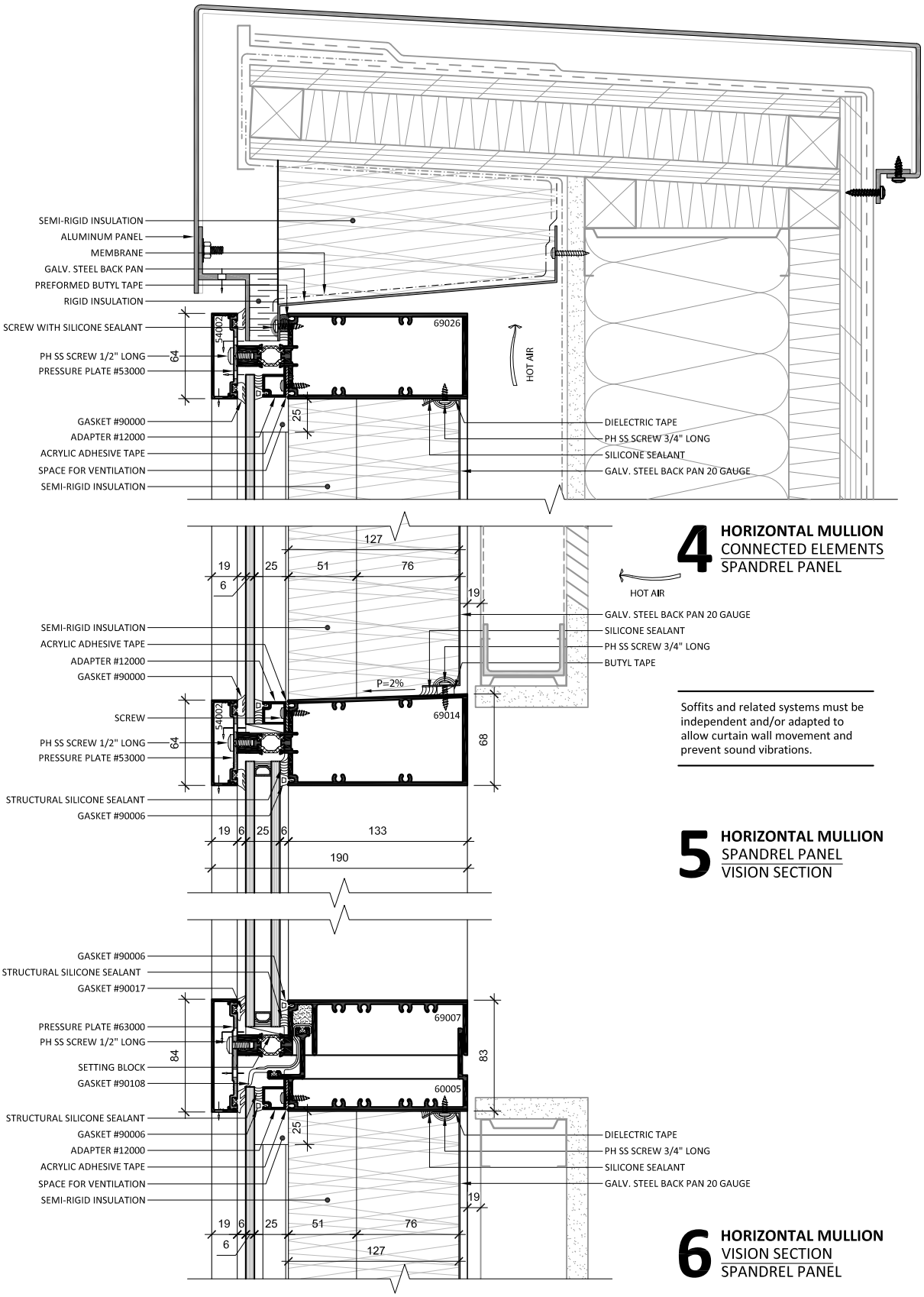


3 MULLION
VISION SECTION
VISION SECTION

SCALE: 1 : 4

EPSYLON
Façades architecturales
Architectural façades

5. Typical curtain wall details



4 **HORIZONTAL MULLION**
CONNECTED ELEMENTS
SPANDREL PANEL

Soffits and related systems must be independent and/or adapted to allow curtain wall movement and prevent sound vibrations.

5 **HORIZONTAL MULLION**
SPANDREL PANEL
VISION SECTION

6 **HORIZONTAL MULLION**
VISION SECTION
SPANDREL PANEL

SCALE: 1 : 4

EPSYLON
Façades architecturales
Architectural façades

5. Typical curtain wall details

V VISION SECTION

T2 DOUBLE SPANDREL PANEL

The typical details depicted here are formed by assembling different types of mullions and caps.
See "Accessory elements" sections for other cap options.
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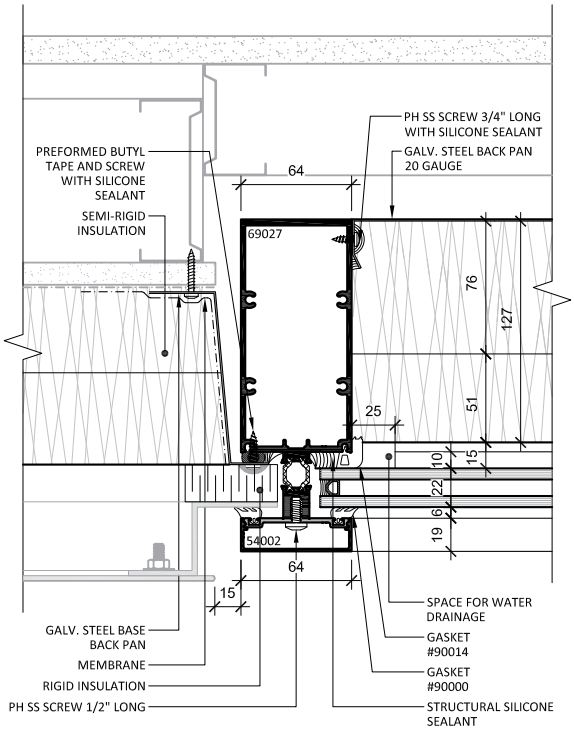
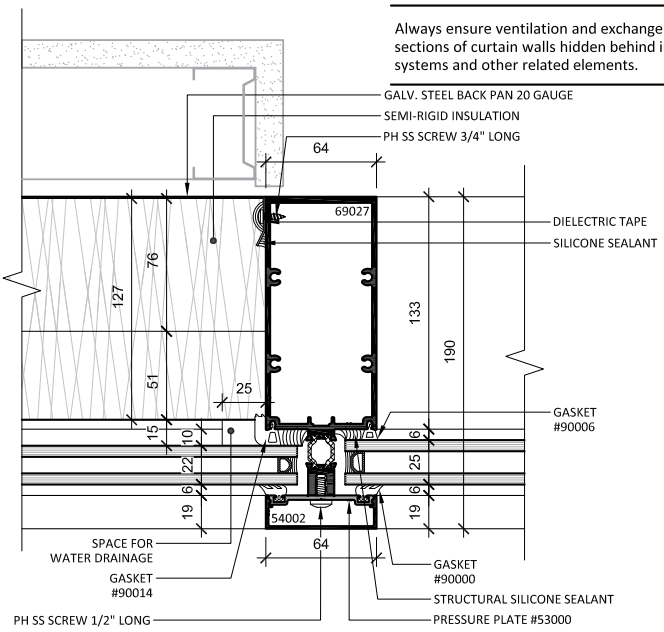
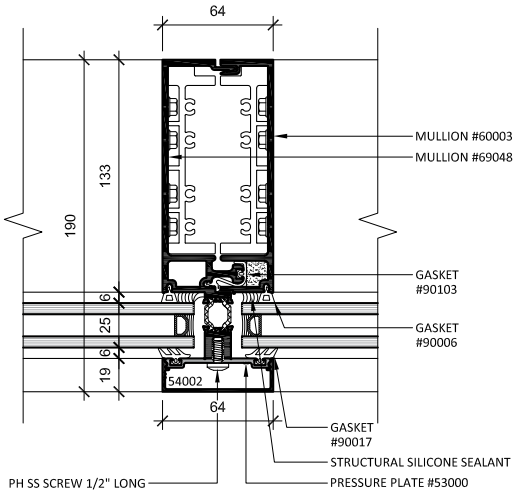


1 MULLION
CONNECTED ELEMENTS
SPANDREL PANEL



2 MULLION
SPANDREL PANEL VISION SECTION

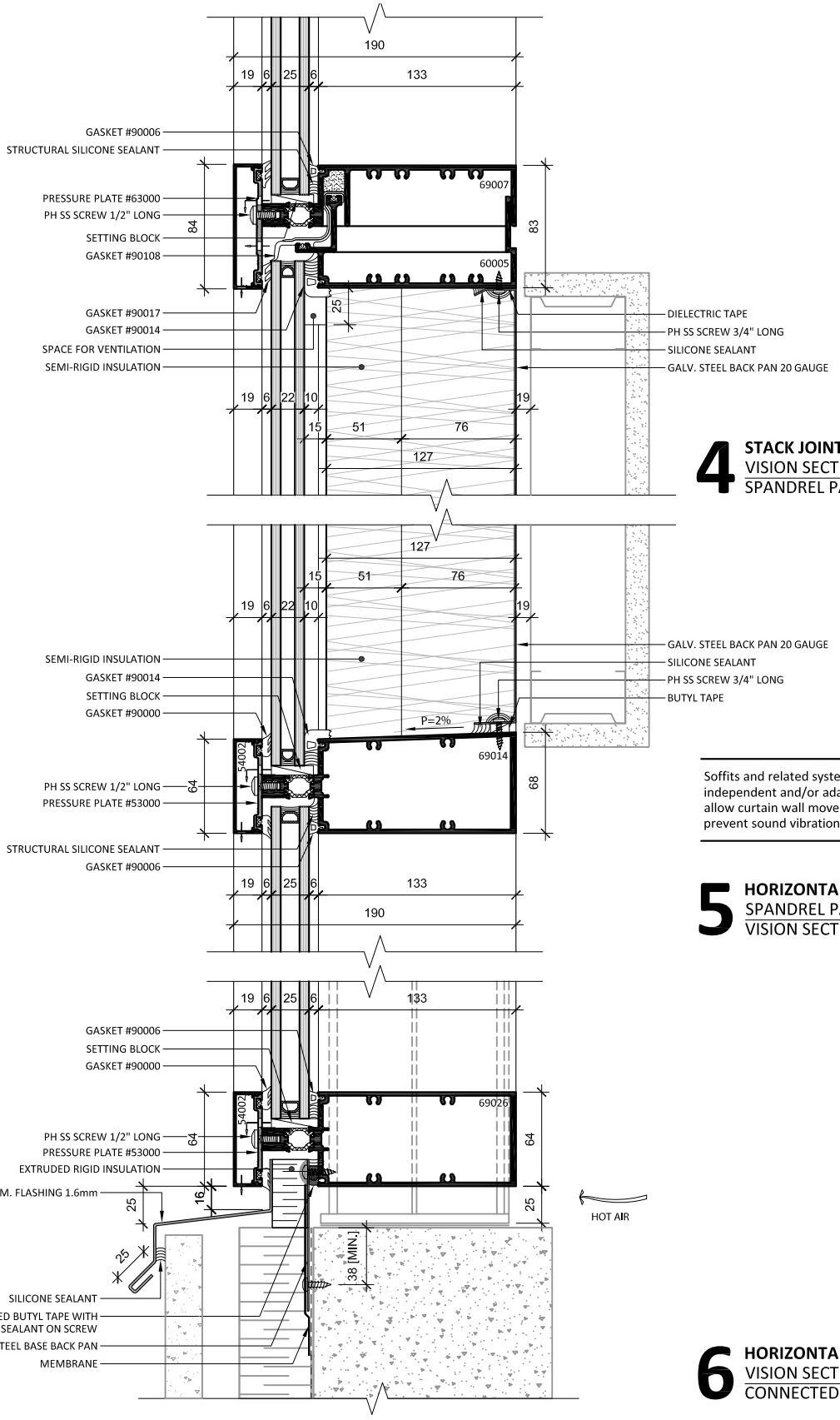


3 MULLION
VISION SECTION
VISION SECTION

SCALE: 1 : 4

EPSYLON
Façades architecturales
Architectural façades

5. Typical curtain wall details



5. Typical curtain wall details

V SECTION VISION

T3 PANNEAU TYMPAN SHADOWBOX

The typical details depicted here are formed by assembling different types of mullions and caps.
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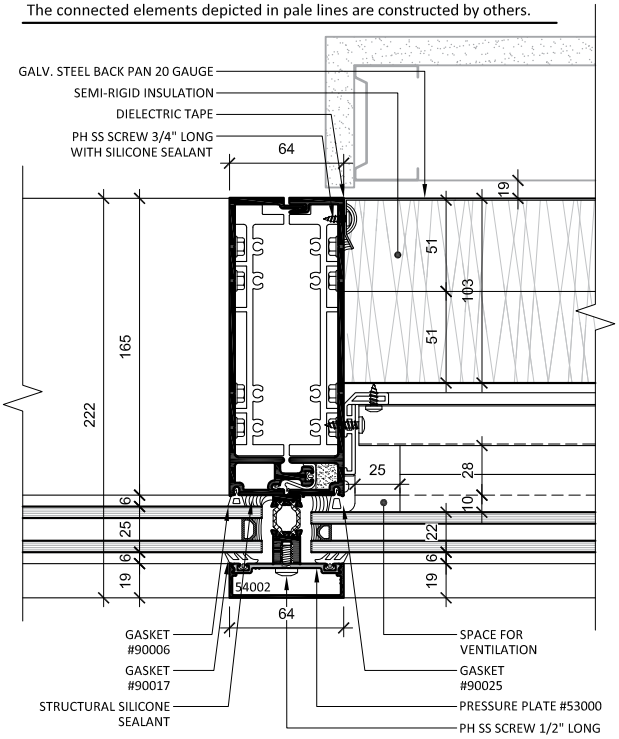
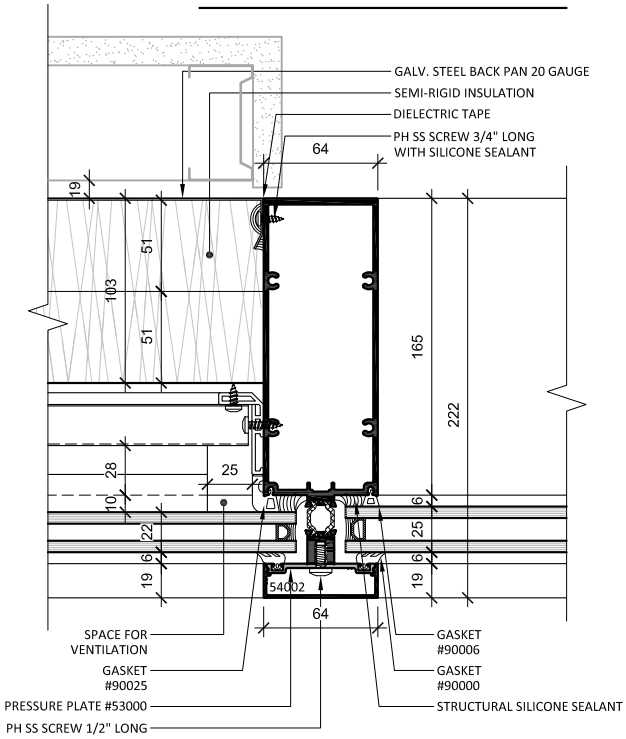


