



THERMALLY BROKEN ALUMINUM CURTAIN WALL

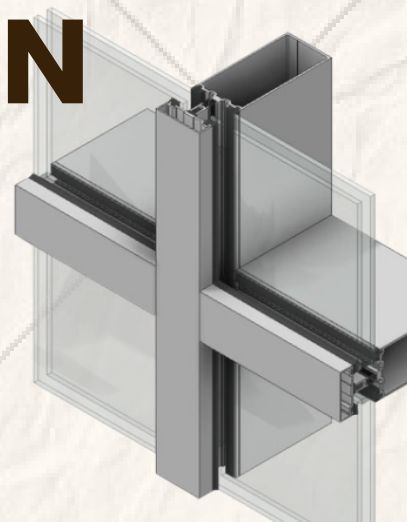


TABLE OF CONTENTS

INTRODUCTION 3

CURTAIN WALL TIMELINE 5

THERMALLY BROKEN CURTAIN WALL SYSTEM 10

PRODUCT OVERVIEW 11

APPLICATIONS 14

INSTALLATION AND ASSEMBLY 16

TYPICAL DETAILS AT KEY TRANSITIONS 21

BUILDING ENVELOPE PERFORMANCE 25

COMPARATIVE ANALYSIS 26

CASE STUDY: COMPLEXE SPORTIF ST-LAURENT 27

REFERENCES 30

INTRODUCTION

A CURTAIN WALL IS A NON-STRUCTURAL, EXTERIOR CLADDING SYSTEM DESIGNED TO PROTECT A BUILDING FROM EXTERNAL ENVIRONMENTAL FORCES WHILE PROVIDING AN AESTHETICALLY PLEASING FACADE. TYPICALLY CONSTRUCTED FROM LIGHTWEIGHT MATERIALS SUCH AS ALUMINUM FRAMES AND GLASS PANELS, CURTAIN WALLS ARE ENGINEERED TO RESIST WIND LOADS, CONTROL AIR AND WATER INFILTRATION, MANAGE THERMAL PERFORMANCE, AND MITIGATE CONDENSATION. UNLIKE TRADITIONAL LOAD-BEARING WALLS, CURTAIN WALLS ARE SUSPENDED FROM THE BUILDING'S STRUCTURAL FRAMEWORK, TRANSFERRING LOADS TO THE FLOOR SLABS OR COLUMNS RATHER THAN SUPPORTING THE BUILDING'S WEIGHT.

KEY CHARACTERISTICS OF CURTAIN WALLS:

1. MATERIAL COMPOSITION:

- FRAMES: EXTRUDED ALUMINUM (LIGHTWEIGHT, CORROSION-RESISTANT, AND THERMALLY BROKEN TO REDUCE HEAT TRANSFER).
- GLAZING: INSULATING GLASS UNITS (IGUS) FOR VISION AREAS, OFTEN WITH LOW-EMISSIVITY (LOW-E) COATINGS OR GAS FILLS (E.G., ARGON) TO ENHANCE ENERGY EFFICIENCY.
- SPANDREL PANELS: OPAQUE SECTIONS (GLASS WITH FRITTED COATINGS, METAL, STONE, OR PRECAST CONCRETE) TO CONCEAL STRUCTURAL ELEMENTS LIKE FLOOR EDGES.

2. SYSTEM TYPES:

- STICK-BUILT: ASSEMBLED ON-SITE PIECE-BY-PIECE (VERTICAL MULLIONS AND HORIZONTAL RAILS), OFFERING FLEXIBILITY FOR COMPLEX DESIGNS.
- UNITIZED: PREFABRICATED PANELS INSTALLED AS COMPLETE UNITS, SPEEDING UP CONSTRUCTION AND IMPROVING QUALITY CONTROL.

- STRUCTURAL GLAZING: USES SILICONE SEALANTS TO BOND GLASS DIRECTLY TO FRAMES, CREATING SEAMLESS, ALL-GLASS FACADES.
- PERFORMANCE FEATURES:
 - WEATHER RESISTANCE: INCORPORATES RAINSCREEN PRINCIPLES (DRAINED/VENTED CAVITIES) AND PRESSURE EQUALIZATION TO PREVENT WATER PENETRATION.
 - THERMAL EFFICIENCY: THERMAL BREAKS IN FRAMES AND HIGH-PERFORMANCE GLAZING REDUCE HEAT LOSS/GAIN.
 - CONDENSATION CONTROL: TEMPERATURE INDICES (T-INDEX) PREDICT SURFACE TEMPERATURES TO AVOID CONDENSATION RISKS.

APPLICATIONS AND ADVANTAGES:

- COMMERCIAL HIGH-RISES: DOMINANT IN SKYSCRAPERS FOR SLEEK, MODERN AESTHETICS AND ENERGY EFFICIENCY.
- INSTITUTIONAL BUILDINGS: HOSPITALS AND UNIVERSITIES BENEFIT FROM DAYLIGHTING AND NOISE REDUCTION.
- RESIDENTIAL TOWERS: COMBINES VIEWS WITH THERMAL COMFORT.
- MIXED-USE FACADES: INTEGRATES WITH MATERIALS LIKE BRICK OR PRECAST CONCRETE FOR A VISUAL CONTRAST.

INNOVATIONS AND SUSTAINABILITY:

- DYNAMIC GLAZING: ELECTROCHROMIC GLASS ADJUSTS TINT TO CONTROL SOLAR GAIN.
- PHOTOVOLTAIC INTEGRATION: SOLAR CELLS EMBEDDED IN SPANDRELS GENERATE RENEWABLE ENERGY.
- HIGH-PERFORMANCE SEALS: ADVANCED GASKETS AND SEALANTS EXTEND SERVICE LIFE AND REDUCE MAINTENANCE.

BY BALANCING FUNCTIONALITY, DURABILITY, AND DESIGN VERSATILITY, CURTAIN WALLS HAVE BECOME INDISPENSABLE IN CONTEMPORARY ARCHITECTURE, ENABLING ICONIC, ENERGY-EFFICIENT BUILDINGS WORLDWIDE.

CURTAIN WALL TIMELINE

1917



THE EARLIEST KNOWN GLASS CURTAIN WALL IS THE HALLADIE BUILDING IN SAN FRANCISCO, UNITED STATES OF AMERICA, DESIGNED BY WILLIS POLK IN 1917.

CURTAIN WALL TIMELINE

1945–1950S: POST-WAR MODERNISM & EARLY ADOPTION



1945: ALUMINUM FRAMED WALL SYSTEMS DATE BACK TO THE 1930'S, AND THE END OF WWII CREATED AN INDUSTRIAL MATERIAL SURPLUS, THE SUPPLY OF ALUMINUM BECAME AVAILABLE FOR NON-MILITARY USE.

1949–1952: LEVER HOUSE NEW YORK, USA (SKIDMORE, OWINGS & MERRILL)

ONE OF THE FIRST GLASS-AND-ALUMINUM CURTAIN WALL SKYSCRAPERS, SETTING A PRECEDENT FOR CORPORATE MODERNISM.



1951: UNITED NATIONS SECRETARIAT BUILDING NEW YORK, USA (WALLACE HARRISON)

EARLY EXAMPLE OF A UNITIZED CURTAIN WALL SYSTEM.

1958: SEAGRAM BUILDING NEW YORK, USA (MIES VAN DER ROHE & PHILIP JOHNSON)

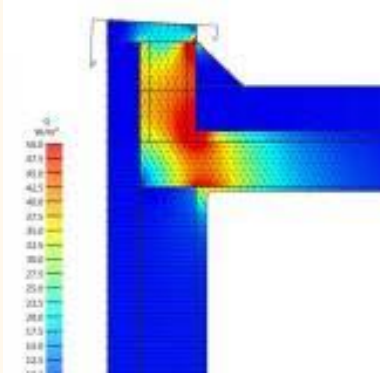
REFINED THE ALL-GLASS CURTAIN WALL WITH BRONZE MULLIONS, EMPHASIZING MINIMALISM

KEY DEVELOPMENTS:
TRANSITION FROM MASONRY TO LIGHTWEIGHT METAL-AND-GLASS ENCLOSURES.
STICK-BUILT SYSTEMS DOMINATE DUE TO ON-SITE FLEXIBILITY.



CURTAIN WALL TIMELINE

1960S–1970S: TECHNOLOGICAL REFINEMENT & GLOBAL EXPANSION



1960S: INTRODUCTION OF THERMAL BREAKS IN ALUMINUM FRAMES TO ADDRESS CONDENSATION AND HEAT LOSS.



1967: JOHN HANCOCK CENTER CHICAGO, USA (SKIDMORE, OWINGS & MERRILL)

EARLY USE OF ANODIZED ALUMINUM AND X-BRACING, INTEGRATING STRUCTURAL EXPRESSION WITH CURTAIN WALLS.



1971: CASS BUILDING IN DETROIT, USA

FIRST BUILDING TO UTILIZE FOUR-SIDED SILICONE STRUCTURAL GLAZING (SSG)



1973: WORLD TRADE CENTER TWIN TOWERS NEW YORK, USA (MINORU YAMASAKI)

FEATURED UNITIZED CURTAIN WALLS WITH PREFABRICATED PANELS FOR RAPID CONSTRUCTION.

KEY DEVELOPMENTS:

RISE OF UNITIZED SYSTEMS FOR HIGH-RISE EFFICIENCY.
FOCUS ON ENERGY EFFICIENCY POST-1973 OIL CRISIS.



CURTAIN WALL TIMELINE

1980S–1990S: HIGH-TECH & STRUCTURAL GLAZING

1985: METROPOLITAN TOWER NEW YORK, USA (SLCE ARCHITECTS)

NEW YORK CITY'S FIRST STRUCTURAL SILICONE GLAZED CURTAINWALL.



1986: LLOYD'S BUILDING LONDON, UK (RICHARD ROGERS) EXPOSED STRUCTURAL GLAZING WITH EXTERNAL STEEL FRAMING.

1998: PETRONAS TOWERS KUALA LUMPUR, MALAYSIA (CÉSAR PELLI)

HYBRID CURTAIN WALL WITH STAINLESS STEEL AND GLASS,
SHOWCASING GLOBAL ADOPTION.



