STRATACLAD®

The freedom of design, transformed.

780.451.5482
www.lenmak.com
Toll Free 888.451.5482


HAL Panel System

The StrataClad® product line from Lenmak Exterior Innovations is custom designed, made to order and produced on demand. This not only means a paneling system that is created specifically for your needs, it means efficiencies for your project on a number of levels.

Advantages

Design

- Maximum architectural freedom
- Ability to easily infuse a corporate brand into the design
- Easily integrated with surrounding exterior products and fully adaptable to the existing wall condition

3D

- Through the artistic capabilities of 3D design, the options for visual effects are vastly increased

Colour

- Available in a wide range of pre-finished colours on 22ga steel or .050" aluminum
- Available in standard and metallic colours for use as accents or full exteriors

Time

- Lean manufacturing and a proprietary inventory staging system enables custom orders to be completed days or weeks faster than competitive products
- Rapid turn-around times vastly reduce carrying costs due to an unfinished exterior

Price

- Fully automated manufacturing process reduces production time, which reduces costs
- Produced quickly and accurately every time at a fraction of the cost of traditional composite panel systems
- Now available in pre-finished steel for further cost-efficiency on smaller projects

Sustainability

- Panels are made from recycled materials and remain 100% recyclable
- Do not contain harmful toxins like composite materials, resulting in a reduced carbon footprint
- Customized design produced on demand limits waste and saves energy

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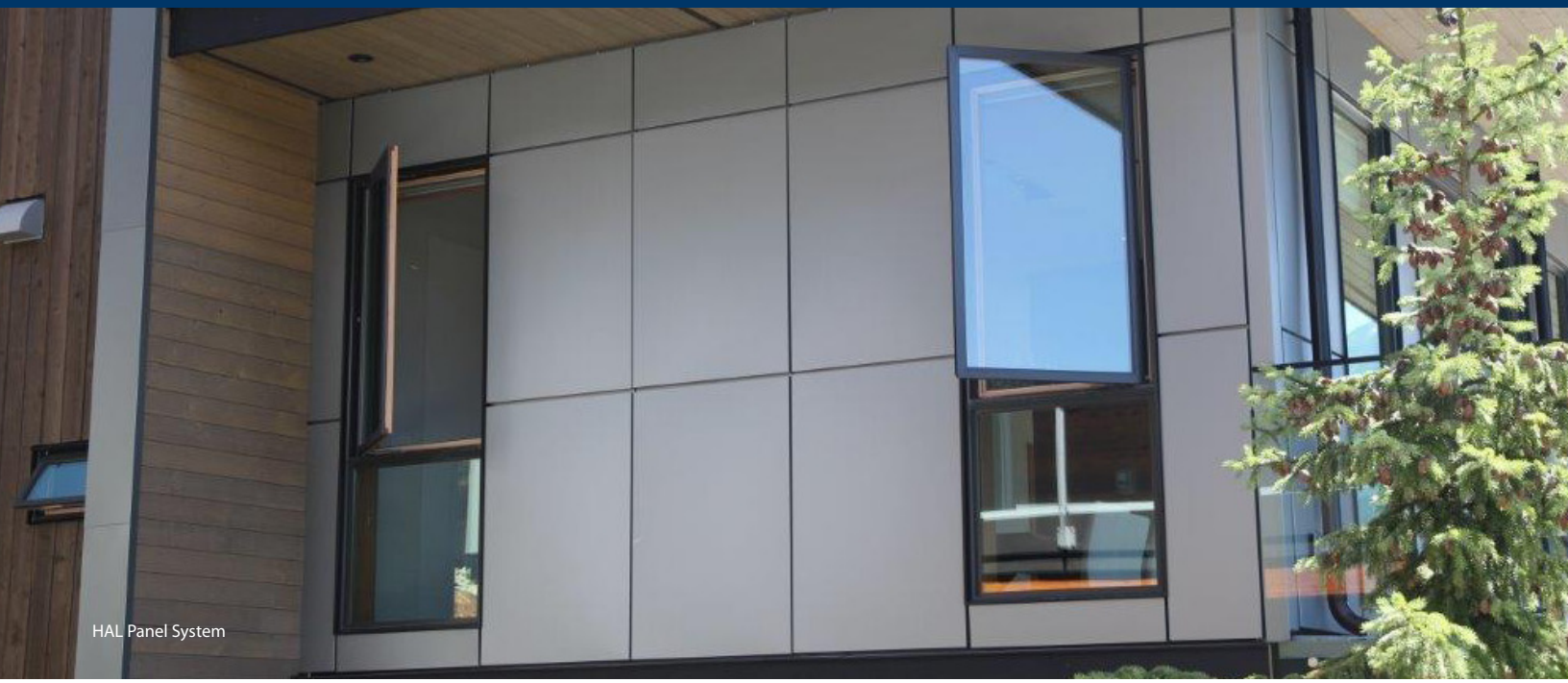
HAL Panel System

Sophisticated, Yet Understated.