1 SPLIT MULLION
VISION SECTION
SHADOW BOX SECTION

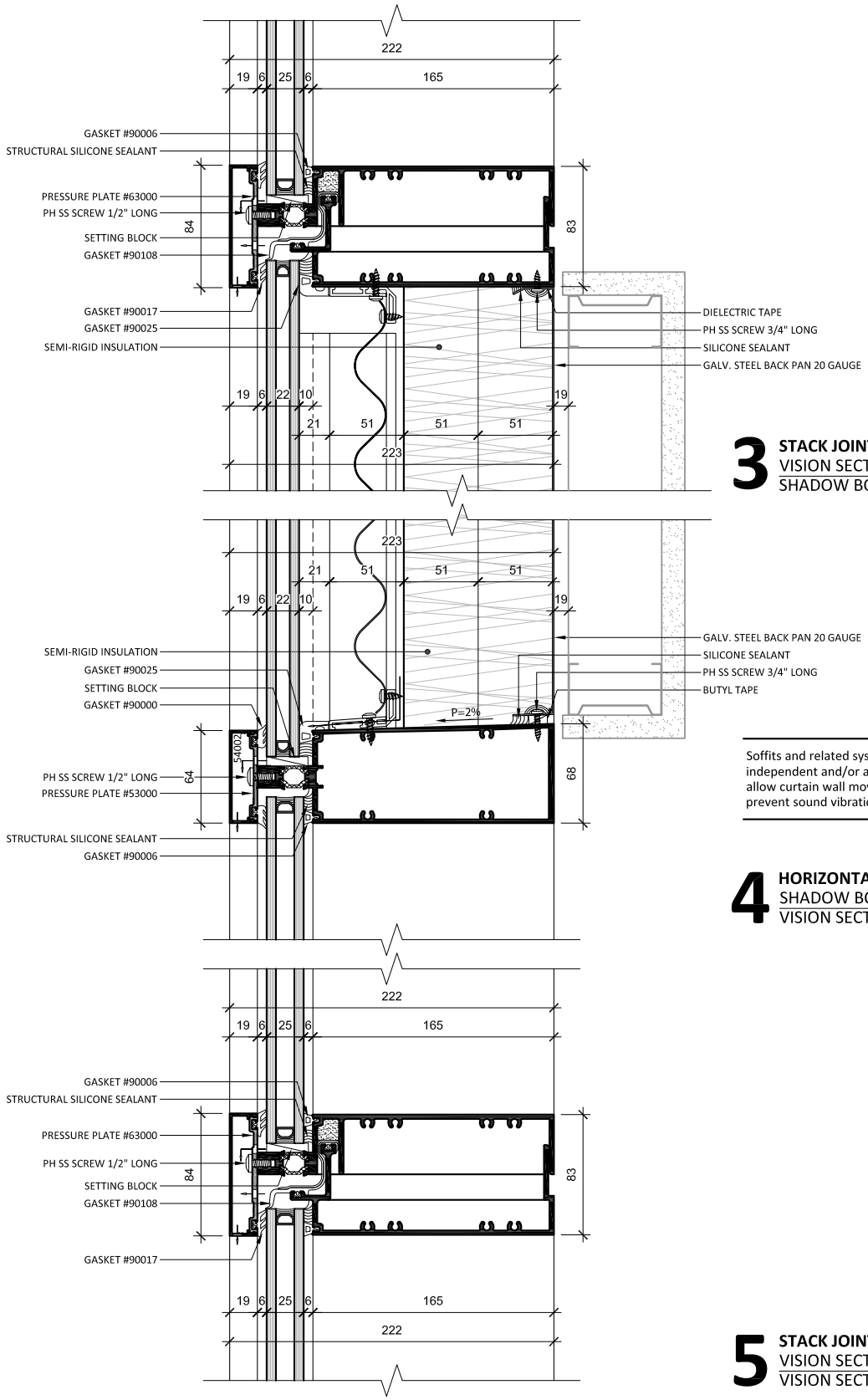


2 MULLION
SHADOW BOX SECTION
VISION SECTION

SCALE : 1 : 4

EPSYLON
Façades architecturales
Architectural façades

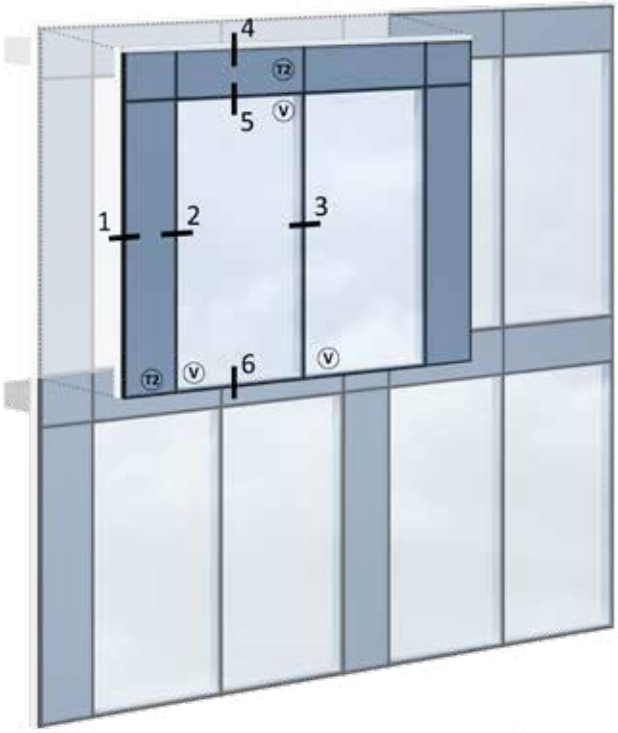
5. Typical curtain wall details



SCALE: 1 : 4

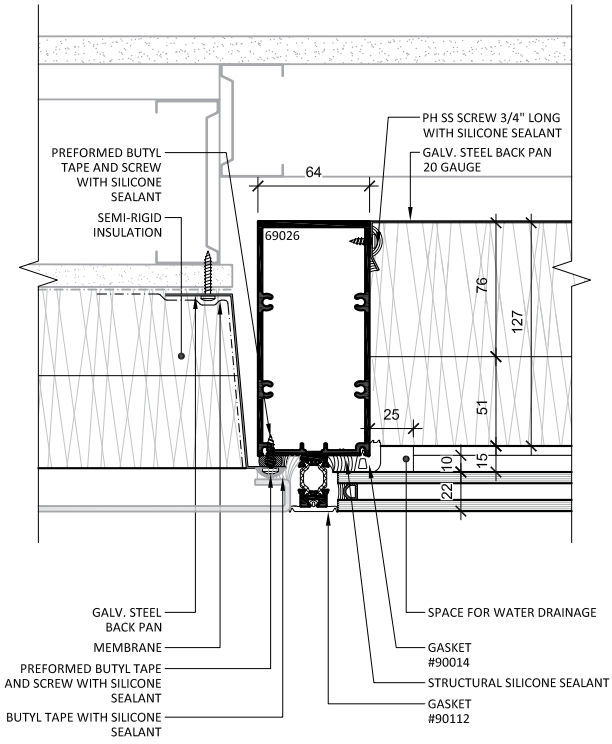
Fa

5. Typical curtain wall details



V VISION SECTION

T2 DOUBLE SPANDREL PANEL



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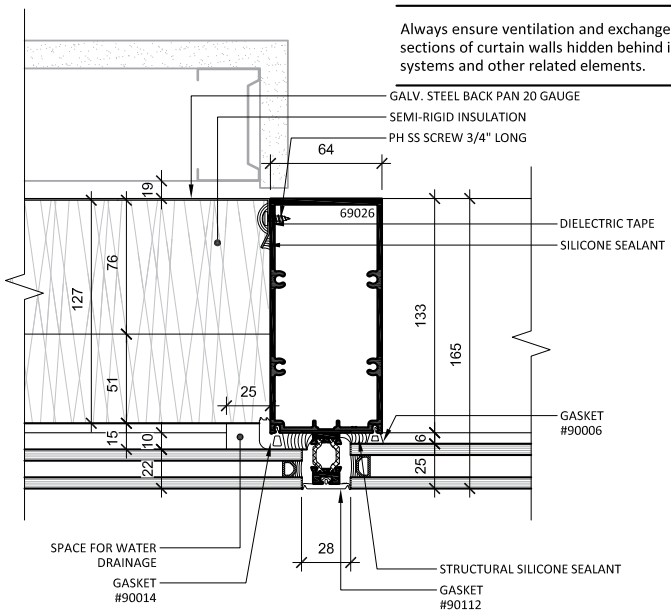
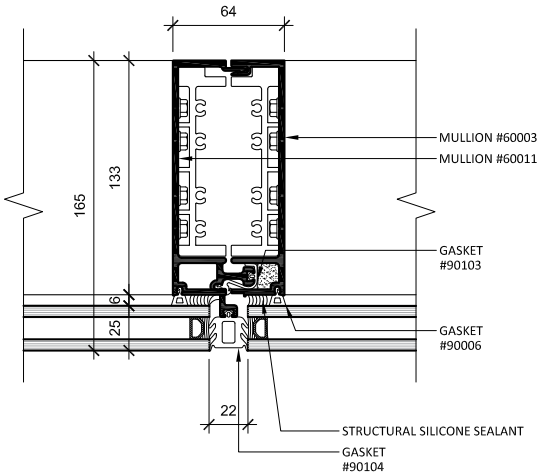
1 MULLION
CONNECTED ELEMENTS
SPANDREL PANEL



2 MULLION
SPANDREL PANEL
VISION SECTION

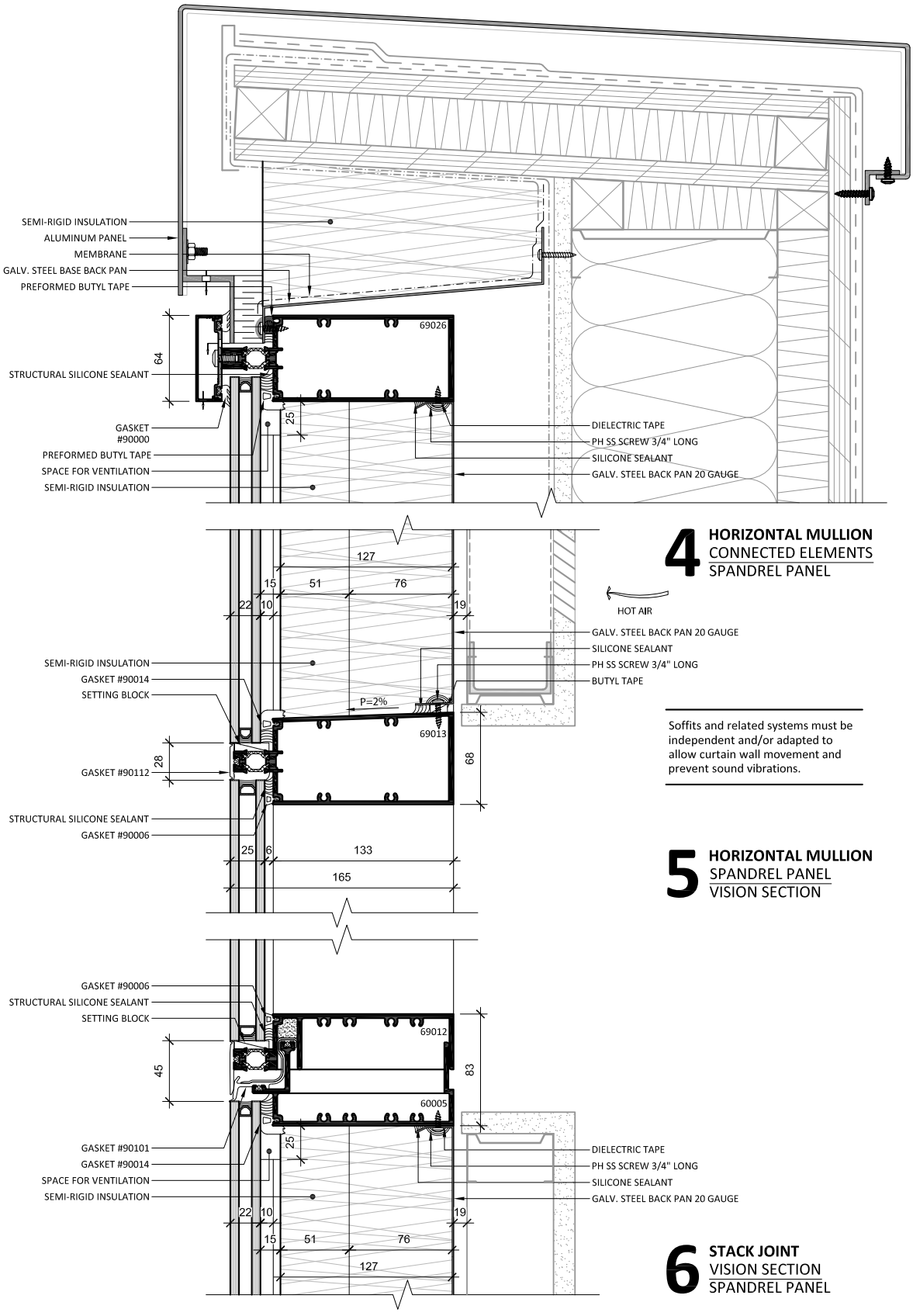


3 SPLIT MULLION
VISION SECTION
VISION SECTION

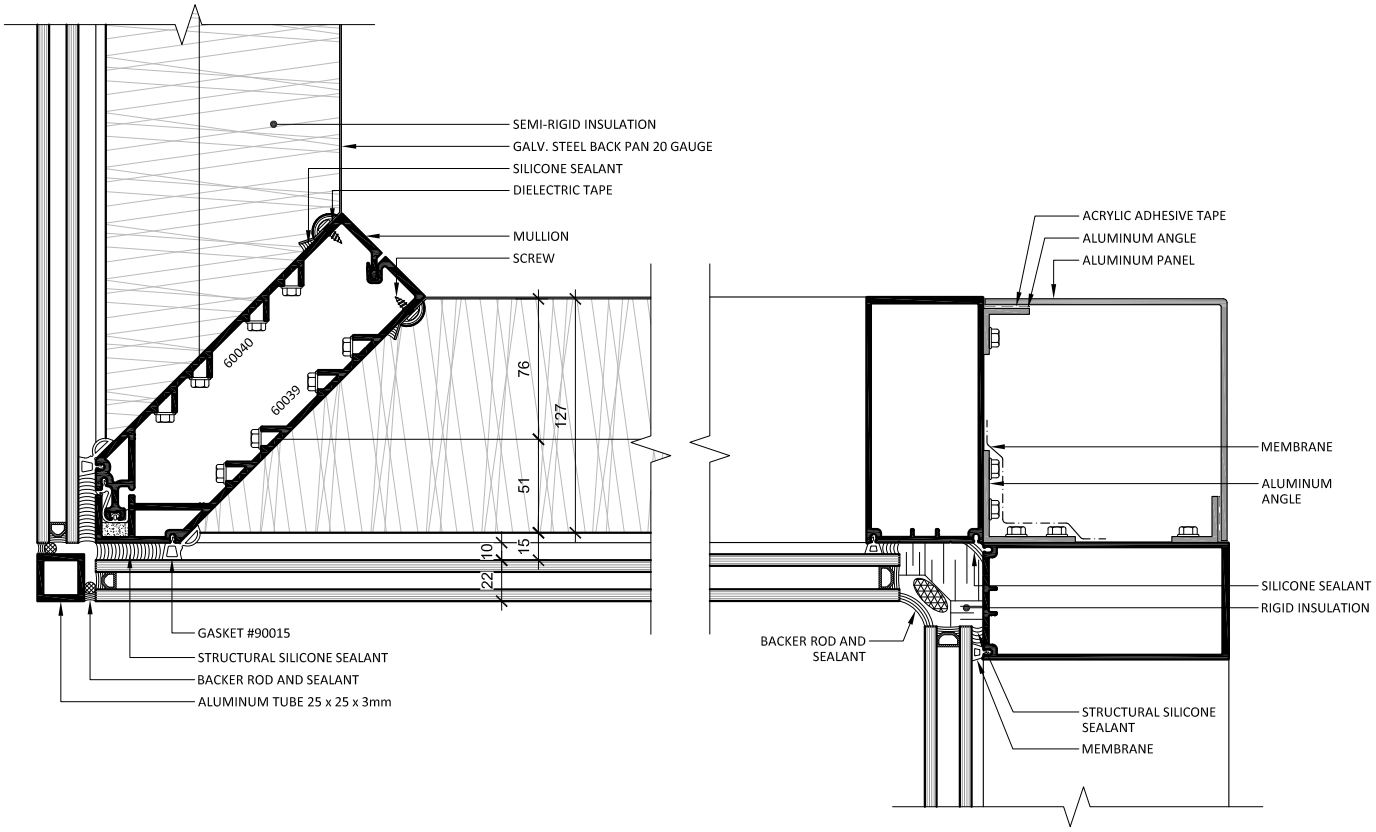
SCALE: 1 : 4

EPSYLON
Façades architecturales
Architectural façades

5. Typical curtain wall details



5. Typical curtain wall details



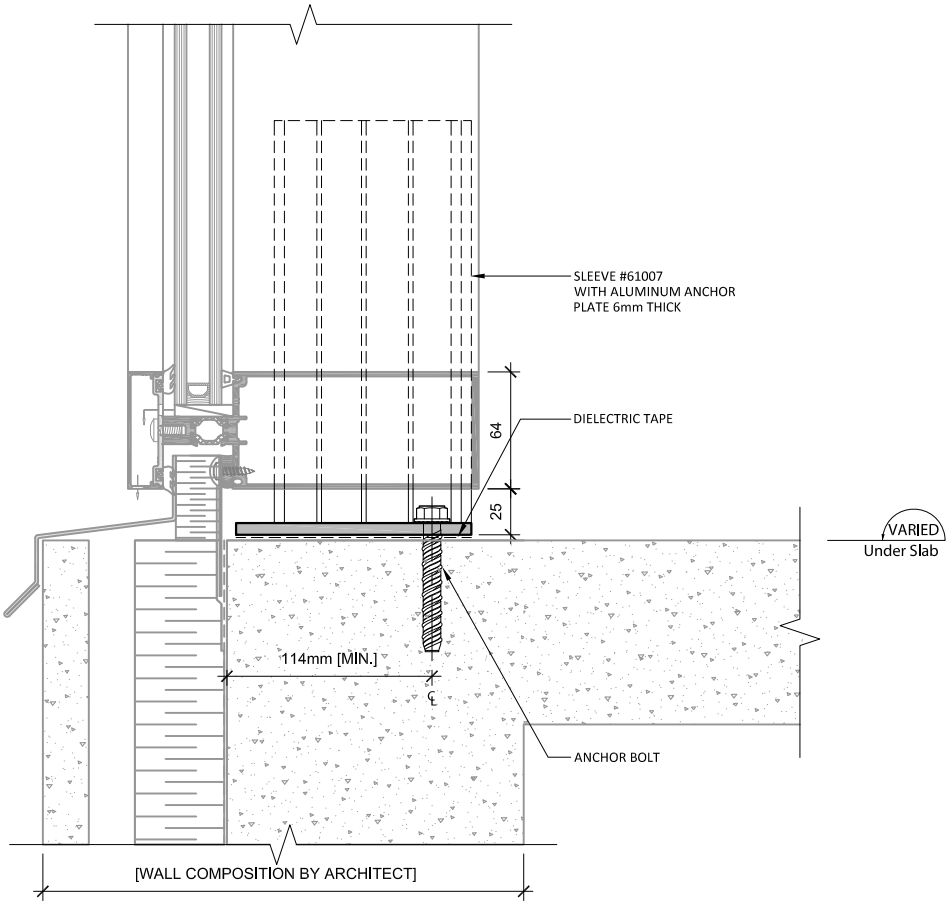
1 **MULLION**
90° OUTER CORNER
STRUCTURAL SILICONE

2 **MULLION**
90° INNER CORNER
STRUCTURAL SILICONE

OTHER ANGLES AVAILABLE
UPON REQUEST

EPSYLON
Façades architecturales
Architectural façades

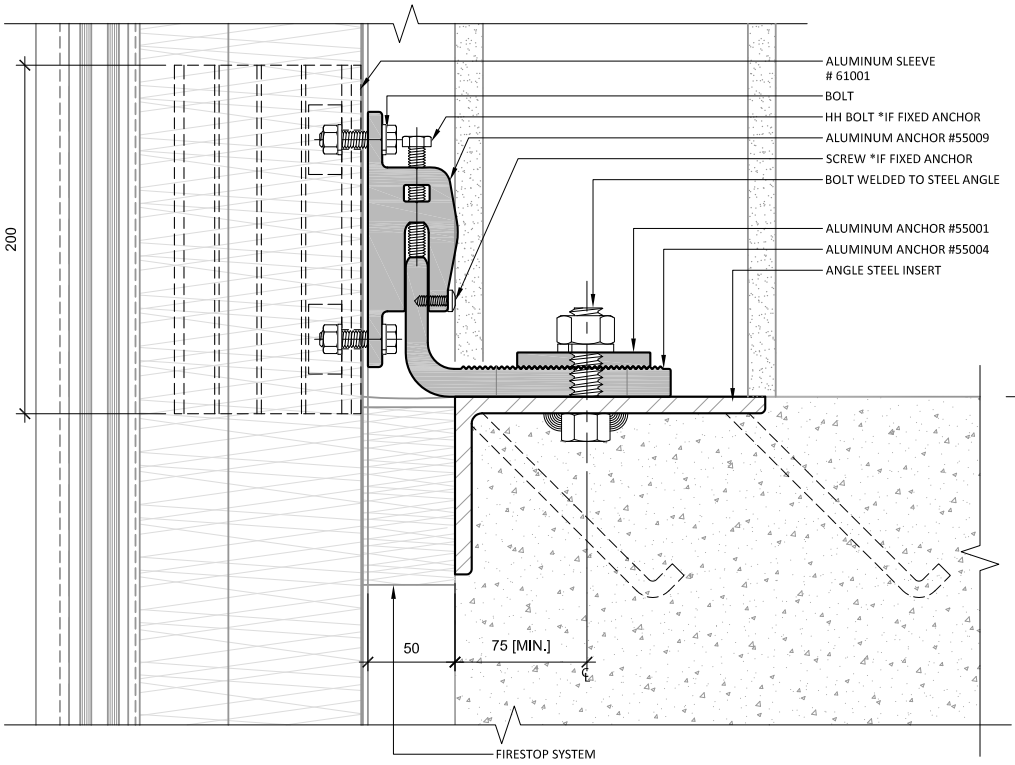
6. Typical anchorage details



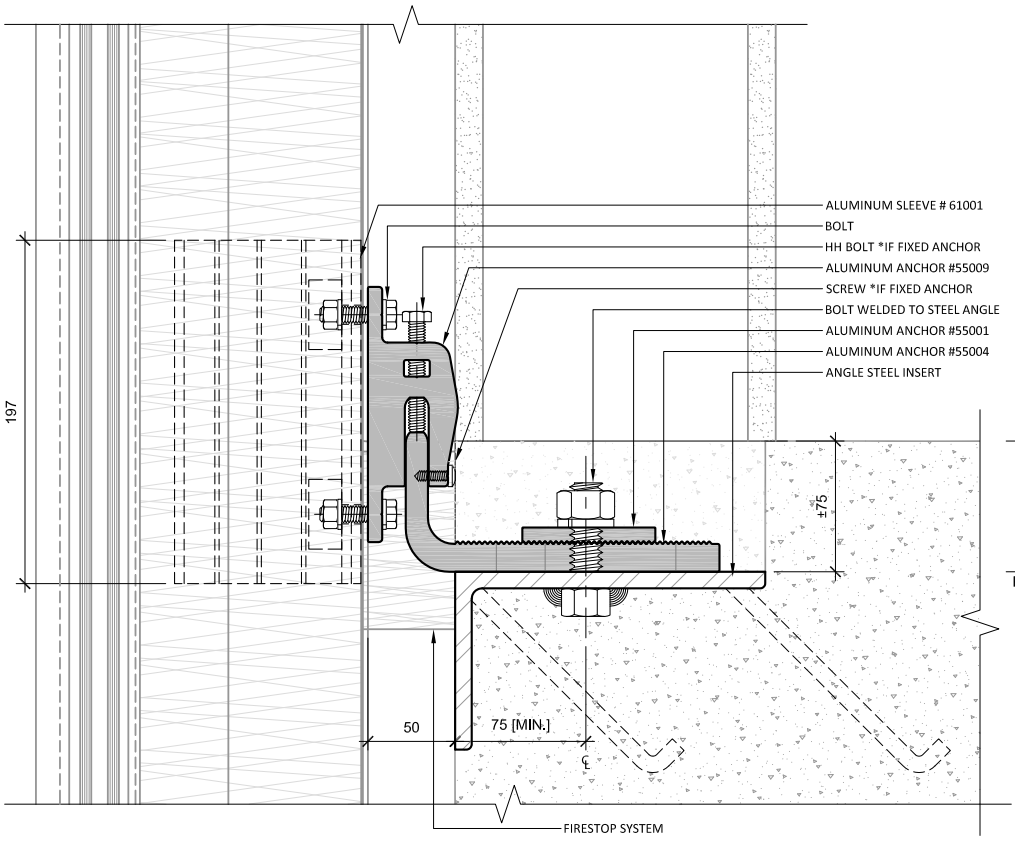
1 **ALUMINUM ANCHOR WALL BASE** (MOBILE)