KEY DEVELOPMENTS:

PRESSURE-EQUALIZED RAINSCREEN (PER) SYSTEMS IMPROVE WATER RESISTANCE.

STRUCTURAL SILICONE GLAZING ELIMINATES VISIBLE FRAMES.

CURTAIN WALL TIMELINE

2000S–PRESENT: SUSTAINABILITY & SMART FACADES

2004: 30 ST MARY AXE "THE GHERKIN"
(LONDON, FOSTER + PARTNERS)
DOUBLE-SKIN CURTAIN WALL FOR NATURAL
VENTILATION.



**2014: THE EDGE, AMSTERDAM, NETHERLANDS (PLP
ARCHITECTURE)**
PHOTOVOLTAIC-INTEGRATED SPANDRELS AND
ELECTROCHROMIC GLASS

2020: ONE VANDERBILT (NYC, KPF)
HIGH-PERFORMANCE CURTAIN WALL WITH TRIPLE-GLAZED IGUS
AND DYNAMIC SHADING.



KEY DEVELOPMENTS:

- **BIM (BUILDING INFORMATION MODELING) OPTIMIZES CURTAIN WALL FABRICATION.**
- **NET-ZERO ENERGY FACADES WITH ADAPTIVE TECHNOLOGIES.**

THERMALLY BROKEN CURTAIN WALL SYSTEM

A THERMALLY BROKEN CURTAIN WALL SYSTEM IS A TYPE OF CURTAIN WALL SPECIFICALLY DESIGNED TO IMPROVE ENERGY EFFICIENCY BY INCORPORATING THERMAL BREAKS WITHIN ITS STRUCTURE. THESE THERMAL BREAKS SERVE AS BARRIERS THAT PREVENT THE FORMATION OF THERMAL BRIDGES, WHICH ARE PATHWAYS THAT ALLOW HEAT TO TRANSFER BETWEEN THE INTERIOR AND EXTERIOR OF A BUILDING. BY USING MATERIALS WITH LOW THERMAL CONDUCTIVITY, SUCH AS POLYAMIDE STRIPS, THE SYSTEM SIGNIFICANTLY REDUCES HEAT LOSS OR GAIN, ENHANCING OVERALL ENERGY PERFORMANCE AND OCCUPANT COMFORT.

THERMALLY BROKEN ALUMINUM CURTAIN WALL SYSTEMS REPRESENT A MAJOR ADVANCEMENT IN BUILDING ENVELOPE TECHNOLOGY, AS THEY COMBINE THE STRUCTURAL INTEGRITY AND AESTHETIC VERSATILITY OF ALUMINUM WITH THE ENERGY-SAVING BENEFITS OF THERMAL INSULATION. ONE EXAMPLE OF THIS INNOVATION IS THE THERMAWALL 2600 SYSTEM DEVELOPED BY ALUMICOR. THIS SYSTEM UTILIZES POLYAMIDE THERMAL BARRIERS TO EFFECTIVELY REDUCE HEAT TRANSFER THROUGH THE ALUMINUM FRAMING, ALL WHILE MAINTAINING THE STRENGTH, DURABILITY, AND SLEEK APPEARANCE EXPECTED FROM HIGH-PERFORMANCE ARCHITECTURAL FACADES.

THIS REPORT INVESTIGATES THE THERMAWALL 2600 SYSTEM BY ALUMICOR, USED IN THE COMPLEXE SPORTIF DE SAINT-LAURENT IN MONTREAL, DESIGNED BY SAUCIER + PERROTTE ARCHITECTES. IT EXPLORES ITS ASSEMBLY, PERFORMANCE CHARACTERISTICS, AND INSTALLATION REQUIREMENTS, WHILE COMPARING IT TO SIMILAR ENVELOPE SYSTEMS.

PRODUCT OVERVIEW

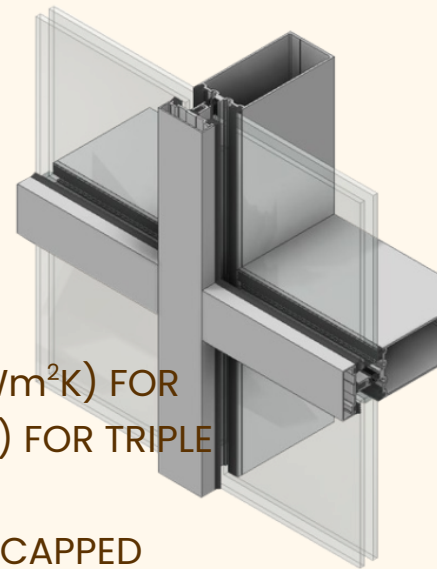
MANUFACTURER: ALUMICOR.

MATERIALS: 6063-T5 ALUMINUM WITH POLYAMIDE THERMAL BREAKS

- GLAZING OPTIONS: DUAL GLAZED OR TRIPLE GLAZED INSULATED GLASS UNITS (IGUS) WITH LOW-E COATINGS.
- FINISH: ANODIZED OR POWDER-COATED (50+ COLOR OPTIONS).

KEY FEATURES:

- AIR INFILTRATION RATE: 0.002 L/s.m.2 @ 300 Pa
- DYNAMIC WATER PRESSURE RESISTANCE: 730 Pa
- STRUCTURAL DESIGN PRESSURE (WIND): 3600 Pa
- OVERLOAD PRESSURE: 5040 Pa
- SPAN CAPACITY: 20FT
- THERMAL PERFORMANCE: 0.25 BTU/HR ft²°F (1.42 Wm²K) FOR DUAL GLAZING AND 0.15 BTU/HR ft²°F (0.85 Wm²K) FOR TRIPLE GLAZING
- ASSEMBLY TYPE: STICK-BUILT SYSTEM (CAN HAVE CAPPED MULLION OR ONLY SSG)



TYPICAL USES: LOW TO MID RISE COMMERCIAL BUILDINGS REQUIRING HIGH PERFORMANCE. (LIKE ST-LAURENT SPORTS COMPLEX).

PRODUCT DESCRIPTION BY ALUMICOR

DESCRIPTION

.1 Thermally broken, vertical stick-built glazed aluminum curtain wall system of tubular aluminum sections with [self supported] [supplementary supported] framing, shop fabricated, factory prefinished, vision glass, [insulated metal panel] spandrel infill, [column covers,] [and louvres]; related flashings, anchorage and attachment devices.

.2 Ensure assembled system design permits re-glazing of individual glass and infill panels from exterior without requiring removal of structural mullions.

U-VALUE CHART

ThermaWall 2600

Thermal simulation chart - Triple glazed

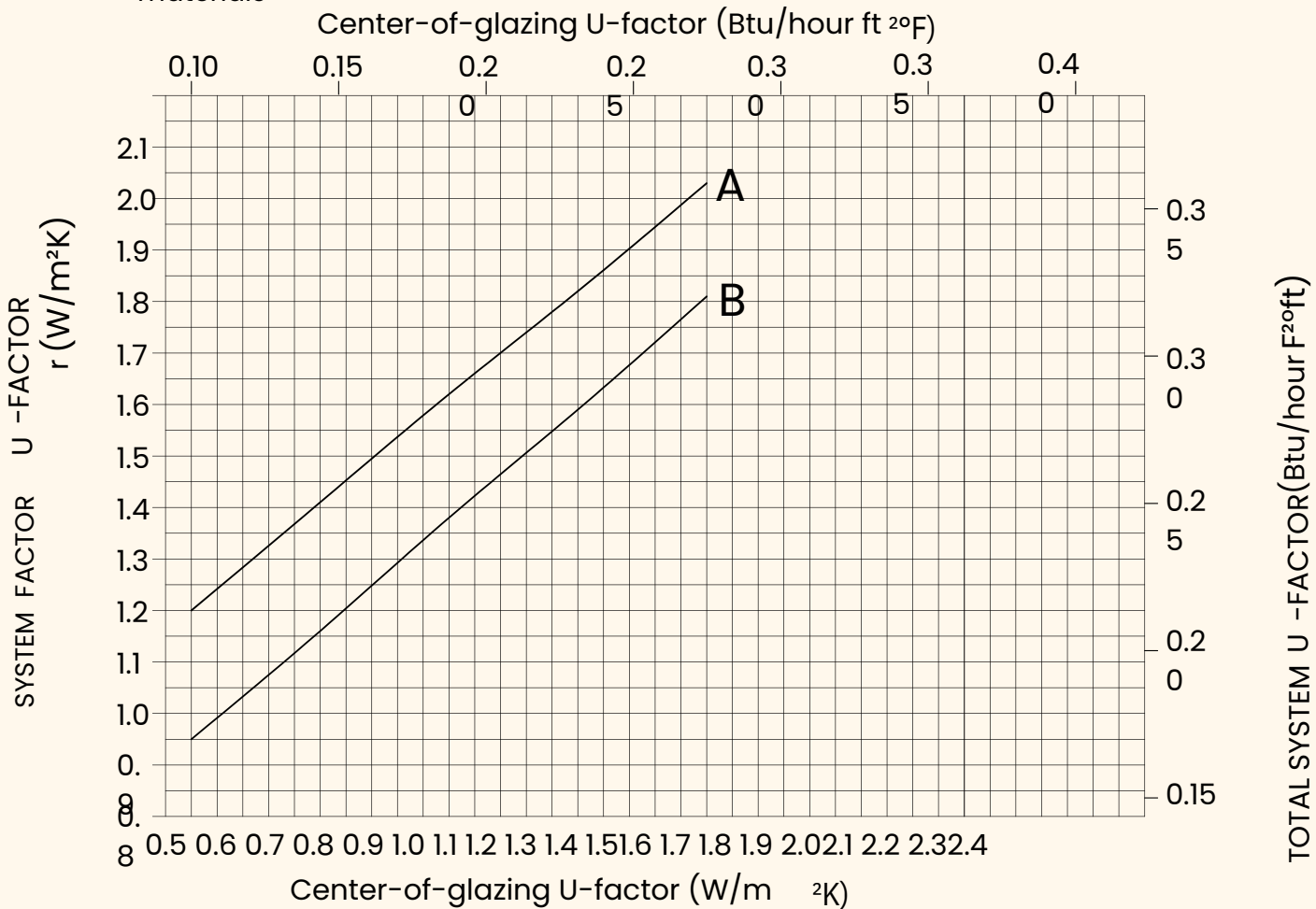
THE FOLLOWING THERMAL CHARTS ARE TO BE USED TO DETERMINE OVERALL U VALUE OF THE PRODUCT BY KNOWING U VALUE CENTER OF GLASS AND SELECTED SPACER OR DETERMINE CENTER OF GLASS U VALUE AND SPACER BY KNOWING THE PRODUCT REQUIREMENTS FOR U VALUE.

