



Aluminum Panels

MAP-01

SUBMITTAL PACKAGE
USA

Aluminum

From Nature to Architecture



INTRODUCTION

Welcome to our Submittal Package, designed to provide a simple, fast, and efficient experience when selecting your exterior cladding. Whether you're a contractor, architect, or distributor, you'll find all the information you need here to make an informed decision about our products.

Technical data sheets, installation guides, typical details, specifications, maintenance tips, and warranties — everything is gathered in one place to save you time and give you peace of mind at every stage of your project.

Our commitment is clear: to offer you durable, visually appealing, and easy-to-install solutions, supported by attentive customer service and tools designed to simplify your work.

*"Quality is never an accident.
It is always the result of intelligent effort."*

— John Ruskin



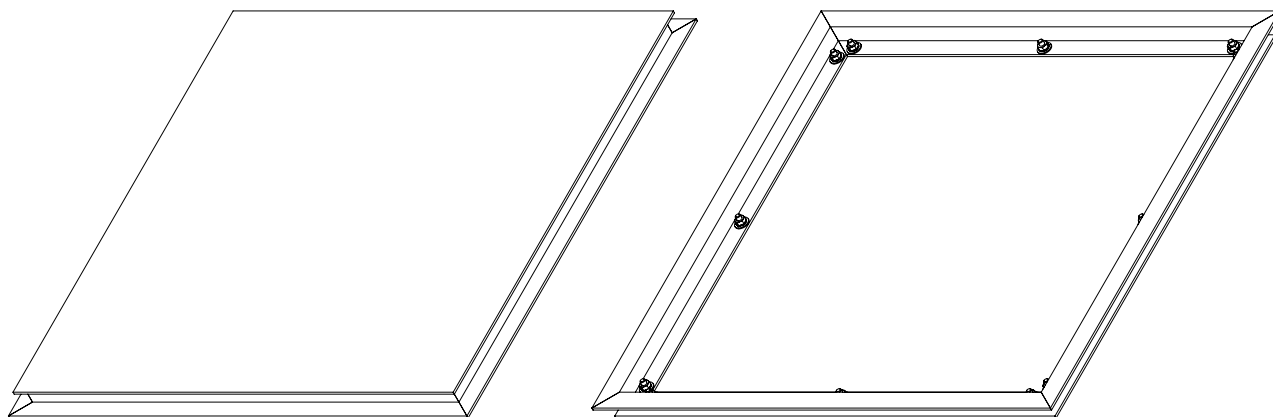
Technical documentation

MAP Serie Data sheet MAP-01

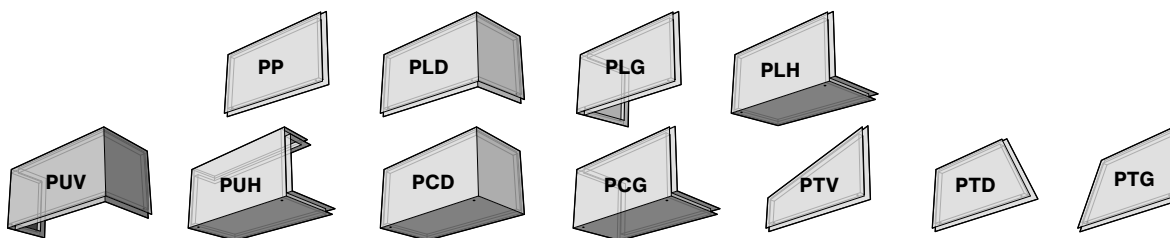
Siding panel for drained and back ventilated rainscreen systems

MAP-01 is an architectural panel made out of durable premium aluminum, and recognized for its floating appearance thanks to its concealed fasteners.

ISOMETRIC VIEW



STANDARD FOLDS



› Custom shapes and folds are available upon request.

General Specifications

SPECIFICATIONS

- Quick installation.
- Non-combustible panels.
- Durable and fully recyclable once it reaches the end of its useful life.
- Eco-friendly (solvent free) powder coating providing more stable and resistant colours over time.

PERFORMANCE CRITERIA

- Maximum perimeter extrusion deflection under service loads is limited to $L/180$.
- Maximum panel deflection under service loads is limited to $L/60$.

MATERIAL

- 5000 series aluminum panel, 3.2 mm (0.125") thick.
- 6000 series aluminum perimeter extrusions, 3.2 mm (0.125") thick.

FINISH/COLOUR

- Electrostatic powder coating in accordance with AAMA 2604, and 2605 standards.
- Colour at the customer's choice.

USAGE

- Outdoor use as exterior wall siding.*†
- Indoor use as decorative panels.

*To use these panels in a rainscreen system, the backing wall must be designed according to local building codes and standards in force by a competent building envelope professional.

† For buildings of 20 m (65'-6") or less in height with static wind pressures of 1.25 kPa (26 psf) or less. For buildings taller than 20m, an engineer must approve the strength of the panel substructure.

For any other application, contact Maibec's technical service.

MAP Serie

Data sheet MAP-01 (continued)

Technical Specifications

DIMENSIONS

- Rectangular panels between 114.3 mm x 304.8 mm (4.5" x 12") and 1473.2 mm x 3606.8 mm (58" x 142").
- Square panels between 152.4 mm x 152.4 mm (6" x 6") and 1473.2 mm x 1473.2 mm (58" x 58").
- Relief: 25.4 mm (1").
- Joints: 22.2 mm (0.875").

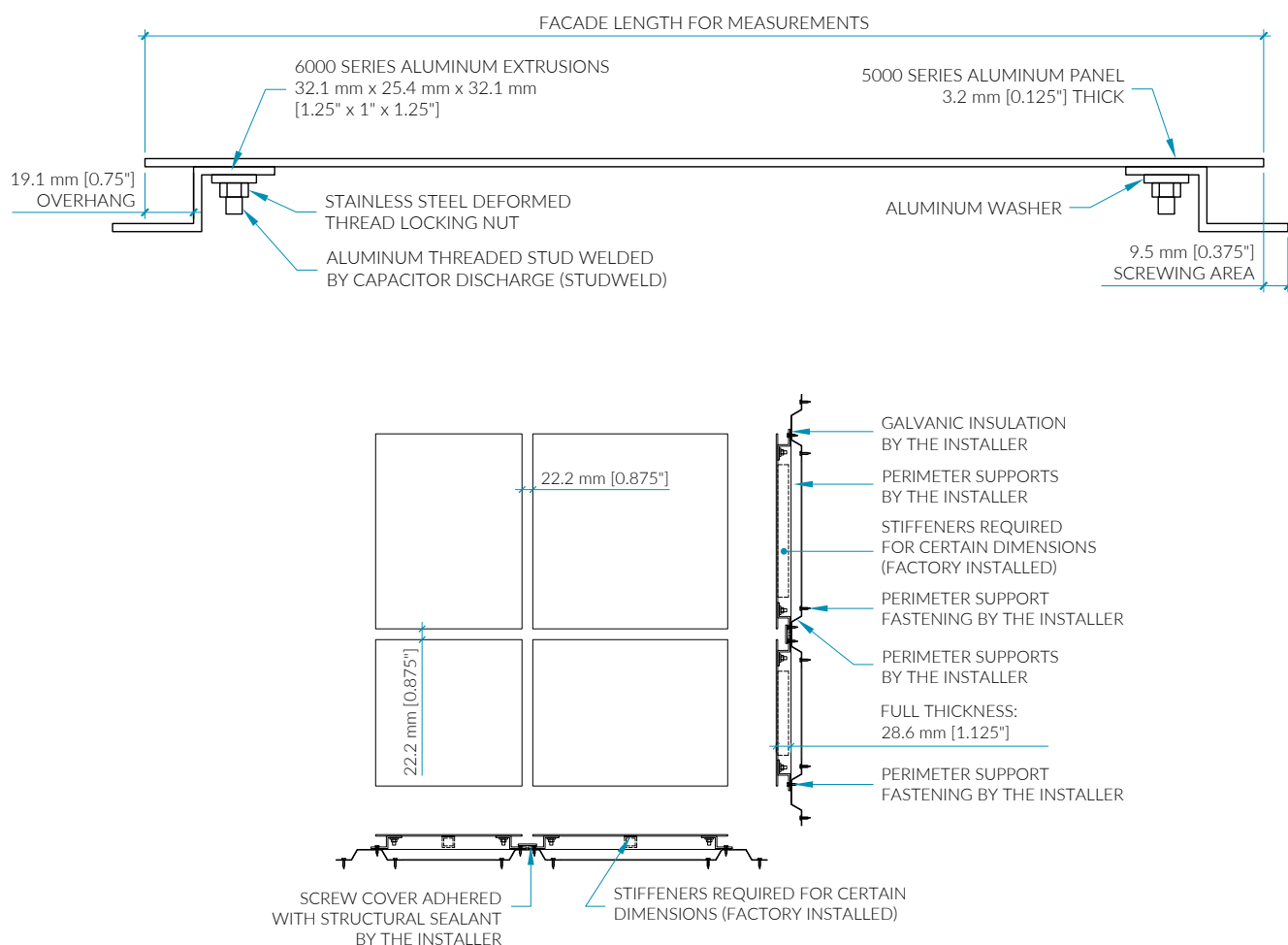
TOLERANCES

- ± 1.6 mm (± 0.063 ") for extrusion positioning.
- ± 0.79 mm (± 0.031 ") for panel dimensions.

INSTALLATION

- The installer is responsible for sizing perimeter supports and their fasteners.
- He is also responsible for choosing minimum spacing and sizing of the panel fasteners.

Technical Details



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Specifications

WORD Document

To access the document in Word format, click the link below and download from our website:

[074213_Maibec_MAP-01 Panels_Specifications_EN](#)

SPECIFIER NOTE: The purpose of this guide specification is to assist the specifier in correctly specifying aluminum siding with a digitally printed finish and their installation. The specifier needs to edit the guide specifications to fit the needs of specific projects. Contact MAIBEC to assist in appropriate product selections and for detailing assistance. Red text in brackets indicates a selection needs to be made.



Architectural Aluminum

SECTION 07 42 13 ARCHITECTURAL ALUMINUM PLATE PANEL

PART 1 - GENERAL

1.1 SECTION INCLUDES [EDIT AS REQUIRED]

- A. Specifications for aluminum plate panels with perimeter extrusion, including performance requirements, quotation, quality assurance, delivery, storage, handling, and site conditions.
- B. Painted aluminum accessories
 - 1. [Screw cover]

1.2 RELATED SECTIONS

- A. Section [01 74 21] - Waste Management and Disposal
- B. Section [05 41 00] – Structural Metal Stud Framing
- C. Section [07 21 00] - Thermal Insulation
- D. Section [07 25 00] - Weather Barriers
- E. Section [07 27 00] - Air Barriers
- F. Section [07 62 00] - Sheet Metal Accessories and Flashings
- G. Section [07 92 00] - Sealing Compounds

1.3 REFERENCES

- A. Codes
 - 1. National Research Council of Canada (NRC)
 - a. National Building Code of Canada 2020 (NBC-2020)
 - 2. International Code Council (ICC)
 - 3. International Building Code 2021 (IBC-2021)
- B. Canadian Standards Association (CSA)
 - 1. CSA-S157: Strength Design in Aluminum
- C. American Architectural Manufacturers Association (AAMA) (FGIA)
 - 1. AAMA 2604 – Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels.

2. AAMA 2605 – Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels
- D. American Society for Testing and Materials (ASTM)
1. ASTM E330/E330M-14(2021): Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.
 2. ASTM D3359: Standard Test Methods for Rating Adhesion by Tape Test.
 3. ASTM D3363: Standard Test Method for Film Hardness by Pencil Test.
 4. ASTM D968: Standard Test Methods for Abrasion Resistance of Organic Coatings by Falling Abrasive.
 5. ASTM D2247: Standard Practice for Testing Water Resistance of Coatings in 100 % Relative Humidity.
 6. ASTM B117: Standard Practice for Operating Salt Spray (Fog) Apparatus.
 7. ASTM G7: Standard Practice for Atmospheric Environmental Exposure Testing of Nonmetallic Materials.
 8. ASTM D523: Standard Test Method for Specular Gloss.
 9. ASTM B244: Standard Test Method for Measurement of Thickness of Anodic Coatings on Aluminum and of Other Nonconductive Coatings on Nonmagnetic Basis Metals with Eddy-Current Instruments.
 10. ASTM B209-10: Standard Specification for Aluminum and Aluminum Alloy Sheet and plate
 11. ASTM B221-12: Standard Specification for Aluminum and Aluminum Alloy Extruded Bars, Rods, Profiles and Tubes
- E. Underwriters Laboratories Canada (ULC)
1. ULC-S102: Standard Method of Test for Surface Burning Characteristics of Building Materials and Assemblies.
 2. ULC-S114: Standard Method of Test for Determination of Non-Combustibility in Building Materials.
 3. ULC-S135: Standard Test Method for the Determination of Combustibility, Parameters of Building Materials Using an Oxygen Consumption Calorimeter.
- F. Florida Building Code (FBC)
1. Florida Product Approval No. FL 46743
- G. National Fire Protection Association (NFPA)
1. NFPA 285: Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Wall Assemblies Containing Combustible Components.

1.4 PERFORMANCE REQUIREMENTS

- A. Compatible with drained and back ventilated rainscreen system.
- B. Design cladding to span continuously over structural supports with fastening to structural supports to sustain factored loads in accordance with authority having jurisdiction.
- C. Use water-resistant barriers, steel or aluminum sub-girts, pre-painted aluminum or galvanized steel flashings, and extruded aluminum panels with hardware in accordance with defined criteria.

1.5 SUBMITTALS

- A. Action Submittal - Submit required documents in accordance with the general conditions stated in section [01 33 00]
 1. Product Data, include the following:
 - 1) Technical data sheet

- 2) Installation Instructions or typical details
 - 3) Aluminum material information
- 2. Standard drawing details and application
 - a. Drawings must show product dimensions and sectional views, fastening methods, and wall elevations, specify materials and finishes, provide details for bays, window heads, jambs, and sills, as well as canopies, joint coverings and roof edgings.
- 3. Samples
 - a. Submit two (2) 300 mm × 300 mm wall siding samples, which must correspond to the suggested materials, colours and finishes.
- B. Informational submittals
 - 1. Product Test Reports: Submit all relevant tests results performed by a qualified testing agency.
- C. Closeout submittals
 - 1. Maintenance data: For each type of product, including related accessories. Include in Maintenance manuals.
 - 2. Warranty: Executed copy of the manufacturer's warranty.

1.6 QUALITY ASSURANCE [EDIT AS REQUIRED]

- A. Coordinate requirements with Section 01 45 00 "Quality Control".
- B. *Test Reports: Certified testing reports showing compliance with specified performance characteristics and physical properties, including laboratory reports showing compliance with specified tests and standards.*
- C. Manufacturer's qualifications:
 - 1. Manufacturers must prove that they have been certified or pre-certified by their powder coating provider to apply their product
 - 2. Through their powder coating supplier, manufacturers must be able to provide a warranty ranging from 15 to 30 years on finishes, under certain conditions, depending on the chosen manufacturer and coating standard (AAMA 2604 or AAMA 2605).
 - 3. Manufacturers must be able to produce orders without outsourcing the product's shaping and coating processes, to the extent that orders meet with data sheet specifications and recommended standard sizes and shapes.
 - 4. Manufacturers must be able to deliver the first produced panels within ten (10) working days after having received measurements and technical drawings from installers where applicable.
- D. Installer Qualifications: Engage experienced installer, with a minimum of five years' experience, who has completed systems similar in material, design, and extent to that indicated for Project and with record of successful performance.
- E. Pre-installation meeting:
 - 1. Conduct meeting at Project Site [Insert location].
 - 2. Review project drawings and requirements, manufacturer's installation instructions, manufacturer's warranty requirements and any relevant manufacturer's documentation.
 - 3. Review wall framing for potential interference and conflicts; coordinate layout and support provisions for interfacing work.
 - 4. Review field quality control procedures.
- F. Mockups: Build mockups to verify selections made and to demonstrate aesthetic effects and to set quality standards for fabrication and installation.

1. Build mockups for cladding [and soffit] including accessories:
 - a. Size: 72 square feet, unless noted otherwise.
 - b. Include outside corner on one end of mockup and inside corner on opposite end.
2. Construct a [portion of one exterior wall in location agreed upon by Consultant] [a free-standing mock-up] to establish a standard of construction, workmanship, and appearance.
3. Construct mock-up indicating relationship between wall cladding, air spaces, air/vapor retarder membrane, windows, and doors.
4. Do not continue with work of this Section until [Construction Manager,] [Owner,] [Consultant], [Architect,] [Engineer] has approved mock-up.
5. [Remove freestanding mock-up upon completion of all metal cladding work or when otherwise directed by Consultant.]
6. [Accepted mock-ups may be incorporated into the work of this Section.]
7. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

G. Meet non combustibility

1.7 SCHEDULE

- A. If on-site measurements cannot be guaranteed, additional time must be provided to confirm the needed measurements. Doors and windows, as well as all other relevant elements, must be installed to guarantee on-site measurements.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Materials and equipment must be transported, stored and handled according to the relevant extract in section [01 61 00].
- B. Deliver materials and components in manufacturer's unopened boxes or pallets, properly labeled, and fully identified by product name and brand. Prevent any damage during unloading, storing, and installation.
- C. Store, protect and handle materials and components in accordance with manufacturer's recommendations to prevent twisting, bending, mechanical damage, contamination, and deterioration.
- D. Store materials and components off ground and keep clean, dry, and free of dirt and debris. Store away from areas with falling objects or other construction activity that may occur or cause damage.
- E. Store materials to ensure dryness, with positive slope for drainage of water. Do not store materials and components in contact with other materials that might cause staining, denting, or other surface damage.

1.9 SITE CONDITIONS

- A. Field Measurements: Verify location of structural members and openings in substrates by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the installation.
- B. Undertake installation work only when weather conditions meet manufacturers' specific environmental requirements and when conditions will permit work to be performed in accordance with manufacturer recommendations and warranty requirements.