The StrataClad® product line is comprised of 3 unique systems with the following performance characteristics:

- .050" (1.27mm) aluminum or 22ga (.033"/.84mm) steel with 70% Kynar finish in a wide range of pre-finished colours
- Laminate-free materials pose no risk of peeling, bubbling, or delaminating over time
- Contains pre-consumer and post-consumer recycled content, contributing towards LEED NC-v2.2 MRc4: Recycled Content

Hidden Angle Lock (HAL) Systems

- Metal wall panel systems pair perfectly with architectural glass
- Unique interlocking panel design allows for easy, efficient installation with hidden fasteners and no required frame or extrusions
- Colour-matched flashing details create recessed reveals between panels and obscure fasteners for a sleek assembly
- Designed to optimize value vs cost without loss of aesthetic appeal

Beveled Vertical Lock (VLP) System

- Aesthetically impressive system creates a picture frame effect
- 60 degree angled edges make this system completely maintenance-free as rain or snow simply slides off
- Allows for easy, economical installation with no need for additional extrusions or flashing

Horizontal Hidden Angle Lock (HAL) System

- Ideal for fascia or mid-band applications where panels can interlock horizontally
- Fasteners are entirely concealed by surrounding materials
- Allows for easy, economical installation with no need for additional extrusions

StrataClad® Panel Systems, as tested by an accredited third-party laboratory (VAN1301251608-001), meet requirements as described by AAMA 508-07 "Voluntary Method and Specification for Pressure Equalized Rain Screen Wall Cladding Systems" for Air Leakage (ASTM E283), Pressure Equalization (ASTM E1233), Static Water Penetration (ASTM E331), and Dynamic Water Penetration (AAMA 501.1).
Patent Pending.

Intertek
Valued Quality. Delivered.

Panel Type	Materials	Standard Depth	Standard Reveal Size	Lock Orientation	Common Application
Standard HAL Panel	.050" pre-painted aluminum, 22ga pre-painted steel, NaturClad™ pre-painted steel	1" 1.5"	0.5" 0.75" 1"	Vertical	Exterior wall cladding, soffit, commercial and architectural applications
Beveled VLP Panel	.050" pre-painted aluminum, 22ga pre-painted steel, NaturClad™ pre-painted steel	1"	0.5" 0.75" 1"	Vertical	Exterior wall cladding, especially feature-wall sections for commercial applications
Horizontal HAL Panel	.050" pre-painted aluminum, 22ga pre-painted steel, NaturClad™ pre-painted steel	1.5"	0.5" 0.75" 1"	Horizontal	Fascia/Mid-band sections to break up other cladding materials

Architectural Finish Guide

22ga Steel

Standard Finishes (Silicon Modified Polyester)


Black


Bone White

Cambridge White


Charcoal


Dark Brown


Metro Brown

Polar White


Regent Grey


Slate Blue


Stone Grey


Surf White


Tan

White White

Premium Finishes (Polyvinylidene Fluoride)


Black


Copper Penny*


Dark Bronze


Old Zinc Grey


Old Town Grey


Parchment


Regal Blue

Regal White


Silver Metallic*


Slate Grey


Weathered Copper


Weathered Zinc*

*These finishes are metallic and directional in nature. They are represented in web and print resources as accurately as possible, but due to the limitations of printing and monitor settings Lenmak recommends that clients select colours from physical swatches.

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Technical Data

Physical Attribute	Test Method	Specification Standard Finishes (SMP)	Specification Premium Finishes (PVDF)
Dry Film Thickness	ASTM D 1400-94 ASTM D 1005-95	0.75-1.85 Mil 0.90-1.15 Mil	0.75-1.85 Mil 0.90-1.15 Mil
Specular Gloss	ASTM D 523-90 @ 60º	20-35	20-35
Humidity Resistance	ASTM D 2247 (100% Relative Humidity @ 95º)	Passes 1,000 Hrs.	Passes 2,000 Hrs.
Salt Spray	ASTM B 117 (5% Salt Spray @ 95º)	Passes 1,000 Hrs.	Passes 1,000 Hrs. with < 5% #6 Blisters
Acid Pollutant Resistance	ASTM D 1308-87 (20% Sulfuric Acid 18 hrs., 10% Muriatic Acid 15 mins.)	No Effect	No Effect
Graffiti Resistance	Cleanability of Defaced Panels (spray paint, pens, etc.)	No Effect	No Effect
Abrasion Resistance	ASTM D 968-93 (to expose 5/32” of substrate)	25-40 Litres	100 Litres
Chalk Resistance	ASTM D 4214 (Florida Exposure @ 45ºS)	Vertical: Rating Not < 8 @ 10 yrs. Non-Vertical: Rating Not < 7 @ 10 yrs.	Rating not < 8 @ 20 yrs.
Colour Retention	ASTM 2244 – Hunter Units (Florida Exposure @ 45ºS)	Vertical: Not >5Δ Hunter Units @ 10 yrs. Non-Vertical: Not >6Δ Hunter Units @ 10 yrs.	Not > 5Δ Hunter Units @ 20 yrs.
Adhesion	ASTM D 3359-95a (Reverse Impacted 1/16” crosshatched)	No Adhesion Loss	No Adhesion Loss
Pencil Hardness	ASTM D 3363	H-2H (NCCA II-12)	HB-2H
Reverse Impact	ASTM D 2794-93 (3,000 x inches of metal thickness)	Passes – No Pick-Off with Scotch #610 Tape	No cracking or loss of adhesion
Flexibility T-Bend	ASTM D 4145-83 (No Crack, No Pick-Off)	2T-4T Bends, No Loss of Adhesion	0T-3T Bends, No Loss of Adhesion
Mandrel	ASTM D 522-93A (180 Bend Around 1/8” Mandrel)	-	No Cracking
Film Cure	ASTM D 5402 (≥ 100 Double MEK Rubs)	Passes	-
Fire Rating	E 84	Fuel Contributed Zero, Passes	-
Weatherometer	D 6695	Passes 3,000 hrs.	-
UV Exposure	D 4587	Passes 1,000 hrs.	-
Film Integrity	-	40 Years – Limited Warranty	25 Years – Limited Warranty

*Hunter Units: A standard of key colour scales and colour values that is used by the industry to control & evaluate colour & retention.