- Curves represent independently tested simulation results based on triple glazing options using the lowest (curve a) and highest (curve b) performing spacers. Spacer conductance values are based on nfrc 100-2010 section 5.9.5.1.
- Simulation methodology followed nfrc 100-2010
- Simulated curtain wall is 78" (2000mm) x 78" (2000mm) between mullion centers with one vertical central mullion as per nfrc100-2010

table 4.3. The charts should be used as a budget or design guide for fenestration product u-factor and rating purposes.

A = Triple glazed with Generic Group 1
 -Spacer containing aluminum B =
 Triple glazed with Generic Group 4
 -Spacer containing all non metallic materials

CHART BASED ON 1" $\frac{3}{4}$ (44.5 mm)
 TRIPLE GLAZED SEALED UNIT



ENVIRONMENTAL CONDITIONS: NFRC 100-2001		
Inside Air Temperature	Outside Air Temperature	Outside Wind Speed
21° C	-18°	5.5 m/s

POUR LA VERSION EN FRANÇAIS, VEUILLEZ VOIR LA PAGE : 1.3.2.6

VENEER CURTAIN WALL OPTION

ThermaWall 2600 Update: August 27, 2020

Veneer curtain wall option

Alumicor is pleased to announce the expansion of the ThermaWall 2600 system with the addition of a [Veneer](#) curtain wall option.

Veneer curtain wall is a flexible and innovative solution for the design professional, to refresh the architectural aesthetics of the building's appearance.

The ThermaWall 2600 veneer option is available in double and triple glazing, as well as capped and structural silicone glazed (SSG).



CAPPED

SSG

It will accommodate ¼" (6mm), 1" (25.4mm), 1⅛" (28.6mm), 1¼" (31.8mm) and 1¾" (44.4mm) vision and spandrel glazing. It features low profile framing 2½" (62.7mm) wide x ¾" (19.1mm deep) which can be attached directly to an existing structural substrate, such as concrete wall panels, masonry, wood or steel framing grid.

Design professionals may use the veneer system to provide the appearance of vision glass, enhancing an otherwise plain façade.

Please contact your Client Development Manager for further information.

Downloads:

[Catalogue pages](#)

[Web Details](#)

[Technical Data Sheet](#)

info@alumicor.com



www.alumicor.com

APPLICATIONS

COMMERCIAL BUILDINGS



**Manitoba Liquor and Lotteries Head Office,
Winnipeg**



Google Kitchener-Waterloo, Kitchener



Grand Times Hotel, Drummondville

APPLICATIONS

INSTITUTIONAL BUILDINGS



MacOdrum Library at Carleton University, Ottawa



Michal and Renata Hornstein Pavilion for Peace, Montreal



Ripley's Aquarium, Toronto

INSTALLATION AND ASSEMBLY

INSTALLATION

ONLY AUTHORIZED ALUMICOR INSTALLERS WITH A MINIMUM OF TWO YEARS EXPERIENCE ARE ALLOWED TO INSTALL THIS PRODUCT.

STEP 1: PRE-INSTALLATION

A CURTAIN WALL CONSULTANT MAY ASK TO BUILD A MOCK-UP TO ESTABLISH THE QUALITY OF WORK FOR THE PROJECT.

MOCK UP CRITERIA:

- THE MOCK-UP HAS TO BE A MINIMUM OF 3MX3M (10FT X 10FT) OF VERTICAL GLAZED ALUMINUM CURTAIN WALL.
- HAS TO INCLUDE: CORNER AND INTERMEDIATE MULLIONS, SILL, COLUMN COVER, VISION GLASS, AND INSULATED INFILL PANEL
- MUST IDENTIFY THE COMPONENTS SUCH AS THE GLAZING MATERIALS, WEEP DRAINAGE SYSTEM, ATTACHEMENTS, ANCHORS, AND SEALANT
- THE CURTAIN WALL CANNOT BE BUILT UNTIL THE MOCK-UP IS APPROVED BY THE CONSULTANT
- WHEN ACCEPTED, THE MOCK-UP CANNOT BE USED AS PART OF THE CONSTRUCTION



A MOCK-UP IS A FULL-SCALE, FULLY FUNCTIONAL SAMPLE OF A CURTAIN WALL SYSTEM BUILT BEFORE PRODUCTION BEGINS. IT SERVES AS A CRITICAL QUALITY CONTROL AND VERIFICATION TOOL TO ENSURE THE DESIGN, MATERIALS, AND INSTALLATION METHODS MEET PROJECT REQUIREMENTS.

EXAMPLE OF A MOCK-UP CURTAIN WALL

INSTALLATION AND ASSEMBLY

STEP 2: EXAMINATION

SUBSTRATE VERIFICATION FOR CURTAIN WALLS INVOLVES CHECKING THAT THE SUPPORTING STRUCTURE (SUBSTRATE) IS SUITABLE AND PREPARED CORRECTLY FOR THE CURTAIN WALL INSTALLATION, ENSURING A PROPER AND SECURE FIT. THIS INCLUDES VERIFYING DIMENSIONS, FLATNESS, LEVELNESS, AND ANY REQUIRED SURFACE PREPARATION OR REPAIRS.

THE EXAMINATION MUST BE DONE IN PRESENCE OF THE CONSULTANT AND THE CONSTRUCTION OF THE CURTAIN WALL CAN ONLY BEGIN ONCE A WRITTEN APPROVAL TO PROCEED HAS BEEN ISSUED BY THE CONSULTANT.

EXAMINATION CHECKLIST EXAMPLE

Curtain Wall Initial Inspection Checklist

Date: _____
 Contractor: _____
 Contractor Inspector: _____
 Location: _____
 Inspection Type: Initial Inspection Follow-Up Inspection
 Attendees: _____

Substrate:
Y N N/A
 Is substrate acceptable for subcontractor - straight/plumb/true etc.
 Are anchor rods/embeds located correctly
 Has concrete reached required cure strength if applicable?

Materials:
Y N N/A
 Glass/Glazing: Verify glass type and color match contract drawings and approved submittals (Glass type I and T)
 Sealants: Verify joint sealant material matches contract drawings and approved submittals - (Dow Corning)
 Mullions/Frame: Verify mullion and frame materials match contract drawings and approved submittals.
 Primer/Coating: Are surfaces coated with shop applied primers and coatings conforming to contract drawings and approved submittals?
 Anchors/Fasteners: Are anchors and fasteners made from corrosion resistant materials.

Material Storage:
Y N N/A
 Is material in original containers, undamaged with labels intact?
 Is material stored off ground with drainage and protection from weather?
 Is material free from damage, dirt, and other contaminants?

Installation:
Y N N/A
 Verify components or pre-assembled panels are checked for shipping damage after uncrating; and size, shape, and thickness of metal extrusions or parts match full size details when available. Check that gauges, patterns, and colors are as approved and match samples.
 Does installation of materials conform to comments on approved shop drawings?
 Verify reveals, alignment, joints are consistent
 Verify anchorage to structure is secure for transfer of wind load and is required and permanently tightened after alignment.
 Verify glazing, trim and sealants match approved sample colors and materials.
 Ensure dissimilar metals and materials are isolated; for example, aluminum, in contact with other metals and cementitious surfaces, may require nylon, polystyrene, or pressure tape, separators or stainless steel bolts.
 Verify weep holes and drainage systems are provided and are clean before and after erection
 Verify joint sealer is provided at shop-assembled joints as required
 Verify debris, such as spray foaming, is removed from within curtain wall sections after erection.

Testing/Inspection:
Y N N/A
 Air infiltration testing has been performed and passed? (Attach test results)
 Water infiltration testing has been performed and passed? (Attach test results)
 Has glass manufacturer reviewed installation as required by spec? (Provide dates and results of inspections)



Curtain Wall Initial Inspection Checklist

Miscellaneous:
Y N N/A
 Has mockup been thoroughly cleaned and in condition for final review?
 Is mockup protected from potential damage?
 Does architect/engineer approve of mockup installation for construction and color?

INSTALLATION AND ASSEMBLY

STEP 3: INSTALLATION

1. INSTALL PER **MANUFACTURER'S INSTRUCTIONS**.
2. PERFORM ALUMINUM WELDING TO CAN/CSA W59.2.
3. MOUNT ASSEMBLIES PLUMB, LEVEL, AND WARP-FREE, WITH ADJUSTMENT FOR TOLERANCES:
 - MAINTAIN ALIGNMENT WITH ADJACENT WORK.
 - USE SHIMS AND ALIGNMENT ATTACHMENTS FOR SECURE FASTENING.
 - CLEAN AND PRIME FIELD WELDS.
4. APPLY THERMAL ISOLATION AT INSULATION PENETRATIONS.
5. INSTALL SILL FLASHINGS.
6. COORDINATE FIRESTOPPING AT FLOOR SLABS (SECTION [07 84 00]).
7. INSTALL SMOKE SEALS WHERE REQUIRED (SECTION [07 80 00]).
8. INTEGRATE AND SEAL AIR BARRIER (SECTION [07 27 00]).
9. INTEGRATE AND SEAL VAPOUR RETARDER (SECTION [07 26 00]).
10. FILL SHIM SPACES WITH [FIBROUS/LIQUID FOAM] INSULATION FOR THERMAL CONTINUITY.
11. INSTALL GLASS UNITS & PANELS PER SECTION [08 80 00] AND MANUFACTURER'S SPECS.
12. APPLY PERIMETER SEALANT PER SECTION [07 92 00].