1.10 WASTE MANAGEMENT AND DISPOSAL [EDIT AS REQUIRED]

- A. Separate waste materials for recycling in accordance with Section [01 74 21] "Waste Management and Disposal".
- B. Divert used metal cutoffs from landfill by disposal [into the onsite metals recycling bin] [removed for disposal at the nearest metal recycling facility].
- C. Divert reusable materials for reuse at nearest used building materials facility.
- D. Divert unused caulking, sealants, and adhesive materials from landfill through disposal at hazardous material depot.

1.11 WARRANTY [EDIT AS REQUIRED]

- A. Substrate warranty: 10 years against material and manufacturing defects, as well as for mechanical stability and stability and flatness.
- B. Finish Coating Warranty:
 - 1. [Powder coated 2605 solid color finish]: Limited warranty for up to **XX years** from the date shown on the warranty registration, subject to proper maintenance of the material and finish as recommended by the manufacturer. The finish is warranted to have the following properties:
 - a. Resistance to Cracking and Crazing.
 - b. Resistance to Chalking: The finish will not chalk more than a numerical rating of 8.
 - c. Color stability: No change in the color of the finish exceeding 5 (five) CIE Lab units. CIE illuminant D65.
 - d. Gloss Retention: Finish will retain at least 50% of the initial gloss,
 - e. Adhesion: The finish will not peel at a rate inferior to class 4B according to ASTM D3359.
 - f. See Manufacturer Warranty Sheet for full product and finish warranty details
 - 2. [Powder coated 2604 solid color finish]: Limited warranty for up to **XX years** from the date shown on the warranty registration, subject to proper maintenance of the material and finish as recommended by the manufacturer.
 - a. Resistance to Cracking and Crazing.
 - b. Resistance to Chalking: The finish will not chalk more than a numerical rating of 8.
 - c. Color stability: No change in the color of the finish exceeding 5 (five) CIE Lab units. CIE illuminant D65.
 - d. Gloss Retention: Finish will retain at least 30% of the initial gloss,
 - e. Adhesion: The finish will not peel at a rate inferior to class 4B according to ASTM D3359.
 - f. See Manufacturer Warranty Sheet for full product and finish warranty details.
 - 3. [Liquid coated 2604 / 2605 solid color finish]: Limited warranty for up to **XX years** from the date shown on the warranty registration, subject to proper maintenance of the material and finish as recommended by the manufacturer. Finish warranted to have the following properties:
 - a. Resistance to Cracking and Crazing.
 - b. Resistance to Chalking: The finish will not chalk more than a numerical rating of 8.
 - c. Color stability: No change in the color of the finish exceeding 5 (five) CIE Lab units. CIE illuminant D65.
 - d. Gloss Retention: Finish will retain at least **30/50%** of the initial gloss,

- e. Adhesion: The finish will not peel at a rate inferior to class 4B according to ASTM D3359.
 - f. See Manufacturer Warranty Sheet for full product and finish warranty details
- 4. See Manufacturer Warranty Sheet for full product and finish warranty details.
 - 5. Contractor's Labor Warrantees: Three (3) year warranty on labor, effective from the date shown on the registration form, covering the repair of materials found to be defective.

PART 2 - PRODUCTS

2.1 MANUFACTURER

- A. Maibec Inc., 984 5e Rue #202, Levis, Quebec Canada G6W 5M6. www.MAIBEC.com

2.2 MATERIAL

- A. Aluminum Plate: Alloy 5052-H32 conforming to ASTM B209.

2.3 ALUMINUM PLATE PANEL WITH PETRIMETER EXTRUSION

- A. General: Provide as recommended by cladding manufacturer for building configuration. All panels must be folded at the factory. On-site manufacturing or modification is not allowed.
 - 1. Aluminum Alloy 5052-H32
 - 2. Minimum metal thickness: 3mm (0,125")
- B. Aluminum panel finishes must be exempt of any lead, heavy metals and TGIC, must not emit any solvents into the air during factory application, and must be both recyclable and reusable to be applied again in the factory.
- C. Panels and their components must be designed conforming to all requirements stated in the National Building Code of Canada (CNB-2020), the CSA-S157 standard, and all codes in effect where the project is located.
- D. Maximum deflection
 - 1. Maximum deflections under working loads, measured at the center of a panel, must be limited to L/60.
 - 2. Maximum deflections under working loads for perimeter elements and extrusions must be limited to L/180.
 - 3. ASTM E330/E330M-14 (2021) – Structural Performance
 - a. When testing with charges 150% greater than designed:
 - 1) Panel deformation must not exceed the limits prescribed above (refer to "Design Requirements")
 - 2) Panels must not suffer structural failure or permanent deformation.
- E. Manufacturing tolerances
 - 1. Extrusion positioning tolerances are limited to $\pm 1.6\text{mm}$ ($\pm 0.063"$).
 - 2. Facade panel dimension tolerances are limited to $\pm 1.6\text{mm}$ ($\pm 0.063"$).
 - 3. Maximum perpendicular tolerance for extrusions must not exceed 0.5° .

- F. Substitutions: Not Permitted.
- G. Requests for substitutions will be considered in accordance with the guidelines outlined in Section [01 61 00] "Product requirements".

2.4 DESIGN REQUIREMENTS

- A. Wall cladding systems must meet the following:
 - 1. Siding solutions must be compatible with drained and back ventilated rainscreen system. Siding solutions must be mounted on a strong and rigid substrate, which will be able to withstand all applicable loads. Siding solutions must consist of the following:
 - a. Water resistant barrier applied under the wall cladding system, installed according to both the supplier's specifications and good practices.
 - b. Build-outs created by steel or aluminum sub girts, which redistribute charges to the substrate upon which the cladding, are installed.
 - c. Pre-painted aluminum or galvanized steel flashings imperatively designed to direct water to the outside of the assembly.
 - d. Aluminum or extruded aluminum panel assembly and hardware meeting the criteria described above.

2.5 ACCESSORIES [EDIT AS REQUIRED]

- A. General: Provide as recommended by siding manufacturer for building configuration.
- B. Accessories shall be made from the same material and matching finish of adjacent siding planks unless otherwise indicated.
- C. Screw covers. One piece aluminum.
 - 1. Length to match panel perimeter:
 - 2. Minimum metal thickness: 3.2mm (0,125")
 - 3. Width:
 - a. [3/4 inch (19mm)]
 - b. [1 inch (25.4mm)]
 - c. [1-1/4 inches (31.8mm)]
 - d. [1-1/2 inches (38mm)]

2.6 FINISHES [EDIT AS REQUIRED]

SPECIFIER NOTE: Select the desired finish specific to project and delete the other indicated finish. Where more than one finish is selected coordinate with drawings for clarity. Select accordingly Select accordingly.

- A. [Solid Color Finish]
 - 1. Powder-coat finish: AAMA 2605 compliant.
 - 2. Color according to color reference XXXXXXXX from [AkzoNobel] [Tiger] [IFS] [PPG]
- B. [Solid Color Finish]
 - 1. Powder-coat finish: AAMA 2604 compliant.
 - 2. Color according to color reference XXXXXXXX from [AkzoNobel] [Tiger] [IFS] [PPG]
- C. [Solid Color Finish]
 - 1. Liquid-coat finish: [AAMA 2605] [AAMA 2604] compliant.
 - 2. Color according to color reference XXXXXXXX from [PAINT MANUFACTURER].
- D. Flashing: Provide aluminum flashing complying with Section 07 62 00 "Sheet Metal Flashing and Trim" at sill, window and door heads and where indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Before proceeding with the installation, make sure that the substrate is true and in good enough condition for the work to be carried out in accordance with the Manufacturer's recommendations.
- B. The principal contractor is responsible for providing an appropriate mounting substrate with a maximum tolerance of three (3) millimeters over three (3) meters [0.125" for 120"] for placement when measured against reference axis and level measurements. The provided substrate must also deviate less than three (3) non-cumulative millimeters [0.125"] over two adjacent faces.
- C. The principal contractor must be able to provide a substrate both robust and sturdy enough to secure the wall cladding system so that it can withstand all calculated loads according to the code in force for the project.
- D. Begin installation only when the substrate's condition, verticality, and straightness have been confirmed as appropriate.

3.2 PREPARATION

- A. Clean substrates of projections and substances detrimental to application.
- B. Inspect product before installation and verify that there is no shipping damage. Ensure proper handling and storage of all material.
- C. Do not install any damaged or questionable product; repair or replace as required for smooth, consistent, and high-quality finished appearance.

3.3 INSTALLATION

- A. Begin installation only when inspection requirements are met.
- B. Do not install defective, damaged or scratched items.
- C. Do not modify panels or their components. Should there be any discrepancies between shop drawings and conditions in the field, contact the Project Manager to review the situation.
- D. Install all materials according to the Manufacturer's recommendations.
- E. Avoid contact with incompatible materials.

3.4 ADJUSTING AND CLEANING

- A. Remove damaged, improperly installed, or otherwise defective materials and replace with new materials complying with specified requirements.
- B. Periodically clean exposed surfaces of battens that are not protected by temporary covering to remove fingerprints and soil during construction period. Do not let soil accumulate until final cleaning.
- C. Use temporary protective coverings where needed and approved by manufacturer. Remove protective covering at the time of Substantial Completion.

- D. Clean finished surfaces according to manufacturer's written instructions and maintain in a clean condition during construction. Before final inspection, clean exposed surfaces with water and a mild soap or detergent not harmful to finishes. Thoroughly rinse surfaces and dry.

END OF SECTION

DISCLAIMER: This Specification has been written as an aid to the professionally qualified Specifier and Design Professional. The use of this Guide requires the sole professional judgment and expertise of the qualified Specifier and Design Professional to adapt the information to the specific needs for the Building Owner and the Project, to coordinate with their Construction Document Process, and to meet all the applicable building codes, regulations, and laws. MAIBEC INC. EXPRESSLY DISCLAIMS ANY WARRANTY, EXPRESSED OR IMPLIED, INCLUDING THE WARRANTY OF MERCHANTABILITY OR FITNESS FOR THE PARTICULAR PURPOSE OF THIS PRODUCT FOR THE PROJECT.

Typical details

MAP-01

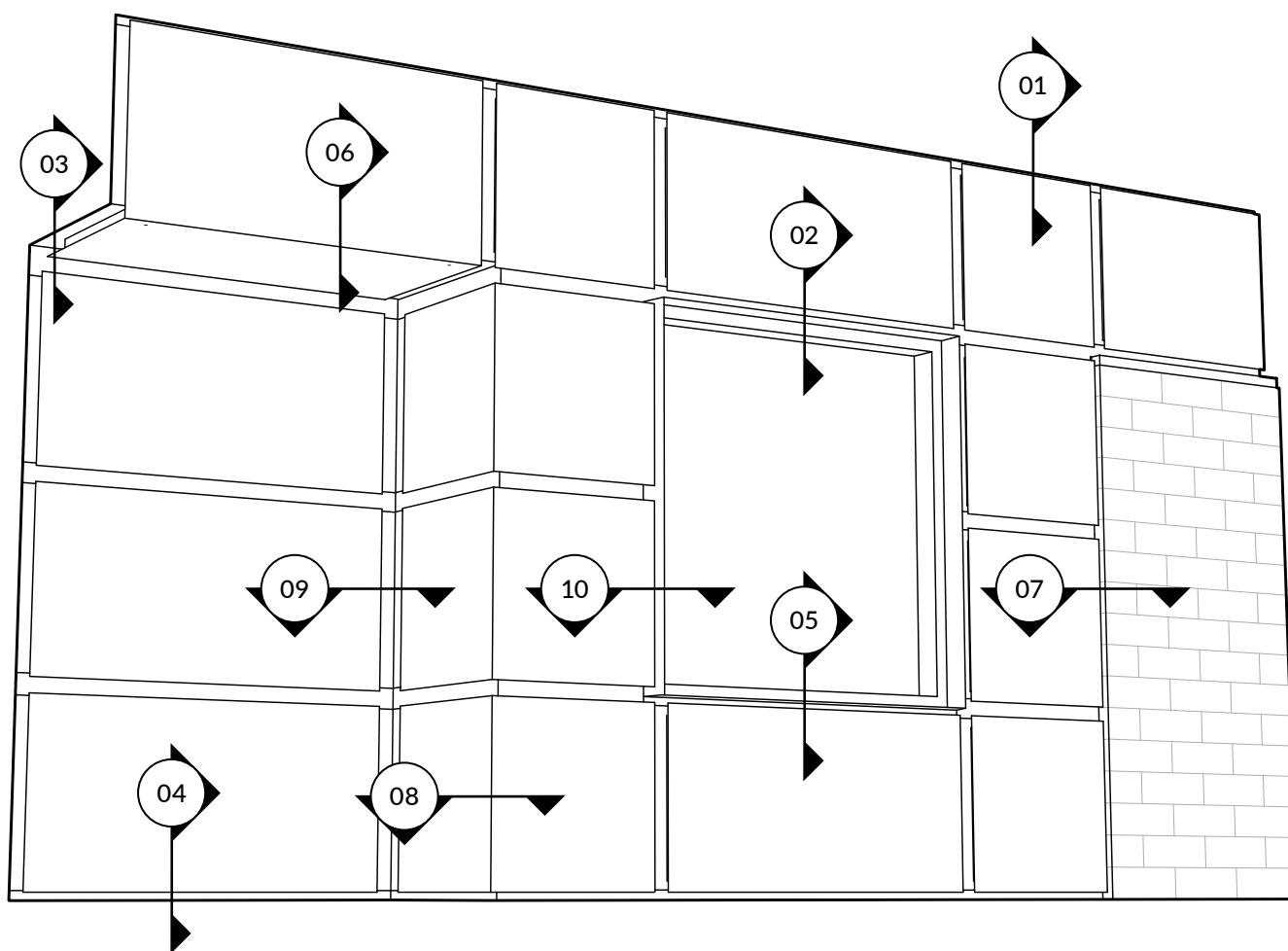
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SIDING PANEL FOR DRAINED AND BACK VENTILATED RAINSCREEN SYSTEMS

Installation

The installer is responsible for sizing perimeter supports and their fasteners.

MA-01 is an architectural panel made out of durable premium aluminum, and recognized for its floating appearance thanks to its concealed fasteners.



ISOMETRIC VIEW

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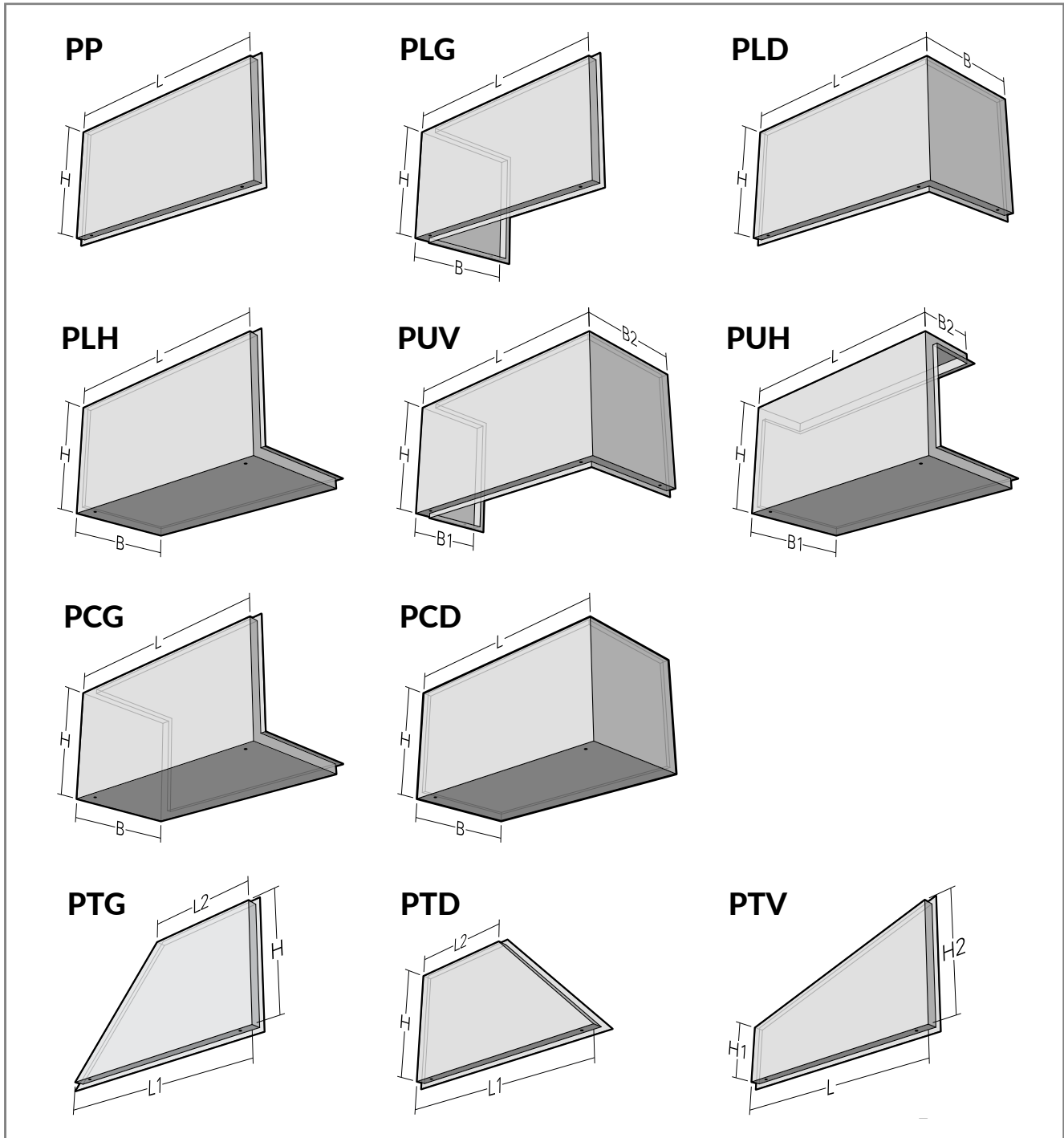
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<u>DETAIL</u>	<u>DESCRIPTION</u>
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03	WALL HEAD AND SOFFIT PAGE 06
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05	WINDOW SILL PAGE 08
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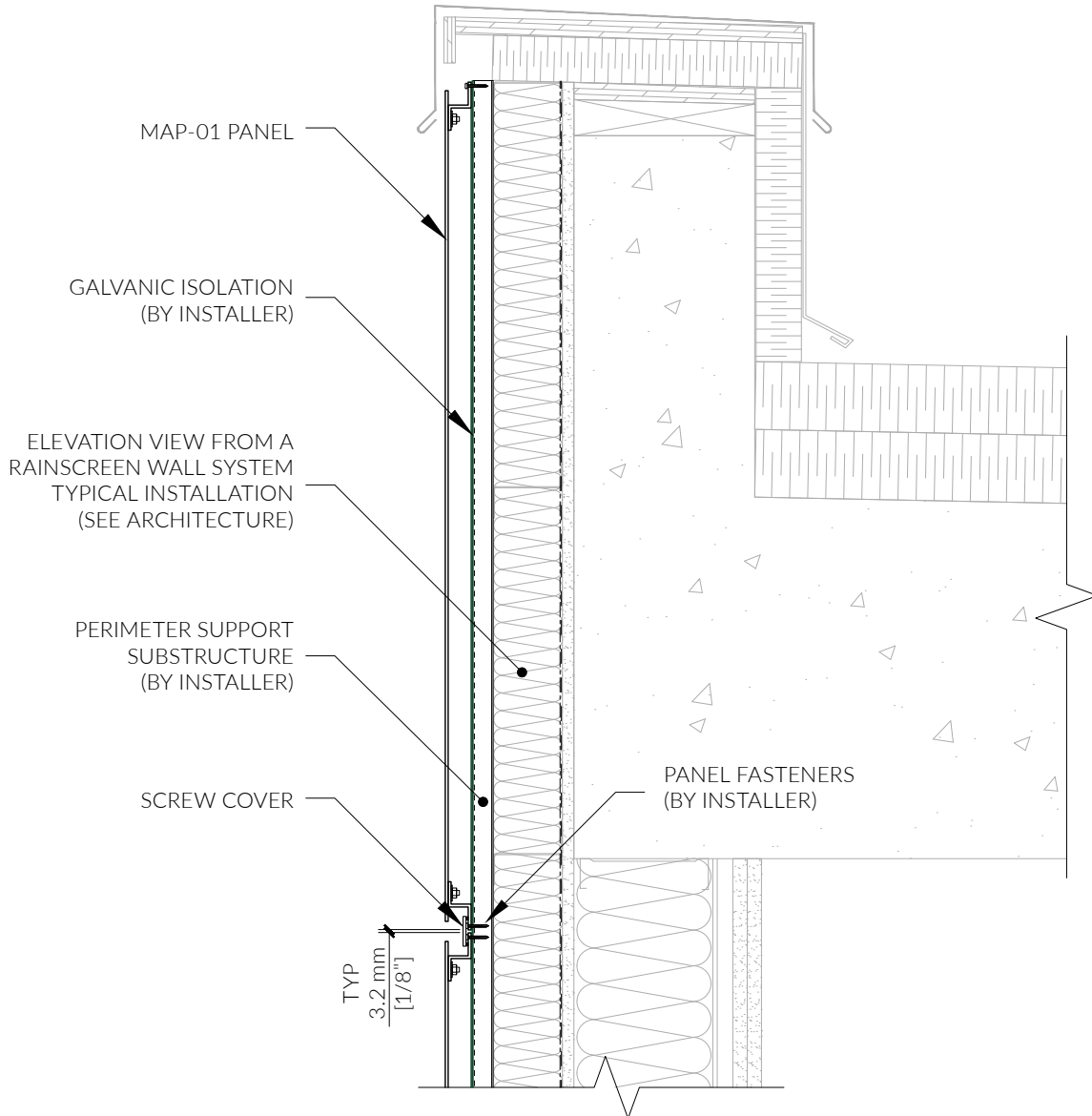
PANEL SHAPES