Part 1 General

1.1 SUMMARY

.1 *****This Section includes requirements for supply and installation of exterior factory fabricated and prefinished metal wall panels [and soffit panel assemblies] with related flashings and accessory components [and support framing].

1.2 RELATED REQUIREMENTS

.1 ***** [Section 05 41 00 - Structural Metal Stud Framing: Steel stud wall framing]

.2 ***** [Section 06 10 00 – Rough Carpentry: Wood framed exterior walls]

.3 ***** [Section 07 21 16 - Blanket Insulation: Semi-rigid insulation installed between metal panels and exterior sheathing]

.4 ***** [Section 07 26 00 - Vapour Retarders: Perimeter vapour seal between [curtain wall] system and adjacent assemblies]

.5 ***** [Section 07 27 00 - Air Barriers]: Perimeter air seal between [curtain wall] system and adjacent assemblies

.6 Section 07 92 00 - Joint Sealants

1.3 REFERENCE STANDARDS

.1 American Architectural Manufacturers Association (AAMA):

.1 ***** [AAMA 2605-13 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels]

.2 American Society for Testing and Materials (ASTM):

.1 ***** [ASTM B209/B209M-14 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate]

1.4 ADMINISTRATIVE REQUIREMENTS

.1 *****Coordination: Coordinate work of other trades having a direct bearing on work of this Section in accordance with Section [01 31 00], and as follows:

.1 *****Coordinate installation of [air barrier] [and] [vapour retarder].

.2 *****Coordinate installation of [windows] [doors] [louvres] and other components penetrating metal panel assemblies.

.2 *****Pre-Installation Meeting: Before starting work of this Section, arrange a meeting in accordance with Section [01 31 19], with Contractor, panel Subcontractor, Subcontractors responsible for adjacent work, and Subcontractors responsible for work that penetrates panel assemblies.

.1 Review construction schedule, material availability, personnel, equipment, and other relevant issues to avoid unnecessary delays.

.2 Review methods and procedures related to panel installation, including manufacturer's instructions.

1.5 SUBMITTALS

.1 Submit information in accordance with Section 01 33 00 - Submission Procedures.

.2 Action Submittals: Before starting work of this Section, submit the following:

.1 Shop Drawings: Indicate arrangement of panel system, include dimensions, location of joints, profiles of panels, support types and locations, sealants, fasteners, flashings, closures and all metal components related to panel installation.

.2 Samples:

.1 ***** [Samples for Initial Selection: Submit [color chart] [physical samples on actual substrate] showing manufacturer’s full range of standard colors for Consultant’s selection.]

.2 Samples for Verification: When requested by the Consultant, submit sample in manufacturer’s standard size for each panel illustrating colour, finish and texture.

.3 Informational Submittals:

.1 Installation Data: Before beginning work of this Section, submit manufacturer's installation instructions, and any special handling criteria.

.2 Test Reports: When requested by Consultant, submit certified test reports showing compliance with specified performance characteristics and physical properties.

.4 *****Sustainable Design Submittals: Submit project sustainable design requirements with Section [01 35 18] [01 35 63], and as follows:

.1 *****During the course of the work, submit manufacturer’s documentation indicating [percentages weight of post-consumer and pre-consumer recycled content, total weight of products and costs for each product with recycled content] [and local/regional materials].

.5 Closeout Submittals:

.1 *****Operations and Maintenance Data: Submit maintenance data for cleaning and maintenance of panel finishes for incorporation into Operation and Maintenance manuals specified in Section [01 78 10] [01 78 23].

.2 Warranty Documentation: Submit manufacturer's finish warranty information.

1.6 QUALITY ASSURANCE

.1 *****Manufacturer Qualifications:

.1 Company specializing in manufacturing the Products specified in this Section with minimum [three (3)] years' experience.

.2 Provide panel assemblies and accessories from a single manufacturer.

.2 *****Installer Qualifications: Company specializing in performing the work of this Section with minimum [three (3)] years documented experience [and acceptable to the manufacturer].

.3 *****Mock-Ups: Provide mock-up in accordance with Section [01 43 00] [01 45 00], [[_____] m [_____] ft] long by [[_____] m [_____] ft.] wide mock-up of panel [and soffit system], attachments to building [frame], associated vapour retarder and air barrier materials, weep drainage system, sealants and seals, and related insulation.

.1 *****Locate [where jointly agreed between Consultant and Contractor] [where directed by Consultant].

.2 Approved mock-up may remain as part of the Work.

1.7 DELIVERY, STORAGE, AND HANDLING

.1 Transport, handle, store, and protect Products in accordance with Section 01 61 00, and as follows:

.1 Protect panels from accelerated weathering by removing or venting sheet plastic shipping wrap.

.2 Store prefinished material off ground protected from weather, to prevent twisting, bending, or abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.

.3 Prevent contact with materials which may cause discolouration or staining.