STICK-BUILT CURTAIN WALL INSTALLATION EXAMPLE

INSTALLATION AND ASSEMBLY

STEP 4: QUALITY CONTROL (DURING INSTALLATION)

DURING THE INSTALLATION OF THE CURTAIN WALL, THESE MANUFACTURER TOLERANCES MUST BE RESPECTED:

Site Installation Tolerances:

- 1 Variation from plumb: [12 mm per 30 m (0.5 inches per 100 feet)] maximum.
- 2 Misalignment of two adjacent panels or members: [0.8 mm (0.03 inches)] maximum.
- 3 Sealant space between curtain wall and adjacent construction: [13 mm (0.5 inches)] maximum.

The technical drawings show various glazing infill options for vision and spandrel areas. The 'VISION' section includes four diagrams for different glass thicknesses (1", 1 1/4", 1 1/2", and 2") and plug types (Standard Double Glazed, Non-Standard, Standard Triple Glazed, and Non-Standard). The 'SPANDREL' section includes four diagrams for different glass thicknesses (1", 1 1/2", 2", and 3") and plug types (Standard Double Glazed, Standard Triple Glazed, and Standard Triple Glazed). A parts list at the bottom identifies components like gaskets, thermal barriers, splices, and adapters. A QR code and the Alumatic logo are also present.

1	2653403	2" INTERIOR GLAZING GASKET	8	2513200	SINGLE GLAZING ADAPTER FOR 2" GLASS
2	2504203	2" EXTERIOR GLAZING GASKET	9	2578700	SINGLE GLAZING ADAPTER FOR DOUBLE GLAZED SYSTEM CAPPED
3	2680703	2" THERMAL BARRIER	10	2578800	SINGLE GLAZING ADAPTER FOR TRIPLE GLAZED SYSTEM CAPPED
4	2644103	2" THERMAL BARRIER			
5	2502005	INTERIOR 2" GLAZING SPLINE BLACK EPDM			
6	3400005	THERMAL BREAM			
7	2249903	2" EXTERIOR GLAZING GASKET			

REVISD 2021.01.21

Alumatic

SYSTEM GLAZING INFILL OPTIONS

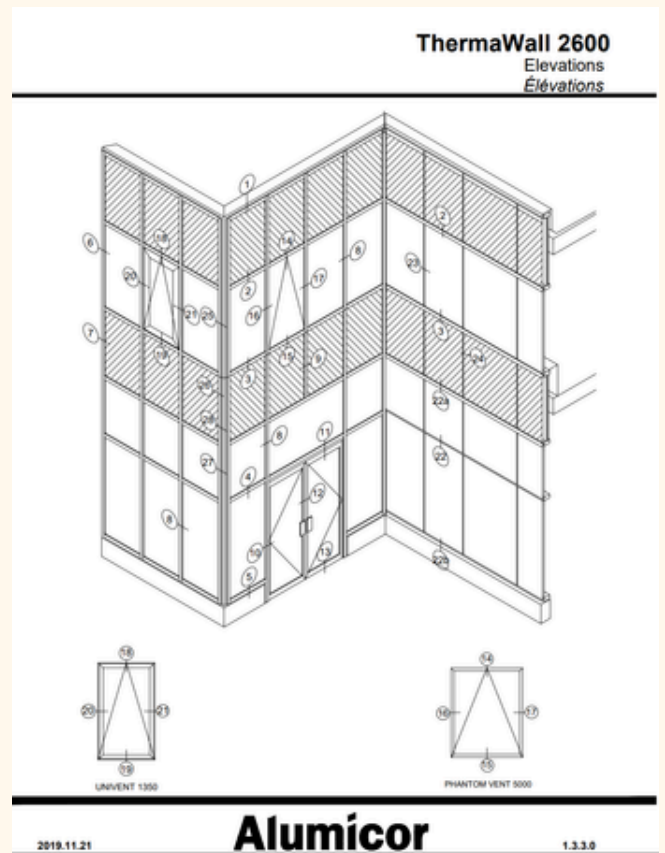
INSTALLATION AND ASSEMBLY

ASSEMBLY

THIS CURTAIN WALL HAS DESIGN REQUIREMENTS FOR MOVEMENT ACCOMODATION AND THERMAL PERFORMANCE.

MOVEMENT ACCOMMODATION:

- WITHIN CURTAIN WALL ASSEMBLY
- BETWEEN SYSTEM AND PERIMETER FRAMING
- FROM DYNAMIC LOADING/UNLOADING
- DUE TO STRUCTURAL FRAMING DEFLECTION
- FROM CONCRETE COLUMN SHORTENING
- FROM CONCRETE MEMBER CREEP
- MID-SPAN SLAB EDGE DEFLECTION
- THERMAL PERFORMANCE:
- SPANDREL AREAS: RSI 3.0 (R 16.8) MINIMUM



TYPICAL DETAILS AT KEY TRANSITIONS

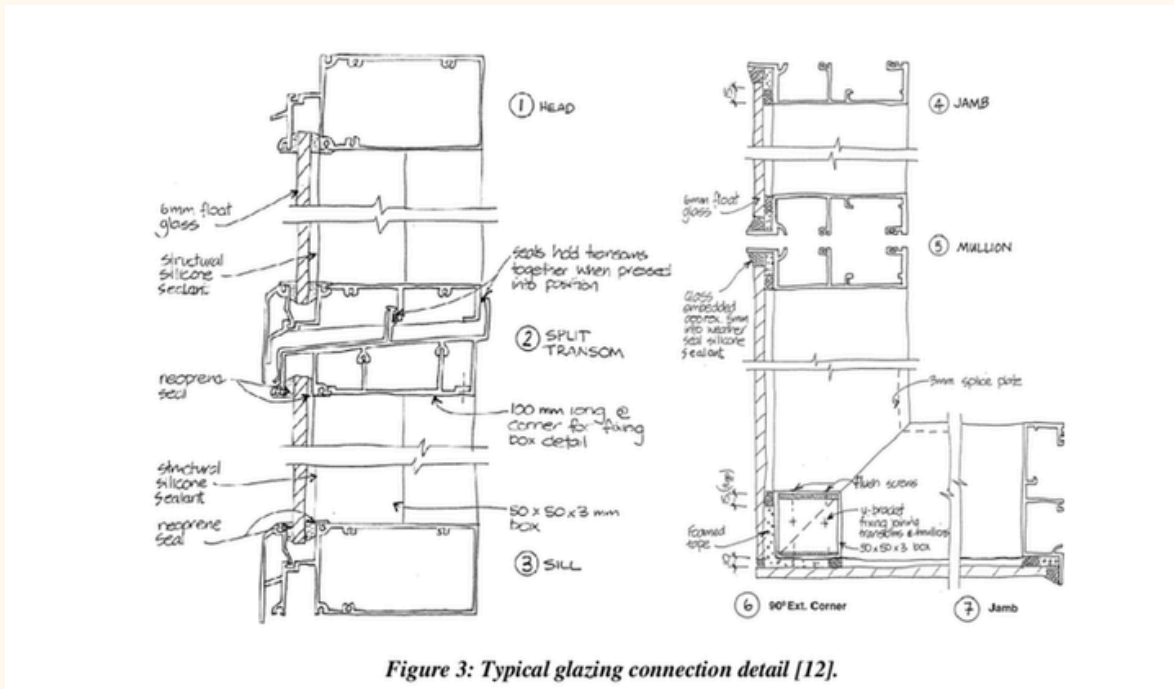
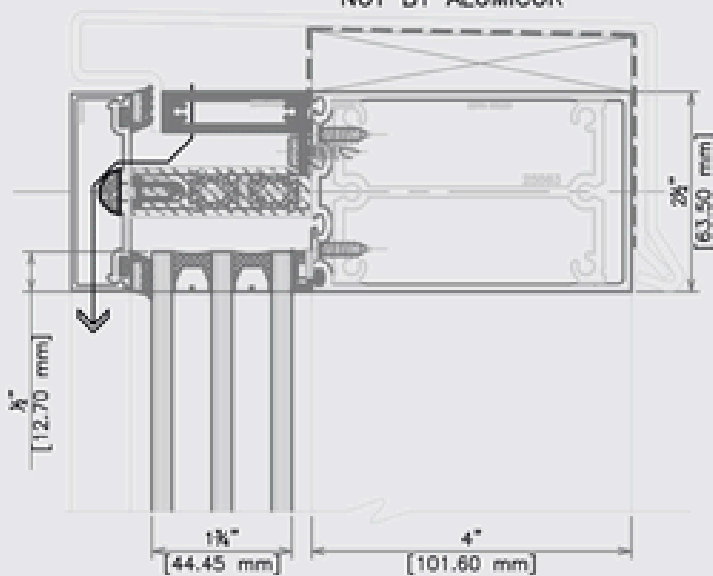


Figure 3: Typical glazing connection detail [12].