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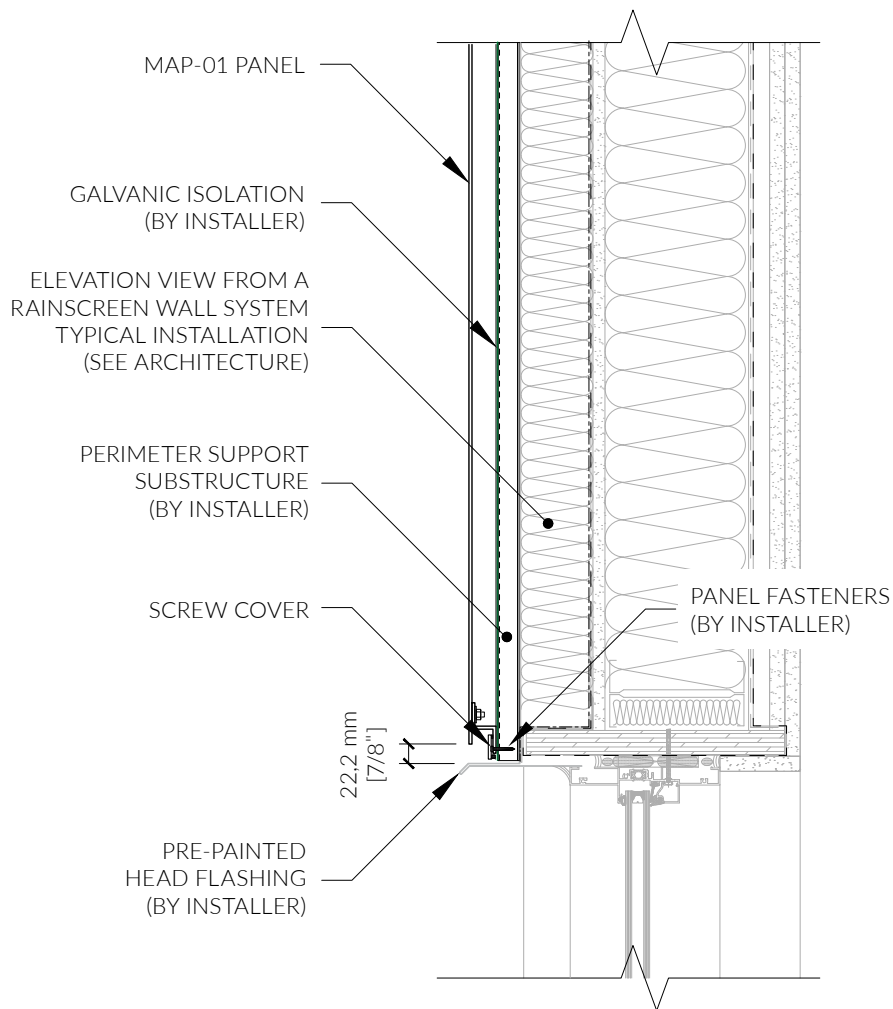
WALL OR PARAPET HEADER

SIDE VIEW

SCALE 1:8

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WINDOW AND DOOR HEAD

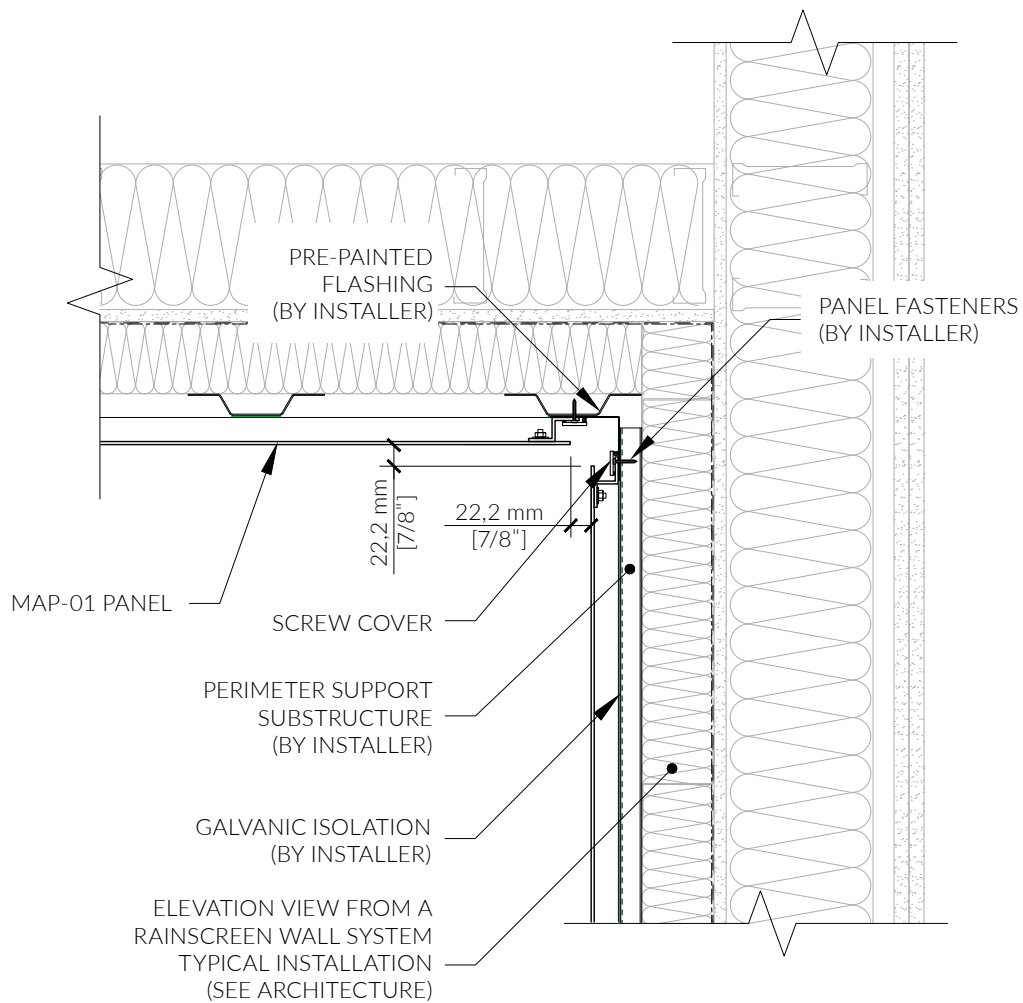
SIDE VIEW

SCALE 1:8

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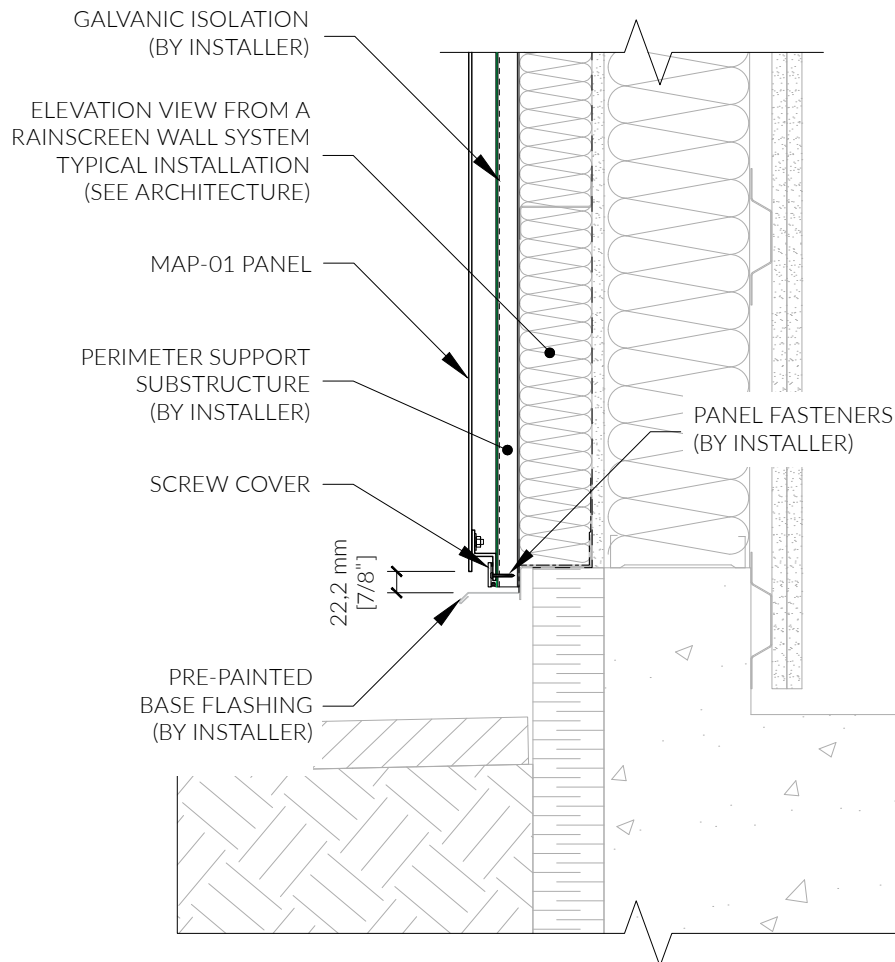
WALL HEAD AND SOFFIT

SIDE VIEW

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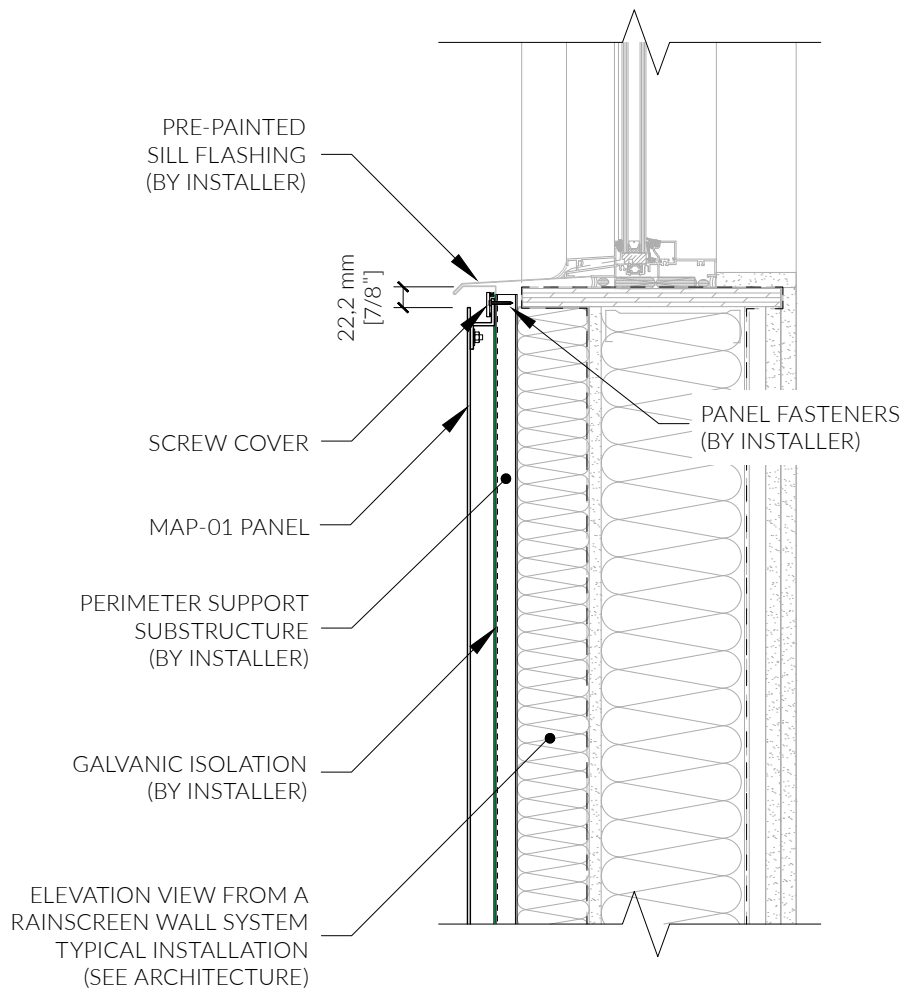
WALL BASE
SIDE VIEW

SCALE 1:8

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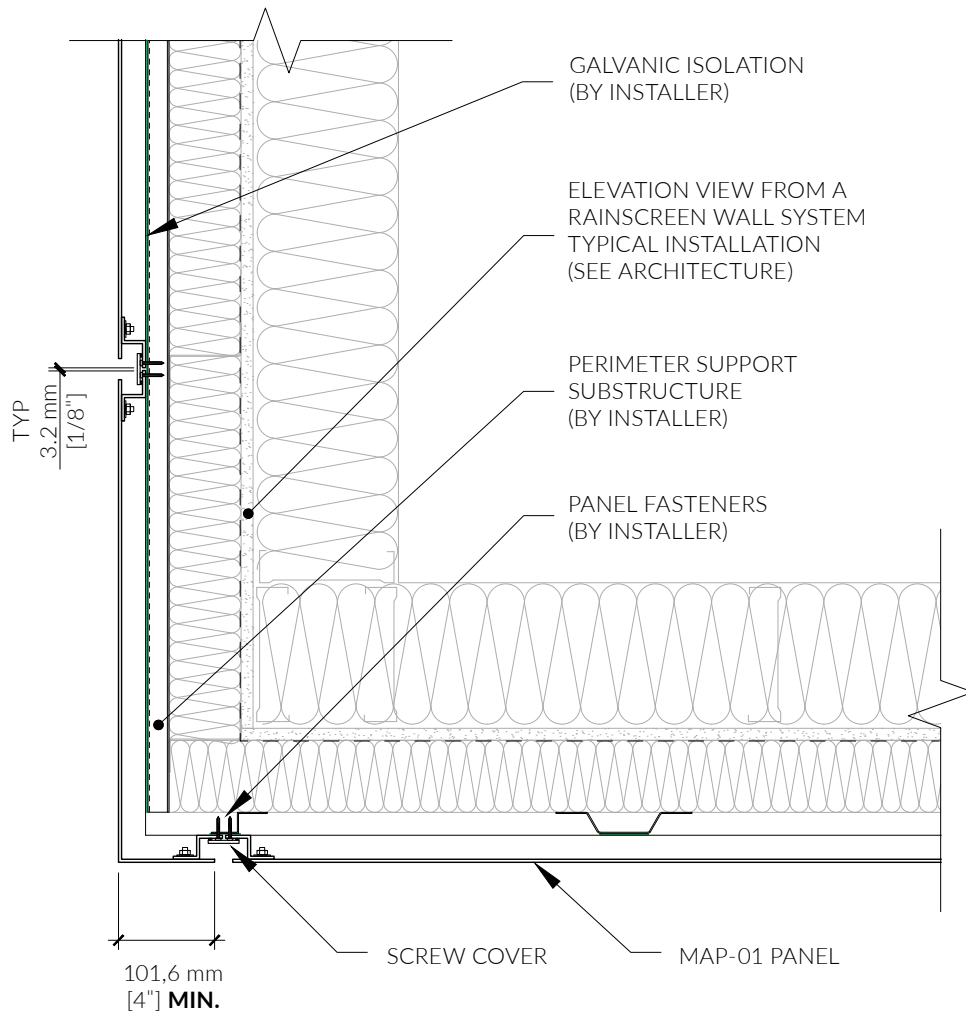
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WINDOW SILL
SIDE VIEW