Fa

6. Typical anchorage details



2 ALUMINUM ANCHOR ON SLAB



3 ALUMINUM ANCHOR ON SLAB WITH POCKET

SCALE: 1 : 4

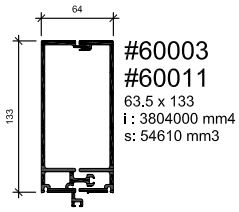
EPSYLON
Façades architecturales
Architectural façades

7. Structural limit charts

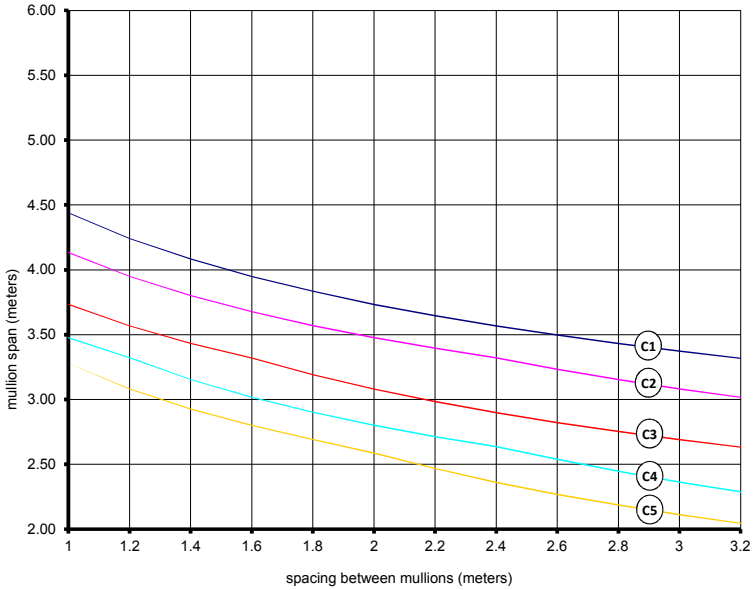
4-sided structural silicone assembly

Vertical mullions

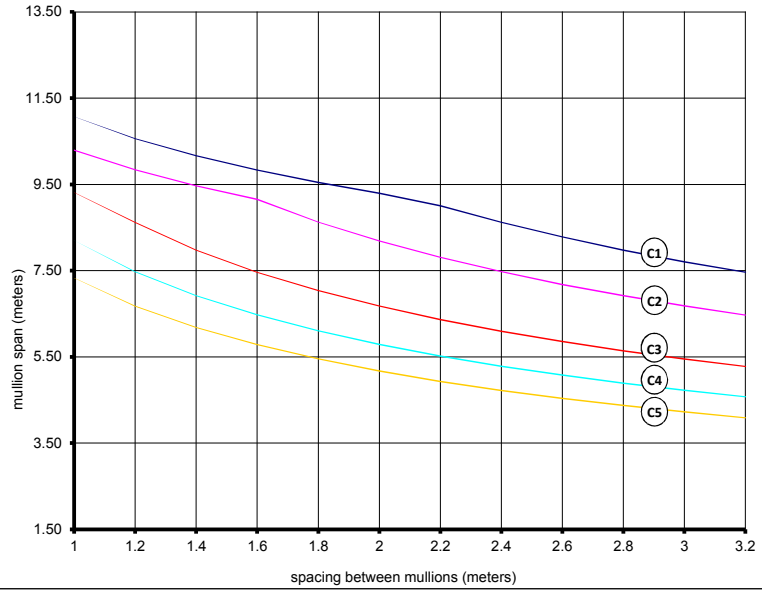
	PRESSURE		WIND SPEED	
	kPa	lbs/pi2	km/h	mph
C1	1.00	21	141	88
C2	1.33	28	163	100
C3	2.00	42	200	125
C4	2.66	56	230	143
C5	3.33	70	260	160

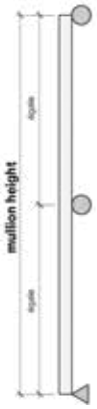


Single span



Twin span





Note: These curves take into consideration that the vertical tube (mullion) will be supported by two supports and a sleeve to ensure structural continuity. They follow the strength criterion that stipulates that the maximum deflection must not exceed L/175 or 19 mm (whichever is less) and the maximum constraint calculated using standard CAN-S157 for 6063-T6 alloy.

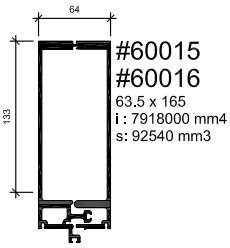
EPSYLON
Façades architecturales
Architectural façades

7. Structural limit charts

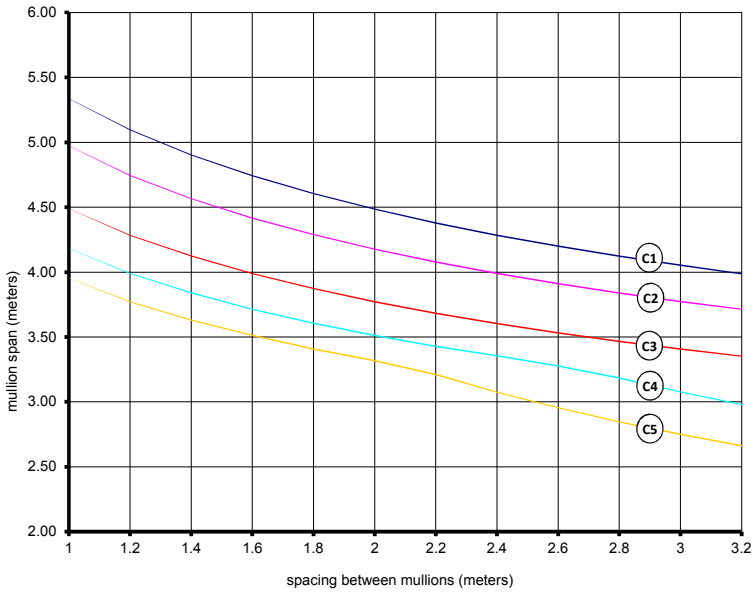
4-sided structural silicone assembly

Vertical mullions

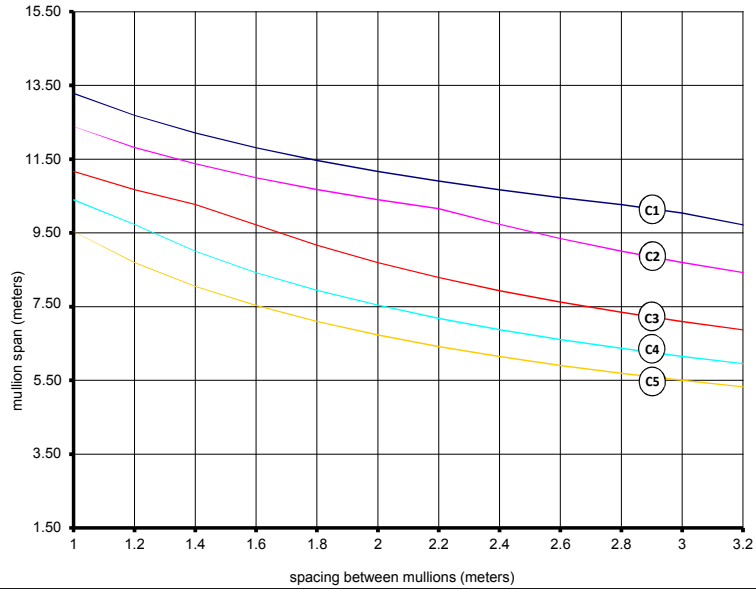
	PRESSURE		WIND SPEED	
	kPa	lbs/pi2	km/h	mph
C1	1.00	21	141	88
C2	1.33	28	163	100
C3	2.00	42	200	125
C4	2.66	56	230	143
C5	3.33	70	260	160

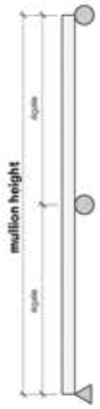


Single span



Twin span





Note: These curves take into consideration that the vertical tube (mullion) will be supported by two supports and a sleeve to ensure structural continuity. They follow the strength criterion that stipulates that the maximum deflection must not exceed L/175 or 19 mm (whichever is less) and the maximum constraint calculated using standard CAN-S157 for 6063-T6 alloy.

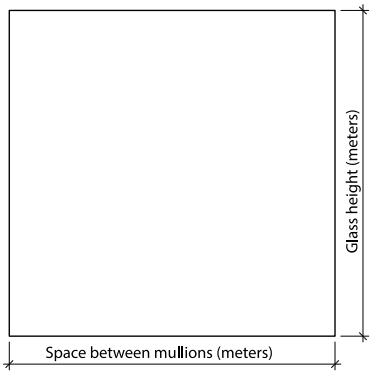
EPSYLON
Façades architecturales
Architectural façades

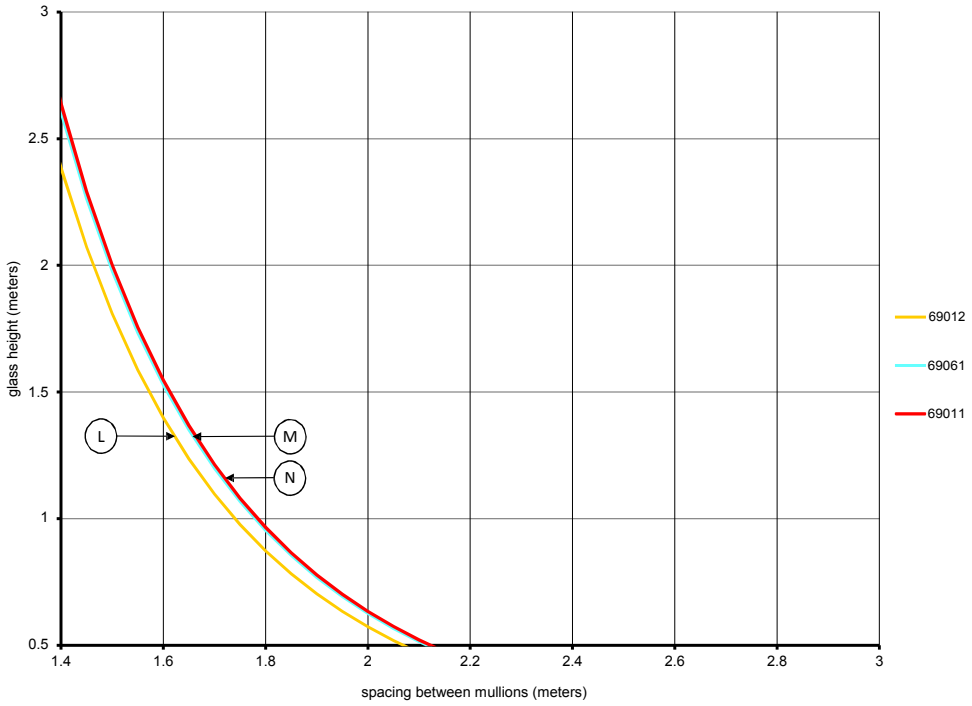
7. Structural limit charts

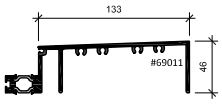
4-sided structural silicone assembly

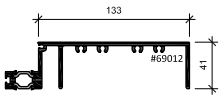
Horizontal transoms

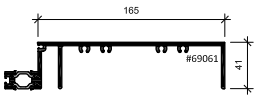
CURVES	TRANSOM		
	#	i (mm4)	s (mm3)
L	69012	169864	8226
M	69061	185545	9382
N	69011	187912	9293











Note: The curves were drawn based on 25 mm sealed units, made up of two 6 mm glass panes supported at 1/4 of the span of the horizontal tube (transom), with a maximum deflection of 3.2 mm.

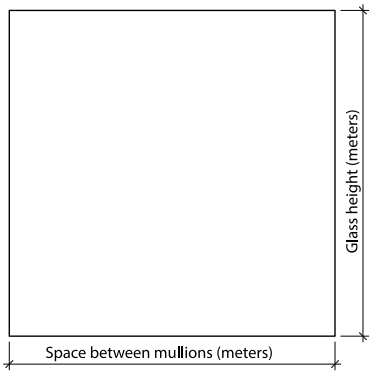
EPSYLON
Façades architecturales
Architectural façades

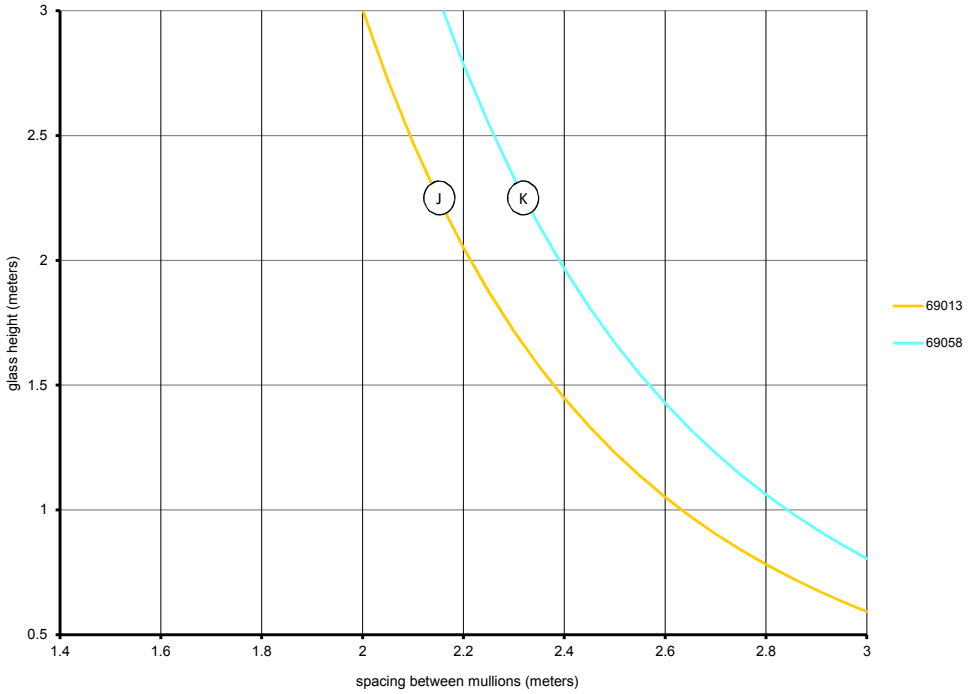
7. Structural limit charts

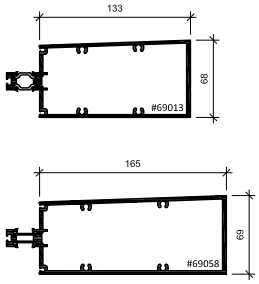
4-sided structural silicone assembly

Horizontal transoms

CURVES	TRANSOM		
	#	i (mm4)	s (mm3)
J	69013	891138	27202
K	69058	1210220	36629







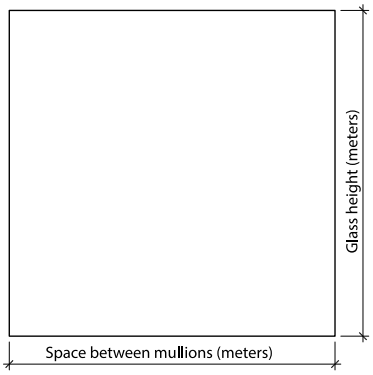
Note: The curves were drawn based on 25 mm sealed units, made up of two 6 mm glass panes supported at 1/4 of the span of the horizontal tube (transom), with a maximum deflection of 3.2 mm.

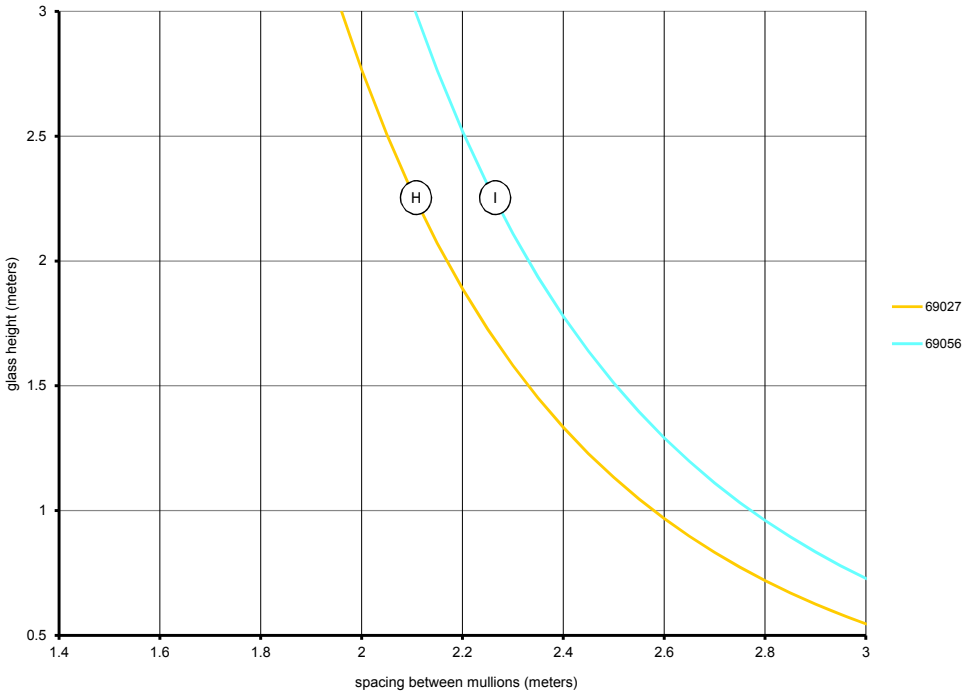
7. Structural limit charts

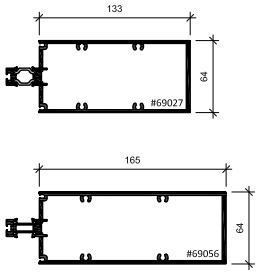
4-sided structural silicone assembly

Horizontal transoms

CURVES	TRANSOM		
	#	i (mm4)	s (mm3)
H	69027	820700	25849
I	69056	1094900	34485







Note: The curves were drawn based on 25 mm sealed units, made up of two 6 mm glass panes supported at 1/4 of the span of the horizontal tube (transom), with a maximum deflection of 3.2 mm.