EXAMPLE OF STICK-BUILT CURTAIN WALL SECTION DETAILS

THERMAWALL 2600 CAPPED HEAD DETAIL

ROOF PARAPET TREATMENT NOT BY ALUMICOR

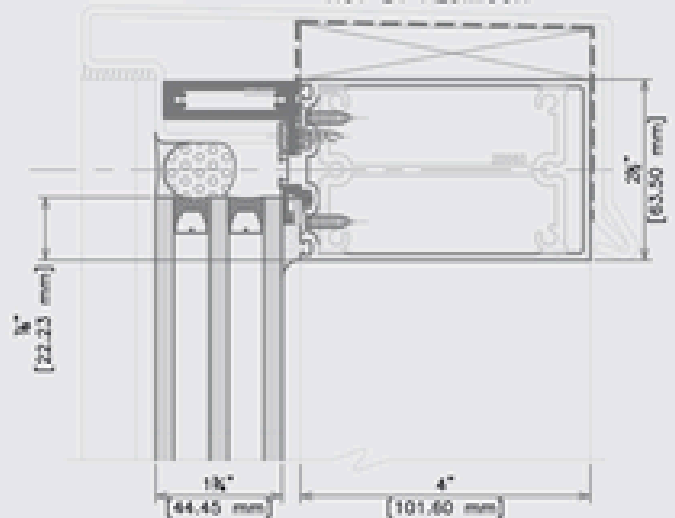


1c

Capped Head
with 1/16" membrane & 1/8" flashing

THERMAWALL 2600 SSG HEAD DETAIL

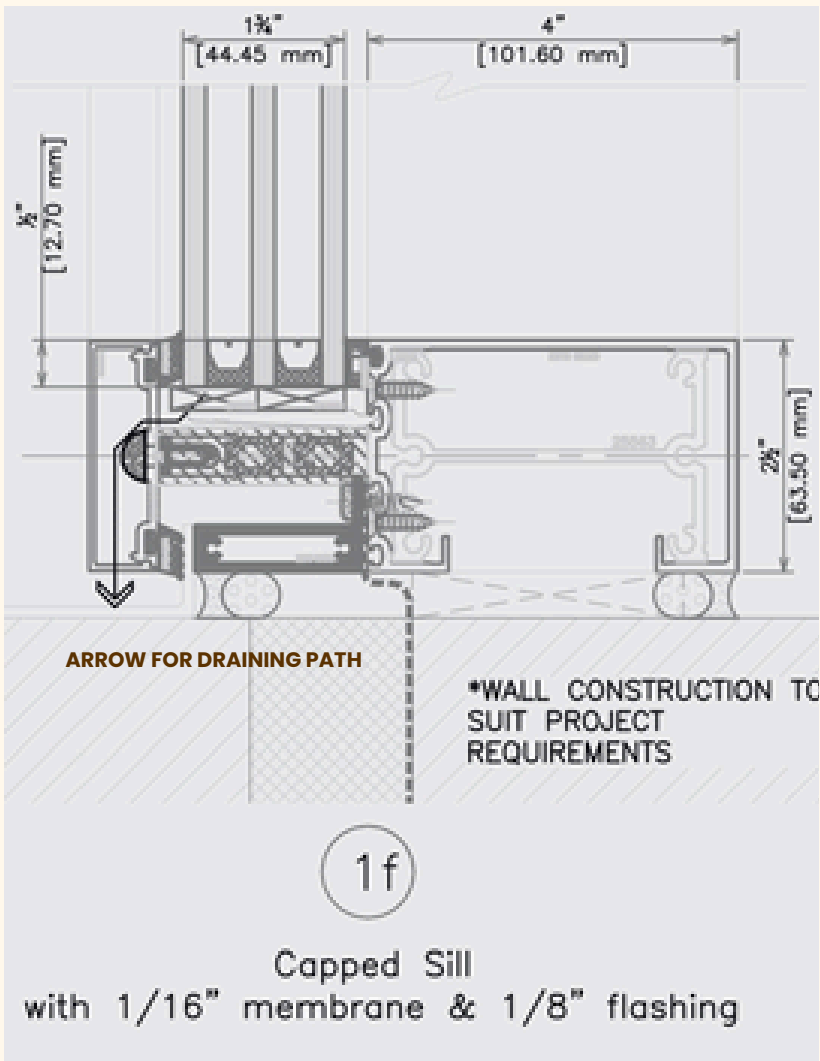
ROOF PARAPET TREATMENT NOT BY ALUMICOR



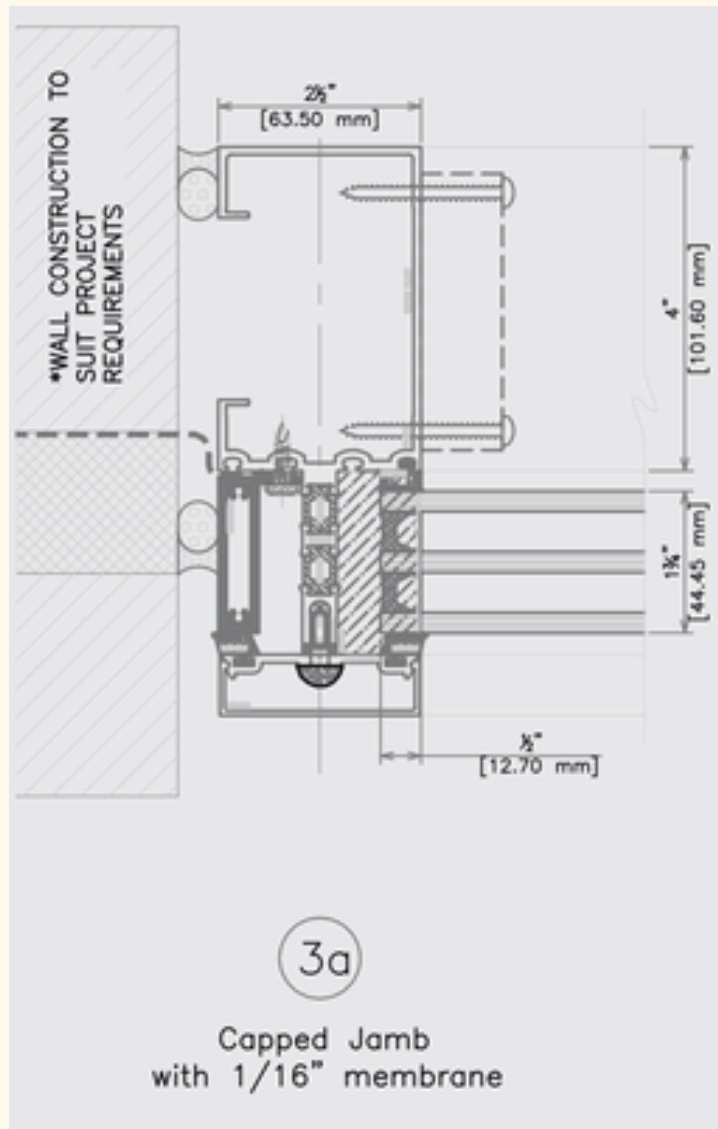
2a

SSG Head
with 1/16" membrane & 1/8" exterior flashing

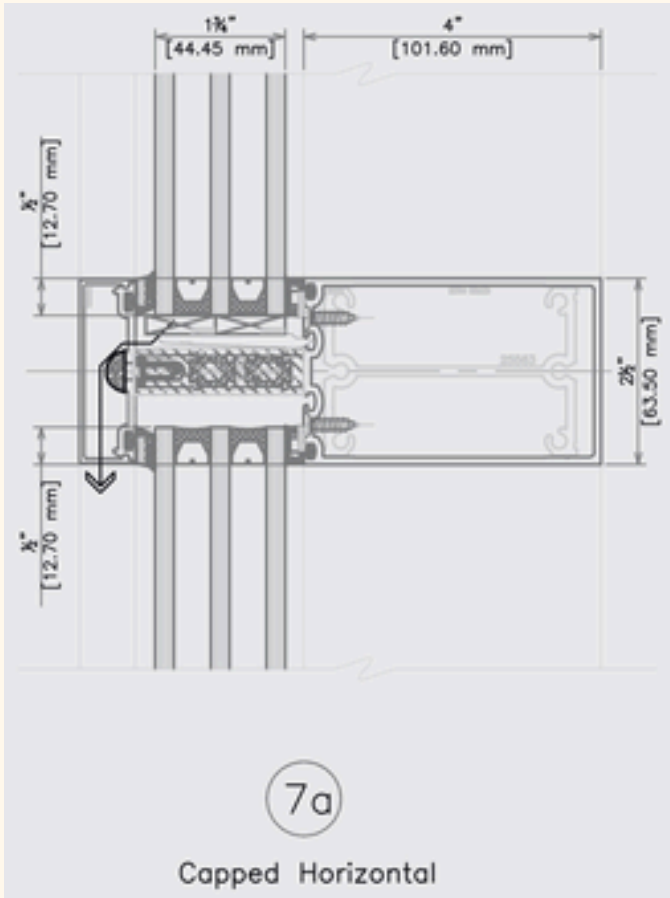
THERMAWALL 2600 SILL DETAIL



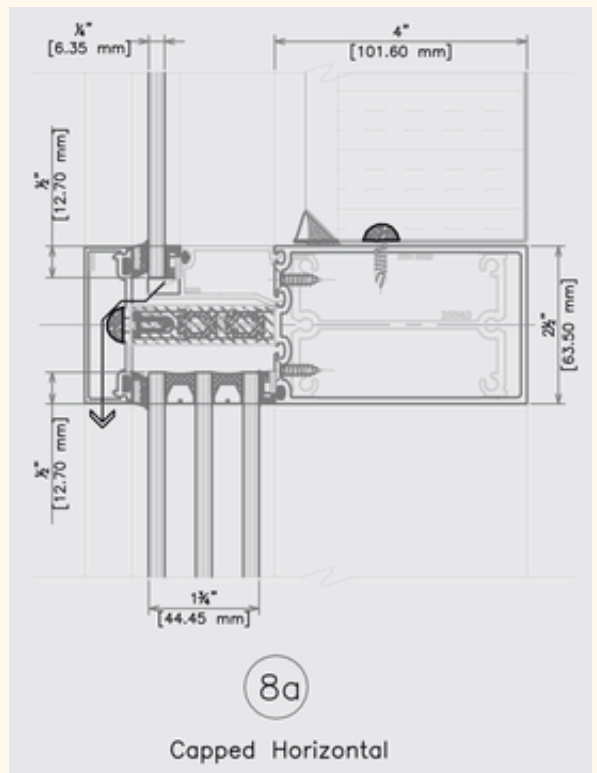
THERMAWALL 2600 ROOF JAMB DETAIL



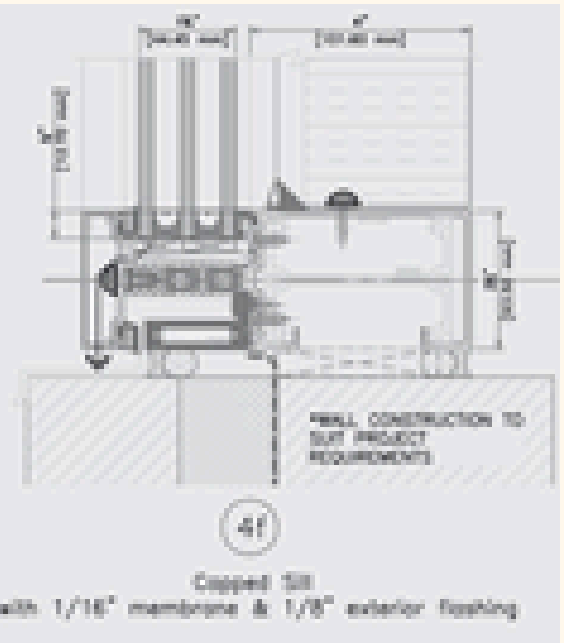
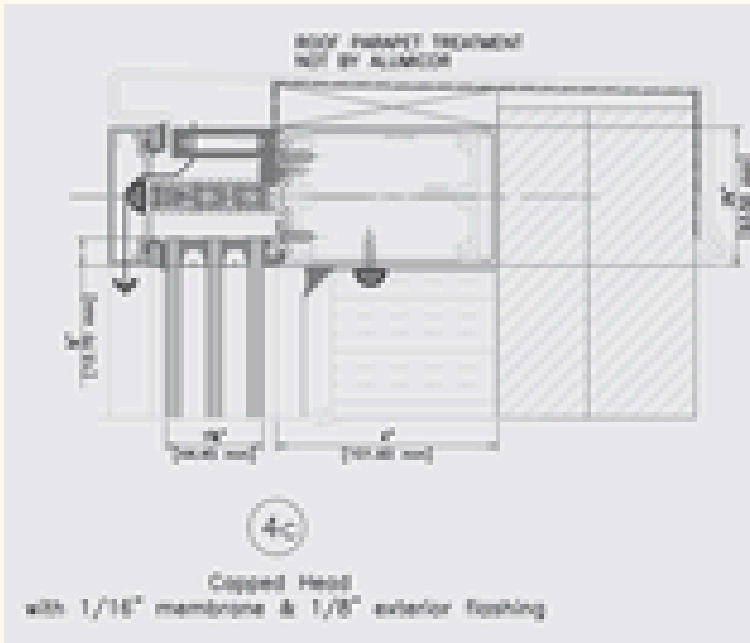
THERMAWALL 2600 HORIZONTAL SECTION DETAIL



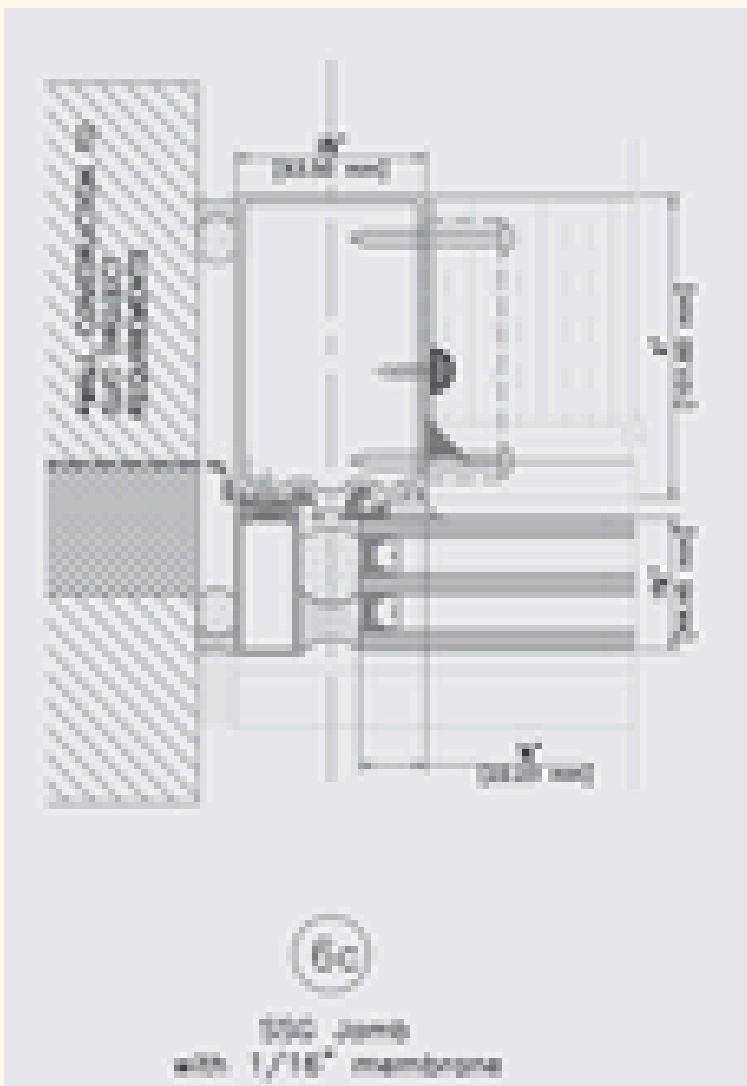
THERMAWALL 2600 HORIZONTAL SECTION DETAIL VISION/SPANDREL



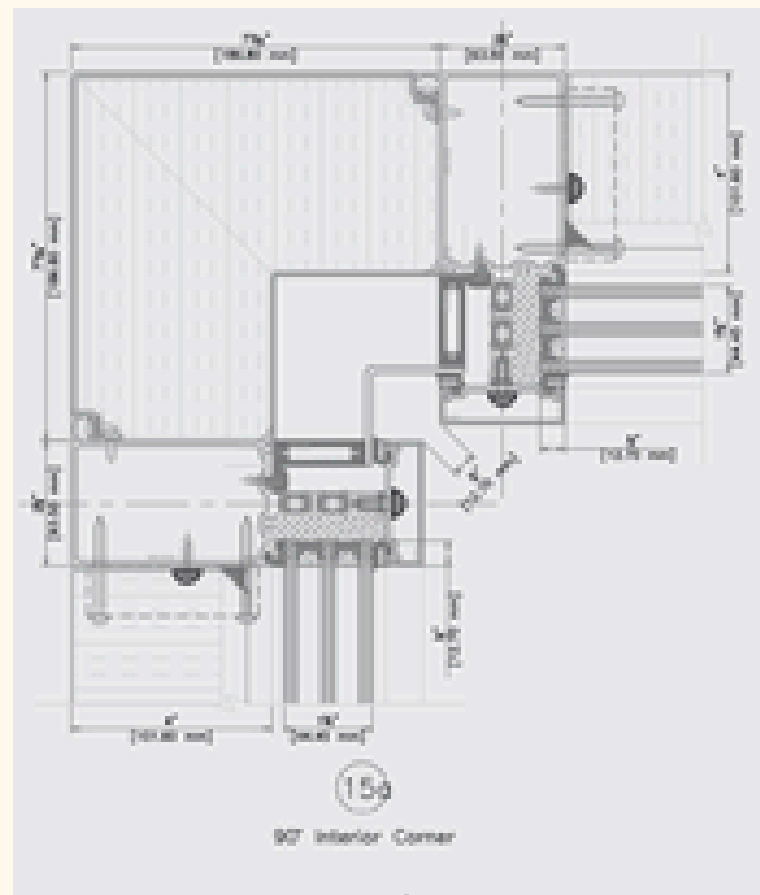
THERMAWALL 2600 PERIMETER HEAD AND SILL DETAIL