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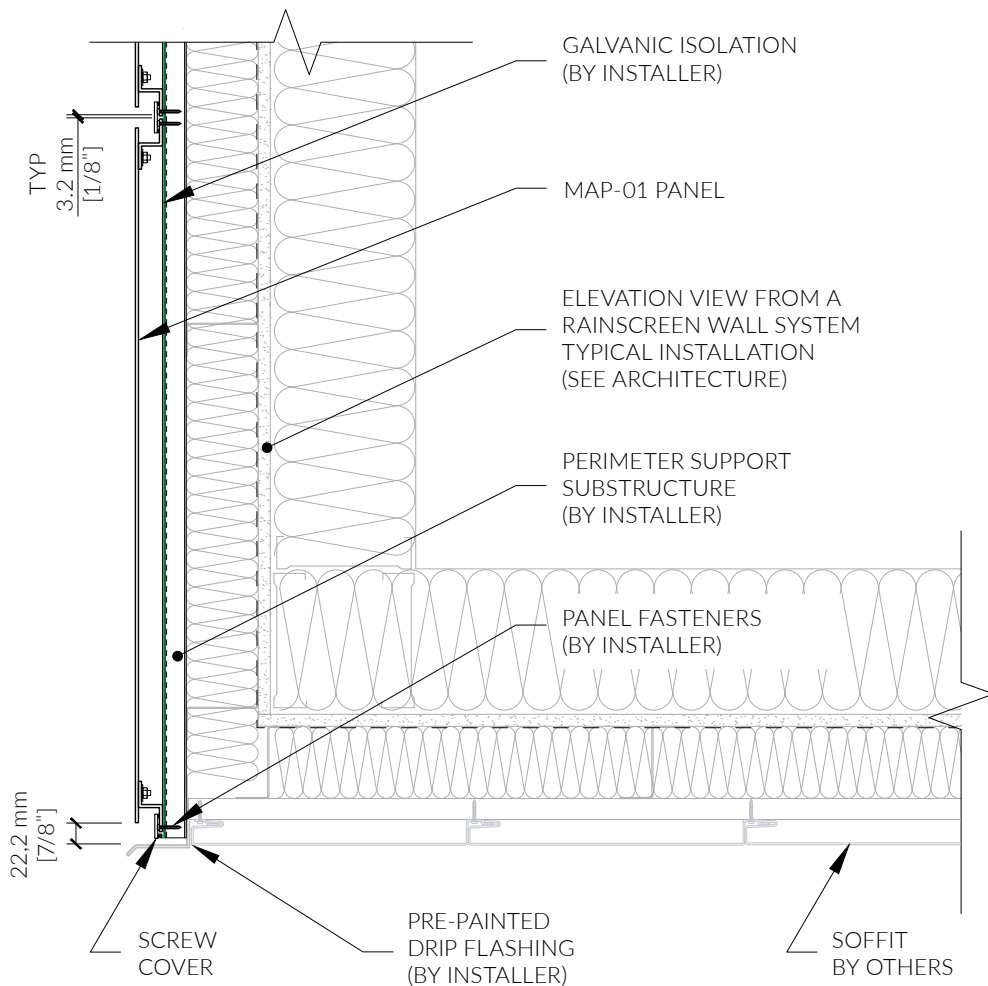
WALL AND SOFFIT
SIDE VIEW

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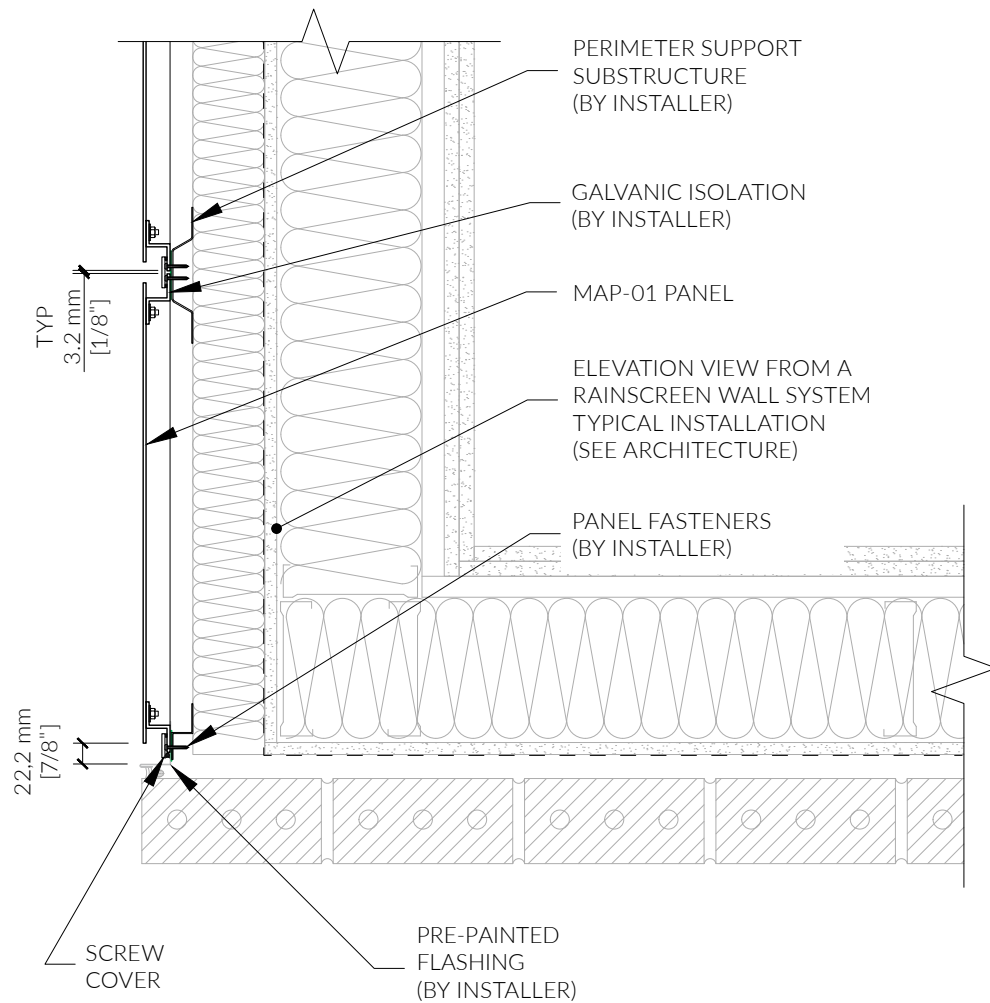
WALL AND OTHER SOFFIT
SIDE VIEW

SCALE 1:8

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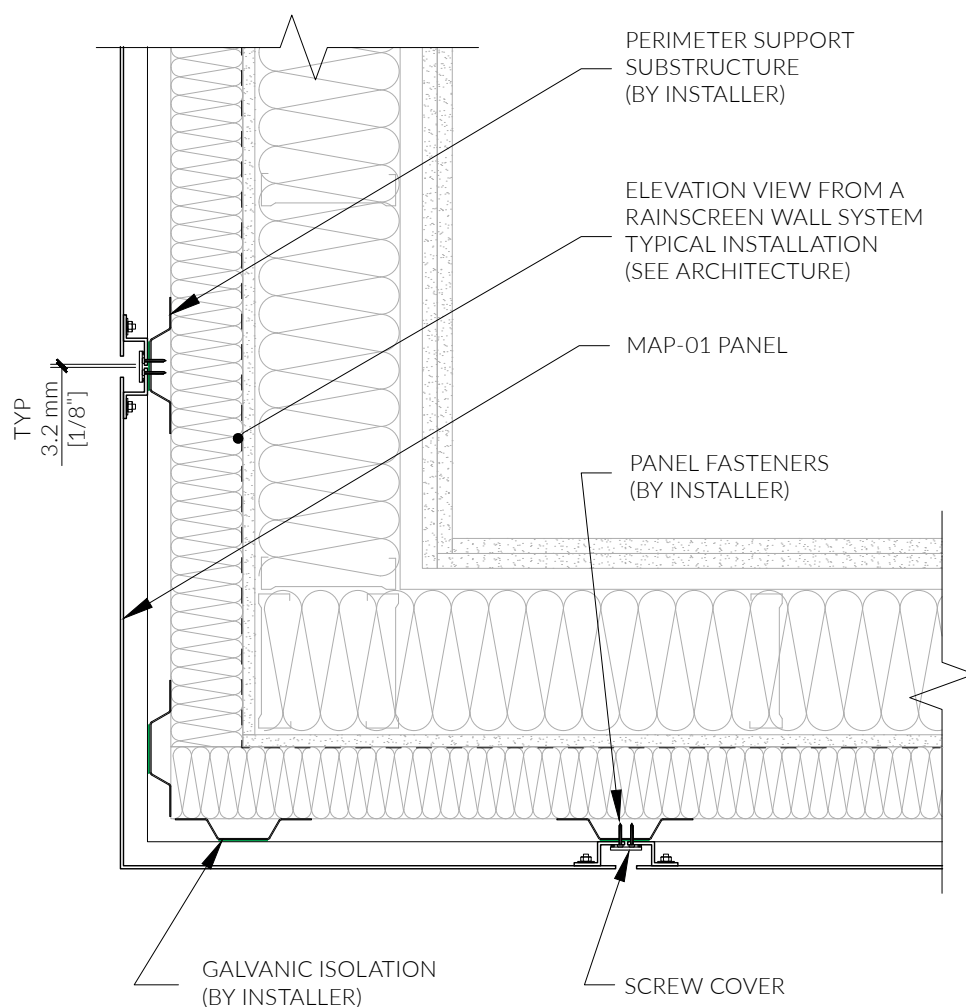
END OF WALL OR TRANSITION

TOP VIEW

SCALE 1:8

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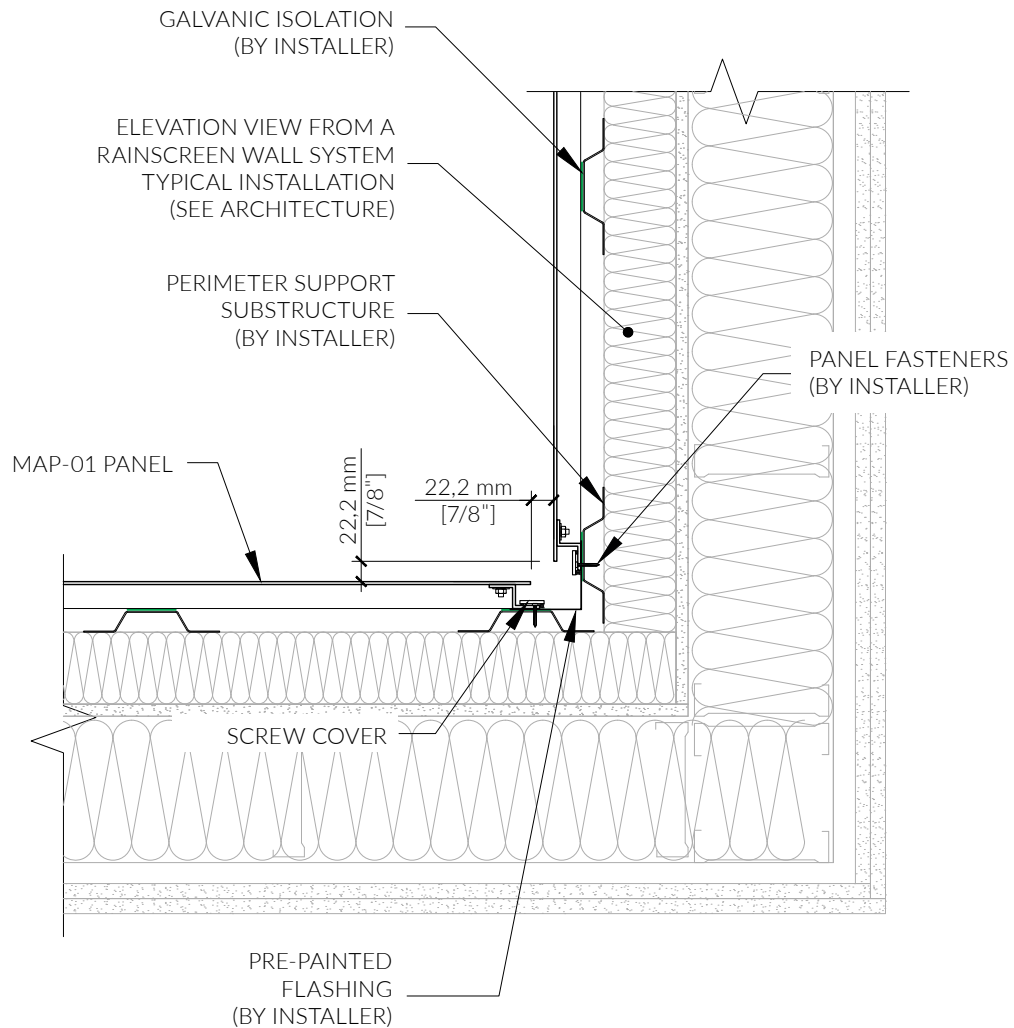
08

EXTERIOR CORNER
TOP VIEW

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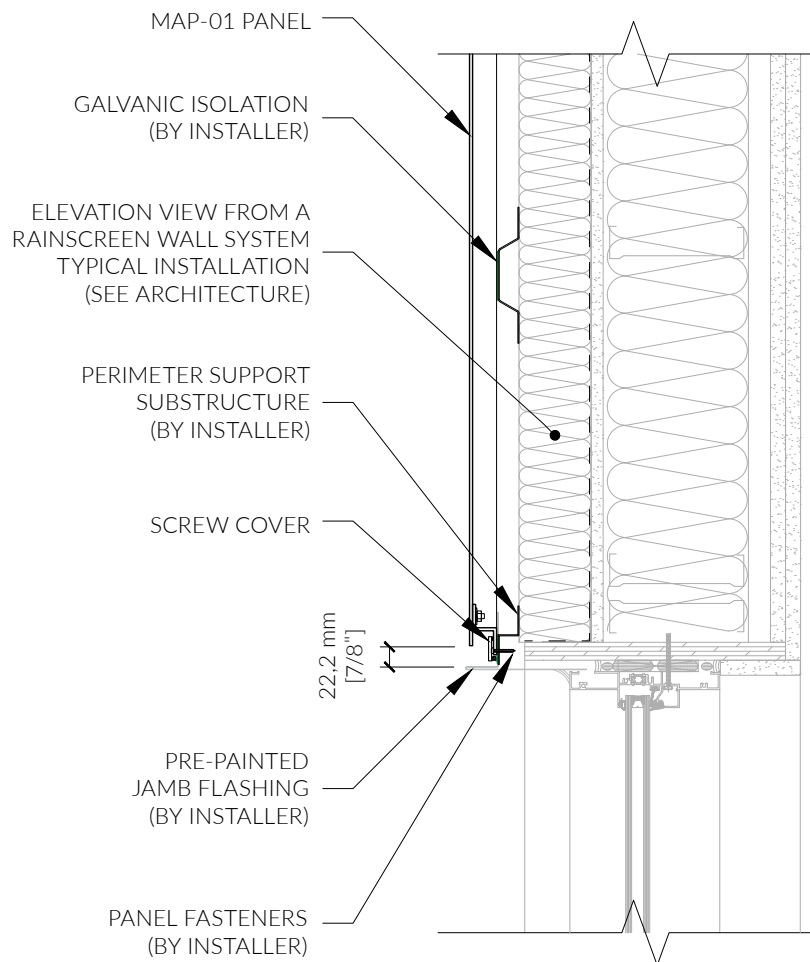
INTERIOR CORNER
TOP VIEW

SCALE 1:8

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MAP-01

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10

WINDOW AND DOOR JAMB

TOP VIEW

SCALE 1:8

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Environmental Product Declaration



Participating manufacturers:



AluQuébec, the Quebec Aluminium Industrial cluster, is pleased to present this **industry-average (sector)** environmental product declaration EPD for **aluminium exterior cladding manufactured in Québec, Canada**.

This EPD was developed in compliance with CAN/CSA-ISO 14025 and ISO 21930 by **Groupe AGÉCO** and has been verified by Industrial Ecology Consultants.

This EPD includes life cycle assessment (LCA) results for raw material supply, transport and manufacturing modules (cradle-to-gate). The LCA was performed by **Groupe AGÉCO**.

For more information about AluQuébec, please go to www.aluquebec.com.

Issue date: October 4, 2024

Environmental Product Declaration

Aluminium exterior cladding



Photo: Panfab



This environmental product declaration (EPD) is in accordance with CAN/CSA-ISO 14025 and the PCR noted below.