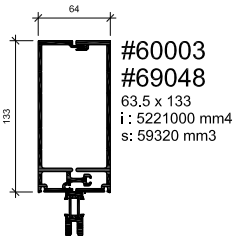
EPSYLON
Façades architecturales
Architectural façades

7. Structural limit charts

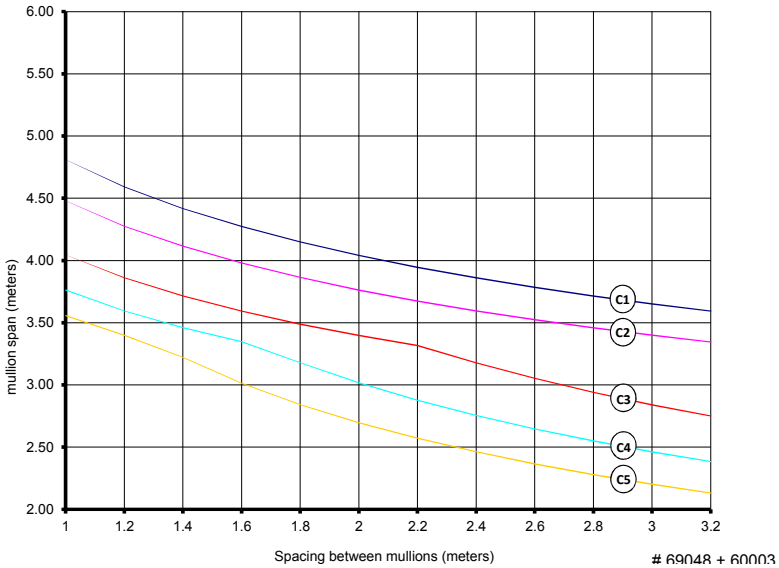
Type of assembly with caps and pressure plates

Vertical mullions

	PRESSURE		WIND SPEED	
	kPa	lbs/pi2	km/h	mph
C1	1.00	21	141	88
C2	1.33	28	163	100
C3	2.00	42	200	125
C4	2.66	56	230	143
C5	3.33	70	260	160

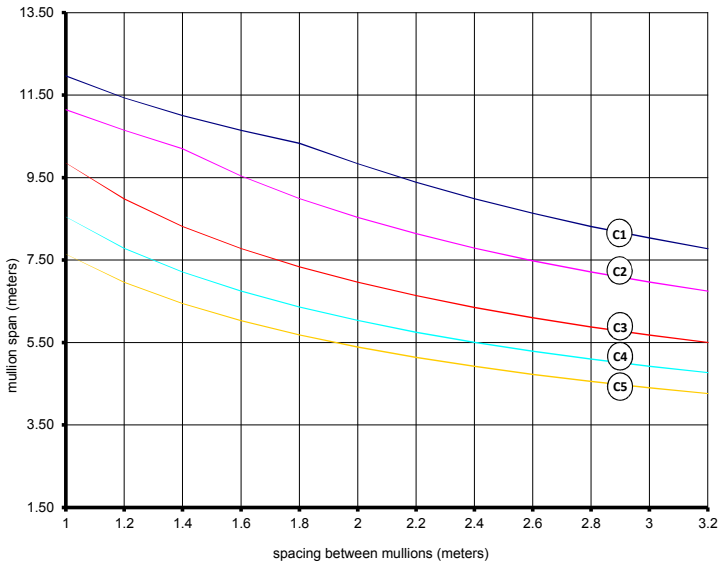


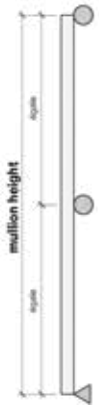
Single span



69048 + 60003

Twin span





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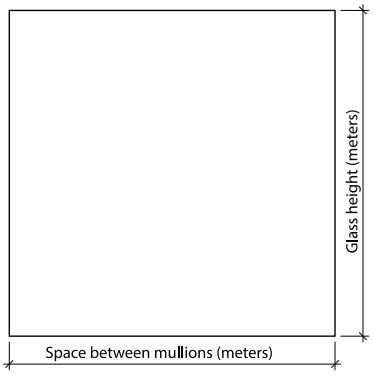
EPSYLON
Façades architecturales
Architectural façades

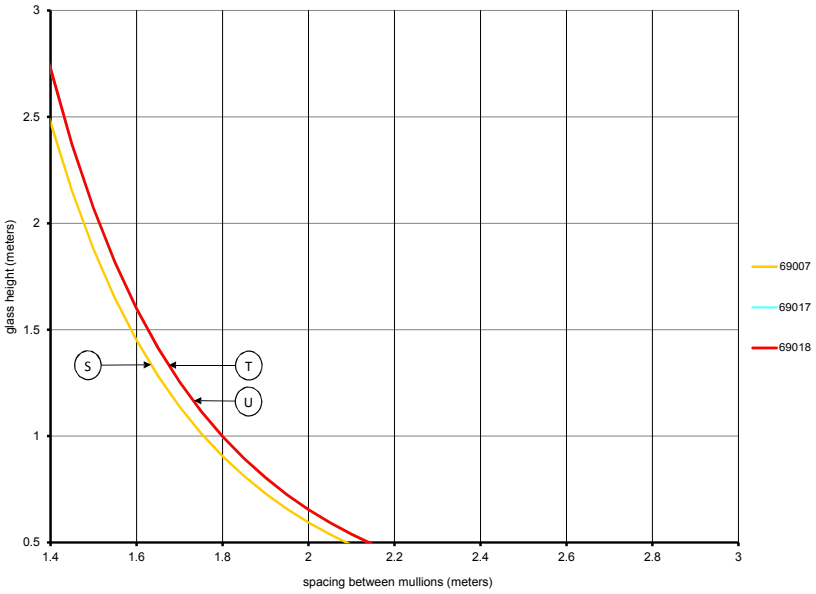
7. Structural limit charts

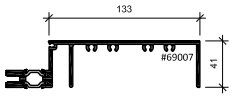
Type of assembly with caps and pressure plates

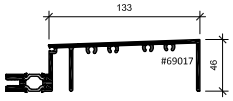
Horizontal transoms

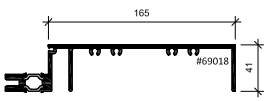
CURVES	TRANSOM		
	#	i (mm4)	s (mm3)
S	69007	176262	8071
T	69017	193951	9076
U	69018	194336	9184











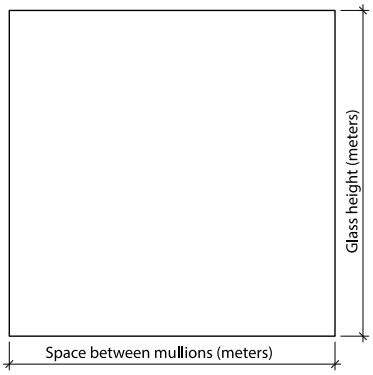
Note: The curves were drawn based on 25 mm sealed units, made up of two 6 mm glass panes supported at 1/4 of the span of the horizontal tube (transom), with a maximum deflection of 3.2 mm.

EPSYLON
Façades architecturales
Architectural façades

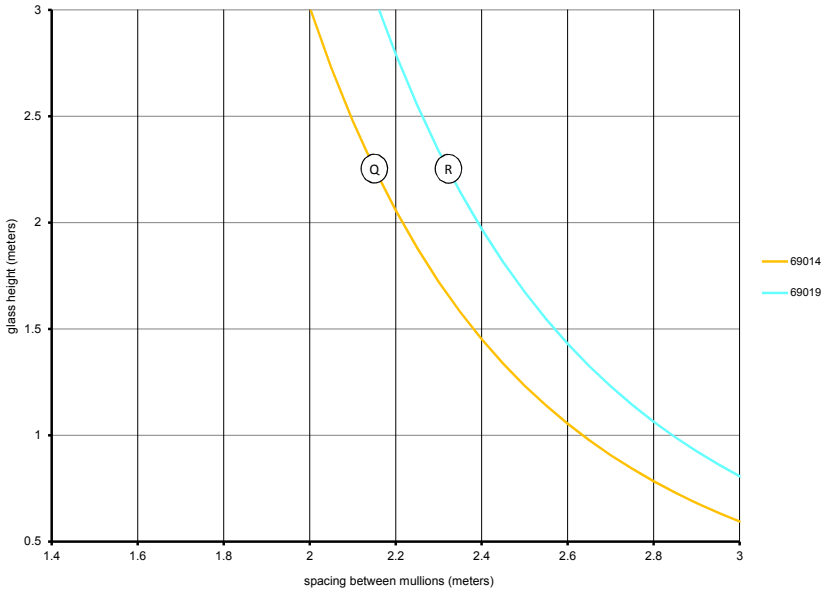
7. Structural limit charts

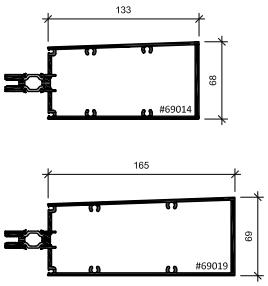
Type of assembly with caps and pressure plates

Horizontal transoms



CURVES	TRANSOM		
	#	i (mm4)	s (mm3)
Q	69014	893600	27311
R	69019	1212664	36781





Note: The curves were drawn based on 25 mm sealed units, made up of two 6 mm glass panes supported at 1/4 of the span of the horizontal tube (transom), with a maximum deflection of 3.2 mm.

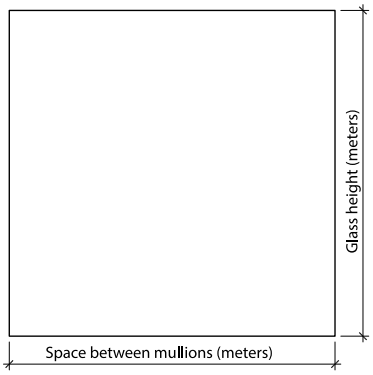
EPSYLON
Façades architecturales
Architectural façades

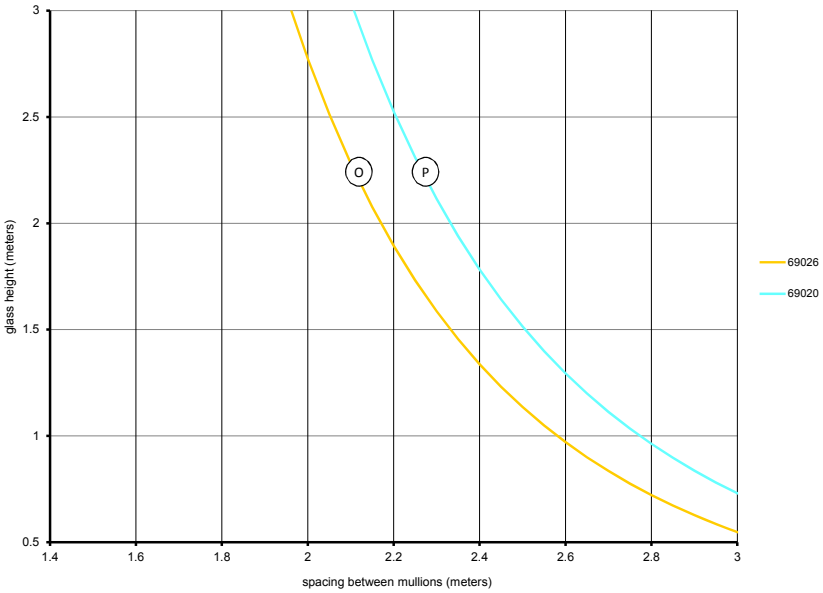
7. Structural limit charts

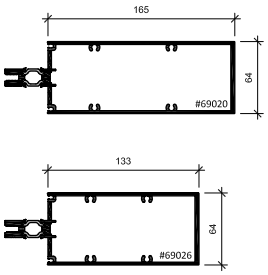
Type of assembly with caps and pressure plates

Horizontal transoms

CURVES	TRANSOM		
	#	i (mm4)	s (mm3)
O	69026	823029	25922
P	69020	1097278	34560







Note: The curves were drawn based on 25 mm sealed units, made up of two 6 mm glass panes supported at 1/4 of the span of the horizontal tube (transom), with a maximum deflection of 3.2 mm.

EPSYLON
Façades architecturales
Architectural façades

8. System selection matrix

At Epsylon, we know that every one of your projects is unique and requires custom solutions. That's why we have developed this system selection tool, allowing you to gather all of your data and get advice for any application that is not illustrated in the previous section of structural limit charts.

Don't hesitate to contact us and send your data to the Epsylon engineering department.

SELECTING MULLIONS AND SYSTEMS		
ELEMENT	UNIT	DATA
Vertical mullion free span	mm	
Spacing between mullions	mm	
Design pressure	kPa	
Project location (applicable code)	City	
Location on the building	Ground floor, multiple stories or roof/ parapet	
Mid-span slab deflection (stacking joint)	mm	
Use of an exterior cap	Horizontal, vertical, N/A	
Use of an exterior silicone joint	Horizontal, vertical, N/A	

SERIES 70 SKYLIGHTS AND GLASS ROOFS

1. Characteristics and design

SUPPORT - VISION

Series 70 in this section integrates selection criteria, associated with technologies, performance and visual characteristics.

This section's technical details show functional assemblies, specifically related to Epsylon curtain-wall systems. This section does not necessarily illustrate all possible details.

Epsylon guides visionaries in order to establish characteristics for construction projects, thus working to produce complete and high-performing systems suitable for each project.

In a responsible manner, Epsylon guides designers to fulfill the requirements, criteria and level of performance desired for projects.

Epsylon uses adequate methods and recognized procedures in order to achieve the sought-after characteristics.

SERIES 70 CHARACTERISTICS

Series 70 complies with strict performance criteria.
Epsylon guides you and recommends solutions based on your needs.

1. Characteristics and design (continued)

SYSTEM DESIGN

Skylights and glass roofs

These are slightly and heavily sloped aluminum frame curtain walls, composed of thermally broken extruded aluminum sections with self-supporting frames, calculated to meet necessary requirements, criteria and performance levels. They are fabricated in detached pieces and prefinished in the factory, and composed of vision glass, decorative spandrels, accessory elements, anchoring devices and other related constituent parts.

System design includes air and vapor barrier systems to form a continuous barrier and ensure continuity between the components, such as the aluminum, the watertight materials, the accessory materials, the glazing elements and the connected systems.

The system design uses the rain screen principle, and contains all constituent elements in order to provide complete construction systems.

System design allows individual vision panels and spandrels to be removed from the outside without having to disassemble the load-bearing and non-load-bearing rafters and purlins.

PROTOTYPES AND TESTS

Epsylon curtain walls meet the strictest industry standards and pass the tests completed by independent laboratories.

Prototypes can be made specially upon request for a given project.
As necessary, they will be submitted to specialized laboratories so the curtain walls can be tested for compliance to project-specific performance requirements:

- Airtightness performance, according to the ASTM E-283 test method,
- Smoke exfiltration performance, according to the ASTM E-1186 test method,
- Static watertightness performance, according to the ASTM E-331 test method,
- Dynamic watertightness performance, according to the AAMA 501.1 test method,
- Structural performance: strength and resistance, according to the ASTM E-330 test method,
- Resistance to condensation, according to the CAN/CSA A440 test method,

Using simulation software, Epsylon is able to test the energy performance of its curtain walls in order to exactly meet construction needs.

Epsylon guides designers to develop and recommend the best energy strategies for construction projects.

2. Technical specifications

PRODUCT DESCRIPTION

High-quality, conventional skylight curtain-wall systems, designed for commercial, institutional or industrial buildings.

Series 70: aluminum and glass skylights or glass roofs with a water drainage system and condensation gutters.

Champlain Mall (Brossard)

FABRICATION

- All factory fabrication requires shop drawings previously approved by professionals (and the consultant if necessary) and technical drawings that comply with the criteria and performance and design levels required by the specifications.
- The pieces are cut, machined, fabricated and assembled by computer numerical control machines in order to ensure greater accuracy.
- All assembly joints are aligned with precision, and are rigid in order to ensure an optimal seal and an appearance to match the design. The joints also allow expansion and creep caused by movements in the building frame and temperature fluctuations.
- No trace of warping or distortion will be left visible by the welding work.
- The reinforcing steel will be coated in an anti-corrosion primer, along with the welded joints.
- Dissimilar materials will be separated by dielectric tape or a similar material.
- The glasses and glazing from the chosen manufacturer will comply with the specifications (equivalents), with the consultant's requirements and with the applicable standards and codes.
- The sealing products used in system assembly will comply with the manufacturer’s requirements for their application, and will be subject to regular tests throughout their fabrication to ensure optimal quality.

NOTE: fabrication and factory assembly methods remain at Epsylon’s discretion and are subject to rigorous internal quality control.

2. Technical specifications (continued)

INSTALLATION

Preliminary work

- Shop drawings approved by professionals and in compliance with the architectural specifications provided by Epsylon.
- Engineering and production drawings of Epsylon systems (in coordination with on-site work).
- The curtain wall's anchors will be provided by Epsylon to be incorporated into the building's frame by the general contractor.
- Verification of levels (benchmarks) and the building's primary axes. The components will be provided and validated by the general contractor.
- Preparation of adequate openings at the construction site to ensure an adequate connection between the air and vapor barriers and the adjacent walls. The contractor must ensure that the materials used are compatible with those used in Epsylon's curtain walls.

Delivery and construction-site installation

- The curtain walls will be delivered on 100% reusable steel racks in order to minimize waste materials on site. If such racks cannot be used, the conventional curtain walls will be delivered on reusable wooden pallets, and they will be packaged in order to prevent any damage. The most vulnerable components will be protected using Blue Max™ protective film.
- All elements that make up the curtain wall will be installed, up to standard, straight and level. To this end, all aluminum anchorage parts designed and fabricated by Epsylon will be installed and connected to the steel parts already incorporated into the steel and concrete structure.
- Bolt down the mullions, transoms or prefabricated modules to the anchors while respecting the tolerances, thermal movements from the building frame and the seismic requirement if required.
- The curtain wall's anchors will be provided by Epsylon to be incorporated into the building's frame by the general contractor.
- Protect the most vulnerable members from damage caused by other work (scratches, etc.). However, the general contractor should take all possible precautions to avoid pouring concrete on the aluminum and glass in general.
- Clean the aluminum and glass at the end of the work if required in the specification.

NOTE: Fabrication and assembly methods remain at Epsylon's discretion.

2. Technical specifications (continued)

AVAILABILITY AND COSTS

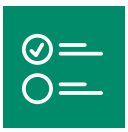
Estimates are available quickly, based on a physical description provided by drawings and brief specifications, created using the technical specifications in section 08 of the DDN.

WARRANTIES

- Five (5) years for materials and labor;
- Five (5) or ten (10) years against loss of seal in sealed glazing and glazing gaskets;
- Ten (10) years for anodized finishes and twenty (20) years for Kynar 500-based finishes.

MAINTENANCE

Upon request, Epsylon will provide a maintenance manual for the glazing (glass, glazing gaskets, etc.), the sealant and aluminum or other materials incorporated into the construction in sections (e.g. copper, stainless steel) or panels (e.g. granite).