THERMAWALL 2600 PERIMETER SSG JAMB DETAIL



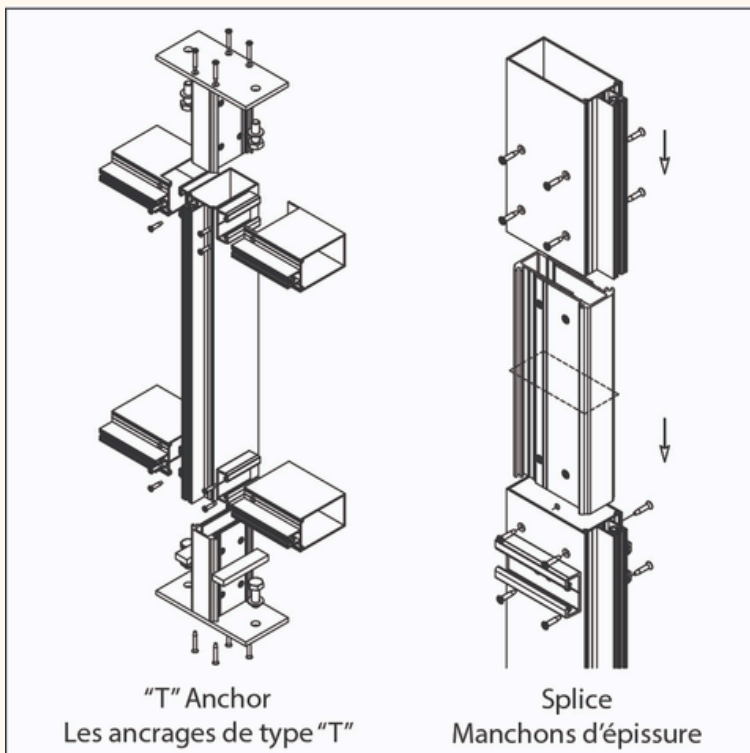
THERMAWALL 2600 INT. CORNER DETAIL WITH SPANDREL



BUILDING ENVELOPE PERFORMANCE

THERMAWALL 2600 SUPPORTS THE BUILDING ENVELOPE IN THE FOLLOWING WAYS:

- LATERAL LOADS: RESISTS UP TO 3600 PA WIND PRESSURE
- THERMAL MOVEMENT: POLYAMIDE THERMAL BREAKS ABSORB EXPANSION/CONTRACTION
- MINIMIZING HEAT LOSS: LOW U-VALUES ENHANCE ENERGY EFFICIENCY
- AIR INFILTRATION: EXCEPTIONAL CONTROL AT 0.002 L/S·M²
- WATER INFILTRATION: RAINSCREEN CAVITY AND PRESSURE EQUALIZATION UP TO 730 PA
- R-VALUE 16.8
- CONDENSATION: PREVENTED VIA T-INDEX MODELING AND THERMAL ISOLATION
- FIRE RESISTANCE: COMPATIBLE WITH FIRESTOPPING AND SMOKE SEALS
- ACOUSTICS: DUAL/TRIPLE IGUS REDUCE EXTERIOR NOISE LEVELS
- DURABILITY: DESIGNED TO MEET CANADIAN WINTER AND MOISTURE EXPOSURE



COMPARATIVE ANALYSIS

STICK-BUILT SYSTEM (THERMAWALL 2600):