General information

PROGRAM OPERATOR	 CSA Group 178 Rexdale Blvd, Toronto, ON, Canada M9W 1R3 www.csagroup.ca
GENERAL PROGRAM INSTRUCTIONS AND VERSION NUMBER	CSA Group Environmental Product Declaration (EPD) Program Requirements, version 2013-07
LOCATION OF EXPLANATORY MATERIAL	www.aluquebec.com
DECLARATION HOLDER	 AluQuébec 625 Président-Kennedy Avenue #505, Montréal, Québec H3A 1K2, Canada www.aluquebec.com
DECLARATION NUMBER	#3434-0731
DECLARED PRODUCT AND DECLARED UNIT	Aluminium exterior cladding 100 m ² of aluminium exterior cladding covering a flat surface
PRODUCT DEFINITION	Aluminium cladding for exterior applications on buildings
REFERENCE PCR	ISO 21930 standard serve as the core PCR Product Category Rule (PCR) Guidance for Building-Related Products and Services. Part A: Life Cycle Assessment Calculation Rules and Report Requirements, v.4 (UL 10010), valid from 2022-03-28, to 2027-03-28. Part B: Insulated Metal Panels, Metal Composite Panels, and Metal Cladding: Roof and Wall Panels, v 2.0 (UL 10010-5), valid from 2022-06-12, to 2024-12-31. UL Environment
MARKETS OF APPLICABILITY	North America
DATE OF ISSUE (APPROVAL)	October 4, 2024
PERIOD OF VALIDITY	October 4, 2024 to October 3, 2029
EPD TYPE	Industry average
EPD SCOPE	Cradle to gate
YEAR OF REPORTED MANUFACTURER PRIMARY DATA	2022-2023
LCA SOFTWARE	SimaPro 9.5
LCI DATABASE	ecoinvent 3.9

LCIA METHODOLOGY	TRACI 2.1 and CML 3.09
Applicable green building certification schema	LEED certifications
The PCR review was conducted by the following critical review panel:	Lindita Bushi, PhD, Chair Athena Sustainable Materials Institute lindita.bushi@athenasmi.org Hugues Imbeault-Tétreault, Eng., M.A.Sc. Groupe AGÉCO hugues.i-tetreault@groupeageco.ca Jack Geibig Ecoform jgeibig@ecoform.com
The Part B was reviewed by the following:	Thomas Gloria, PhD (chair) Industrial Ecology Consultants t.gloria@industrial-ecology.com Lindita Bushi, PhD Athena Sustainable Materials Institute lindita.bushi@athenasmi.org Bob Zabcik, P.E., LEED AP BD+C NCI Building Systems BobZ@ncigroup.com
This declaration was independently verified in accordance with ISO 14025:2006. The UL Environment “Part A: Calculation Rules for the Life Cycle Assessment and Requirements on the Project Report,” v4 (March 2022), based on ISO 21930:2017, serves as the core PCR, with additional considerations from the USGBC/UL Environment Part A Enhancement (2017).	☐ Internal ☒ External <i>Thomas Gloria</i> Tom P. Gloria, Ph.D. Industrial Ecology Consultants 35 Bracebridge Rd., Newton, MA 02459-1728, USA www.industrial-ecology.com
This life cycle assessment was conducted in accordance with ISO 14044:2006 and the reference PCR by:	Groupe AGÉCO www.groupeageco.ca ageco@groupeageco.ca

☐ Internal☒ External

This life cycle assessment was independently verified in accordance with ISO 14044:2006 and the reference PCR by:

Thomas Gloria
Tom P. Gloria, Ph.D.
Industrial Ecology Consultants
35 Bracebridge Rd., Newton, MA 02459-1728, USA
www.industrial-ecology.com

LIMITATIONS

Environmental declarations from different programs (ISO 14025) may not be comparable.

Comparison of the environmental performance of metal panel and cladding products using EPD information shall be based on the product's use and impacts at the building level, and therefore EPDs may not be used for comparability purposes when not considering the building use phase as instructed under this PCR.

Full conformance with the PCR for metal panels and cladding allows EPD comparability only when all stages of a life cycle have been considered when they comply with all referenced standards, use the same sub-category PCR, and use equivalent scenarios with respect to construction works. However, variations and deviations are possible". Example of variations: Different LCA software and background LCI datasets may lead to differences results for upstream or downstream of the life cycle stages declared.

Aluminium exterior cladding



Photo: Shalwin

This is a summary of the industry-wide environmental product declaration (EPD) describing the environmental performance of **aluminium exterior cladding** manufactured in Quebec, Canada.



EPD commissioner and owner	Period of validity	Program operator and registration number	Product Category Rule	LCA and EPD consultants
AluQuébec	October 4, 2024 to October 3, 2029	CSA Group #3434-0731	PCR for Building-Related Products and Services. Part B: Insulated Metal Panels, Metal Composite Panels, and Metal Cladding: Roof and Wall Panels. v 2.0 (2022)	Groupe AGÉCO

Product description

Aluminium exterior cladding destined to industrial, commercial, institutional or apartment buildings.

Declared unit

100 m² of aluminium exterior cladding covering a flat surface

Material content (% of total product mass)

Aluminium: 99.6%
Hardware: 0.1%
Adhesives: 0.3%

Life cycle stages included:

Cradle-to-gate: Extraction and upstream production (A1), transport to factory (A2), manufacturing (A3) modules.

What is a Life Cycle Assessment (LCA)?

LCA is a science-based and internationally recognized tool to evaluate the relative potential environmental impacts of products and services throughout their life cycle, beginning with raw material extraction and including all aspects of transportation, production, use, and end-of-life treatment. The method is defined by the International Organization for Standardization (ISO) 14040 and 14044 standards. For EPD development, Product Category Rules (PCR) give additional guidelines on how to conduct the LCA of the product.

Why an Environmental Product Declaration (EPD)?

AluQuébec and its members are seeking to communicate the environmental performance of aluminium products to clients and to position their products through a rigorous and recognized communication tool, the EPD. By selecting products with an EPD, building projects can earn credits towards the Leadership in Energy and Environmental Design (LEED) rating system certification. In LEED v4 and v4.1, points are awarded in the Materials and Resources category.

This EPD summary provides an overview of the full ISO 14025 compliant EPD registered with CSA Group

Aluminium exterior cladding

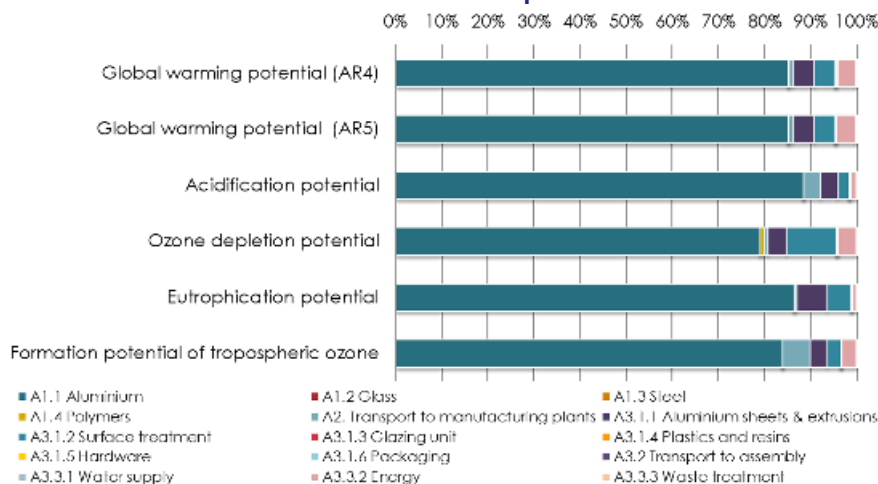
Photo: Shalwin

Environmental impacts

The environmental impacts of 100 square metre of aluminium exterior cladding over the production stage (A1 to A3 modules) are summarized below for the main environmental indicators (based on life cycle impact assessment methods TRACI 2.1 and CML baseline 3.09). Refer to the LCA report or full EPD for more detailed results. Results on resource use, generated waste and output flows are also presented in the full EPD.

Indicators	Results for 100 m ² of aluminium exterior cladding
	Total (A1-A3)
Global warming potential (GWP 100, AR4) (kg CO ₂ eq.)	1.75E+04
Global warming potential (GWP 100, AR5) (kg CO ₂ eq.)	1.78E+04
Acidification potential (kg SO ₂ eq.)	1.00E+02
Ozone depletion potential (kg CFC-11 eq.)	2.71E-04
Eutrophication potential (kg N eq.)	3.79E+01
Formation potential of tropospheric (ground level) ozone (kg O ₃ eq.)	1.20E+03
Abiotic depletion potential (fossil) (MJ)	1.79E+05

Relative contribution of each life cycle stage to the overall environmental impacts



These results are representative of aluminium exterior cladding manufactured in Quebec, Canada. They are based on data provided by 7 manufacturers which represent approximately 23% of the Québec aluminium exterior cladding production.

Data was collected from aluminium exterior cladding manufacturers for their operations occurring during 12 consecutive months within the period from January 2022 to September 2023.

Additional environmental information

The recyclable content is 99.6% (aluminium content).

For more information: www.aluquebec.com

1. DESCRIPTION OF ALUQUÉBEC

AluQuébec, the “Quebec Aluminium Cluster”, gathers aluminium producers, processors, equipment and specialized suppliers, R&D centres as well as educational institutions associated with the industry. AluQuébec's role is to act as a lever for Québec's aluminium industry by ensuring the consistency and convergence of stakeholders to facilitate and encourage global and promising actions that cater to the industry's needs with beneficial repercussions in Québec all while ensuring a worldwide outreach.

As part of this Environmental Product Declaration (EPD) project, AluQuébec aims to support the competitiveness of Quebec's companies by enabling them to stand out in the industry, to position themselves in the marketplace and to facilitate obtaining a LEED certification, in green building projects.

This industry-wide EPD presents the cradle-to-gate life cycle environmental impacts of average aluminium exterior cladding manufactured in Quebec. Data for this EPD were collected from 7 manufacturers operating in the province to determine an average environmental profile for aluminium exterior cladding. These manufacturers account for approximately 23% of the total aluminium exterior cladding production in Quebec. This EPD takes into account the fact that rolled aluminium for exterior cladding manufactured in Quebec is imported from outside the province. Since aluminium production contributes to most to the environmental impacts of this product category, the EPD is considered representative.

This EPD will enable AluQuébec manufacturers to contribute to earning credits towards a LEED® v4 or v4.1 (Leadership in Energy and Environmental Design) certification (i.e. Material and Resource credits), as well as to respond to requests from consultants for data/information on environmental performance.

2. DESCRIPTION OF PRODUCT

2.1. Product identification and specification

Aluminium exterior cladding is classified under UNSPSC Code 4299. The products covered by this EPD are aluminum exterior cladding. These covered products are destined to industrial, commercial, institutional or apartment buildings, and are manufactured in Quebec (Canada).



Figure 1: Example of an aluminium exterior cladding

The main production processes are presented in Figure 2.

2.2. Application

The aluminium exterior cladding referenced in this EPD can be used for exterior wall and wall covering applications.

2.3. Technical data

Refer to the manufacturer for technical data (see section 8 for contact information).

2.4. Properties of the declared product

Aluminium exterior panels are delivered in a variety of sizes and thicknesses.

2.5. Material composition

A description of the composition of an aluminium exterior cladding is provided in Table 1. One hundred square meters of cladding weigh about 946.6 kg on average.

Table 1: Materials in an average aluminium exterior cladding

Materials	Weight (% by mass)
Aluminium (primary)	67.0%
Aluminium (secondary)	32.6%
Hardware	0.05%
Adhesives	0.3%

2.6. Manufacturing of aluminium exterior cladding

The production of aluminium exterior cladding starts with the extraction and transformation of the raw materials it is composed of, such as aluminium, steel and polymers. They are then shipped to the cladding component manufacturing plants to be transformed into aluminium sheets, aluminium extrusions, and other products. The components are then assembled at the cladding manufacturing plant. Aluminium cladding components are surface treated (anodized or painted) either before or after assembly. Figure 2 illustrates the cradle-to-gate life cycle modules included in this EPD.

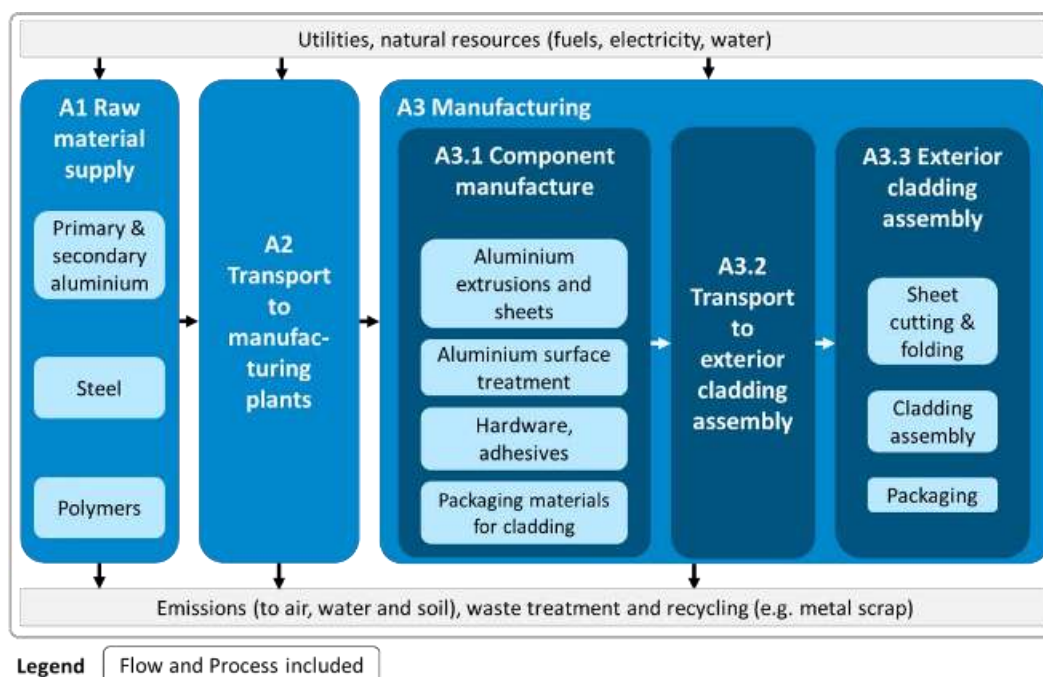


Figure 2: Process flow for the production of aluminium exterior cladding

2.7. Packaging

Aluminium exterior cladding is packaged with expanded polystyrene (EPS), cardboard, polyethylene (PE) wrapping, metal and plastic strips and wood.

3. SCOPE OF EPD

3.1. Declared unit

As per the PCR, the declared unit (i.e. the reference unit on which the quantities of material inputs, energy inputs, emissions and waste are based for the modelling of the life cycle of aluminum exterior cladding) is defined as follows:

100 m² (1076.4 ft²) of aluminium exterior cladding covering a flat area

3.2. System boundary

The production modules included in this cradle-to-gate EPD are shown in Table 2.

Table 2: Life cycle stages considered according to ISO 21930

Production stage			Construction stage		Use stage							End-of-life stage				Optional
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Extraction and upstream production	Transport to factory	Manufacturing	Transport to site	Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction, demolition	Transport	Waste processing	Disposal of waste	Potential net benefits from reuse, recycling and/or energy recovery beyond the system boundary
X	X	X	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND

Legend: **x** - Considered in the cradle-to-gate LCA

MND - Module not declared

More precisely, the life cycle stages include the following processes:

A1. RAW MATERIAL SUPPLY

The production of raw materials includes the extraction of resources and their refining into materials that are used during aluminium product manufacturing. They include materials such as aluminium, steel and polymers. The aluminium is supplied from manufacturers located in Quebec (Canada).

A2. TRANSPORT OF RAW MATERIALS TO THE MANUFACTURING PLANT

This module includes fuel consumption, emissions and the infrastructure related to the transportation of materials to component manufacturing plants by train and container ship.

A3. ALUMINIUM EXTERIOR CLADDING MANUFACTURING

A3.1 – Component manufacture

For all products, electricity and fuel consumption, waste generation and emissions during component, ancillary material and packaging production are included in this sub-module. Exterior cladding components include aluminium extrusions and sheets, hardware, and adhesives. Capital goods (i.e., manufacturing facility) are also included. Aluminium components undergo a surface treatment (anodization or coating). In some cases, unanodized or uncoated extrusions are delivered to the assembly plant and are sent to a subcontractor for surface treatment either before or after assembly. This surface treatment is included in this module either way. The additional transport is included in the A3.2 module.

No substances required to be reported as hazardous are associated with the production of this product.

A3.2 – Transport to assembly

This module includes fuel consumption, emissions and the infrastructure related to the transportation by truck of components and packaging to the assembly plant, as well as to surface treatment for aluminium components when treated in a different plant.

A3.3 – Assembly

Surface treated aluminium sheets are cut and folded. Then, they are assembled with hardware and sealed with adhesives. The assembled product is packaged with wood, EPS, PE wrapping, cardboard, and metal strips. Capital goods were also included.

This module covers the exterior cladding assembly plant and includes the production of electricity and fuels (natural gas, propane, gasoline, and diesel). Waste management and emissions from fuel combustion are also included. No water consumption was considered at assembly plants since it is consumed mainly by offices.

GEOGRAPHICAL AND TEMPORAL BOUNDARIES

The geographical boundaries are representative of current equipment and processes associated with aluminium exterior cladding manufacturing in Québec (Canada). Since the data were collected for the years 2022 and 2023, they are considered temporally representative (i.e. less than 5 years old).

3.3. Estimates and assumptions

The main assumptions included in this LCA were related to transportation parameters (distance and empty haul-back) and water consumption at the assembly plant.

3.4. Cut-off criteria

As per the PCR, no known flows are deliberately excluded from this assessment. No single flow representing more than 1% of the total inflows was excluded and the total excluded input flows did not exceed a maximum of 5% of energy usage and mass. Based on Groupe AGÉCO's experience or the



Photo: Panfab

relatively low contribution of the life cycle stages to which they pertain, the following processes were excluded: Personnel impacts (travel to and from work, human emissions) and business travel.

3.5. Data sources

Table 1 presents the main sources of data used for this EPD. Producer-specific data were collected from seven (7) aluminium exterior cladding manufacturers for operations occurring between January 2022 and September 2023 (less than 3 years old). Generic data collected for the raw material supply processes, transportation and manufacturing of aluminium were representative of the Canadian context and used technologies.

Table 3: Data sources for the LCA of aluminium exterior cladding

Module	Main processes	Data source	Region	Year
A1	Raw material extraction and processing	ecoinvent 3.9	Multiple	2022
A2	Transportation to manufacturing plants	Aluminium: AluQuébec manufacturers' answers to a data collection questionnaire Other: ecoinvent 3.9	Multiple	2022-2023
A3.1	Component manufacture	ecoinvent 3.9	Multiple	2022
A3.2	Transport to exterior cladding assembly	AluQuébec manufacturers' answers to a data collection questionnaire	Quebec	2022-2023
A3.3	Exterior cladding assembly	AluQuébec manufacturers' answers to a data collection questionnaire	Quebec	2022-2023

The LCA model was developed with the SimaPro 9.5 software using ecoinvent 3.9 database which was released in 2022 (less than 2 years). Since most of the data within ecoinvent is of European origin and represent European industrial conditions and processes, several data were adapted to enhance their representativeness of the products and contexts being examined. ecoinvent is the most complete and recognized internationally LCA database.