QUALITY CONTROL

Epsylon performs tests on its products in its own laboratories and in independent, recognized laboratories (the reports are available upon request). The procedures of these tests comply with current standards and serve to test product quality based on performance criteria and levels specific to each project.

Moreover, before every project using our curtain walls begins construction, the silicone structural glazing sealant manufacturers perform adherence and shear strength tests on the sealant on the specific materials it must adhere to.

3. Performance requirements

Calculations of components and their dimensions are determined in a way that ensures that they can withstand dead loads and applicable overloads.

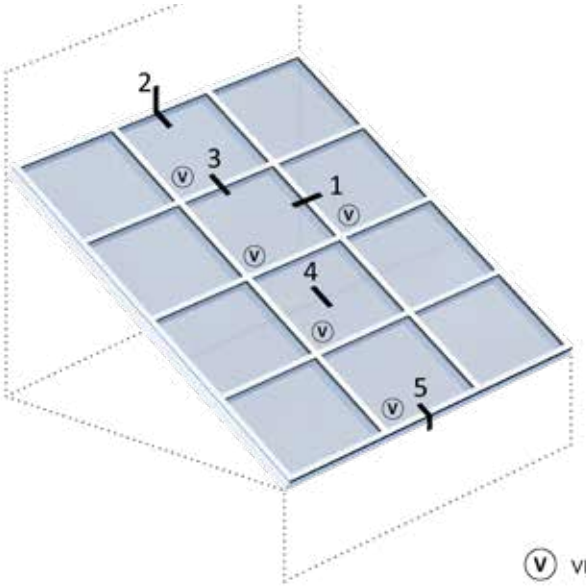
These calculations are also determined to ensure that they withstand seismic movement and horizontal deflections, according to calculations made in accordance with applicable codes.

These curtain-wall systems are designed to withstand the following constraints, without damage to the elements or deterioration of the joints or sealant:

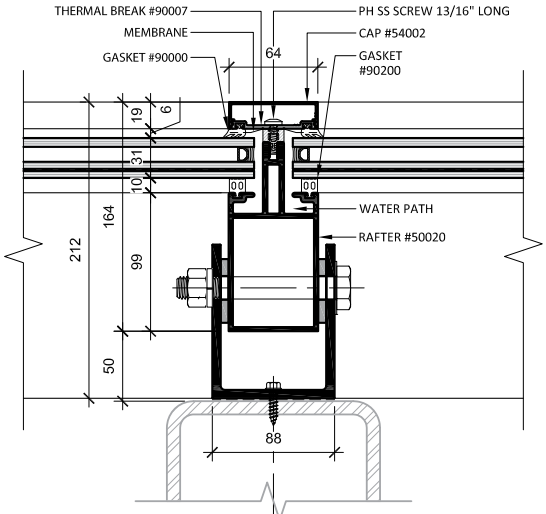
- Movement of the curtain wall's various components.
- Movement between the curtain wall's components and the building envelope's peripheral elements.
- Dynamic overload (application and removal).
- Bending of the load-bearing frame.
- Structural concrete shrinkage and creep.

Montreal Biodome (Montreal)

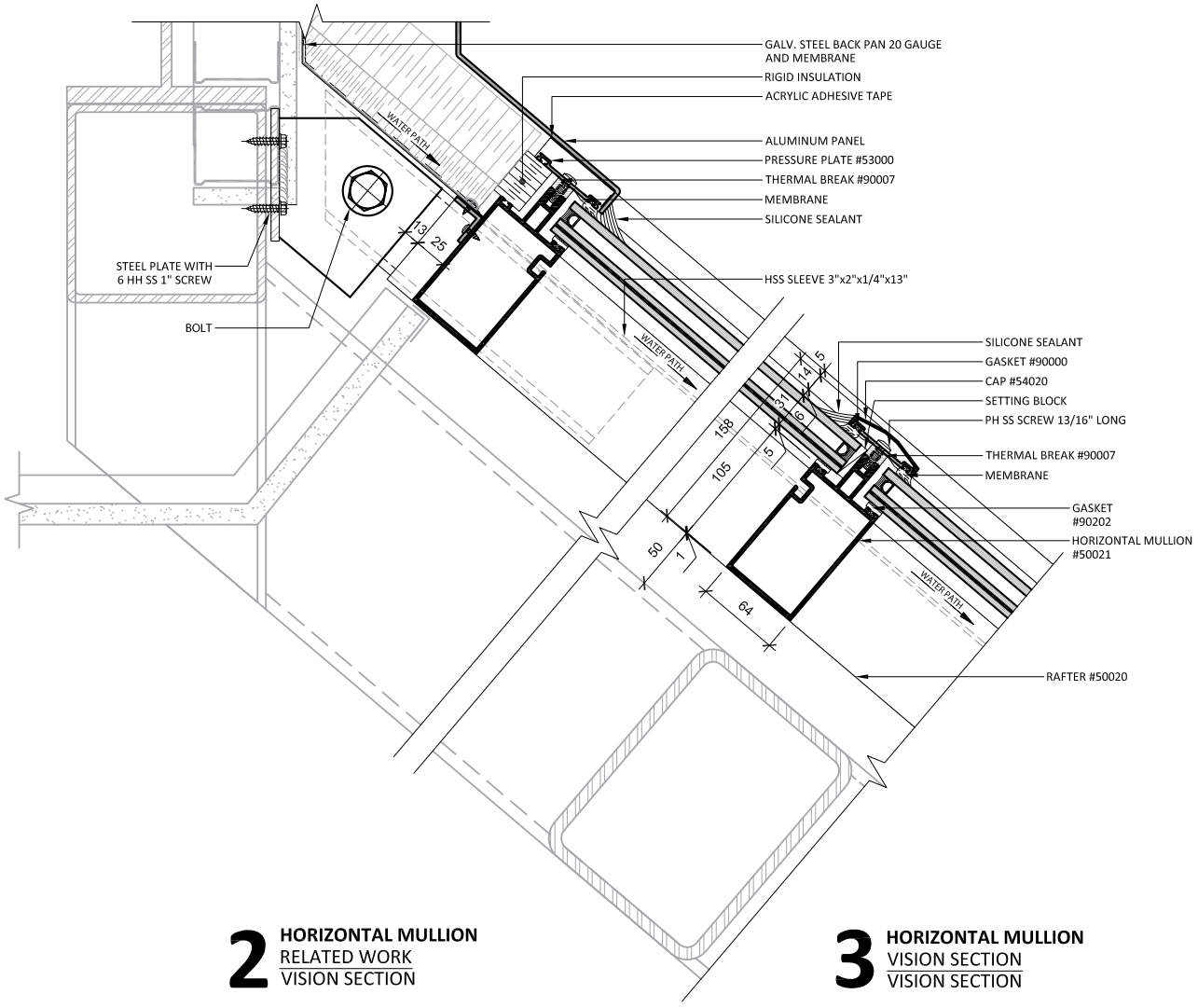
4. Typical skylight and glass roof details



V VISION SECTION



1 RAFTER
VISION SECTION
VISION SECTION



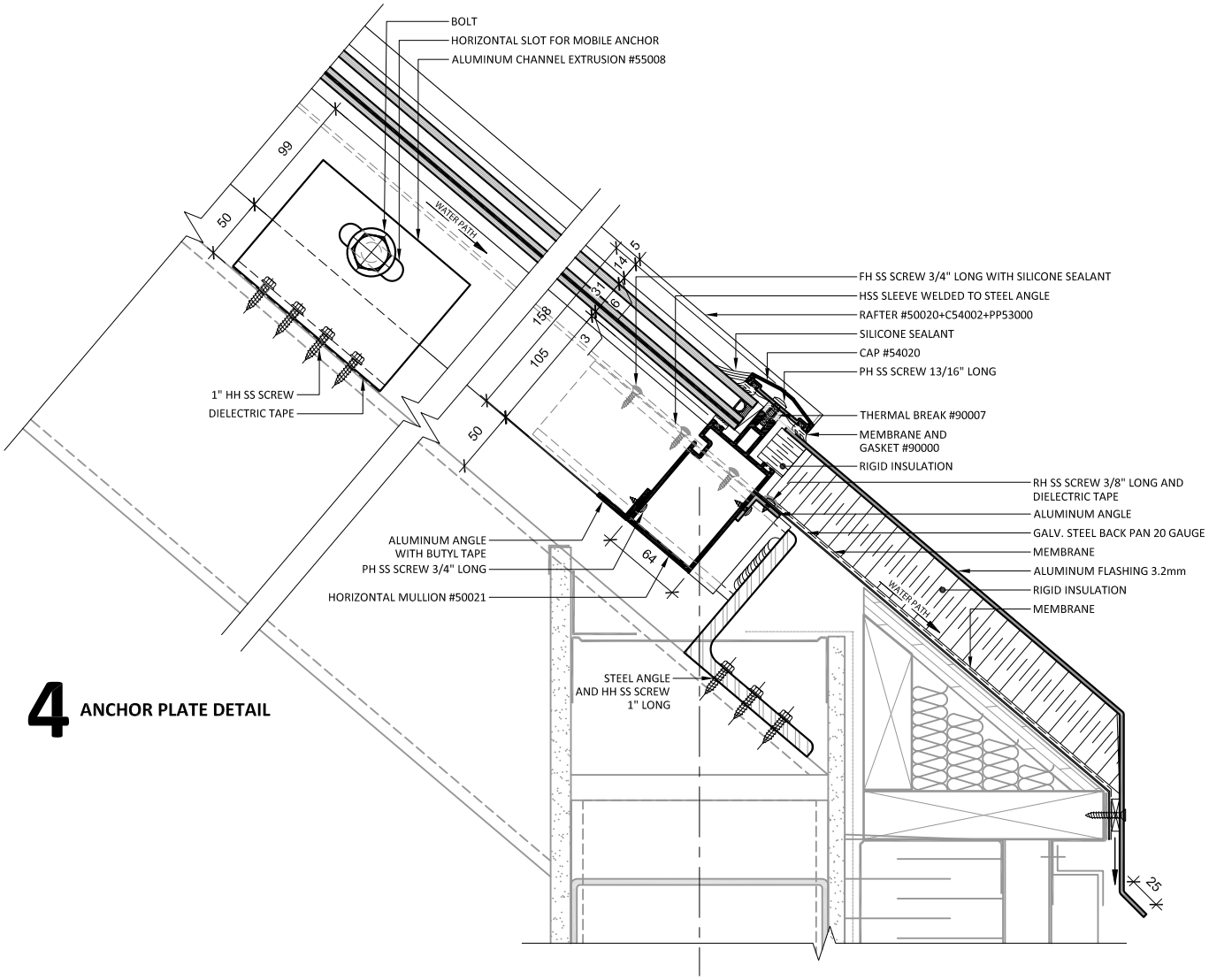
2 HORIZONTAL MULLION
RELATED WORK
VISION SECTION

3 HORIZONTAL MULLION
VISION SECTION
VISION SECTION

SCALE: 1 : 5

EPSYLON
Façades architecturales
Architectural façades

4. Typical skylight and glass roof details (continued)



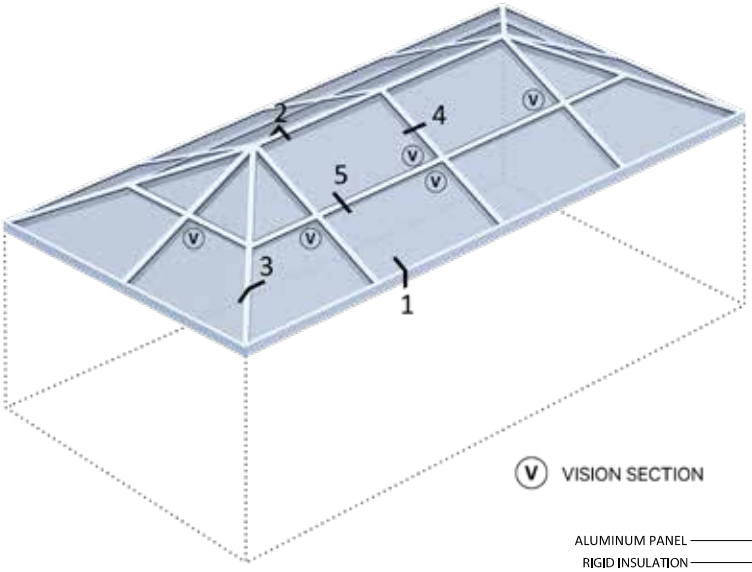
4 ANCHOR PLATE DETAIL

5 HORIZONTAL MULLION
VISION SECTION
CONNECTED ELEMENTS

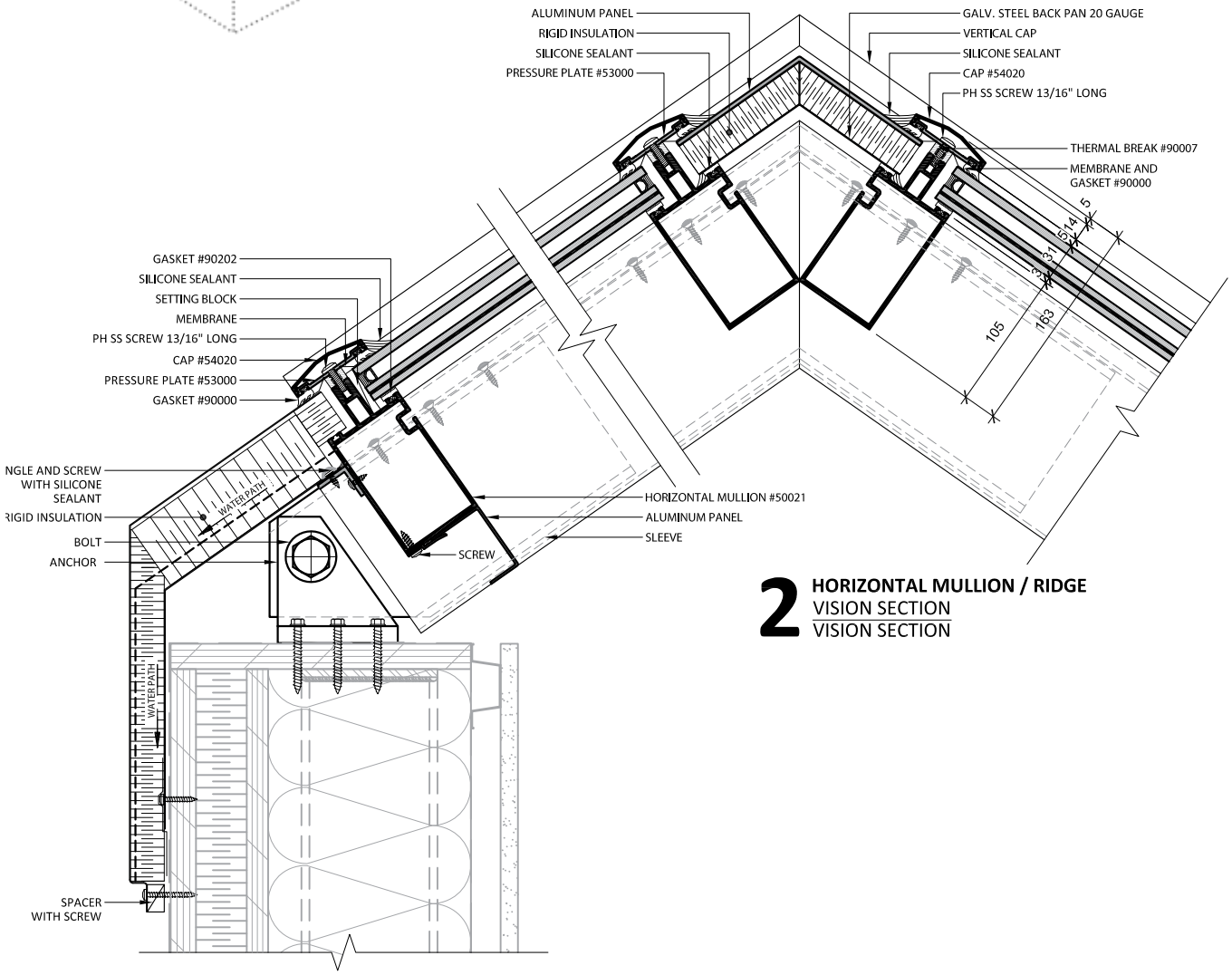
SCALE: 1:5

EPSYLON
Façades architecturales
Architectural façades

4. Typical skylight and glass roof details (continued)



V VISION SECTION



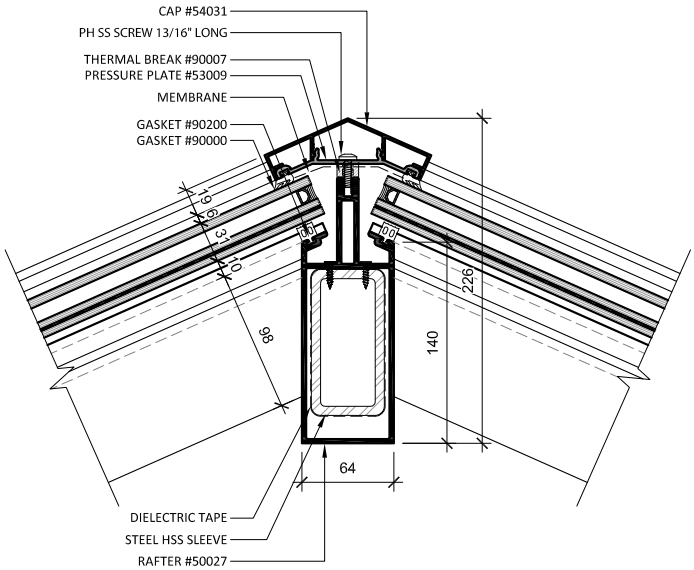
2 HORIZONTAL MULLION / RIDGE
VISION SECTION
VISION SECTION

1 HORIZONTAL MULLION
VISION SECTION
RELATED WORK

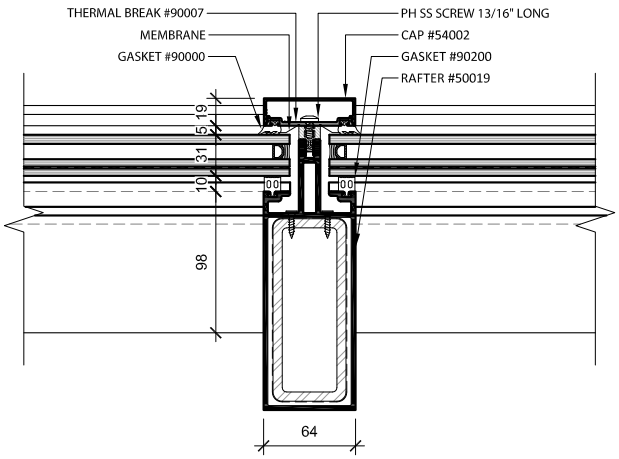
SCALE: 1 : 5

EPSYLON
Façades architecturales
Architectural façades

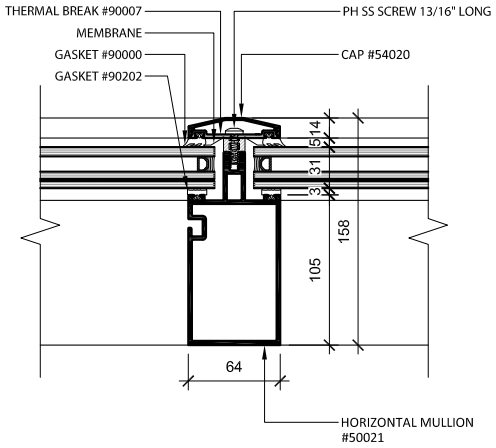
4. Typical skylight and glass roof details (continued)