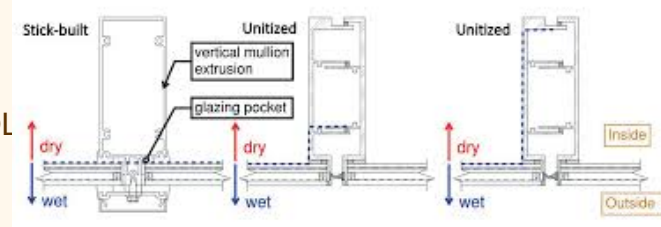
- ASSEMBLED ON-SITE
- COST-EFFECTIVE, FLEXIBLE FOR CUSTOM SHAPES
- MORE TIME-CONSUMING AND WEATHER-DEPENDENT

UNITIZED CURTAIN WALL:

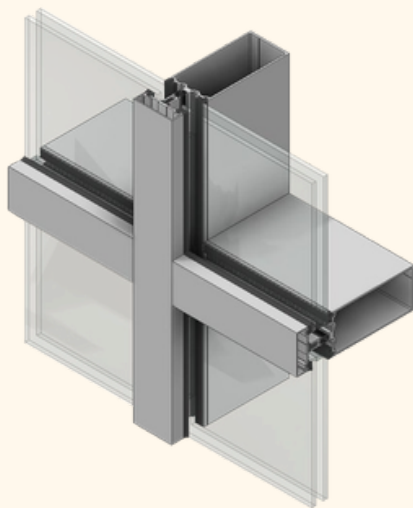
- PREFABRICATED IN FACTORY
- FASTER INSTALLATION, TIGHTER QUALITY CONTROL
- HIGHER INITIAL COST

STRUCTURAL GLAZING

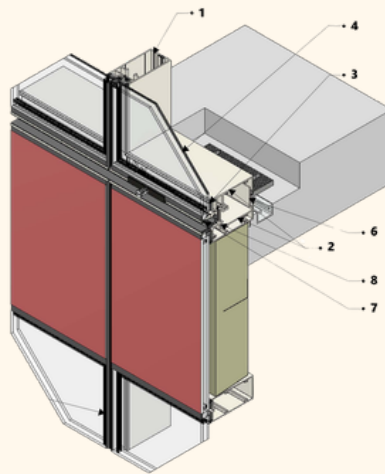
- GLASS BONDED DIRECTLY TO FRAME USING SILICONE
- MAY BE STICK-BUILT OR UNITIZED IN METHOD
- COMPLEX TO INSTALL DUE TO ADHESIVE CURING & PRECISION REQUIREMENTS



PLAN MULLION DETAIL



**THERMAWALL 2600
STICK-BUILT SYSTEM
(ALUMICOR)**



**MP5000
UNITIZED CURTAIN WALL
(GROUPE LESSARD)**



**STRUCTURAL GLAZING
(OLDCASTLE BUILDING
ENVELOPE)**

CONCLUSION:

THERMAWALL 2600 OFFERS GOOD THERMAL CONTROL, COLD-WEATHER DURABILITY, AND ARCHITECTURAL VERSATILITY. HOWEVER, IT TAKES MORE TIME TO INSTALL AND IT IS HARDER TO GUARANTEE OPTIMAL RESULTS AS IT IS INSTALLED ON SITE AND DEPENDS ON THE WEATHER FOR ITS INSTALLATION.

CASE STUDY: COMPLEXE SPORTIF ST-LAURENT

- ARCHITECT: SAUCIER + PERROTTE ARCHITECTES
- LOCATION: MONTREAL, QC
- PRODUCT USED: THERMAWALL 2600, SSG STYLE
- USE TYPE: MUNICIPAL RECREATION FACILITY

CHALLENGE:

CREATE A TRANSPARENT, OPEN FAÇADE IN A HIGH-PERFORMANCE ENVELOPE FOR A COLD AND HUMID CLIMATE DUE TO THE INDOOR POOL FACILITIES AND OUTSIDE WEATHER.

SOLUTION:

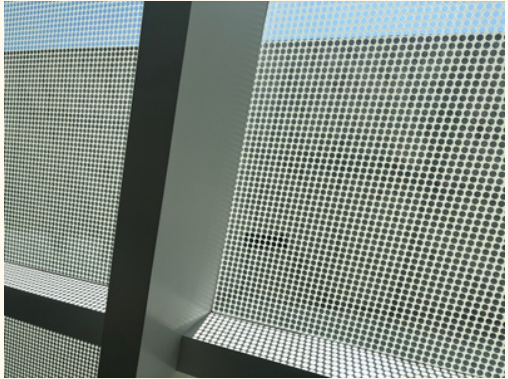
- CURTAIN WALL INTEGRATES DUAL IGUS WITH LOW-E GLASS
- THERMAL BREAKS AND STRUCTURAL PERFORMANCE HANDLE MONTREAL'S WIND AND FREEZE-THAW CYCLES
- SLEEK ALUMINUM PROFILES MAINTAIN VISUAL RHYTHM AND TRANSPARENCY

RESULT:

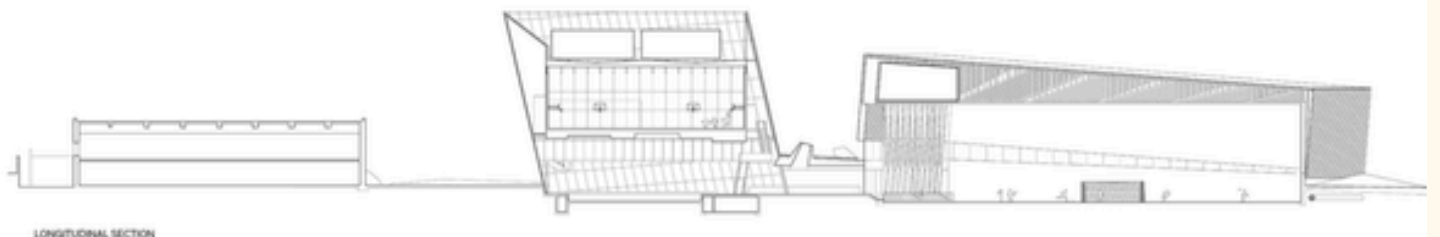
- CURTAIN WALL ENSURES BOTH DESIGN INTENT AND ENERGY PERFORMANCE
- LEED GOALS MET THROUGH ENVELOPE CONTROL AND NATURAL LIGHTING (**WAS CERTIFIED MAY 3RD 2017 WITH LEED GOLD CERTIFICATION**)
- SERVES AS A COMMUNITY HUB WITH DURABLE ENVELOPE PERFORMANCE

LEED GOLD CERTIFICATION INDICATES THAT A BUILDING HAS MET A HIGH STANDARD OF SUSTAINABILITY BY EARNING BETWEEN 60 AND 79 POINTS UNDER THE LEED RATING SYSTEM. THIS ACHIEVEMENT REFLECTS A STRONG COMMITMENT TO ENVIRONMENTALLY RESPONSIBLE DESIGN, EMPHASIZING ENERGY EFFICIENCY, WATER CONSERVATION, AND ENHANCED INDOOR AIR QUALITY.

CASE STUDY: COMPLEXE SPORTIF ST-LAURENT



CASE STUDY: COMPLEXE SPORTIF ST-LAURENT



LONGITUDINAL SECTION

REFERENCES

["THE EDGE / PLP ARCHITECTURE." ARCHDAILY, ARCHDAILY, 22 APR. 2016, WWW.ARCHDAILY.COM/785967/THE-EDGE-PLP-ARCHITECTURE.](#)

[08 44 13 - GLAZED ALUMINUM CURTAIN WALL \(THERMAWALL 2600\), ALUMICOR.COM/WP-CONTENT/UPLOADS/2017/06/084413-GLAZED-ALUMINUM-CURTAIN-WALLS-THERMAWALL-2600-1.DOC. ACCESSED 10 APR. 2025.](#)

[50+ YEARS OF PROVEN SILICONE PERFORMANCE, MASCHERPA.IT/WP-CONTENT/UPLOADS/2023/05/50-YEARS-OF-PROVEN-SILICONE-PERFORMANCE.PDF. ACCESSED 19 APR. 2025.](#)

["AA@110 STRUCTURALLY SILICONE GLAZED \(SSG\)." KAWNEER UK, 3 JULY 2024, WWW.KAWNEER.CO.UK/PRODUCTS/CURTAIN-WALL/AA110-STRUCTURALLY-SILICONE-GLAZED-SSG/.](#)

[ADMIN. "BENEFITS AND HISTORY OF CURTAIN WALL SYSTEMS FOR BUILDINGS." APPLE GLASS COMPANY, 4 NOV. 2014, APPLEGLOSSCOMPANY.COM/BLOG/BENEFITS-AND-HISTORY-OF-CURTAIN-WALL-SYSTEMS-FOR-COMMERCIAL-BUILDINGS/.](#)

[ADMIN. "CURTAIN WALL MANUFACTURING PROCESS." WAKEFIELD EQUIPMENT, 7 FEB. 2024, WAKEFIELDEQUIPMENT.COM/CURTAIN-WALL-MANUFACTURING/.](#)

[ADMIN. "HALLIDIE BUILDING'S 100-YEAR-OLD GLASS CURTAIN WALL." OMRANIA, 14 DEC. 2023, OMRANIA.COM/INSPIRATION/100-YEAR-OLD-GLASS-CURTAIN-WALL-AHEAD-TIME.](#)

[CLICKON360. "5000 SERIES UNITIZED CURTAIN WALL \(MP\)." GROUPE LESSARD, 6 MAR. 2024, WWW.LESSARD.WS/EN/5000-SERIES-UNITIZED-CURTAIN-WALL-MP-1/.](#)

[COMPLEXE SPORTIF SAINT-LAURENT - CANAM, WWW.CANAM.COM/PROJET/COMPLEXE-SPORTIF-ST-LAURENT/. ACCESSED 30 APR. 2025.](#)

[COMPLEXE SPORTIF SAINT-LAURENT - CANAM, WWW.CANAM.COM/PROJET/COMPLEXE-SPORTIF-ST-LAURENT/. ACCESSED 30 APR. 2025.](#)

[COMPLEXE SPORTIF SAINT-LAURENT – SAUCIER + PERROTTE, SAUCIERPERROTTE.COM/EN/PROJECTS/COMPLEXE-SPORTIF-SAINTE-LAURENT/. ACCESSED 30 APR. 2025.](#)