1.8 WARRANTY

.1 *****Provide a warranty to include coverage for failure of finish to meet specified requirements, including peeling, cracking, checking, blistering, chipping and excessive colour fading caused by exposure to weather:

.1 ***** [Twenty-five (25) year for PVDF 12,000 series finishes]

.2 ***** [Twenty (20) year for PVDF painted aluminum, depending on colour]

.3 ***** [Forty (40) year for NaturClad™ PVDF painted steel]

Part 2 Products

2.1 MANUFACTURERS

.1 Basis-of-Design Materials: Products named in this Section were used as the basis-of-design for the Project.

.1 ***** [Additional manufacturers offering similar Products may be incorporated into the work of this Section when they meet the performance requirements established by the named Products, and when substitution requests are submitted in accordance with [01 25 00] [01 62 00].]

.2 ***** [Substitutions: Not permitted]

.2 Basis-of-Design Materials: Lenmak Exterior Innovations Inc., StrataClad™ series panels

2.2 DESCRIPTION

.1 *****Wall System: Preformed and prefinished single skin metal panel panels, stiffened with factory insulated foam; fastened to [steel] [wood] framing system with concealed fastening, rear ventilated [and sub-girt system].

.2 ***** [Soffit System: Preformed and prefinished single skin profiled metal panels; fastened to [steel] [wood] framing system with concealed fastening system.]

2.3 PERFORMANCE CRITERIA

.1 *****Components: Design and size components to withstand dead and live loads caused by positive and negative wind pressure acting normal to plane of wall [as calculated in accordance with the applicable building code at the Place of the Work] [to a design pressure of [_____] kPa [_____] lb/sq ft].

.2 *****Maximum Allowable Deflection of Aluminum Panel: L/60 of span.

.3 *****Thermal Movement: Design assemblies for expansion and contraction within system components caused by a cycling ambient temperature range of [-40 to +35] degrees Celsius seasonally without overstressing components causing buckling, failure of connections, or other permanent detrimental effects.

.4 Provide expansion joints to accommodate movement within metal panels, and between metal panels and structure to prevent permanent distortion or damage to metal panels.

.5 Seismic Loads: Design and size components to withstand seismic loads and sway displacement as calculated in accordance with applicable building code at the Place of the Work.

.6 *****System Drainage and Ventilation: Provide assemblies with positive drainage to exterior when moisture enters or condensation occurs within metal panel system. Exterior panel assemblies covering an air space [pressure equalized with the exterior].

.7 *****Vapour Retarder: Provide continuity to the vapour retarder at building envelope, in conjunction with vapour retarders specified in Section [07 26 00].

.8 *****Air Seal: Provide continuity to the building air barrier systems at building envelope, in conjunction with air seal materials specified in Section [07 27 00].

2.4 ****STEEL SHEET MATERIALS

.1 Steel:

.1 Galvalume AZ150 (AZ50) to ASTM A792/A792M.

.2 **** [0.76 mm (22 ga.) thick for solid colours] ****OR**** [0.61 mm (24 ga.) thick for NaturClad™ finishes]

****OR****

2.5 ****ALUMINUM SHEET MATERIALS

.1 Aluminum: 3003, 5005, or 5052-H32 to ASTM B209, 1.27 mm (0.050 inch) thick, **** [24.7% pre-consumer and 55.8% post-consumer recycled content]

2.6 COMPONENTS

.1 ****Metal Panels: Factory coated [aluminum] [steel], interlocking edges with concealed fasteners.

.1 Panel Profile: **** [Width as indicated on Drawings]

.2 Panel Depth: **** [38 mm (1 ½")] [Depth as indicated on Drawings]

.3 Panel Stiffening Insulation: Pour applied light density open-cell spray polyurethane foam

.1 Density: Nominal 12.8 kg/m³ (0.8 lb/ft³).

.2 Vapour Permeability: Maximum 1218 ng/Pa.s.m² @ 25.4 mm thickness to ASTM E96

.3 Flame Spread: 450 maximum, to CAN/ULC-S102

.4 ****VOC Emissions: Not measureable, as tested to CAN/ULC-S774

.4 Foil-Backed Sheet: Perforated Aluminum, to ASTM C1136, Type II or IV

.2 ****Soffit Panels: [Matching material and finish of metal wall panels] [Factory coated aluminum], interlocking edges with concealed fasteners]

.1 ****Panel Profile: [Orientation as indicated on Drawings], [Custom width as indicated on Drawings]

.2 ****Panel Depth: [25 mm (1 inch)] [Custom depth as indicated on Drawings]

.3 Drip Flashing: Manufacturer's standard profile; thickness and finish matching wall panel.

.4 ****Corner Trim: [Manufacturer's standard profile] [Custom profile as indicated on Drawings], thickness and finish matching wall panel.

.5 Reveal Trim: Manufacturer's standard profile; thickness and finish matching wall panel.

.6 Starter Strip: Manufacturer's standard profile; thickness and finish matching wall panel.

.7 ****Metal Framing: Galvanized steel [18 gauge framing, hat channels, adjustable Z-girts; [gauge as required by engineered design,] [sizes and profiles as indicated on Drawings] [As indicated in Section 05 41 00]

****OR****

.8 ***** [Wood Framing: [As indicated in Section 06 10 00] [Framing, furring, strapping; softwood lumber SPF species, [pressure-preservative treated,] sizes and profiles indicated.

2.7 FABRICATION

.1 Form metal profiles true to shape, accurate in size, square, and without distortions.

.2 Factory fabricate components ready for site installation, in longest practical lengths.