3 **CORNER ANGLE**
VISION SECTION
VISION SECTION



4 **RAFTER**
VISION SECTION
VISION SECTION

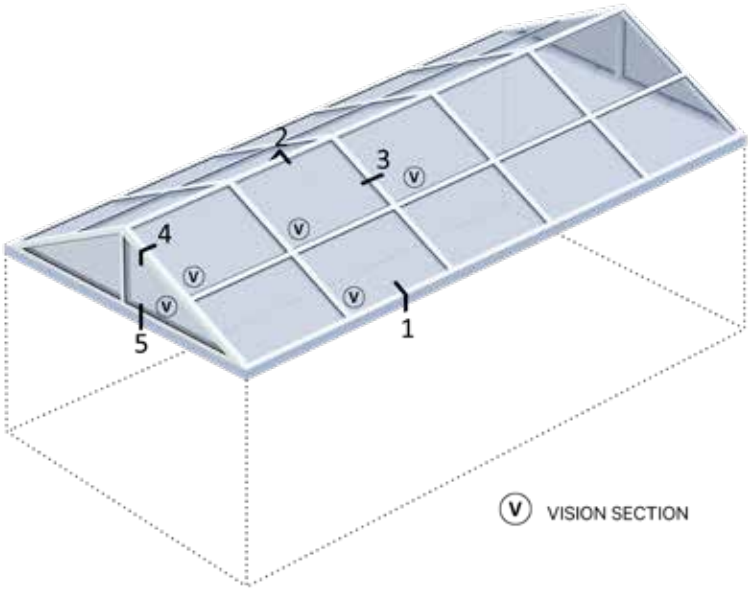


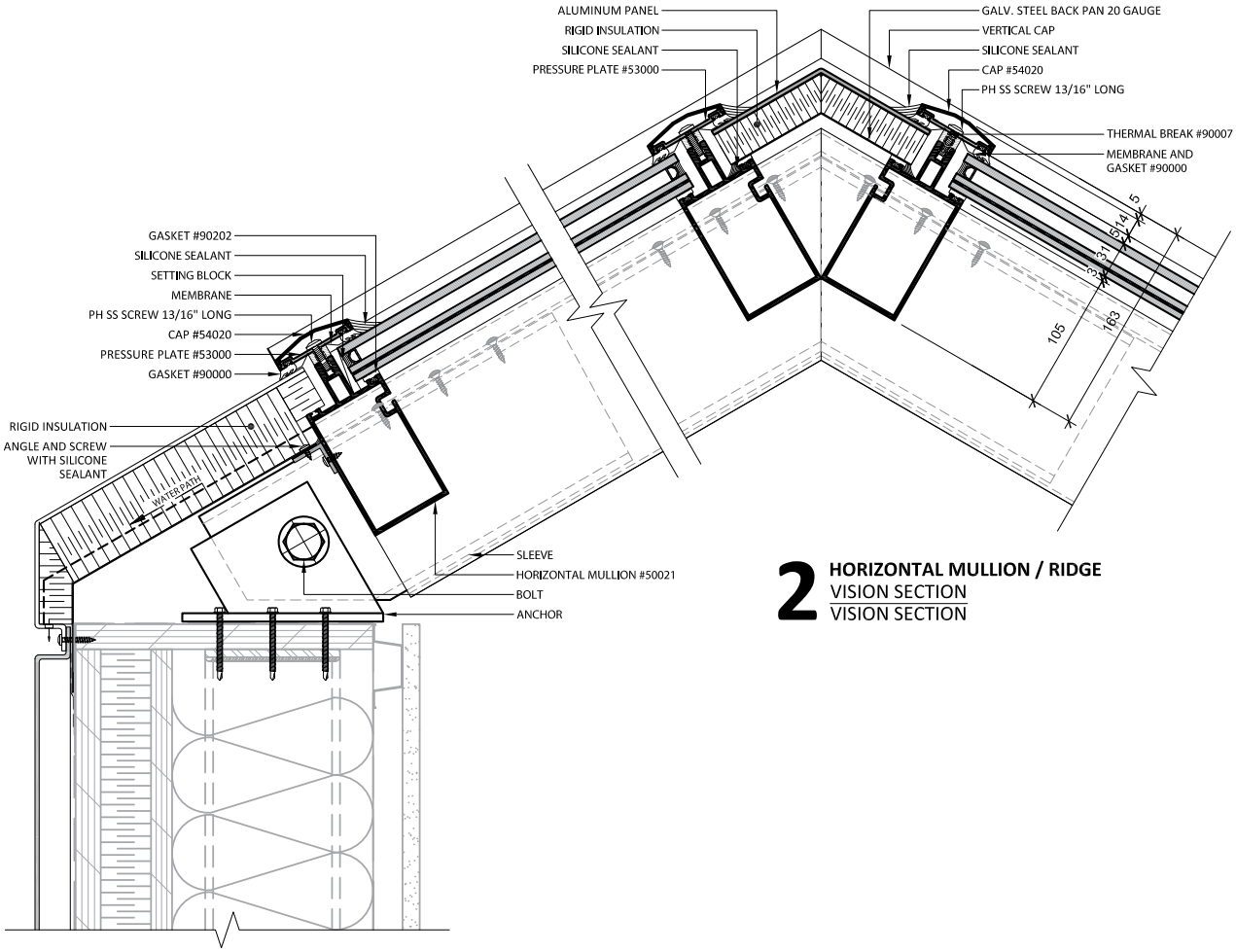
5 **HORIZONTAL MULLION**
VISION SECTION
VISION SECTION

SCALE: 1 : 5

EPSYLON
Façades architecturales
Architectural façades

4. Typical skylight and glass roof details (continued)





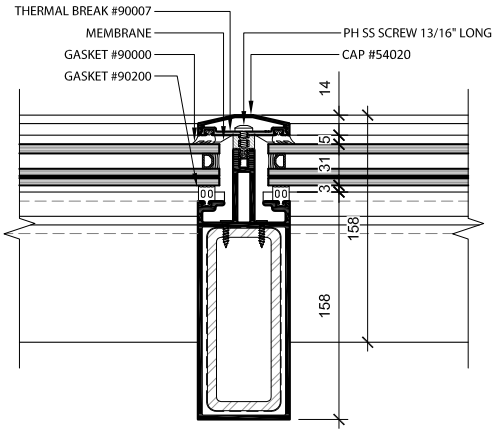
2 HORIZONTAL MULLION / RIDGE
VISION SECTION
VISION SECTION

1 HORIZONTAL MULLION
VISION SECTION
RELATED WORK

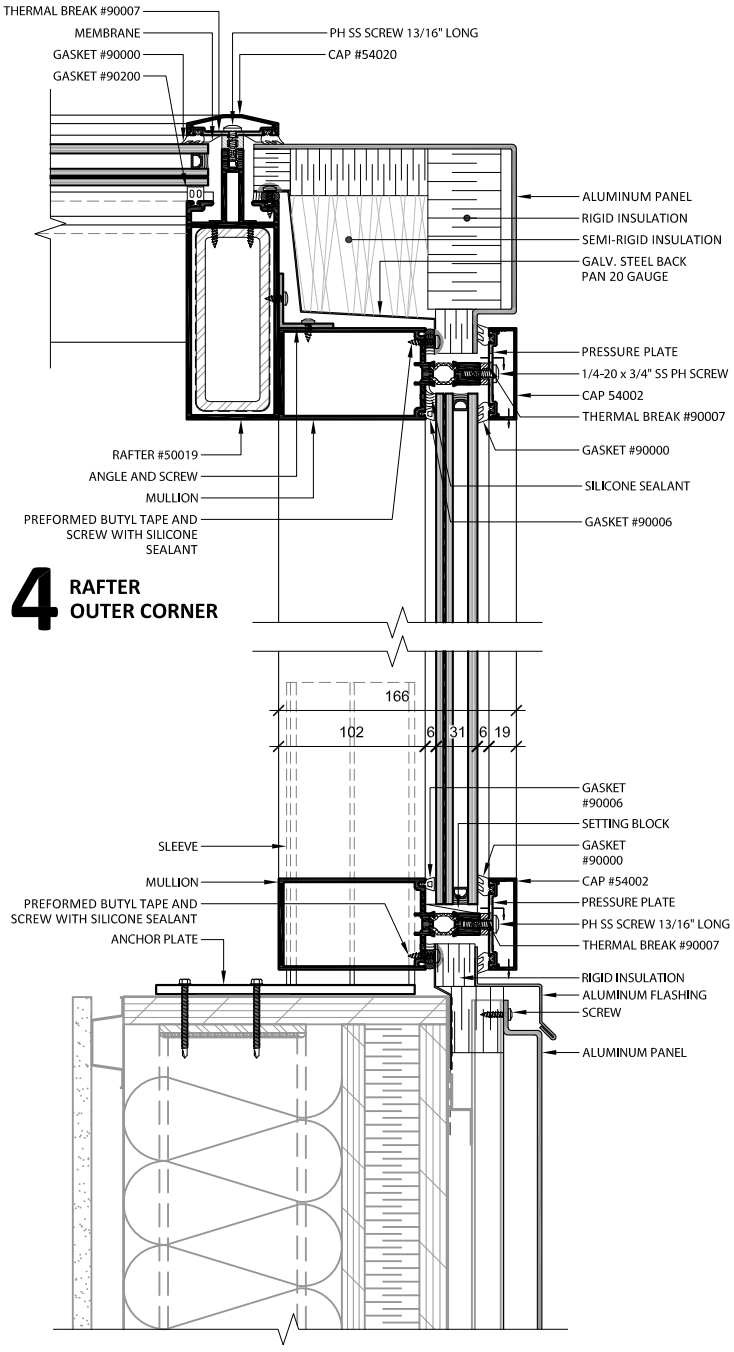
SCALE: 1 : 5

EPSYLON
Façades architecturales
Architectural façades

4. Typical skylight and glass roof details (continued)



3 RAFTER
VISION SECTION
VISION SECTION



4 RAFTER
OUTER CORNER

5 HORIZONTAL MULLION
VISION SECTION
RELATED WORK

SCALE: 1 : 5

EPSYLON
Façades architecturales
Architectural façades

SERIES 80
FLEX
CURTAIN WALLS

Coming soon

SERIES 100 ALUMINUM ARCHITECTURAL PANELS

1. Characteristics and design

SUPPORT - VISION

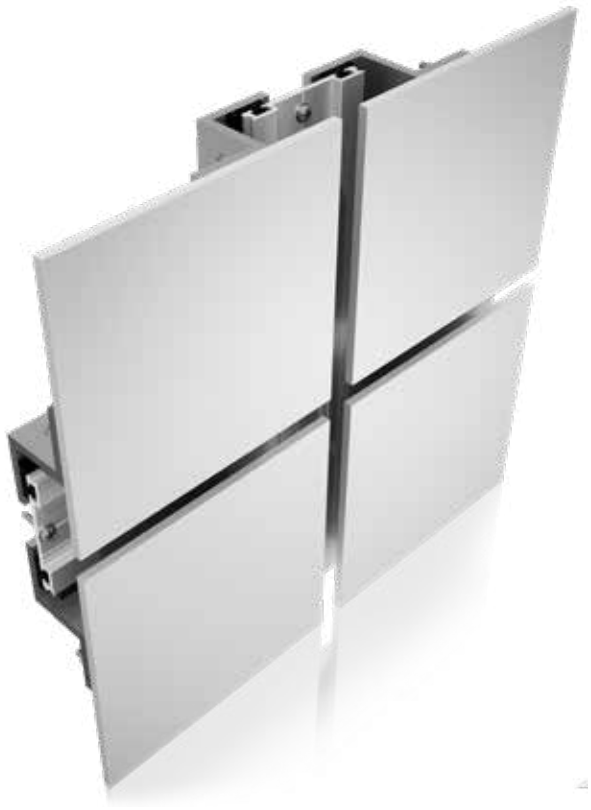
Series 100 in this section integrates selection criteria, associated with technologies, performance and visual characteristics.

This section's technical details show functional assemblies, specifically related to Epsylon architectural panel systems. This section does not necessarily illustrate all possible details.

Epsylon guides visionaries in order to establish characteristics for construction projects, thus working to produce complete and high-performing systems suitable for each project.

In a responsible manner, Epsylon guides designers to fulfill the requirements, criteria and level of performance desired for projects.

Epsylon uses adequate methods and recognized procedures in order to achieve the sought-after characteristics.



SERIES 100 CHARACTERISTICS

Series 100 provides flexibility in design and multifunctionality.
Series 100 complies with strict performance criteria.
Epsylon guides you and recommends solutions based on your needs.

1. Characteristics and design (continued)

SYSTEM DESIGN

These are aluminum frame architectural panel systems, composed of aluminum extruded profiles and brake shapes, calculated to meet necessary requirements, criteria and performance levels. They are fabricated in detached pieces in a workshop and prefinished in a factory, and composed of decorative panel sections, accessory elements, anchoring devices and other related constituent parts.

Systems are designed to produce a rain barrier and ensure adequate protection of walls and constituent elements.

The system design uses the rain screen principle, and contains all constituent elements in order to provide complete construction systems.

System design allows individual aluminum panels to be removed from the outside without having to disassemble the wall supports.

PROTOTYPES AND TESTS

Epsylon aluminum architectural panels meet the strictest industry standards and pass the tests conducted by independent laboratories.

Prototypes can be made specially upon request for a given project.

As necessary, prototypes will be submitted to specialized laboratories so the aluminum panels can be tested for compliance to project-specific performance requirements:

- Rain screen performance,
- Structural performance: strength and resistance.

Epsylon guides designers to develop and recommend the best strategies for construction projects.

2. Performance requirements

Calculations of components and their dimensions are determined in a way that ensures that they can withstand dead loads and applicable overloads.

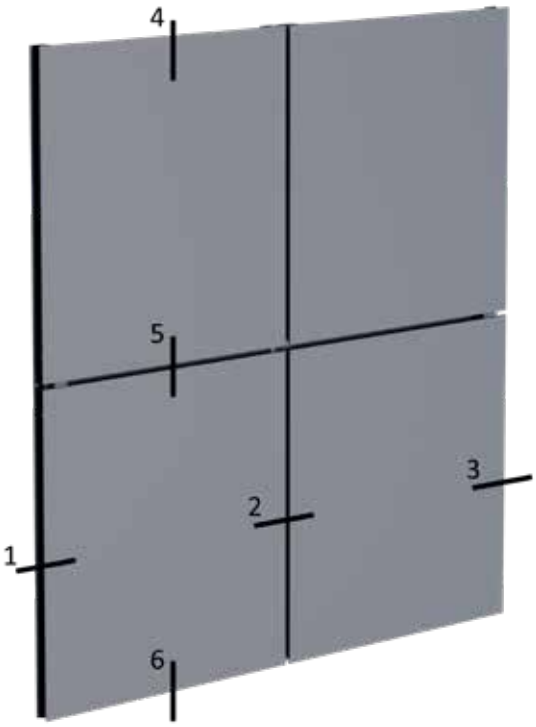
These calculations are also determined to ensure that they withstand seismic movement and horizontal deflections, according to calculations made in accordance with applicable codes.

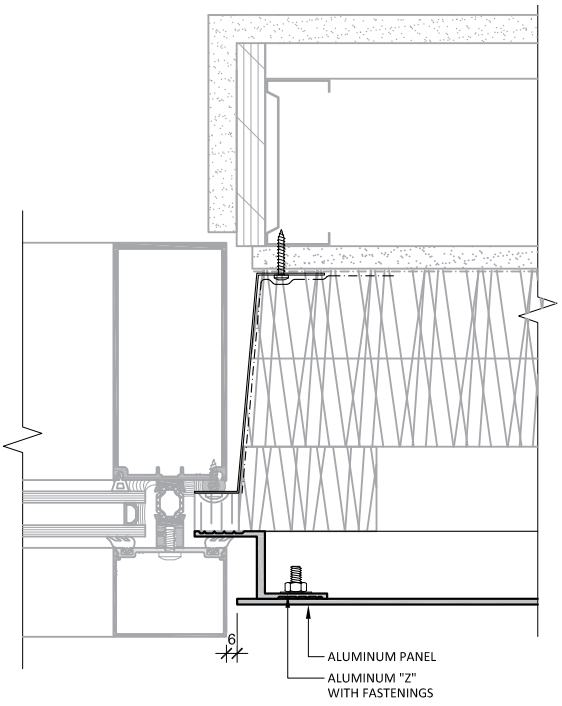
These aluminum architectural panel systems are designed to withstand the following constraints, without damage to the elements or deterioration of the joints or sealant:

- Movement of the system's various components.
- Movement between the system's components and the building envelope's peripheral elements.
- Dynamic overload (application and removal).
- Bending of the system elements.
- Substrate shrinkage and creep.