3.6. Data quality

The overall data quality ratings show that the data used were good. This data quality assessment confirms the sufficient reliability, representativeness (technological, geographical and time-related), completeness and consistency of the information and data used for this study.

3.7. Allocation

When a process in the life cycle of aluminium exterior cladding generated co-products or is directly connected to another system (i.e. the life cycle of another product), the following allocation methods were applied to distribute the impacts between the co-products or linked systems.

Allocation of multi-output processes

As prioritized in the PCR used in this study, allocation for multi-output processes was done on a mass basis. Economic value allocation was not used.

Allocation for end-of-life processes

A recycled content approach (i.e. cut-off approach) was applied when a product is recycled. The impacts associated with the recycling process are thus attributed to the products using these materials. As stated in the PCR, there are no credits allowed for displacement nor system boundary expansion or consequential analysis.

ecoinvent processes with allocation

Many of the processes in the ecoinvent database also provide multiple functions, and allocation is required to provide inventory data per function (or per process). This study accepts the allocation method used by ecoinvent for those processes. The ecoinvent system model used was "Allocation, cut-off by classification". It should be noted that the allocation methods used in ecoinvent for background processes (i.e. processes representing the complete supply chain of a good or service used in the life cycle of aluminium) may be inconsistent with the approach used to model the foreground system (i.e. to model the manufacturing of aluminum exterior cladding with data collected in the literature and from manufacturers). While this allocation is appropriate for foreground processes, continuation of this methodology into the background datasets would add complexity without substantially improving the quality of the study.

3.8. Comparability

As per the PCR: "Comparison of the environmental performance of metal panel and cladding products using EPD information shall be based on the product's use and impacts at the building level, and therefore EPDs may not be used for comparability purposes when not considering the building use phase as instructed under this PCR.

Full conformance with the PCR for metal panels and cladding allows EPD comparability only when all stages of a life cycle have been considered when they comply with all referenced standards, use the same sub-category PCR, and use equivalent scenarios with respect to construction works. However, variations and deviations are possible. Example of variations: Different LCA software and background LCI datasets may lead to differences results for upstream or downstream of the life cycle stages declared."



Photo: Clermont Ltee

4. ENVIRONMENTAL IMPACTS

The results presented in this cradle-to-gate EPD are representative of an average performance, i.e. a weighted average based on the production volume of the participating manufacturers. Table 4 presents the results for 100 square metres of aluminium exterior cladding over the product stage (A1 to A3). Environmental impacts were calculated with the impact assessment method TRACI 2.1. The description of these indicators reported is provided in the glossary (section 6).

Table 4: Cradle-to-gate results for the production of 100 m² of aluminium exterior cladding

Indicators	Units	Total (A1 to A3)
Impact Categories		
Global warming potential (GWP 100) (AR4)	kg CO ₂ eq.	1.75E+04
Global warming potential (GWP 100) (AR5)	kg CO ₂ eq.	1.78E+04
Acidification potential	kg SO ₂ eq.	1.00E+02
Ozone depletion potential	kg CFC-11 eq.	2.71E-04
Eutrophication potential	kg N eq.	3.79E+01
Formation potential of tropospheric (ground level) ozone	kg O ₃ eq.	1.20E+03
Resource use		
Abiotic depletion potential for fossil resources	MJ, net calorific value (LHV)	1.79E+05
Renewable primary energy demand	MJ, net calorific value (LHV)	3.06E+04
Non-renewable primary energy demand	MJ, net calorific value (LHV)	1.62E+05
Renewable primary material resources	MJ, net calorific value (LHV)	3.35E+01
Non-renewable primary material resources	MJ, net calorific value (LHV)	2.26E+04
Secondary materials	kg	1.08E+03
Renewable secondary fuels	MJ, net calorific value (LHV)	0.00E+00
Non-renewable secondary fuels	MJ, net calorific value (LHV)	0.00E+00
Recovered energy	MJ, net calorific value (LHV)	0.00E+00
Water consumption		
Freshwater consumption	m ³	1.33E+02
Output flows and waste categories		
Hazardous waste disposed	kg	1.30E+01
Non-hazardous waste disposed	kg	1.07E-01
High-level radioactive waste, conditioned, to final repository	kg	6.26E-06
Intermediate- and low-level radioactive waste, conditioned, to final repository	kg	2.71E-05
Components for re-use	kg	0.00E+00
Materials for recycling	kg	1.22E+03
Materials for energy recovery	kg	0.00E+00
Exported energy	MJ, net calorific value (LHV)	0.00E+00

The aluminium exterior claddings are produced at several facilities; thus, the PCR requires that the variation in GWP-GHG results for modules A1-A3 between the reported result and the results for the underlying sites to be reported in the EPD. For 35% of production sites, the variation is below 10%; for 65% of sites, variation is 15%.

4.1. LCA interpretation

Impact categories

Figure 3 shows the contribution of each module and submodule to the impact categories (dominance analysis). For all categories, the raw material supply module (A1) accounts for most of the potential environmental impacts of aluminium cladding, dominated by primary and secondary **aluminium production** (A1.1; between 79% and 88%). The aluminium panels under study are mostly made with aluminium from China, Russia and Quebec (Canada). Outside module A1, the three most important submodules are **surface treatment** (A3.1.2; between 3% and 11%), **manufacturing of aluminium sheets and extrusions** (A3.1.1; between 4% and 6%) and **energy consumption** (A3.3.2; between 1% and 4%).

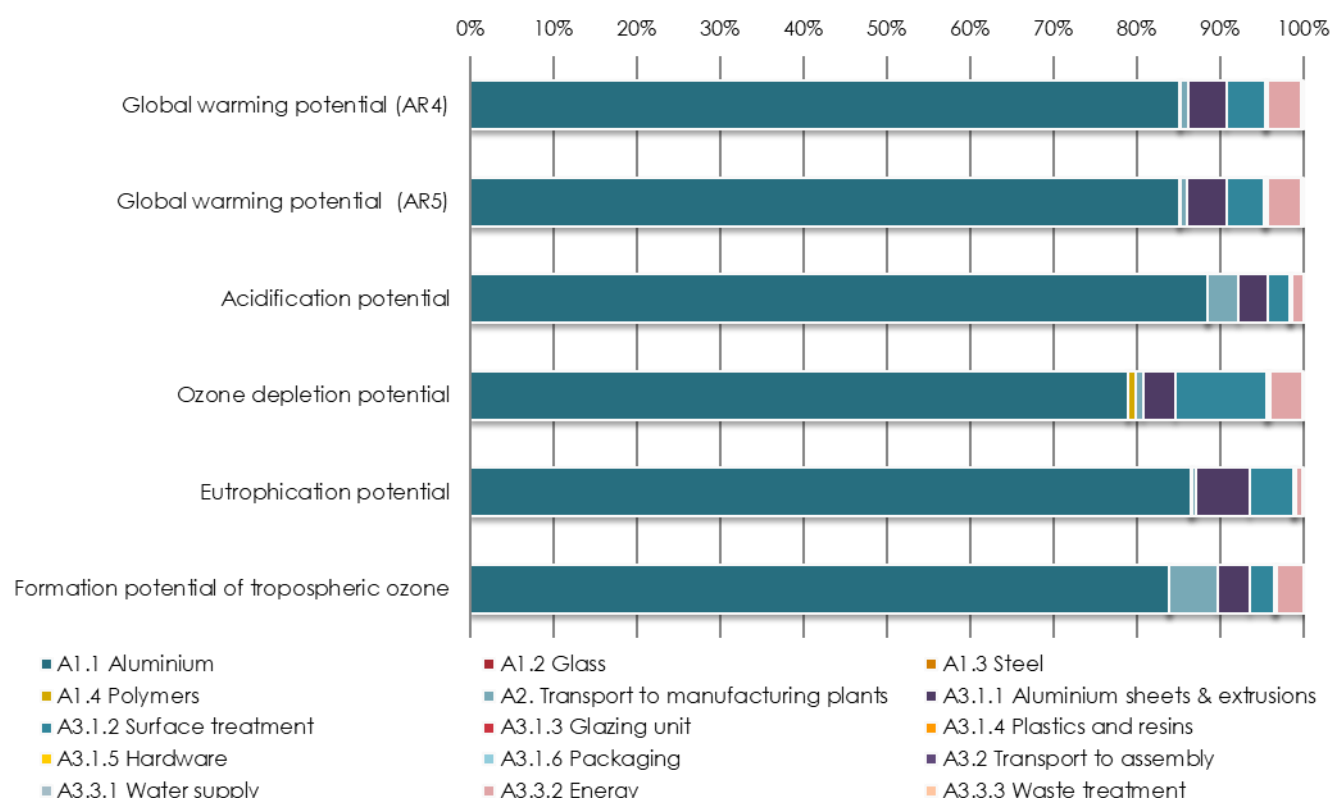


Figure 3: Relative contribution of the main processes in the production of aluminium exterior cladding

Resource use

Aluminium production (A1.1) is the submodule using by far the largest amount of renewable primary energy (63%) because of its high consumption of hydroelectricity. Renewable primary materials with energy content are contained in **packaging**. Eighty-four percent (84%) of non-renewable primary energy is used during **aluminium production** (A1.1). Non-renewable primary materials with energy content are contained in the energy (A3.3.2; 97%). Secondary materials are used during **aluminium production** (A1.1; 41%) and **aluminium sheets and extrusions production** (A3.1.1; 59%). No secondary fuel or recovered energy were used by the manufacturers.

Output flows and waste categories

These output flows and waste categories were evaluated for the foreground processes only (A3.1 aluminium cladding assembly). Most waste generated is **materials for recycling** (aluminium scrap

generated at the plant). The rest is non-hazardous waste disposed as well as the disposal of a small amount of waste defined as hazardous according to Canadian laws. No radioactive waste, components for re-use, materials for energy recovery or exported energy were neither used, disposed of nor produced. **Energy consumption** (A3.1.2) and **aluminium production** (A1.1) are the submodules consuming by far the largest net quantity of fresh water (35% and 56%, respectively).

5. ADDITIONAL ENVIRONMENTAL INFORMATION

The recyclable content is 99.6% (aluminium content).



Photo: Maibec

6. GLOSSARY

6.1. Acronyms

CSA	Canadian Standards Association
EPD	Environmental Product Declaration
GHG	Greenhouse gas
ISO	International Organization for Standardization
kg CFC-11 eq.	Kilogram of trichlorofluoromethane equivalent
kg CO₂ eq.	Kilogram of carbon dioxide equivalent
kg N eq.	Kilogram of nitrogen equivalent
kg O₃ eq.	Kilogram of ozone equivalent
kg SO₂ eq.	Kilogram of sulfur dioxide equivalent
LCA	Life cycle assessment
LCI	Life cycle inventory
LEED	Leadership in Energy and Environmental Design
LHV	Lower heating value
MJ	Megajoule
m²	Square metre
m³	Cubic metre
NO_x	Nitrogen oxide
PCR	Product category rules
PE	Polyethylene
VOC	Volatile organic compound

6.2. Environmental impact categories and parameters assessed

The **abiotic depletion potential for fossil resources** is an indicator extracted from the CML method using the Lower Heating Value (LHV) of the resource (in MJ/kg) to represent the energy depletion in MJ. Fossil fuels are non-renewable resources. Their extraction therefore contributes to their depletion (**MJ, LHV**).

The **acidification potential** indicator refers to the change in acidity (i.e. reduction in pH) in soil and water due to human activity. The increase in NO_x and SO₂ emissions generated by the transportation, manufacturing and energy sectors are the main causes of this impact category. The acidification of land and water has multiple consequences: degradation of aquatic and terrestrial ecosystems, endangering numerous species and food security. The concentration of the gases responsible for the acidification is expressed in sulphur dioxide equivalents (**kg SO₂ equivalent**).

The **eutrophication potential** indicator measures the enrichment of an aquatic or terrestrial ecosystem due to the release of nutrients (e.g. nitrates, phosphates) resulting from natural or human activity (e.g. the discharge of wastewater into watercourses). In an aquatic environment, this activity results in the growth of algae which consume dissolved oxygen present in water when they degrade and thus affect species sensitive to the concentration of dissolved oxygen. Also, the increase in nutrients in soils makes it difficult for the terrestrial environment to manage the excess of biomass produced. The concentration of nutrients causing this impact is expressed in nitrogen equivalents (**kg N equivalent**).

Freshwater consumption parameter accounts for the imbalance in the natural water cycle created by the water evaporated, consumed by a system or released to a different watershed (i.e. not its original source). This imbalance can cause water scarcity and affect biodiversity. This indicator refers to the waste of the resource rather than its pollution. Also, it does not refer to water that is used but returned to the original source (e.g. water for hydroelectric turbines¹, cooling or river transportation) or lost from a natural system (e.g. due to evaporation of rainwater). The net quantity of freshwater consumed is expressed as a volume of water in cubic metre (**m³ of water consumed**).

The **global warming potential** indicator refers to the impact of a temperature increase on the global climate patterns (e.g. severe flooding and drought events, accelerated melting of glaciers) due to the release of greenhouse gases (GHG) (e.g. carbon dioxide and methane from fossil fuel combustion). GHG emissions contribute to the increase in the absorption of radiation from the sun at the earth's surface. These emissions are expressed in units of kg of carbon dioxide equivalents (**kg CO₂ equivalent**).

The **ozone depletion potential** indicator measures the potential of stratospheric ozone level reduction due to the release of some molecules such as refrigerants used in cooling systems (e.g. chlorofluorocarbons). When they react with ozone (O₃), the ozone concentration in the stratosphere diminishes and is no longer sufficient to absorb ultraviolet (UV) radiation which can cause high risks to human health (e.g. skin cancers and cataracts) and the terrestrial environment. The concentration of molecules that are responsible for ozone depletion is expressed in kilograms of trichlorofluoromethane equivalents (**kg CFC-11 equivalent**).

The **photochemical smog formation potential** indicator covers the emissions of pollutants such as nitrogen oxides and volatile organic compounds (VOCs) into the atmosphere. They are mainly generated by motor vehicles, power plants and industrial facilities. When reacting with the sunlight, these pollutants

¹ Only the water evaporated by hydroelectric reservoirs is considered consumed.

create smog which can affect human health and cause various respiratory problems. The concentration of pollutants causing smog is expressed in kg of ozone equivalents (**kg O₃ equivalent**).

The **secondary materials** parameter represents the quantity of recycled materials used to manufacture a product (**kg**).

The **use of renewable/non-renewable material resources** parameters represent the quantity of material made from renewable resources or non-renewable resources used to manufacture a product, excluding recovered or recycled materials. The quantity of these resources is reported in megajoules (**MJ, LHV**).

The **use of renewable/non-renewable primary energy** parameters refer to the use of energy from renewable resources (e.g., wind, solar, hydro) and non-renewable resources (e.g., natural gas, coal, petroleum). The quantity of primary energy used is expressed in megajoules, on the basis of the net calorific value of the resources (**MJ, LHV**).

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8. PARTICIPATING MANUFACTURERS

All participating manufacturers in this study operate from one manufacturing plant. The addresses shown below are both the headquarters and the manufacturing plants where the activities took place.



270, Boulevard Industriel,
Châteauguay (Québec), J6J 4Z2
<https://clermontltee.com/>



1010, Avenue Nordique,
Québec (Québec), G1C 0H9
<https://www.epsylon.ca>



1984 5e Rue #202,
Lévis, (Québec), G6W 5M6,
<https://maibec.com/fr/>



49, Boulevard de la Seigneurie Est,
Blainville (Québec), J7C 4G6
<http://www.panfab.com>



755, Rue Boucher,
St-Jean-sur-Richelieu (Québec), J3B 8P4
<https://panneaux3d.com>



4565, Avenue Georges-Bornais,
Shawinigan (Québec), G9N 6T5
<http://shalwin.ca>



668, 5e Avenue,
Beauceville, (Québec), G5X 1L6
<https://stekar.com/en/>

Warranty

Warranty Registration Form

Maibec Architectural Aluminum Cladding

Printed Finish | Paint Finish

Detail and description of the products used on the construction site

Order(s)	Product	Series	Finish/Colour	Paint/Applicator
-	-			
	-			
	-			
	-			

This form warrants to:

Insert the name of the OWNER of the building here

That Maibec Inc. will comply, for MAE/MAA Series, with the standards set out in Sections 1, 2 and 3, subject to the conditions set out in Section 4 of this warranty (attached) and, for MAP Series, with the standards set out in Sections 1 and 2, subject to the conditions set out in Section 3 of this warranty (attached), for Maibec aluminum products including plank siding, vented planks, architectural battens, panels, assembled panels and accessories.

Name and address of Contractor who perform the work:

Project Name:

Property Address:

Email Address:

Phone Number:

Installation Completion Date:

I have read and accept the conditions of the warranty on the product (Section 1), the warranty on the printed finish (Section 2 - MAE/MAA Series) and the warranty on the painted finish (Section 2 - MAP Series and Section 3 MAE/MAA Series), subject to the terms and conditions of Sections 3 (MAP Series) and 4 (MAE/MAA Series) with respect to the products that have been installed on the project or building identified above.

I acknowledge receipt of the copy of the warranty certificate.

OWNER or Contractor name

Date

Signature

Duly authorized on behalf of Maibec Inc.