2.8 FINISHES

.1 *****Aluminum Finishes:

.1 ***** [Factory Painted PVDF Coating (Kynar), to AAMA 2605, three-coat, 70 percent by weight fluoropolymer resin]

.1 *****Colour: [As selected by Consultant from manufacturer's standard colour range]

*****OR*****

.2 *****Factory Painted PVDF Metallic Coating: AAMA 2605, three-coat, 70 percent by weight polyvinylidene fluoride (Kynar 500 or Hylar 5000):

.1 *****Colour: [As selected by Consultant from manufacturer's standard colour range]

.2 *****Steel Finishes:

.1 *****Lenmak NaturClad™ Finish: PVDF coating with wood-grain appearance.

.1 *****Colour: [As selected by Consultant from manufacturer's standard colour range]

*****OR*****

.2 Factory Painted PVDF Premium 12,000 series Coating: Two-coat, 70 percent by weight fluoropolymer resin (Hylar 5000 or Kynar 500), 1.0 mil dry film thickness, and as follows:

.1 Colour: ***** [Selected by Consultant from manufacturer's standard colour range]

*****OR*****

.3 Factory Painted PVDF Printech Coating: Three-coat, 70% by weight fluoropolymer resin (Hylar 5000 or Kynar 500), and as follows:

.1 Colour: ***** [Selected by Consultant from manufacturer's standard colour range]

2.9 ACCESSORIES

.1 *****Fasteners: [Galvanized] [Long-term corrosion resistant coated steel] [Stainless steel], as recommended by manufacturer

.2 Escutcheons: Weatherproof type for pipe, conduit, and similar materials penetrating exterior walls

.3 *****Sealant and Backing Materials: [Polyurethane type] [Silicone type] [As specified in Section 07 92 00].

.4 Sealant Tape: Self-adhered closed-cell PVC foam tape as recommended by manufacturer.

.1 Basis-of-Design Material: Gaska, Tape V7000 Series

2.10 SOURCE QUALITY CONTROL

.1 Non-Conforming Work: Pre-finished post-formed metal panel assemblies may exhibit certain behaviors common to all fabricators. Panel surfaces may display a slight convex effect (pillowing) due to panel stresses during manufacture, fabrication, or installation. Metal forming during panel fabrication may result fine cracks in finishes (crazing) at outer edges or bends. Take reasonable steps to prevent and mitigate these effects. Excessive effects are a deficiency; mild “pillowing” or “crazing” are not deficiencies.

Part 3 Execution

3.1 EXAMINATION

.1 *****Verify existing conditions before starting work in accordance with Section [01 70 00] [01 71 00] [01 73 00], and as follows:

.1 Verify dimensions, tolerances, and method of attachment with other work.

.2 Verify wall openings and adjoining air barrier and vapour retarder materials are ready to receive work of this section.

.3 *****Verify that site measurements are as [indicated on Drawings] [indicated on Shop Drawings] [instructed by the manufacturer].

.4 Report unsatisfactory conditions to Consultant in writing; do not start Work until unsatisfactory conditions are corrected.

3.2 INSTALLATION

.1 *****Install supporting [furring] [framing] [on to cast-in-place concrete substrate] [on to concrete masonry unit substrate] [through exterior gypsum sheathing into structural steel stud framing].

.2 Install starter flashing, drip and other flashing, corners, edgings, and window and door flashings, and as indicated on Drawings.

.3 *****Install wall panels [and soffit material] to manufacturer's recommended installation procedures, providing proper laps true to line, and tight fitting to ensure a weather-tight face.

.4 Install finishing flashing, cap flashing, trims and closures.

.5 Attach components in manner not restricting thermal movement.

.6 *****Align assembly plumb and level, free of twist. Maintain assembly dimensional tolerances, [aligning with adjacent work].

.7 Metal Corrosion Protection: Provide permanent separation material where dissimilar metals contact each other and at corrosive substrates.

.8 Sealants: Install sealants at junctions with adjoining components described in other specification Sections, and where shown on Drawings, in accordance with Section 07 92 00. Do not install sealants in locations that will interfere with drainage of pressure-equalized assembly.

.9 Remove site cuttings from surfaces without damaging finishes.

.10 Repair and touch up very minor surface damage with colour-matching high quality paint recommended by manufacturer.

.11 Replace damaged materials that cannot be satisfactorily repaired.

.12 ****Tolerances: Install assemblies in accordance with Section [01 73 00], and as follows:

.1 ****Maximum Offset from Alignment between Adjacent Members Butting or In-Line: [1.6 mm (1/16 inch)]

.2 ***** Maximum Variation from Plane: [6 mm (1/4 inch)]

3.3 CLEANING

.1 ****Perform general cleaning requirements for installed work in accordance with Section [01 74 00] [01 74 23], and as follows:

.1 Clear weep holes and drainage pathways of obstructions, dirt, and sealants.

.2 If metal panels show evidence of soiling, clean and wash visible surfaces with mild soap and water. Rinse with clean water.