["COMPLEXE SPORTIF VILLE ST-LAURENT." ALUMICOR, 10 MAR. 2022, ALUMICOR.COM/GALLERY/COMPLEXE-SPORTIF-VILLE-ST%E2%80%90LAURENT/.](#)

["COMPLEXE SPORTIF, VILLE DE MONTRÉAL - SAINT-LAURENT." VOIR VERT - LE PORTAIL DU BÂTIMENT DURABLE AU QUÉBEC, WWW.VOIRVERT.CA/PROJETS/BATIMENT-VERT/COMPLEXE-SPORTIF-VILLE-MONTREAL-SAINTE-LAURENT. ACCESSED 20 APR. 2025.](#)

[CURTAIN WALL INITIAL INSPECTION CHECKLIST, ASC67.ORG/ASC_PREVIOUS_PROBLEMS/R7/COMMERCIAL/2015%20REGION%20%20COMMERCIAL%20PROBLEM%20HP/04%20FINAL%20ANSWER%20STATEMENT/ANSWER%20FILES%20FINAL/X.11.1.A%20INITIAL%20INSPECTION%20CHECKLIST.PDF. ACCESSED 19 APR. 2025.](#)

[CURTAIN WALL, BUFFALOAH.COM/A/DCTNRY/C/CURTAIN.HTML#:~:TEXT=THE%20CURTAIN%20WALL%20STYLE%20REFERS,ALL%20GLASS%20EXTERIOR%20WALL%20SYSTEM. ACCESSED 20 APR. 2025.](#)

["THE EVOLUTION OF CURTAIN WALL SYSTEMS IN MODERN ARCHITECTURE AND FACADE." ISE, WWW.ISE.GROUP/POST/THE-EVOLUTION-OF-CURTAIN-WALL-SYSTEMS-IN-MODERN-ARCHITECTURE-AND-FACADE. ACCESSED 19 APR. 2025.](#)

["EXPLORING THE DOS AND DON'TS OF CURTAINWALL TRANSITIONS: IIBEC." THE INTERNATIONAL INSTITUTE OF BUILDING ENCLOSURE CONSULTANTS \(IIBEC\), 15 SEPT. 2023, IIBEC.ORG/PUBLICATION-POST/EXPLORING-THE-DOS-AND-DONTS-OF-CURTAINWALL-TRANSITIONS/.](#)

["FEATURED PROJECT: ONE VANDERBILT." STEEL INSTITUTE OF NEW YORK, 15 JAN. 2021, SINY.ORG/NEWS/ONE-VANDERBILT.](#)

["GALLERY OF SAINT-LAURENT SPORTS COMPLEX / SAUCIER + PERROTTE ARCHITECTES + HCMA - 23." ARCHDAILY, WWW.ARCHDAILY.COM/881193/SAINT-LAURENT-SPORTS-COMPLEX-SAUCIER-PLUS-PERROTTE-ARCHITECTES-PLUS-HCMA/59DACE6BB22E380534000175-SAINTE-LAURENT-SPORTS-COMPLEX-SAUCIER-PLUS-PERROTTE-ARCHITECTES-PLUS-HCMA-LONGITUDINAL-SECTION-1?NEXT_PROJECT=NO. ACCESSED 2 APR. 2025.](#)

[GLASS AND ALUMINUM CURTAIN WALL SYSTEMS, WWW.CIVIL.UWATERLOO.CA/BEG/ARCHTECH/CMHC_OAA_CURTAINWALLS.PDF. ACCESSED 20 APR. 2025.](#)

[HABER, MICHAEL. "UNITIZED CURTAIN WALL OR STICK-BUILT SYSTEM?: W&W GLASS." W&W GLASS, LLC, 15 JULY 2021, WWW.WWGLASS.COM/UNITIZED-CURTAIN-WALL-OR-STICK-BUILT-SYSTEM/#:~:TEXT=STICK%20BUILT%20GLASS%20SYSTEM&TEXT=LONG%20PIECES%20OF%20ALUMINUM%20\(HENCE,SYSTEM%20IS%20DONE%20ON%20SITE.](#)

[HABER, MICHAEL. "WHAT IS A STRUCTURAL GLAZING SYSTEM?: W&W GLASS." W&W GLASS, LLC, 24 OCT. 2023, WWW.WWGLASS.COM/WHAT-IS-STRUCTURAL-GLAZING/#:~:TEXT=STRUCTURAL%20GLAZING%20SYSTEMS%20C%20IN%20THEIR,ALUMINUM%20PRESSURE%20PLATES%20OR%20CAPS.](#)

["HOW THE GLASS CURTAIN WALL WAS BORN." CURBED SF, 7 MAY 2020, SF.CURBED.COM/2018/3/7/17073432/HALLIDIE-BUILDING-GLASS-CURTAIN-HISTORY-SAN-FRANCISCO.](#)

["JOHN HANCOCK CENTER." ENCYCLOPÆDIA BRITANNICA, ENCYCLOPÆDIA BRITANNICA, INC., WWW.BRITANNICA.COM/TOPIC/JOHN-HANCOCK-CENTER, ACCESSED 20 APR. 2025.](#)

["LEED RATING SYSTEM." LEED RATING SYSTEM | U.S. GREEN BUILDING COUNCIL, WWW.USGBC.ORG/LEED. ACCESSED 28 APR. 2025.](#)

["MICHAL & RENATA HORNSTEIN PAVILION FOR PEACE OF THE MONTREAL MUSEUM OF FINE ARTS." MICHAL & RENATA HORNSTEIN PAVILION FOR PEACE OF THE MONTREAL MUSEUM OF FINE ARTS - JODOIN LAMARRE PRATTE ARCHITECTES INC., JLP.CA/EN/PROJECT/MONTREAL-MUSEUM-OF-FINE-ARTS-MICHAL-AND-RENATA-HORNSTEIN-PAVILION-FOR-PEACE/?CAT=CULTURE. ACCESSED 30 APR. 2025.](#)

["MINORU YAMASAKI." ENCYCLOPÆDIA BRITANNICA, ENCYCLOPÆDIA BRITANNICA, INC., 14 MAR. 2025, WWW.BRITANNICA.COM/BIOGRAPHY/MINORU-YAMASAKI.](#)

["OK\2600 SERIES GLASS INFILLS-001-2021_01_21_MODEL_\(1\), ALUMICOR.COM/WP-CONTENT/UPLOADS/2021/09/ALUMICOR-THERMAWALL-2600-GLASS-INFILLS.PDF. ACCESSED 19 APR. 2025.](#)

["SPORT COMPLEX OF VILLE ST-LAURENT." ACIER SÉLECT INC., 16 NOV. 2018, ACIERSELECT.COM/EN/REALISATION/COMPLEXE-SPORTIF-VILLE-ST-LAURENT/.](#)

["STRUCTURAL GLASS WALL ARCHIVES." OBE, OBE.COM/PRODUCT-CATEGORY/STRUCTURAL-GLASS-WALL/. ACCESSED 24 APR. 2025.](#)

[TEAM, ARCHEYES. "JOHN HANCOCKJOHN HANCOCK CENTER / SKIDMORE, OWINGS & MERRILL CENTER IN CHICAGO BY SKIDMORE, OWINGS & MERRILL." ARCHEYES, 21 MAY 2022, ARCHEYES.COM/JOHN-HANCOCK-CENTER-AT-SKIDMORE-OWINGS-AND-MERRILL/.](#)

[TEAM, ARCHEYES. "LEVER HOUSE: A GLASS CURTAIN WALL ICON BY SOM." ARCHEYES, 21 SEPT. 2024, ARCHEYES.COM/LEVER-HOUSE-A-GLASS-CURTAIN-WALL-ICON-BY-SOM.](#)

["THERMAL BREAK." THERMAL BRIDGING SOLUTIONS, 19 JULY 2021, THERMALBRIDGINGSOLUTIONS.COM/THERMAL-BREAK/.](#)

[THERMAWALL 2600 - VENEER CURTAIN WALL OPTION - ALUMICOR, 3.97.97.74/WP-CONTENT/UPLOADS/2021/09/ALUMICOR-THERMAWALL-2600-VENEER-OPTIONS.PDF. ACCESSED 19 APR. 2025.](#)

["THERMAWALL 2600." ALUMICOR, 28 JAN. 2025, ALUMICOR.COM/PRODUCTS/CURTAINWALL/THERMAWALL-2600/.](#)

[TIAN, SUMMER. "THE DEVELOPMENT HISTORY OF MODERN CURTAIN WALL." LINKEDIN, 15 JULY 2020, WWW.LINKEDIN.COM/PULSE/DEVELOPMENT-HISTORY-MODERN-CURTAIN-WALL-SUMMER-TIAN/.](#)

[TREMBLAY, GUILLAUME. "A QUICK HISTORY OF CURTAIN WALLS AND THE BUILDING ENVELOPE." LSVM.CA, LSVM.CA, 17 MAR. 2023, 19.](#)

[TREMBLAY, GUILLAUME. "A QUICK HISTORY OF CURTAIN WALLS AND THE BUILDING ENVELOPE." LSVM.CA, LSVM.CA, 17 MAR. 2023, LSVM.CA/BLOGS/BLOG-POSTS/A-QUICK-HISTORY-OF-CURTAIN-WALLS-AND-THE-BUILDING-ENVELOPE.](#)

["VENEER HORIZONTAL SECTION DETAILS." ALUMICOR, ALUMICOR.COM/WP-CONTENT/UPLOADS/2021/06/ALUMICOR-THERMAWALL-2600-VENEER-HORIZONTAL-SECTION-DETAILS-TRIPLE-GLAZED.ZIP.](#)

["APPLICATION PRINCIPLE AND ADVANTAGES AND DISADVANTAGES OF DOUBLE-SKIN CURTAIN WALL - NEWS." FOSHAN KEENHAI METAL PRODUCTS CO., LIMITED, WWW.ALU-WALLCLADDING.COM/NEWS/APPLICATION-PRINCIPLE-AND-ADVANTAGES-AND-DISAD-82225333.HTML#:~:TEXT=THE%2030%20ST%20MARY%20AXE, GLASS%20MAY%20INCLUDE%20SHADING%20DEVICES. ACCESSED 28 APR. 2025.](#)