Name and title

Date

Signature

Summary of Warranties – MAE and MAA Series

WARRANTIES APPLICABLE TO THE PRODUCT/SUBSTRATE: (see details in the warranties text)		MAIBEC ALUMINIUM Line Extruded Planks and Battens MAE Series , Assembled Battens and Panels MAA Series				
Warping Warranty		50 years				
Corrosion Warranty		50 years				
TERMS OF THE PRODUCT/SUBSTRATE WARRANTIES DURING THE COVERED PERIOD:						
0 - 3 years	Product/Substrate Warranty:	Defective portions are covered 100% by Maibec.				
	Labor Warranty for replacing defective portions:	Labor cost assumed by Maibec up to a maximum of USD 10/ft² for projects located in the United States.				
4 - 50 years	Product/Substrate Warranty:	Defective portions are covered 100% by Maibec.				
	Labor Warranty for replacing defective portions:	No warranty (labor at the customer’s expense).				
WARRANTIES APPLICABLE TO THE FINISH: (see details in the warranties text)		PRINTED FINISH	PAINTED FINISH MAIBEC EXPRESS and MAIBEC Selection*		PAINTED FINISH Other Powder / MAIBEC Application**	PAINTED FINISH Subcontracted
		Maibec Print	Opaque Powder AAMA 2604	Opaque Powder AAMA 2605	Opaque Powder from supplier outside selection	Application performed by subcontractor
Adhesion Warranty		20 years	20 years	25 years	The paint manufacturer’s warranty for the paint used will apply.	The warranty of the subcontractor who performed the painting work will apply.
Cracking and Crazing Warranty		20 years	20 years	25 years		
Color Stability Warranty		20 years	15 years	20 years		
Gloss Retention Warranty		20 years	15 years	20 years		
Chalking Warranty		Not applicable	15 years	20 years		
TERMS OF THE FINISH WARRANTIES DURING THE COVERED PERIOD:						
0 - 3 years	Finish Warranty:	← Defective portions are covered 100% by Maibec. →			The warranty of the paint manufacturer for the paint used or of the subcontractor who performed the painting work will apply for its duration and according to its terms and conditions.	
	Labor Warranty for replacing defective portions:	← Labor cost covered by Maibec up to USD 10/ft² for projects located in the United States.→				
4 - 15 years	Finish Warranty:	← Defective portions are covered 100% by Maibec. →				
	Labor Warranty for replacing defective portions:	← No warranty (labor at the customer’s expense). →				
16 - 20 years	Finish Warranty:	Defective portions are covered by Maibec at 80% during the 16th year, 60% during the 17th year, 40% during the 18th year, 20% during the 19th year, and 10% during the 20th year.	← For warranties that still apply, defective portions are covered 100% by Maibec. →			
	Labor Warranty for replacing defective portions:	← No warranty (labor at the customer’s expense) →				
21 years + (up to 25 years)	Finish Warranty:	Not applicable	Not applicable	For warranties that still apply, defective portions are covered 100% by Maibec.		
	Labor Warranty for replacing defective portions:	Not applicable	Not applicable	No warranty (labor at the customer’s expense)		

All warranties are subject to the Terms and Conditions detailed in the MAIBEC Architectural warranty document, which takes precedence over the table above and over any other information communicated in the event of conflict or contradiction.

* The MAIBEC Selection includes colors from selected manufacturers' catalogs for which MAIBEC is a certified applicator.

** For a powder coating from a supplier outside the MAIBEC selection catalogs, MAIBEC undertakes to follow the supplier's application specifications (certified by them).

Summary of Warranties – MAP Series

WARRANTIES APPLICABLE TO THE PRODUCT/SUBSTRATE: (see details in the warranties text)		MAIBEC ALUMINIUM Line Panels MAP Series			
Warping Warranty		10 years			
Corrosion Warranty		10 years			
TERMS OF THE PRODUCT/SUBSTRATE WARRANTIES DURING THE COVERED PERIOD:					
0 - 3 years	Product/Substrate Warranty:	Defective portions are covered 100% by Maibec.			
	Labor Warranty for replacing defective portions:	Labor cost assumed by Maibec up to a maximum of USD 10/ft² for projects located in the United States.			
4 - 10 years	Product/Substrate Warranty:	Defective portions are covered 100% by Maibec.			
	Labor Warranty for replacing defective portions:	No warranty (labor at the customer’s expense).			
WARRANTIES APPLICABLE TO THE FINISH: (see details in the warranties text)		PAINTED FINISH MAIBEC EXPRESS and MAIBEC Selection*		PAINTED FINISH Other Powder / MAIBEC Application**	PAINTED FINISH Subcontracted
		Opaque Powder AAMA 2604	Opaque Powder AAMA 2605	Opaque Powder from supplier outside selection	Application performed by subcontractor
Adhesion Warranty		20 years	25 years	The paint manufacturer’s warranty for the paint used will apply. (see Appendix)	The warranty of the subcontractor who performed the painting work will apply. (see Appendix)
Cracking and Crazing Warranty		20 years	25 years		
Color Stability Warranty		15 years	20 years		
Gloss Retention Warranty		15 years	20 years		
Chalking Warranty		15 years	20 years		
TERMS OF THE FINISH WARRANTIES DURING THE COVERED PERIOD:					
0 - 3 years	Finish Warranty:	← Defective portions are covered 100% by Maibec. →		The warranty of the paint manufacturer for the paint used or of the subcontractor who performed the painting work will apply for its duration and according to its terms and conditions. (see Appendix)	
	Labor Warranty for replacing defective portions:	← Labor cost covered by Maibec up to USD 10/ft² for projects located in the United States.→			
4 - 15 years	Finish Warranty:	← Defective portions are covered 100% by Maibec. →			
	Labor Warranty for replacing defective portions:	← No warranty (labor at the customer’s expense). →			
16 - 20 years	Finish Warranty:	← For warranties that still apply, defective portions are covered 100% by Maibec. →			
	Labor Warranty for replacing defective portions:	← No warranty (labor at the customer’s expense) →			
21 years + (up to 25 years)	Finish Warranty:	Not applicable	For warranties that still apply, defective portions are covered 100% by Maibec.		
	Labor Warranty for replacing defective portions:	Not applicable	No warranty (labor at the customer’s expense)		

All warranties are subject to the Terms and Conditions detailed in the MAIBEC Architectural warranty document, which takes precedence over the table above and over any other information communicated in the event of conflict or contradiction.

* The MAIBEC Selection includes colors from selected manufacturers' catalogs for which MAIBEC is a certified applicator.

** For a powder coating from a supplier outside the MAIBEC selection catalogs, MAIBEC undertakes to follow the supplier's application specifications (certified by them).

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Limited Warranty

Extruded Aluminum Products

MAE and MAA Series



Maibec Architectural Aluminum Cladding

Extruded Aluminum Profiles (MAE Series) - Maibec Aluminum Assembled Products (MAA Series)

Printed Finish | Paint Finish

WARRANTY APPLICABLE IN CANADA TO PRODUCTS SOLD THROUGH MAIBEC INC.

DEFINITIONS

The term «PRODUCT» refers to the extruded aluminum profile and assembled products of extruded profiles and aluminum composite panels with aluminum core. It excludes any finish or material applied to it.

The term «PRINTED FINISH» refers to the primer coat, the high-definition printed coat, and the clear protective coating at section 2.

The term «PAINTED FINISH» refers to the opaque plain layer of paint that meets the FGIA/ AAMA 2604-13 or AAMA 2605-13 standard (MAIBEC EXPRESS and MAIBEC Selection* only), as applicable, and the performance criteria described in Section 3. The term «FINISH» is used to refer collectively to «PRINTED FINISH» and «PAINTED FINISH».

* The MAIBEC Selection includes colors from selected manufacturers' catalogs for which MAIBEC is a certified applicator.

The term «OWNER» refers to the original purchaser of the «PRODUCT» as listed in the warranty registration form.

SECTION 1 - PRODUCT

MAIBEC expressly warrants that its aluminum PRODUCTS are free of manufacturing defects.

During the warranty period, when the PRODUCT is installed and maintained according to MAIBEC's instructions, it is guaranteed against the following:

- 1.1. Warping. The PRODUCT is guaranteed to be free from inherent warping. This warranty does not cover warping resulting from external factors, including but not limited to the structure or support to which the product is attached. For the purposes of this warranty, warping is defined as a deformation exceeding 1.6 mm (1/16 in) out of plane per linear foot or 304.8 mm (12 in).
- 1.2. Corrosion. When installed and maintained according to MAIBEC's instructions, the PRODUCT is also warrantied against rust and corrosion.
- 1.3. The "warranty period" for the warranties detailed in section 1 is valid for ten (50) years, commencing on the date shown on the warranty registration form and continuing for as long as the "OWNER" named above owns the property where the product was originally installed, subject to section 4.2.

1.4. In the event that the PRODUCT has a manufacturing defect::

- 1.4.1. For three (3) years following the installation completion date: MAIBEC will, at its sole discretion, replace, repair, or refund the defective portion of the PRODUCT and reimburse labor costs up to a maximum of US\$10 per square foot for projects located in the United States, to the OWNER or subsequent purchaser of the building where the PRODUCT is installed, as applicable.
- 1.4.2. From the fourth (4th) year until the fiftieth (50th) year following the installation completion date: MAIBEC will, at its sole discretion, replace, repair, or refund the defective portion of the PRODUCT to the OWNER or subsequent purchaser of the building where the PRODUCT is installed, as applicable. MAIBEC will not assume any labor costs.

SECTION 2 - PRINTED FINISH

During the warranty period, the PRINTED finish will be warrantied as follows:

- 2.1. Resistance to cracking and crazing. The PRINTED FINISH will be free of any visible cracking or crazing when observed from a distance of 3 m (10 feet) from the metal surface and inspected at a 90-degree angle to the surface.
- 2.2. Color stability. No change in the color of the PRINTED FINISH exceeding 5 (five) CIE Lab units measured according to Section 6.3 of the ASTM D2244 standard. Color change will be measured on the exposed surface after it has been cleaned to remove oil, grease, or other contaminants. The corresponding values will be compared to the values measured on the original batch.
- 2.3. Gloss retention. The PRINTED FINISH will have a gloss retention of at least 50% of the original. Gloss retention will be measured on the exposed finish surface after it has been cleaned to remove oil, grease, or other contaminants. The corresponding values will be compared to the values measured on the original manufactured product.
- 2.4. Adhesion. The PRINTED FINISH, whose adhesion is initially measured on reference samples, will not show any detachment inferior to class 4B as per method "B" of the ASTM D3359 standard.
- 2.5. The "warranty period" for the warranties detailed in section 2 is valid for twenty (20) years, commencing on the date shown on the warranty registration form, and for as long as the "OWNER" named owns the property where the product was originally installed, subject to section 4.2 and in accordance with the terms described in section 2.6.
- 2.6. In the event of a PRINTED FINISH defect:
 - 2.6.1. For three (3) years following the date of installation: MAIBEC will, at its sole discretion, replace, repair, or refund the defective portion of the PRODUCT and reimburse labor costs up to a maximum of US\$10 per square foot for projects located in the United States, to the OWNER or subsequent purchaser of the building where the PRODUCT is installed, as

the case may be.

2.6.2 For the fourth (4th) to fifteenth (15th) years following the date of installation: MAIBEC will, at its sole discretion, replace, repair, or refund the defective portion of the PRODUCT to the OWNER or subsequent purchaser of the building where the PRODUCT is installed, as the case may be. MAIBEC will not assume any labor costs.

2.6.3 For the sixteenth (16th) to twentieth (20th) years following the date of installation: MAIBEC will, at its sole discretion, replace, repair, or refund the defective portion of the PRODUCT to the OWNER or subsequent purchaser of the building where the PRODUCT is installed, as the case may be, up to an amount based on the PRODUCT's remaining lifespan (please refer to the table below). MAIBEC will not assume any labor costs..

Years	Covered by Maibec
16	80%
17	60%
18	40%
19	20%
20	10%

SECTION 3 - PAINTED FINISH (AAMA 2604-13 OR AAMA 2605-13 POWDER COATING)

During the warranty period, the PAINTED FINISH will be warrantied as follows:

- 3.1 Resistance to cracking and crazing. This PAINTED FINISH on the building will be free of any visible cracking or crazing when observed from a distance of 3 m (10 feet) from the metal surface and inspected at a 90-degree angle to the surface.
- 3.2 Color stability. No change in the color of the PAINTED FINISH exceeding 5 (five) CIE Lab units measured according to Section 6.3 of the ASTM D2244 standard. Color change will be measured on the exposed surface after it has been cleaned to remove oil, grease, powder, oxide film, or other contaminants. The corresponding values will be compared to the values measured on the original batch.
- 3.3 Gloss retention. The coated surface will have a gloss retention of at least 30% of the original for the **AAMA 2604-13 powder coating** or at least 50% of the original for the **AAMA 2605-13 powder coating**, measured at 60° in accordance with the ASTM D523 standard. Gloss retention will be measured on the exposed PAINTED FINISH surface after it has been cleaned to remove oil, grease, powder, or other contaminants. The corresponding values will be compared to the values measured on the original manufactured product.
- 3.4 Resistance to chalking. The PAINTED COATED FINISH coat will not chalk in excess of a numerical rating of 8 measured according to method A of the ASTM D4214 standard.

FOR AAMA 2604-13 POWDER COATING

- 3.5 The "warranty period" for the warranties detailed at length in sections 3.1 (cracking and crazing) and 3.2 (adhesion) is valid for twenty (20) years, commencing on the date shown on the warranty registration form and continuing for as long as the "OWNER" named above owns the property where the product was originally installed, subject to section 4.2 and in accordance with the terms described in section 3.10.
- 3.6 The "warranty period" for the warranties detailed at length in sections 3.3 (color stability), 3.4 (gloss) and 3.5 (chalking) is valid for fifteen (15) years, commencing on the date shown on the warranty registration form and continuing for as long as the "OWNER" named above owns the property where the product was originally installed, subject to section 4.2 and in accordance with the terms described in section 3.10.

FOR AAMA 2605-13 POWDER COATING

- 3.7 The "warranty period" for the warranties detailed at length in sections 3.1 (cracking and crazing) and 3.2 (adhesion) is valid for twenty-five (25) years, commencing on the date shown on the warranty registration form and continuing for as long as the "OWNER" named above owns the property where the product was originally installed, subject to section 4.2 and in accordance with the terms described in section 3.10.
- 3.8 The "warranty period" for the warranties detailed at length in sections 3.3 (color stability), 3.4 (gloss) and 3.5 (chalking) is valid for twenty (20) years, commencing on the date shown on the warranty registration form and continuing for as long as the "OWNER" named above owns the property where the product was originally installed, subject to section 4.2 and in accordance with the terms described in section 3.10.
- 3.9 In the event that the PAINTED FINISH has a physical or manufacturing defect::
 - 3.10.1 For three (3) years following the installation completion date: MAIBEC will, at its sole discretion, replace, repair, or refund the defective portion of the PRODUCT and reimburse labor costs up to a maximum of US\$10 per square foot for projects located in the United States, to the OWNER or subsequent purchaser of the building where the PRODUCT is installed, as applicable
 - 3.10.2 From the fourth (4th) year until the end of the warranty period (15, 20, or 25 years, depending on the warranty): MAIBEC will, at its sole discretion, replace, repair, or refund the defective portion of the PRODUCT to the OWNER or subsequent purchaser of the building where the PRODUCT is installed, as applicable. MAIBEC will not assume any labor costs.

SECTION 4 - WARRANTY TERMS AND CONDITIONS

- 4.1 Registration of the warranty is mandatory to give it effect, otherwise it is void. The form must be completed, communicated to Maibec for signatures and will be returned to the applicant. The warranty is only valid upon reception of the duly completed warranty registration form. The warranty must be registered within one hundred eighty (180) days of completion of installation. Warranty registration confirms the date of purchase and helps MAIBEC process claims.
- 4.2 This warranty may be transferred (once) from the original OWNER. To transfer the warranty, submit written notice within ninety (90) days of when the building changed hands. The notice must include the building address, the name, and mailing address (if different) of the new OWNER(s), and the date of the transfer. Transfer of this warranty is valid for the new owner for the remainder of the original product warranty period.
- 4.3 Proof of purchase of the PRODUCT must be retained, as it is required when submitting any claim under this warranty.
- 4.4 The warranty does not cover damage resulting from abnormal atmospheric conditions exceeding C-1, C-2, C-3 classes as defined in ISO 12944-2, including corrosive, saline or particularly polluted atmospheres, such as, but not limited to, atmospheres contaminated by chemical fumes or sea spray.

- 4.5 The warranty does not cover damage to the coated metal caused by handling, shipping, transportation, workmanship, or installation.
- 4.6 The warranty does not cover damage to the coated metal caused by scratching or abrasion after installation.
- 4.7 The warranty does not cover damage to the coated metal caused by standing water in horizontal installations.
- 4.8 The warranty does not cover damage to the coated metal resulting from improper storage. To prevent damage to the PRODUCT and its FINISH, it must be stored flat and kept dry. A humid environment is contraindicated.
- 4.9 The warranty does not cover damage to the coated metal caused by improper maintenance. It is required that dust, dirt and other deposits on the coated part be cleaned annually using a soft sponge or cloth, water and mild detergent or soap with a pH between 5 and 9. Do not pressure-wash or use harsh detergents or chemicals. Include the following in your maintenance log: date, time, name of the person in charge of maintenance and his/her designation, specific products used, name of the maintenance company and general condition of the FINISH. MAIBEC can request a copy of said maintenance log for the processing of claims under the warranty.
- 4.10 The warranty does not apply to damage caused by natural disasters, falling objects, external forces, explosions, fires, riots, public demonstrations, acts of war, or other similar or different events beyond the control of MAIBEC.
- 4.11 The warranty does not apply to damage caused by exposure to temperatures in excess of sixty (60) degrees Celsius, to acids harmful to the type of finish applied to the siding, or to areas of salt water.
- 4.12 The warranty does not apply to damage caused by the use of tape, putty or sealant, vise marks or attachment points, or work - such as bending, stretching, cutting, sawing, milling or countersinking - performed after the transfer of OWNERSHIP of the parts from MAIBEC to the customer.
- 4.13 The warranty does not cover damage to the PRODUCT resulting from a problem with the design or structure of the building where the PRODUCT is installed.
- 4.14 The warranty does not cover damage caused by a third party not affiliated with MAIBEC.
- 4.15 The warranty does not cover damage resulting from abnormal use of the PRODUCT or negligent conduct toward it.
- 4.16 Claims must be submitted to MAIBEC in writing within a reasonable timeframe (no more than 90 days) after the problem has been identified and be accompanied by proof of purchase of the PRODUCT. Upon receipt of such notice, MAIBEC must be given a reasonable period to inspect and verify the claim. Authorization from MAIBEC must be obtained before starting any repair or refinishing work.
- 4.17 MAIBEC assumes only limited responsibility for transportation and labor costs required to disassemble defective parts, return them to its facilities and have them reinstalled. The same applies for material costs related to the factory production of defective parts that cannot be recovered for re-covering. For all this specific works, MAIBEC's liability is limited to an amount equal to a maximum of two hundred percent (200%) of the contract value.
- 4.18 MAIBEC shall not be liable for any claim, contractual or otherwise, for any damage, direct or indirect, resulting from a defect of the PRODUCT, including, without limiting the generality of the foregoing, loss of profit, revenue, market, goodwill, business or production, loss of time, enjoyment of life or any other type of claim by the customer or any third party.