END OF SECTION

PRODUCT DESCRIPTION

PRODUCT FEATURES

- DESCRIPTION
  - Factory fabricated metal wall or soffit cladding with related flashings and accessory components.
  - Online technical information available at: http://www.lenmak.com
- BASIC USES / RELATED USES
  - Exterior wall finish.
- PRODUCT ATTRIBUTES AND CHARACTERISTICS
  - Factory fabricated to standard profiles or custom designed to order and produced on demand.
  - Competitive lead times, due to automation and lean manufacturing processes. Rapid turn-around times.
  - Interlocking panel design permits fully concealed fastening.
  - Available in several pre-finished colours, with no limits on production quantity.
  - Available in standard and metallic colours for use as accents or full extensions.
  - Designed to be best in aesthetics, performance and cost efficiency.
- SUSTAINABILITY CRITERIA
  - Panels are made from a combination of pre- and post-consumer recycled materials, and are 100% recyclable.
    - Aluminum Recycled Content: 24.7% pre-consumer and 55.8% post-consumer
    - Steel Recycled Content: 6.8% pre-consumer and 24% post-consumer
- APPLICABLE STANDARDS, RELATED REFERENCES
  - AAMA 611-14 Voluntary Specification for Anodized Architectural Aluminum
  - AAMA 2605-13 Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels
  - ASTM B209/B209M-10 - Standard Specification for Aluminum and Aluminum Alloy Sheet and Plate
- PERFORMANCE CRITERIA
  - System Design: Designed and components sizes to withstand dead and live loads caused by positive and negative wind pressure acting normal to plane of wall, as calculated in accordance with applicable code.
  - Thermal Movement: Components allow for expansion and contraction of system components.

PRODUCT DESCRIPTION

- Expansion joints designed to accommodate movement in cladding and between cladding and structure to prevent permanent distortion or damage to cladding.
- Seismic Loads: Design and size components to withstand seismic loads and sway displacement, as calculated in accordance with applicable code.
- Drainage: Positive drainage to exterior where moisture enters or condensation occurs within panel system.

- PACKAGING, HANDLING, PROTECTION, AND DELIVERY INSTRUCTIONS
  - Packaged on skids or crates.
- SPECIAL WARRANTY
  - Warranties for paint finishes are available. Length and nature of warranty varies depending on the finish type. Consult Lenmak Exterior Innovations Inc. for further information.
- LIMITATIONS
  - Pre-finished post-formed metal panel assemblies may exhibit certain behaviors common to all fabricators. Panel surfaces may display a slight convex effect (pillowing) due to panel stresses during manufacture, fabrication, or installation. Metal forming during panel fabrication may result fine cracks in finishes (crazing) at outer edges or bends. Excessive effects are a deficiency; mild "pillowing" or "crazing" are not deficiencies.
- AVAILABILITY
  - Directly from Lenmak Exterior Innovations Inc.
- COST
  - Consult Lenmak Exterior Innovations Inc for specific product costs or relative costs.

PRODUCT PROPERTIES

- MATERIALS
  - Panels:
    - Aluminum, 3003, 5052, or 5005-H32 to ASTM B209, 1.27 mm (0.050 inch) thick (ATAS Comm finishes and PAC Comm finishes)
    - Steel, 0.76 mm (22 ga.) thick, galvanized for PVDF 12,000 series Kynar solid colours
    - Steel, 0.61 mm (24 ga.) thick, galvanized for NaturClad™ PVDF finishes and Cascadia PVDF Printech
  - Trim and Related Components: Same material and finish as panels

PRODUCT DESCRIPTION

- SIZES
  - Panel Profile:
    - Custom widths available; consult manufacturer.
  - Panel Depth:
    - Custom depths available; consult manufacturer.
- ACCESSORIES
  - Fasteners: As recommended by manufacturer in the following materials;
    - Galvanized
    - Long-term corrosion resistant coated
    - Stainless steel
  - Sealant and Backing Materials: Polyurethane or silicone type
- SHOP FABRICATION AND ASSEMBLY
  - Form metal profiles true to shape, accurate in size, square, and free from distortions.
  - Factory fabricate components ready for field installation.
  - All components are site assembled.

PRODUCT DESCRIPTION

- FINISH
  - Aluminum Finishes:
    - ATAS Comm Finishes: Galvalume, Ascot White, Clear Anodized, Dark Anodized, Bronze Anodized, Coppertone
    - PAC Comm Aluminum Finishes: Zinc, Silver, Copper Penny, Aged Copper, Champagne, Weathered Zinc
  - Steel Finishes:
    - PVDF (Kynar) coating in solid colours
    - Lenmak Exterior Innovations Inc, NaturClad™ Finish, PVDF coating with wood-grain appearance.
      - Available Colours: Acorn finish, Frontier finish, Espresso finish, Autumn finish, Saddle finish, Gunstock finish, Wagon Wood finish, Knotty Pine finish, and Barn Board finish.

PRODUCT PLACEMENT

- INSTALLATION
  - Install supporting furring or framing secured to structural framing members, cast-in-place concrete structure, or structural concrete unit masonry.
  - Install panels in accordance with manufacturer's written instructions, and as indicated on shop drawings.
  - Install assembly plumb and level, free of twist. Maintain assembly dimensional tolerances, aligning with adjacent work.
- WASTE RECYCLING
  - Any metal waste generated during installation is fully recyclable.

Corporate Identification

Lenmak Exterior Innovations Inc.
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http://www.lenmak.com
orderdesk@lenmak.com

PRODUCT DESCRIPTION

Classification and Filing

MasterFormat 2014:
07 42 13.13 - Formed Metal Wall Panels
OmniClass:
23-13 37 15 11 – Metal Exterior Siding
UniFormat:
B2010.10 - Exterior Wall Veneer

END

LENMAK
Exterior Innovations Inc.

Ph: 780.451.5482 Toll Free Ph: 888.451.5482 Fax: 780.451.0865 info@lenmak.com www.lenmak.com

Recommended Cleaning & Maintenance – PVDF (Fluoropolymer) Coatings

Remove protective material from prefinished metal surfaces as soon as possible - before or just after installation. Keep components out of direct sunlight, high heat and/or extreme cold until laminate film is removed.