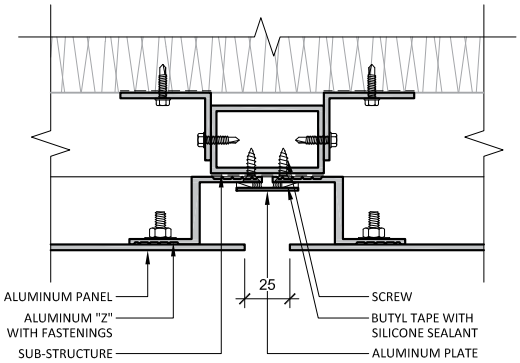
Videotron Centre (Quebec City)

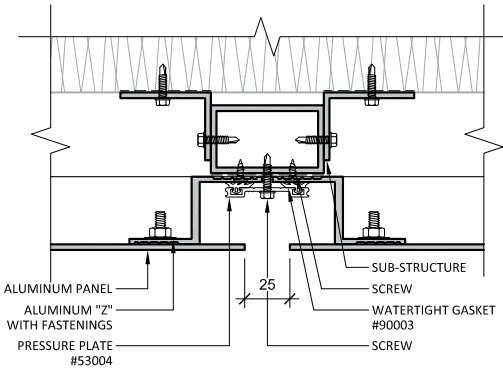
3. Typical aluminum panel details



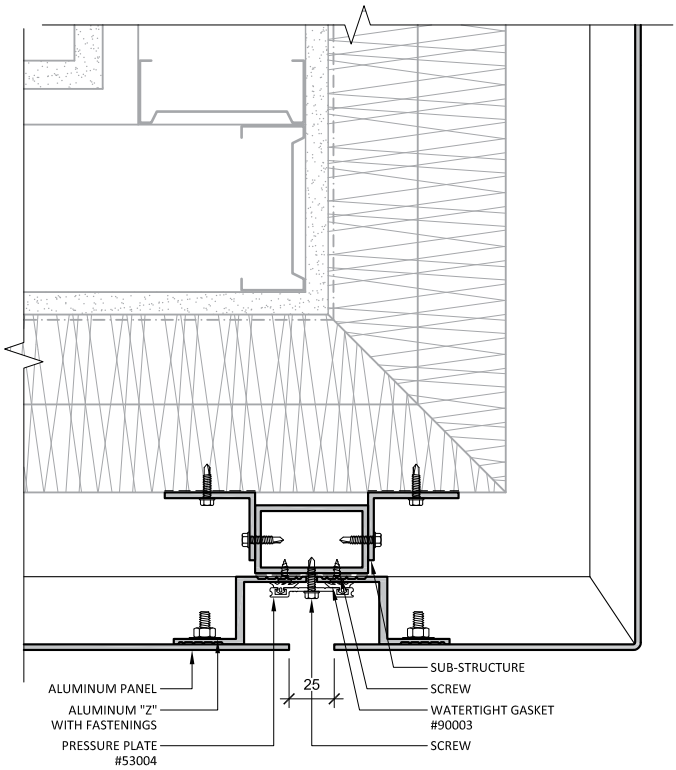


1 RELATED WORK
ALUMINUM PANEL





2 ALUMINUM PANEL
ALUMINUM PANEL

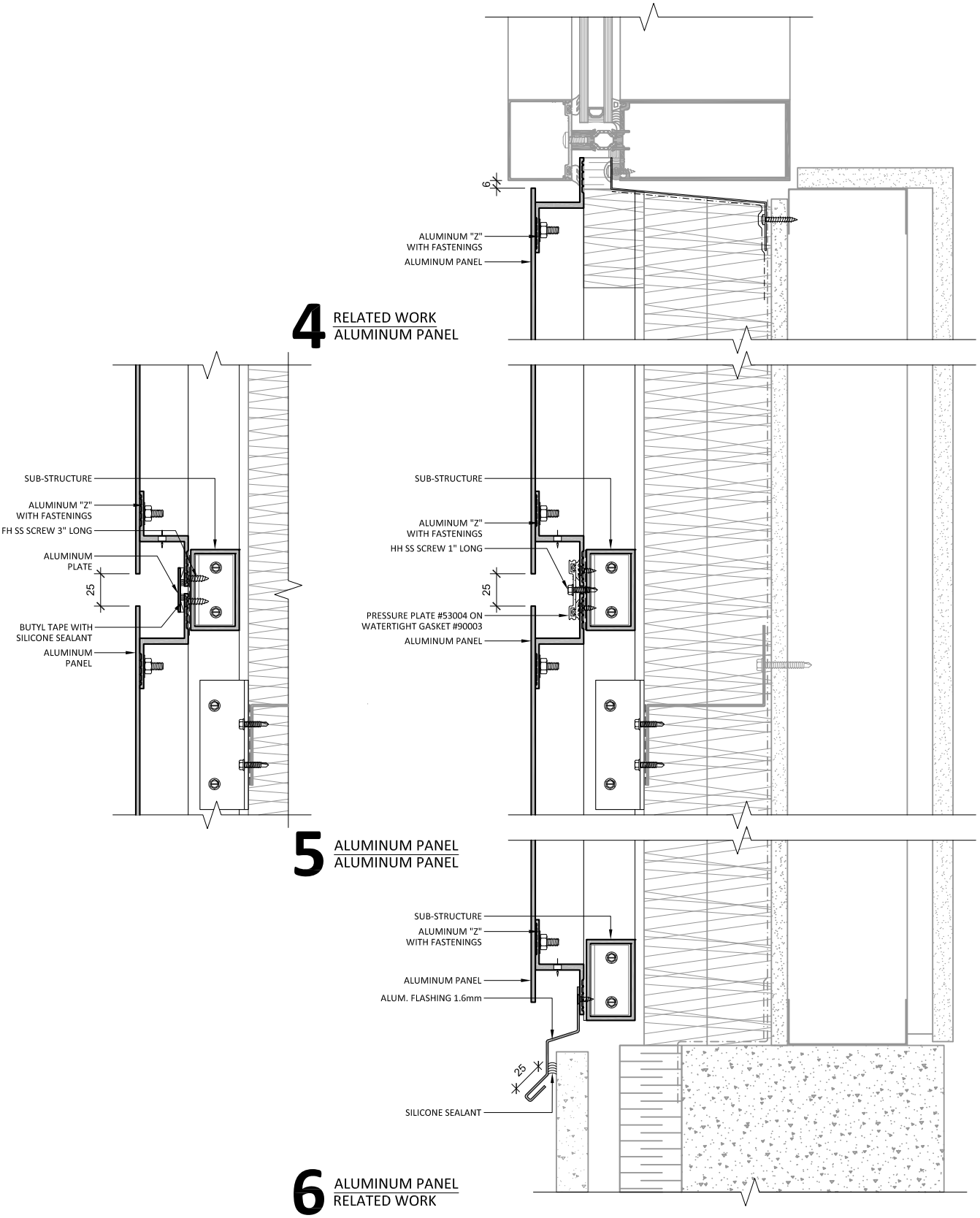


3 **EXTERIOR CORNER**
ALUMINUM PANEL
ALUMINUM PANEL

SCALE: 1 : 4

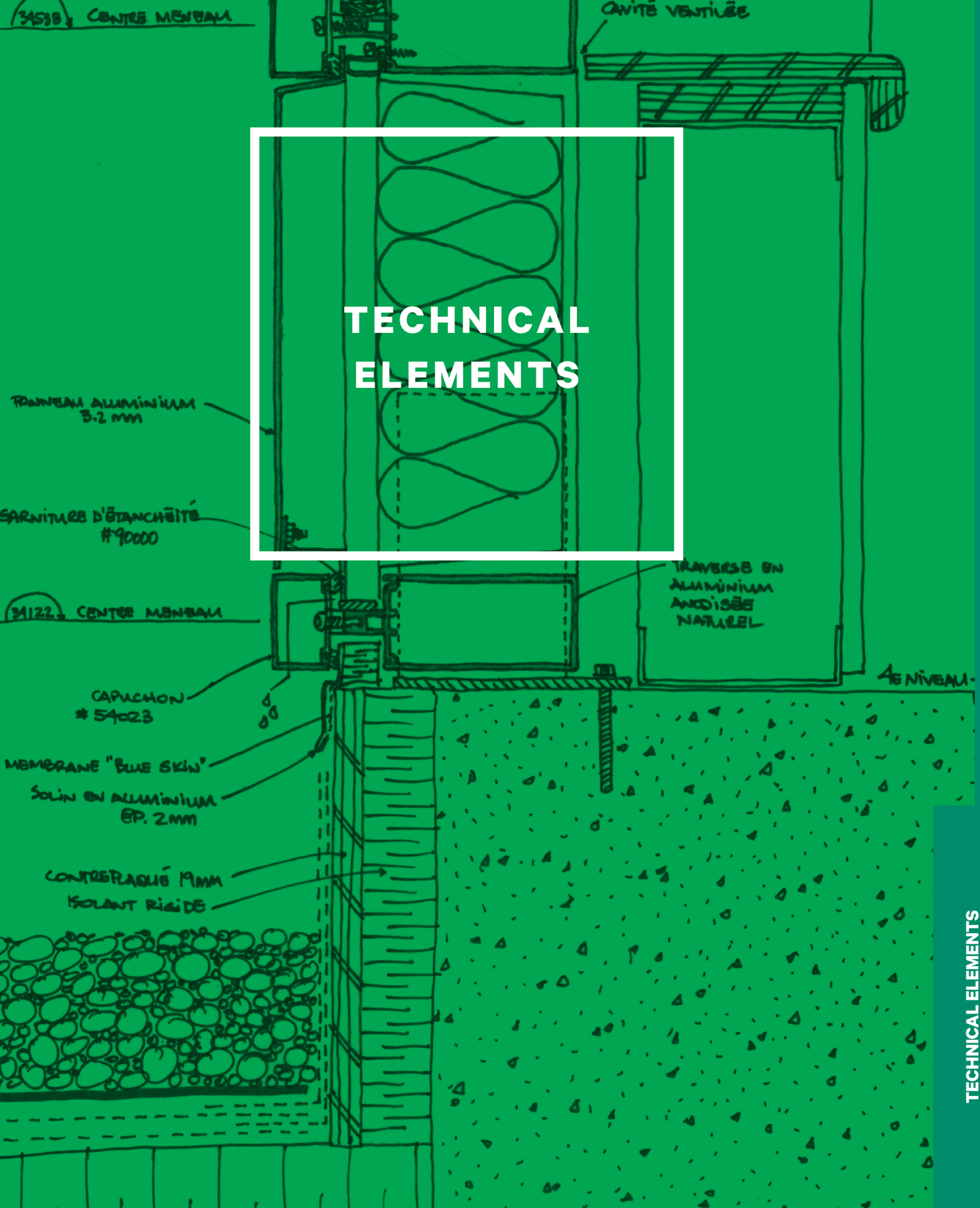
EPSYLON
Façades architecturales
Architectural façades

3. Typical aluminum panel details (continued)



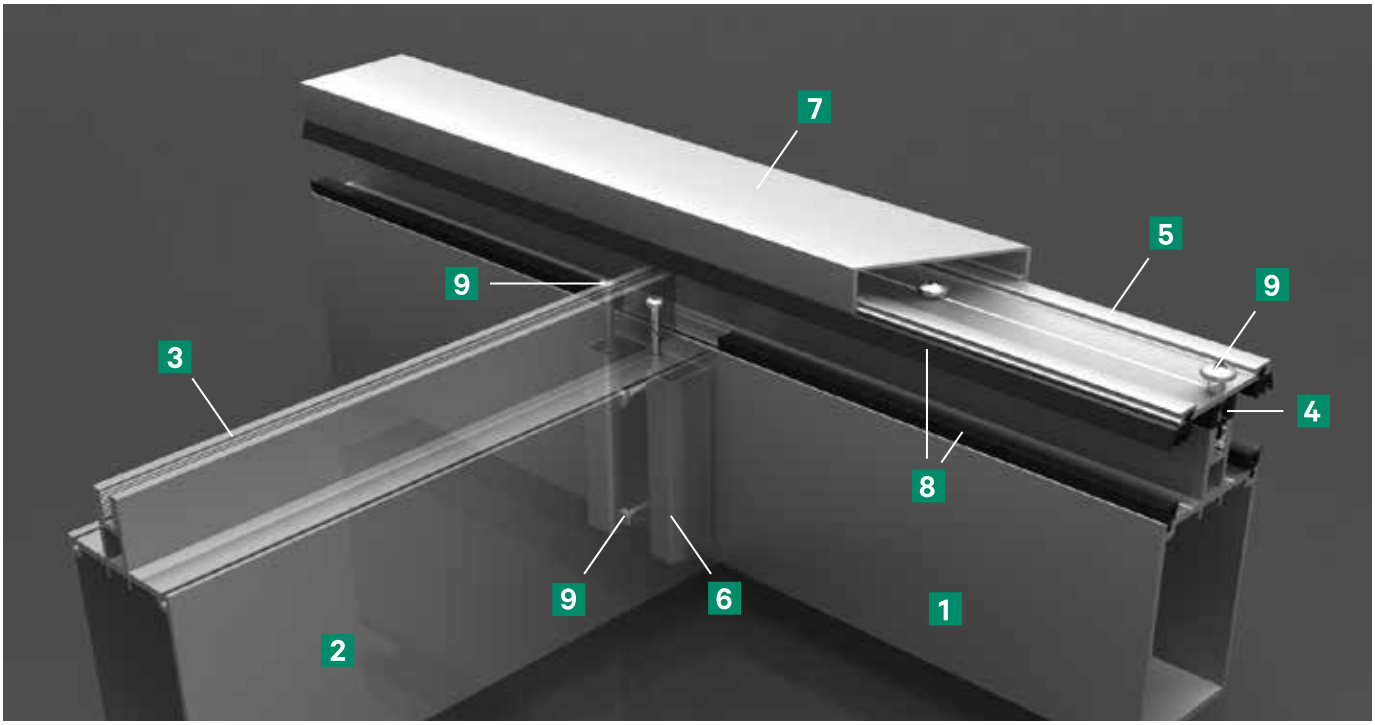
SCALE: 1 : 4

EPSYLON
Façades architecturales
Architectural façades



TECHNICAL ELEMENTS

1. Visual glossary and terminology: curtain wall



1

Mullion (vertical): Vertical structural member of the curtain wall; with transoms, mullions make up the structural framework of the curtain wall and hold the vision glass, spandrels, operable window frames, etc. in place. They also support a section of the curtain wall, composed of the elements mentioned, among others.

2

Transom: horizontal structural member of a curtain wall; with mullions, transoms make up the primary framework of the curtain wall and support and hold the vision glass, spandrels, opening window frames, etc. in place. Less commonly, transoms are used to support a section of a curtain wall when it is impossible to use the mullion for this purpose.

3

Nose: part of the mullion or transom used to attach the thermal break and pressure plate. For a transom, the nose also holds the vision glass, spandrels, etc. or for mullions, to laterally frame them.

4

Thermal break: non-conductive material installed between the mullion or transom nose and the pressure plate to limit thermal conduction. Pressure plate: continuous detachable element, bolted down, used to secure the panels to the members.

5

Pressure plate: continuous detachable element, screwed down, used to secure the panels to the members.

6

Bracket: aluminum extrusion mechanically attached (screwed down) to the mullion to serve as a console and connection for the transom. The transom is also mechanically attached to it (screwed down). Corner block or plug: piece of rubber located where the mullions and transoms meet to fill the recess at the panel corners.

7

Cap: decorative element attached to the pressure plate. A drainage path must be used on horizontal caps.

8

Non-adhesive gasket: Watertight gasket for vision glass or spandrel panels in a variety of materials; preformed neoprene strip, EPDM or other acceptable material, with no adhesive properties.

9

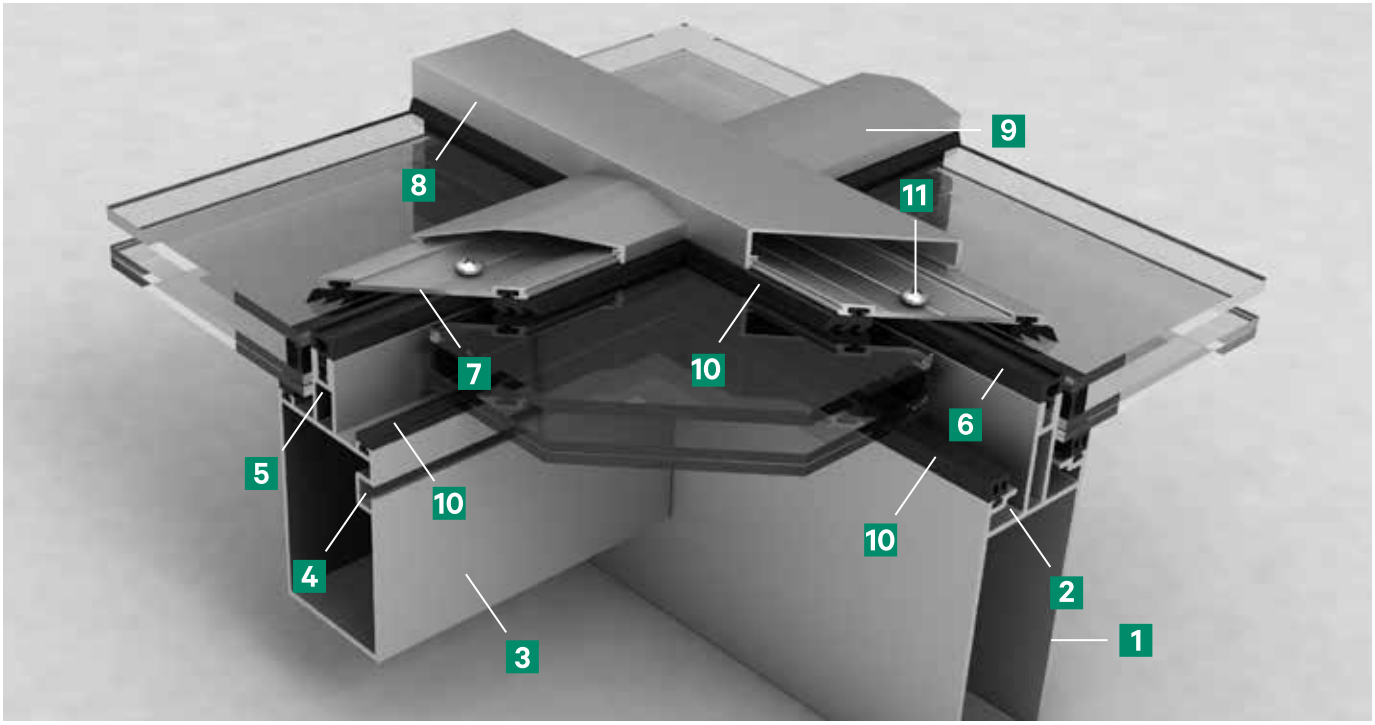
Fixing screw: linking member used to attach and secure two elements.

Sealant (not pictured): joint component used to seal the curtain wall at the junction between the constituent parts, as well as the junction between the curtain wall and the rest of the building structure at the curtain wall's perimeter.

Setting block (not pictured): slightly compressible element placed on the transom nose, and used to support the edge of the vision glass or spandrel.

Angle trim or corner plug (not pictured): element generally made of EPDM, installed between the edge of the transom nose and vertical nose, in the glazing cavity, which serves to seal each of the compartment units from each other.

2. Visual glossary and terminology: skylights and glass roofs



1

Rafter: inclined structural frame of the skylight; with the transom, the rafter constitutes the structural framework of the skylight and serves to maintain the vision panels (or other) in place.

2

A network of gutters integrated in the rafters is planned for the Series 70 system in order to facilitate rainwater drainage or excess water from melting snow.

3

Purlin: horizontal structural frame of the skylight; with the rafter, the purlin constitutes the structural framework of the skylight and serves to support and maintain the vision panels (or other) in place.

4

A network of gutters built into the cross members is planned for the Series 70 system in order to prevent leakage due to potential condensation.

5

Nose: part of the mullion or transom used to attach the thermal break and pressure plate. For a transom, the nose also serves to hold the vision panels, spandrels, etc. or for mullions, to laterally frame them.

6

Thermal break: isolating material installed between the mullion or transom nose and the pressure plate to limit thermal conduction.

7

Pressure plate: continuous detachable element, screwed down, used to secure the panels to the members.

8

Cap: decorative element attached to the pressure plate. A drainage path is used used for horizontal caps.

9

Special sections may be used for horizontal caps to limit standing water.

10

Non-adhesive gasket: Watertight gasket for vision panels or spandrel panels in a variety of materials; preformed neoprene strip, EPDM or other acceptable material, with no adhesive properties.