- 4.19 The warranty on any repaired or replaced coated metal is valid for the remainder of the original product warranty period. All work will be performed by a company or contractor selected or authorized by MAIBEC. Color variation between repaired or replaced products and original products will not be considered a defect. Replacement products may differ in gloss and/or color from PRODUCTS originally installed, and Maibec shall not be responsible or liable as a result of such variance.
- 4.20 This warranty represents the entire agreement between the parties relating to its subject matter and supersedes any prior agreement, verbal or written, between the parties relating to its subject matter. The limited warranties specify MAIBEC's full liability for the products they cover. No person is authorized to make any statements about the warranty on behalf of MAIBEC except as expressly stated above, and such statements will not be binding on MAIBEC, including any declaration made by its representatives, as the case may be.
- 4.21 Except as expressly stated above, MAIBEC makes no warranties of any kind, express or implied, including but not limited to warranties of merchantability or fitness for a particular purpose. Warranties are valid for the duration of the limited warranty, or the shorter period provided for by local law. Some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you.
- 4.22 NOTHING IN THIS WARRANTY SHALL BE CONSTRUED AS A WARRANTY OF THE QUALITY OF THE INSTALLER'S WORKMANSHIP, OR AS REQUIRING MAIBEC TO BE LIABLE FOR UNSATISFACTORY PERFORMANCE DUE TO FAULTY WORKMANSHIP OR INSTALLATION. THE WARRANTY IS VOID IF MAIBEC'S INSTALLATION INSTRUCTIONS ARE NOT FOLLOWED.
- 4.23 This warranty is governed by the laws in force in the province of Quebec and its interpretation is subject to these same laws. Any dispute between the parties in connection with this warranty must be heard by the courts of the place where the contract was formed, to the exclusion of any other jurisdiction.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. The provisions in this warranty do not preclude the operation of any applicable state law which in certain circumstances may not allow some of the limitations and exclusions described in this warranty. Copies of Maibec's installation and use guides are available at archi.maibec.com/en-us/.

MAIBEC SHALL NOT BE LIABLE IN ANY EVENT FOR INCIDENTAL, SPECIAL, MULTIPLE, PUNITIVE, INDIRECT OR CONSEQUENTIAL DAMAGES RESULTING FROM ANY DEFECT IN THE PRODUCT(S) PROVIDED, INCLUDING BUT NOT LIMITED TO DAMAGE TO PROPERTY OR LOSS OF PROFITS.

For more information about the products and this warranty, please contact Customer Service.

Maibec Inc.
202 – 1984, 5th Street
Levis (Quebec)
G6W 5M6 Canada

Phone: 418 659-3323
Toll-Free-Number: 1 800 363-1930
info@maibec.com

Limited Warranty

Folded Aluminum Profiles

MAP Series



Maibec Architectural Aluminum Cladding

Maibec Aluminum Plate (MAP Series)

Paint Finish

WARRANTY APPLICABLE IN CANADA TO PRODUCTS SOLD THROUGH MAIBEC INC.

DEFINITIONS

The term «product» refers to the Folded Aluminum Profiles. It excludes any finish or material applied to it.

The term «finish» refers to the opaque plain layer of paint that meets the FGIA/ AAMA 2604-13 or AAMA 2605-13 standard (MAIBEC EXPRESS and MAIBEC Selection* only), as applicable, and the performance criteria described in Section 2.

*The MAIBEC Selection includes colors from selected manufacturers' catalogs for which MAIBEC is a certified applicator.

The term «OWNER» refers to the original purchaser of the «PRODUCT» as listed in the warranty registration form.

SECTION 1 - PRODUCT

MAIBEC expressly warrants that its aluminum PRODUCTS are free of manufacturing defects as specified below.

During the warranty period, when the PRODUCT is installed and maintained according to MAIBEC's instructions, it is guaranteed against the following:

- 1.1 Warping. The PRODUCT itself will remain whole and free of any distortion or deformation that may affect its profile or durability during the warranty period, provided that the product is installed under normal conditions and subjected to normal atmospheric loads and pressure. For the purposes of this warranty, warping is defined as a deformation exceeding 1.6 mm (1/16 in) out of plane per linear foot or 304.8 mm (12 in).
- 1.2 Corrosion. When installed and maintained according to MAIBEC's instructions, the PRODUCT is also warranted against rust and corrosion.
- 1.3 The "warranty period" for the warranties detailed in section 1 is valid for ten (10) years, commencing on the date shown on the warranty registration form and continuing for as long as the "OWNER" named above owns the property where the product was originally installed, subject to section 3.2.
- 1.4 In the event that the PRODUCT has a physical or manufacturing defect:
 - 1.4.1 For three (3) years following the installation completion date: MAIBEC will, at its sole discretion, replace, repair, or refund the defective portion of the PRODUCT and reimburse labor costs up to a maximum of US\$10 per square foot for projects located in the United States, to the OWNER or subsequent purchaser of the building where the PRODUCT is installed, as applicable.

- 1.4.2 From the fourth (4th) year until the tenth (10th) year following the installation completion date: MAIBEC will, at its sole discretion, replace, repair, or refund the defective portion of the PRODUCT to the OWNER or subsequent purchaser of the building where the PRODUCT is installed, as applicable. MAIBEC will not assume any labor costs.

SECTION 2 - FINISH

During the warranty period, the FINISH will be warranted as follows::

- 2.1 Resistance to cracking and splitting. This FINISH on the building will be free of any visible cracking or splitting when observed from a distance of 3 m (10 feet) from the metal surface and inspected at a 90-degree angle to the surface.
- 2.2 Adhesion. The FINISH, with adhesion initially measured on samples according to Section 8.4 of the **AAMA 2604-13** or **AAMA 2605-13** standard, as applicable, will not peel at a rate inferior to class 4B as per Method B of the ASTM D3359 standard.
- 2.3 Color stability. No change in the color of the FINISH exceeding 5 (five) CIE Lab units measured according to Section 6.3 of the ASTM D2244 standard. Color change will be measured on the exposed surface after it has been cleaned to remove oil, grease, powder, oxide film, or other contaminants. The corresponding values will be compared to the values measured on the original batch.
- 2.4 Gloss retention. The coated surface will have a gloss retention of at least 30% of the original for the **AAMA 2604-13 powder coating** or at least 50% of the original for the **FAAMA 2605-13 powder coating**, measured at 60° in accordance with the ASTM D523 standard. Gloss retention will be measured on the exposed FINISH surface after it has been cleaned to remove oil, grease, powder, or other contaminants. The corresponding values will be compared to the values measured on the original manufactured product.
- 2.5 Resistance to chalking. The FINISH coat will not chalk in excess of a numerical rating of 8 measured according to method A of the ASTM D4214 standard.

FOR AAMA 2604-13 POWDER COATING

- 2.6 The "warranty period" for the warranties detailed at length in sections 2.1 (cracking and splitting) and 2.2 (adhesion) is valid for twenty (20) years, commencing on the date shown on the warranty registration form and continuing for as long as the "OWNER" named above owns the property where the product was originally installed, subject to section 3.2 and in accordance with the terms described in section 2.10.
- 2.7 The "warranty period" for the warranties detailed at length in sections 2.3 (color stability), 2.4 (gloss) and 2.5 (chalking) is valid for fifteen (15) years, commencing on the date shown on the warranty registration form and continuing for as long as the "OWNER" named above owns the property where the product was originally installed, subject to section 3.2 and in accordance with the terms described in section 2.10.

FOR AAMA 2605-13 POWDER COATING

- 2.8 The “warranty period” for the warranties detailed at length in sections 2.1 (cracking and splitting) and 2.2 (adhesion) is valid for twenty-five (25) years, commencing on the date shown on the warranty registration form and continuing for as long as the “OWNER” named above owns the property where the product was originally installed, subject to section 3.2 and in accordance with the terms described in section 2.10.
- 2.9 The “warranty period” for the warranties detailed at length in sections 2.3 (color stability), 2.4 (gloss) and 2.5 (chalking) is valid for twenty (20) years, commencing on the date shown on the warranty registration form and continuing for as long as the “OWNER” named above owns the property where the product was originally installed, subject to section 3.2 and in accordance with the terms described in section 2.10.
- 2.10 In the event that the FINISH has a physical or manufacturing defect:
- 2.10.1 For three (3) years following the installation completion date: MAIBEC will, at its sole discretion, replace, repair, or refund the defective portion of the PRODUCT and reimburse labor costs up to a maximum of US\$10 per square foot for projects located in the United States, to the OWNER or subsequent purchaser of the building where the PRODUCT is installed, as applicable.
- 2.10.2 From the fourth (4th) year until the end of the warranty period (15, 20, or 25 years, depending on the warranty): MAIBEC will, at its sole discretion, replace, repair, or refund the defective portion of the PRODUCT to the OWNER or subsequent purchaser of the building where the PRODUCT is installed, as applicable. MAIBEC will not assume any labor costs.

SECTION 3 - WARRANTY TERMS AND CONDITIONS

- 3.1 Registration of the warranty is mandatory to give it effect, otherwise it is void. The warranty is only valid upon reception of the duly completed warranty registration form. The warranty must be registered within one hundred eighty (180) days of completion of installation. Warranty registration confirms the date of purchase and helps MAIBEC process claims.
- 3.2 This warranty may be transferred (once) from the original OWNER. To transfer the warranty, submit written notice within ninety (90) days of when the building changed hands. The notice must include the building address, the name, and mailing address (if different) of the new OWNER(s), and the date of the transfer.
- 3.3 Proof of purchase of the PRODUCT must be retained, as it is required when submitting any claim under this warranty.
- 3.4 The warranty does not cover damage resulting from abnormal atmospheric conditions exceeding C-1, C-2, C-3 classes as defined in ISO 12944-2, including corrosive, saline or particularly polluted atmospheres, such as, but not limited to, atmospheres contaminated by chemical fumes or sea spray.
- 3.5 The warranty does not cover damage to the coated metal caused by handling, shipping, transportation, workmanship, or installation.
- 3.6 The warranty does not cover damage to the coated metal caused by scratching or abrasion after installation.
- 3.7 The warranty does not cover damage to the coated metal caused by standing water in horizontal installations.
- 3.8 The warranty does not cover damage to the coated metal resulting from improper storage. To prevent damage to the PRODUCT and its FINISH, it must be stored flat and kept dry. A humid environment is contraindicated.
- 3.9 The warranty does not cover damage to the coated metal caused by improper maintenance. It is required that dust, dirt and other deposits on the coated part be cleaned annually using a soft sponge or cloth, water and mild detergent or soap with a pH between 5 and 9. Do not pressure-wash or use harsh detergents or chemicals. Include the following in your maintenance log: date, time, name of the person in charge of maintenance and his/her designation, specific products used, name of the maintenance company and general condition of the FINISH. MAIBEC can request a copy of said maintenance log for the processing of claims under the warranty.

- 3.10 The warranty does not apply to damage caused by natural disasters, falling objects, external forces, explosions, fires, riots, public demonstrations, acts of war, or other similar or different events beyond the control of MAIBEC.
- 3.11 The warranty does not apply to damage caused by exposure to temperatures in excess of sixty (60) degrees Celsius, to acids harmful to the type of finish applied to the siding, or to areas of salt water.
- 3.12 The warranty does not apply to damage caused by the use of tape, putty or sealant, vise marks or attachment points, or work - such as bending, stretching, cutting, sawing, milling or countersinking - performed after the transfer of OWNERSHIP of the parts from MAIBEC to the customer.
- 3.13 The warranty does not cover damage to the PRODUCT resulting from a problem with the design or structure of the building where the PRODUCT is installed.
- 3.14 The warranty does not cover damage caused by a third party not affiliated with MAIBEC.
- 3.15 The warranty does not cover damage resulting from abnormal use of the PRODUCT or negligent conduct toward it.
- 3.16 Claims must be submitted to MAIBEC in writing within a reasonable timeframe (no more than 90 days) after the problem has been identified and be accompanied by proof of purchase of the PRODUCT. Upon receipt of such notice, MAIBEC must be given a reasonable period to inspect and verify the claim. Authorization from MAIBEC must be obtained before starting any repair or refinishing work.
- 3.17 MAIBEC assumes only limited responsibility for transportation and labor costs required to disassemble defective parts, return them to its facilities and have them reinstalled. The same applies for material costs related to the factory production of defective parts that cannot be recovered for re-covering. For all these specific works, MAIBEC's liability is limited to an amount equal to a maximum of two hundred percent (200%) of the contract value.
- 3.18 MAIBEC shall not be liable for any claim, contractual or otherwise, for any damage, direct or indirect, resulting from a defect of the PRODUCT, including, without limiting the generality of the foregoing, loss of profit, revenue, market, goodwill, business or production, loss of time, enjoyment of life or any other type of claim by the customer or any third party.
- 3.19 The warranty on any repaired or replaced coated metal is valid for the remainder of the original product warranty period. All work will be performed by a company or contractor selected or authorized by MAIBEC. Color variation between repaired or replaced products and original products will not be considered a defect. Replacement products may differ in gloss and/or color from PRODUCTS originally installed, and Maibec shall not be responsible or liable as a result of such variance.
- 3.20 This warranty represents the entire agreement between the parties relating to its subject matter and supersedes any prior agreement, verbal or written, between the parties relating to its subject matter. The limited warranties specify MAIBEC's full liability for the products they cover. No person is authorized to make any statements about the warranty on behalf of MAIBEC except as expressly stated above, and such statements will not be binding on MAIBEC, including any declaration made by its representatives, as the case may be.
- 3.21 NOTHING IN THIS WARRANTY SHALL BE CONSTRUED AS A WARRANTY OF THE QUALITY OF THE INSTALLER'S WORKMANSHIP, OR AS REQUIRING MAIBEC TO BE LIABLE FOR UNSATISFACTORY PERFORMANCE DUE TO FAULTY WORKMANSHIP OR INSTALLATION. THE WARRANTY IS VOID IF MAIBEC'S INSTALLATION INSTRUCTIONS ARE NOT FOLLOWED.
- 3.22 This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. The provisions in this warranty do not preclude the operation of any applicable state law which in certain circumstances may not allow some of the limitations and exclusions described in this warranty. Copies of Maibec's installation and use guides are available at archi.maibec.com/en-us/.

This warranty gives you specific legal rights, which can vary from a state/province to another. The provisions of this warranty do not prevent the application of any applicable provincial or state law which, in certain circumstances, may prohibit certain

limitations and exclusions provided by these warranties.

MAIBEC SHALL NOT BE LIABLE IN ANY EVENT FOR INCIDENTAL, SPECIAL, MULTIPLE, PUNITIVE, INDIRECT OR CONSEQUENTIAL DAMAGES RESULTING FROM ANY DEFECT IN THE PRODUCT(S) PROVIDED, INCLUDING BUT NOT LIMITED TO DAMAGE TO PROPERTY OR LOSS OF PROFITS.

For more information about the products and this warranty, please contact Customer Service:

Maibec Inc.

202 – 1984, 5th Street

Levis (Quebec)

G6W 5M6 Canada

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Care & Maintenance Guide

Care & Maintenance Guide

Maibec Aluminum Cladding for HD Printed or solid color finishes

Maibec aluminum cladding is engineered for durability and lasting beauty. Proper care is essential to preserve the finish, prevent buildup of contaminants, and ensure long-term performance.

This guide outlines recommended cleaning practices and maintenance intervals based on environmental conditions. Compliance with these guidelines also supports the smooth processing of warranty claims.

MAINTENANCE SCHEDULE

The frequency of cleaning depends on the environment in which the product is installed. Use the table below as a reference:

Environment	Recommended Cleaning Frequency
Aggressive industrial areas	Every 3 months
Pool or chlorinated environments	Every 3 months
Coastal (marine/salt exposure)	Every 3 months
Tropical or high-humidity zones	Every 6 months
All other non-aggressive areas	Annually

Important : Periodic cleaning must be recorded and demonstrable to ensure smooth warranty processing, if required.

CLEANING INSTRUCTIONS

Tools and Materials

- Garden hose
- Soft-bristled brush or microfiber cloth
- Bucket with warm water
- Approved cleaning solution such as **Simple Green Oxy** or other mild, neutral pH detergent

Cleaning Procedure

1. **Rinse** the cladding using a garden hose to remove loose dirt and debris.
2. **Mix** the approved cleaner with water as directed by the manufacturer.
3. **Gently scrub** the surface with a soft brush or cloth, working from top to bottom.
4. **Rinse thoroughly** with clean water to remove all residues.
5. Let the surface **air dry** naturally.

Pressure washers are not recommended. Excessive pressure can damage the finish or force water into panel joints, compromising performance and warranty.

DEALING WITH STAINS OR BUILD-UP

For areas with stubborn grime, soot, or organic residue:

- Use **Simple Green Oxy** or another approved cleaner designed for aluminum siding and neutral pH balance.
- **Do not** use abrasive tools, bleach, strong solvents, or cleaners with high acidity or alkalinity.
- Always test any cleaning product on a discreet area first.

SEASONAL CONSIDERATIONS

- Rinse off salt or de-icing residue promptly during winter months.
- Keep gutters and overhangs free of debris to prevent staining or overflow.

WARRANTY REMINDER

Documenting maintenance activities is essential for warranty support:

- Maintain a cleaning log with dates, products used, and photos if possible.
- Failure to follow recommended care guidelines may void warranty coverage.

Care & Maintenance Guide (cont'd)

MAINTENANCE RECORD

[illegible]