Cleaning/Removal of Water-Soluble Deposits (eg. Soil, soot, pollen, other particles)

Periodic cleaning with clean water will help to prolong the lifespan of all Lenmak products. Take care to remove dirt from corners and avoid pooling of water and pollutants at joints or edges. The frequency with which gentle cleansing is required will vary depending on the building's location, facing direction of the wall surface, local soil type, weather, pollution, humidity, salinity, and other conditions.

Where dirt and contaminants resist removal with water alone, wash down surfaces with a solution of mild (non-industrial) detergent in warm water, applied with soft, clean wiping cloths. As above, take care to remove dirt from corners and avoid pooling at joints and edges. Do not use steel wool, wire brushes, mechanical pressure-washers, or any other application method which may abrade the finish. Some cleaning chemicals may damage the surface. Test the application method and cleaning agent on an inconspicuous area before proceeding.

Cleaning/Removal of Non-Water-Soluble Deposits (eg. Tar, oil, paint, graffiti, sealants)

Where the above method is ineffective, cleaning with a solvent may be the only effective method. Always test solvents in an inconspicuous area before applying to the rest of the building/wall section. Many solvents are hazardous and should be handled with care; consult manufacturer instructions for safe handling practices and procedures in case of emergency.

Types of solvents may include:

- Alcohols - Ethanol (Denatured Alcohol), Isopropyl (Rubbing Alcohol), Methanol
  - Typically have no permanent effect on fluoropolymer surfaces
- Petroleum Solvents – Naptha Spirits, Mineral Spirits, Turpentine, Kerosene
  - Typically have no permanent effect on fluoropolymer surfaces
- Aromatic Solvents – Xylol (Xylene), Tuluol (Toluene), Perchlorethylene (Perclene), Trichloroethylene (Triclene)
  - Use with caution. Limit contact to a maximum of five minutes and test carefully before using.
- Ketones, Esters – MEK (Methyl Ethyl Ketone), MIBK (Methyl Isobutyl Ketone), Ethyl Acetate (Nail Polish Remover), Lacquer Thinner
  - Use with caution. Limit contact to surface and test carefully before using. It is possible that some solvents of this type may remove fluoropolymer coating; Lenmak is not responsible for damage caused by use of solvents.
- Acetone/Paint Remover – **DO NOT USE**

Misuse of any solvents or cleaning agents may result in voiding of finish warranty.

PVDF PAINT WARRANTY

For clarity purposes in regards to this warranty, "the Customer" and "the Third Party" shall be construed as one in the same.
This warranty is solely for the benefit of Cascadia Metals' customer(s) and is NOT TRANSFERRABLE OR ASSIGNABLE to any other party without obtaining express written permission from "Cascadia Metals". "Cascadia Metals" reserves the right to terminate this warranty at any time upon advance written notice, except with respect to any product which has already been processed or installed by "the Customer".

WARRANTY

"Cascadia Metals" warrants that the Kynar 500 / PDVF colors sold and installed in Continental North America shall not:
a) - Peel, Crack, Check, Blister or Chip
b) - Chalk more than eight (8) units during years one through twenty, and six (6) units during years twenty-one through twenty-five when measured per ASTM D 4214
c) - Fade more than five (5) NBS (hunter) units during years one through twenty and seven (7) units during years twenty-one through twenty five following field installation. Color measurements are to be made as per ASTM D 2244 and on only clean surfaces after removing surface deposits and chalk per ASTM D 3964. "Cascadia Metals" does not warrant that fading will be uniform.

If material failure occurs during the warranty period and "the Customer" is obliged to refinish, or replace some or all of the product, "Cascadia Metals" will:
a) - Pay the reasonable cost to replace or refinish the defective sections. This determination which shall be based upon "Cascadia Metals" sole option, will be based upon an objective evaluation by "Cascadia Metals"; after considering the nature of the claim and inspecting the installation, and whether the defective sections may be refinished or must be replaced. If "the Customer's" own warranty is less than replacement to any third party, then "Cascadia Metals'" obligation shall be reduced accordingly.
b) - "Cascadia Metals'" total liability and customers sole remedy is expressly limited to "the Customer's" purchase price at the original time of purchase. In no event shall "Cascadia Metals" be liable under any theory of recovery, whether based on negligence, strict liability, breach of contract, or tort, for any direct, indirect, special, punitive, incidental or consequential damages.
c) - Any and all replacements qualifying under this warranty will be made by an installer approved by "Cascadia Metals".
d) - All valid claims against this product will be covered to 100% of the original cost of the product, not including installation, during years one through ten. 75% of the original cost of the product, not including installation, during years eleven through fifteen. 50% of the original cost of the product, not including installation, during years sixteen through twenty. And decreasing by increments of 10% (per year) of the original cost of the product, not including installation, from years twenty-one through twenty-five.
"Cascadia Metals" makes no other warranties or representations of any kind, express or implied, including any implied warranty of merchantability or fitness for a particular purpose or use, and none shall be implied by law except as otherwise agreed to by "Cascadia Metals."