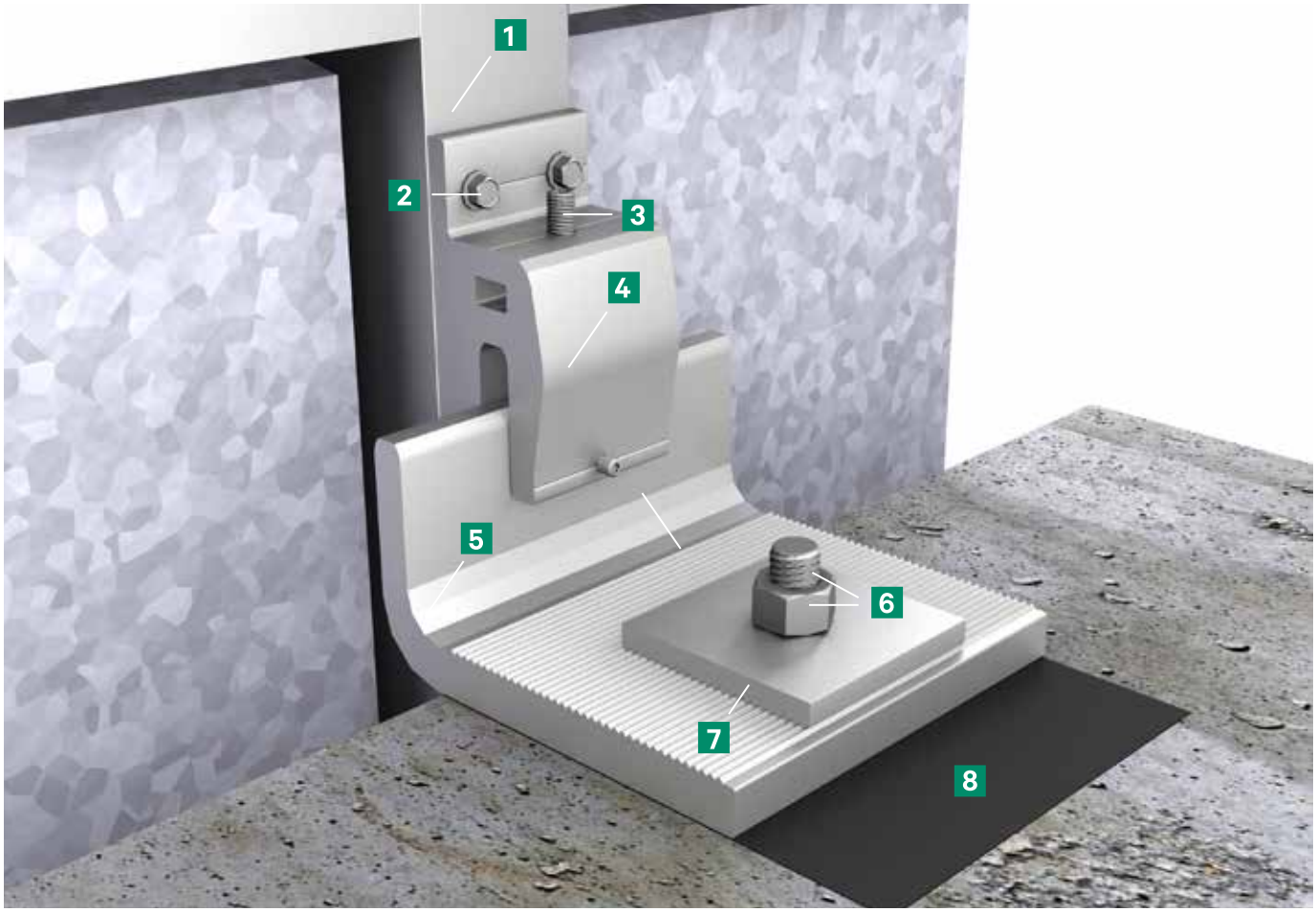
11

Fixing screw: linking member used to adequately attach and secure two elements.

Sealant (not pictured): joint component used to seal the curtain wall at the junction between the constituent parts, as well as the junction between the curtain wall and the rest of the building structure at the curtain wall's perimeter.

Setting block (not pictured): slightly compressible element placed on the transom nose, and used to support the edge of the vision glass or spandrel.

3. Visual glossary and terminology: typical anchorage (series 50)



1

Sleeve: aluminum extrusion located inside the mullion, used to provide additional structural support to accommodate better attachment to anchors.

2

#14 self-drilling screws: serve as mechanical attachment between the clip, mullion and sleeve.

3

Threaded rod Ø 3/8": screwed into the clip, it allows the system's height to be adjusted.

4

Clip: Aluminum extrusion with a threaded central part to ensure operation of threaded rod.

5

Angle: serrated aluminum extrusion with an oblong opening for the locking bolt.

6

Locking bolt Ø 3/4": a bolt welded ahead of time to a steel angle, serving to anchor the system to the concrete.

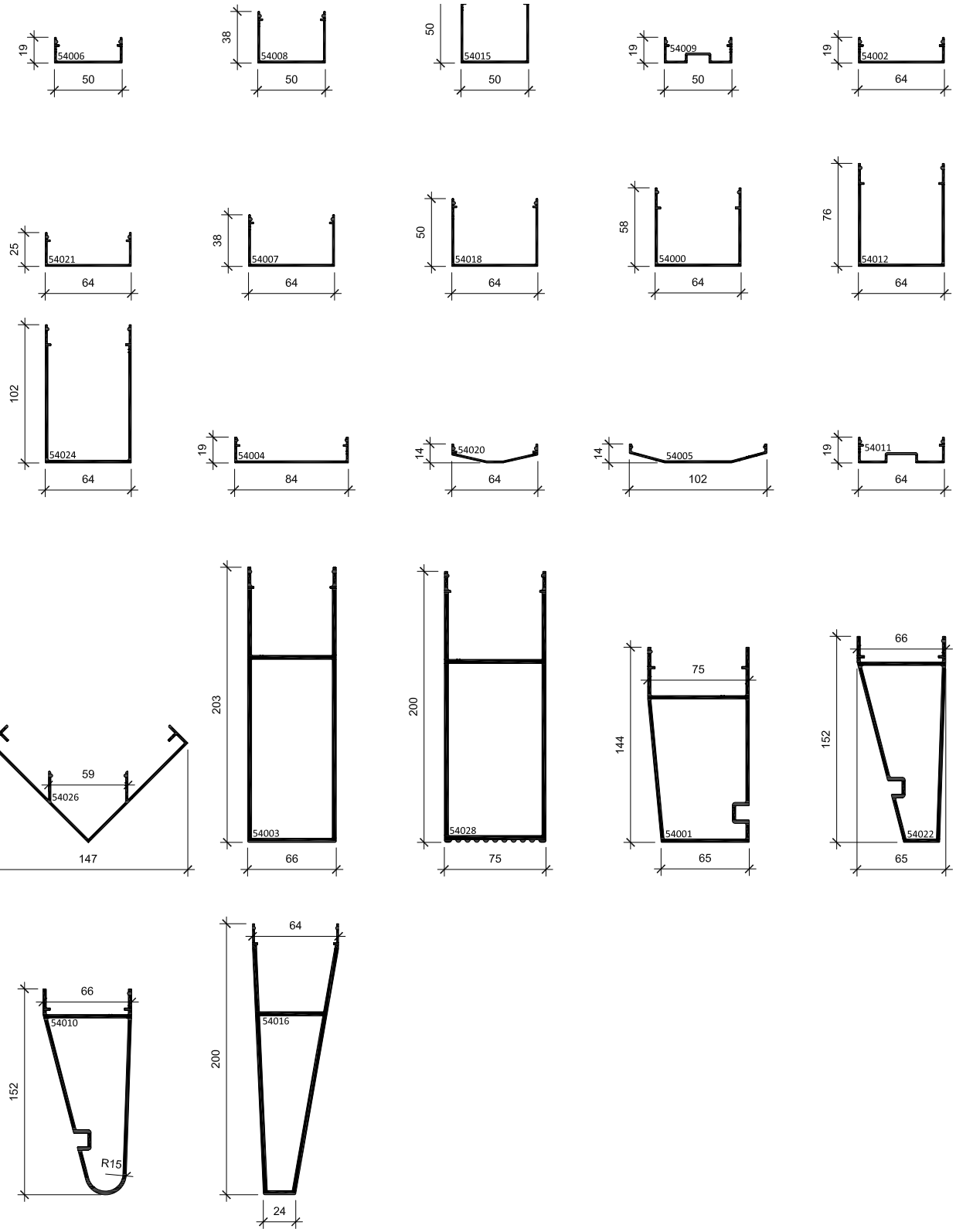
7

Clamping plate: serrated aluminum extrusion with an opening for the locking bolt.

8

Embedded angle: steel angle with four welded reinforcing rods. The complete system is coated with a layer of zinc-rich paint and is installed when the concrete is poured.

4. Accessory elements (caps)



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EPSYLON
Façades architecturales
Architectural façades

5. Finishes applicable to our products

Epsylon products all come in different lines of finishes, depending on the specific applications and the environment in which each product will be used. Budgetary considerations may warrant a more conventional finish, while a desire for long-term durability (UV exposure, saline air, specific weather conditions) and the security of a 20-year warranty will lead designers to use high-quality liquid or powder paints. For each project, please contact an Epsylon technical representative to precisely evaluate your needs. A practical table at the end of this section provides a concise description of the main finishes available on the market and their corresponding architectural standards.

SUGGESTED ARCHITECTURAL FINISHES FOR DIFFERENT FENESTRATION SYSTEMS

1. Conventional and factory prefabricated curtain walls

For its curtain walls, Epsylon suggests a clear anodized finish on the interior mullions (AA-M12-C22-A31 class 2), at least 10 microns thick. This type of finish presents the following advantages:

- Durable and very resistant finish
- Inexpensive and low maintenance costs
- Attractive, neutral finish that can be adapted to any type of interior decoration
- Great long-term value
- Excellent for obtaining LEED certification

For exterior face finishes exposed to the elements, Epsylon recommends either an anodized finish at least 18 microns thick (AA-M12-C22-A41 or A44 color Class 1), or a Kynar 500 (70%) or powder thermosetting finish, with almost unlimited color options. For a black exterior finish, care must be taken in the choice of finish (anodized or Duranar XL) because the slightest flaws, like scratches, are quickly visible.

2. Skylights and glass roofs

In most cases, using an anodized finish (clear or light color) is appropriate because the system must allow as much natural light into the building as possible, and anodized finishes are very resistant to sun discoloration. It is also inexpensive, and requires little maintenance.

3. Aluminum windows and related elements

Aluminum windows often have an interior section with a 10-micron anodized finish or a Polycron (PPG), Envirocron (PPG) or Interpon D1000 (AkzoNobel) thermosetting finish. The interior thermal break section should receive a Duranar or Duranar XL (PPG) liquid finish or Interpon D3000 (Azko Nobel) powder finish to match the color of the curtain walls or adjacent aluminum panels if desired.

5. Finishes applicable to our products (continued)

4. 3.2 mm aluminum panels or equivalent

Epsylon recommends the use of a Kynar 500 (70%) thermosetting finish for all aluminum cladding with sun exposure. To minimize the “oil canning” effect on large exposed surfaces, a pale finish is preferable to a dark finish in some cases. Based on our experience, black or very dark finishes reveal surface imperfections, such as minor scratches, much more quickly.

Polycron (PPG) or similar finishes should be avoided due to their low UV resistance. If using an anodized finish, only a clear finish is recommended, because the “checkerboard” pattern created when applying colors (light bronze to black) becomes quickly visible on large surfaces with sun exposure.

5. Finishes applicable to our products (continued)

FINISH RECAP TABLE

PRODUCT	RECOMMENDED USE	ARCHITECTURAL STANDARDS	RESINS OR POWDERS	WARRANTY (Provided by the applicator and manufacturer)
Polycron (PPG)	Interior	AAMA 2603	Acrylic	5 years (With Chromium 6 treatment)
Tiger Drylac Series 49, 58 or 59	Interior	AAMA 2603	Polyester powder	
Interpon D1000 (AkzoNobel)	Interior	AAMA 2603	Polyester powder	
Envirocron 2603 (PPG)	Interior	AAMA 2603	Polyester powder	
Clear anodized finish	Interior	AA-M12-C22-A31 Class 2 10 µ to 18 µ	N/A	1 year
Clear anodized finish	Interior & Exterior	AA-M12-C22-A41 Class 1	N/A	5 years
Color anodized finish (electrolytic process)	Interior & Exterior	AA-M12-C22-A44 Class 1 (18 µ or more)		
Acrynar (PPG)	Interior & Exterior	AAMA 2604	Kynar 500 (PVDF) 50% (2 layers)	10 years (With Chromium 6 treatment)
Interpon D2000 (AkzoNobel)	Interior & Exterior	AAMA 2604	Super-durable polyester powder	
Tiger Drylac Series 38 and 68	Interior & Exterior	AAMA 2604	Super-durable polyester powder	
Envirocron ultra-durable 2604 (PPG)	Interior & Exterior	AAMA 2604	Super-durable polyester powder	
Duranar, Duranar XL (PPG)	Exterior	AAMA 2605	Kynar 500 (PVDF) 70% (2 or 3 layers)	20 years (With Chromium 6 treatment)
Trinar (AkzoNobel)	Exterior	AAMA 2605	Kynar 500 (PVDF) 70% (2 or 3 layers)	
Fluropon (Valspar)	Exterior	AAMA 2605	Kynar 500 (PVDF) 70% (2 or 3 layers)	
Coraflon (PPG)	Exterior	AAMA 2605	FEVE (2 layers)	
Duranar powder (PPG)	Exterior	AAMA 2605	Kynar 500 (PVDF) 70% (2 layers)	
Coraflon powder (PPG)	Exterior	AAMA 2605	FEVE (1 layer)	
Interpon D3000 (AkzoNobel)	Exterior	AAMA 2605	FEVE (1 layer)	
Tiger Drylac Series 75	Exterior	AAMA 2605	FEVE (1 layer)	

Sources: Liquid and powder paints: Anacolor Ltée
Anodized finishes: Prévost Inc.

5. Finishes applicable to our products (continued)

IMPORTANT NOTES:

- Generally speaking, finish costs increase as you go from the top of the table towards the bottom.
- Aluminum must be treated before finishes are applied. Treatment with Chromium 6 (hexavalent) is preferable to treatment without chromium (zirconium and trivalent chromium 3). Moreover, PPG reduces the length of its warranty by 50% when a treatment without chromium is used.
- Products with two to three layers are superior to single-layer products due to the better anti-corrosion protection provided by the primer.

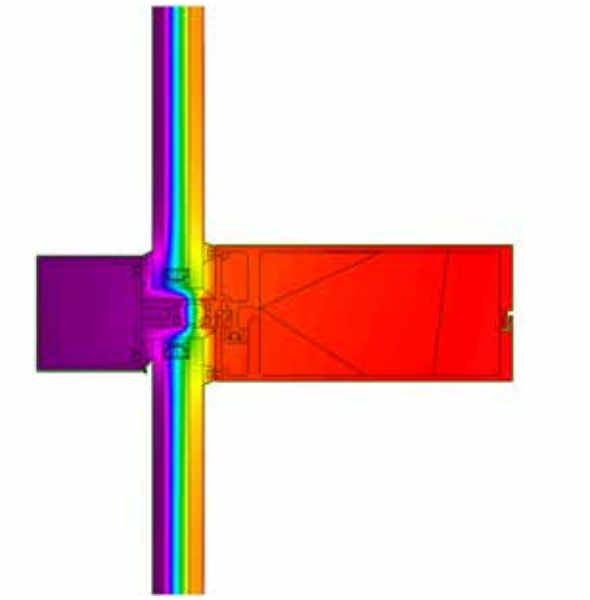
McGill University Health Centre (MUHC) (Montreal)

6. Basic curtain-wall principles: thermal and acoustic performance

The increasing popularity of curtain-wall cladding can be seen in the wide variety of commercial products in which they are used. Condominiums, office buildings, hotels and hospital centers are all popular projects for curtain walls. Curtain walls provide a number of advantages, including great design flexibility, maximized outdoor views and natural light penetration, an accelerated construction process and, of course, significant improvements to the building's technical performance: particularly its thermal and acoustic performance. From this perspective, we have set out to analyze and improve the thermal and acoustic performance of our systems.

Thermal performance

According to the National Building Code, curtain walls must be designed to reach a specific acceptable thermal performance and maximize resistance to condensation. The U value, which represents the conductivity of a curtain-wall assembly, indicates its thermal performance.



In our systems, we use thermal breaks with high energy efficiency and components that can significantly improve the building's U value. Moreover, we ensure that our products achieve the level of performance required by the project criteria, by offering systems with thermal performance that can adapt to specifications following four classes: bronze, silver, gold and platinum.

Acoustic performance

Engineering principles hold that an increase in a curtain wall's thermal performance will inevitably impact its acoustic resistance. Thermal performance and acoustic resistance are inversely proportional.

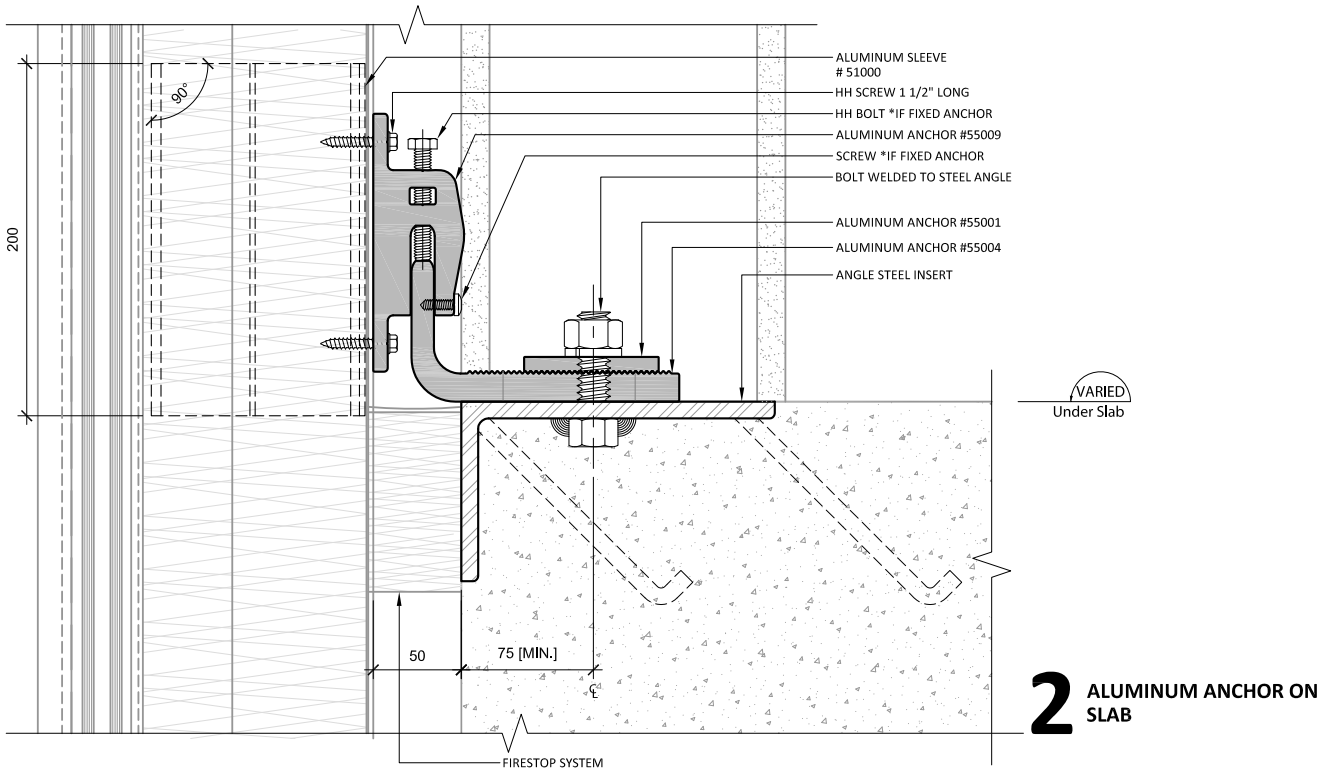
Our curtain-wall systems are designed to prevent shocks caused by vibrations, whistling from wind, noise caused by expansion and contraction, thermal movements from other building components as well as loosening, weakening or breaking of fasteners and components.

The level of sound transmission within the curtain wall is designed to adapt to the characteristics of the construction project. Working with designers and acousticians, we develop and design efficient acoustic systems specifically for the needs of each project.

7. Fire and smoke barriers

Epsylon can design and integrate fire and smoke barrier systems, connected to the curtain-wall sections and joined to other building sections. In most of our projects, we are responsible for installing fire and smoke barriers between the curtain wall and slab or wall of each of the building's stories. The systems required by the designers and specific regulations are examined so they can be integrated into the work's organization.

Although product characteristics and specifications are generally well defined in a project's specifications, sometimes professionals' designs may present special cases. To this end, we commit to working with designers to identify the appropriate solutions in order to make a building as safe as possible, while respecting all of the applicable standards. Most of the time, work is completed by our own installation teams.



2 ALUMINUM ANCHOR ON SLAB

EPSYLON
Façades architecturales
Architectural façades

8. Technical specifications

AVAILABLE UPON REQUEST

Contact us, and we'll be happy to provide you with the required documents.