DEFINITIONS

Abnormal Exposure Area: **-** an area of corrosive exposure such as, but not limited to, exposure to salt water spray or exposure to, strong acidic or alkaline emissions, such as those in the vicinity of paper mills, fertilizer plants, aluminum processing plants, copper smelters and similar operations.
Blister: - those areas of the coating that are detached from the underlying substrate or intermediate layer.
Chip: - small areas of surface paint failure, as evidenced by coating not adhering, as opposed to physical damage as a result of bumping, nicking, crimping or banging.
Crack: - breaks in the flat coated surface resulting from exposure, as distinguished from those breaks in the film associated with metal forming or fabrication, as seen with the naked eye and which allow the film to be removed by taping.
Peel: - refers to pulling away or falling away of pieces of the coating, due to failure of the coating.
Chalk Rating: resistance level of material as per the PHYSICAL PROPERTIES GUIDE.
Fade / **Color Change Rating: -** Allowable levels of color change over the warranted life of the material. Measured after all contaminants have been removed from the surface in accordance with ASTM standards.
Check: - means areas of surface paint failure, as evidenced by a flaw or imperfection in the coil.
Elements: - referring, but not limited, to: sunlight, rain, wind, snow, pollutants in the air, heat, UV rays, acid rain.
Kynar 500: - is a registered trademark of Atofina Chemical Inc.

CONDITIONS

All Kynar 500 / PDVF colors supplied by "Cascadia Metals" are available to be warranted, however, the warranty will not extend to, or cover:
a) - damage to the product caused by incorrect storage of the coated metal prior to installation or improper packaging, handling, shipping, processing and/or installation; or
b) - damage to the material which was created by incorrect forming, fabrication, cut edge exposure.
c) - non processed material that has been in the possession of "the Customer" for a period longer than 1 year.
In addition to and without limiting to the other conditions of this warranty, all of the following specific conditions must be met:
a) - the coated surface must be a surface on which no standing water accumulates.
b) - the product must be formed and installed by a qualified installation company, approved by "Cascadia Metals" to do the work.
c) - if product is on a surface located less than 300 meters (1000 feet) from the ocean (salt water), maintenance will be performed by the building owners; including annual sweet water (fresh tap water) rinse in accordance with AAMA 610.1-1979.
d) The product must never be cleaned with abrasive or chemical cleaners.
This warranty will not be applicable to damage or failure which is attributed to: improper maintenance, acts of God, falling objects, external forces, earthquake, explosions, fire, flood, riots, civil commotions, acts of war, or other such similar or dissimilar occurrences beyond "Cascadia Metals'" control. This warranty does not cover problems directly or indirectly caused by having the material stored or installed in, on, around, or near the vicinity of an abnormal exposure area.

CUSTOMER / THIRD PARTY CLAUSES

In the event that this warranty is extended to a "Third Party", "the Customer" shall:
a) - Inspect all materials prior to processing, to make certain that all products meet or exceed "the Customer's" own fabrication requirements.
b) - Customer shall maintain adequate records to identify the following: Third Party customer information, master coil numbers, original purchase order information, product identification, date of application and date of fabrication.
c) - All records and or samples pertaining to this warranty are to be kept on file by "the Customer" for the warranty period applicable to the product, and in the event of a claim hereunder, "Cascadia Metals" shall have the right to inspect such records and samples.
d) - All products which have been replaced, under this warranty may, at the discretion of "Cascadia Metals", become the property of "Cascadia Metals".
All the foregoing conditions constitute material terms of this warranty and violation by "the Customer" or its agents or representatives or "Third Party customers" of any one or more conditions shall release "Cascadia Metals" from its obligations hereunder.

MAKING A CLAIM

All claims under the foregoing warranty must be made in writing, and **delivered by registered mail**, within 30 days after the inconsistency is discovered and before any repairs are made, to:

Cascadia Metals Ltd.
7630 Berg Road
Delta, British Columbia, Canada
V4G 1G4
Attn: Warranty Claims Representative

Any repairs made prior to or during the investigation period without "Cascadia Metals'" written approval will be at the owner's sole expense. "**Cascadia Metals**" must be given reasonable opportunity to inspect the material claimed to be defective. "The Customer" has the responsibility for any video or still photos of the defective product for "Cascadia Metals'" inspection, and to arrange inspection of the site where the material in question is located. Should the claim be found not covered under this warranty, "the Customer" shall reimburse all of "Cascadia Metals'" and third party expenses incurred in connection with the investigation of the claim.

APPLICABLE LAW

In the event that any one (1) or more of these articles or stipulations is not enforceable by law, that specific section shall be stricken from this warranty and the balance shall remain totally intact and unfractured.

This agreement shall be deemed to have been made executed and delivered within the borders of Canada and shall be governed by and enforced in accordance with Canadian law and the laws of the Province Of British Columbia. This agreement and any sales of the product by "Cascadia Metals" to "the Customer" shall be interpreted, governed and enforced in accordance with Canadian Law and the laws of the Province of British Columbia. Any disputes arising under or pursuant to the matters contemplated by this agreement, at "Cascadia Metals'" election; shall be resolved by arbitration or legal process, in New Westminster British Columbia. The authorities and Courts of the Province of British Columbia shall have exclusive jurisdiction over such disputes, especially with respect to matters of validity, execution interpretation, enforcement or compliance. The parties hereby consent to service, jurisdiction and venue of such authorities and courts and waive any other venue to which they might be entitled by virtue of domicile, habitual residence or otherwise. "The Customer" agrees that any finding made by a court or arbitrator pursuant to this section shall be given full faith and recognition in its resident country or in any other non-Canadian jurisdiction. Each party shall be responsible for its own attorneys' fees and costs.