SECTION 05 77 00

DECORATIVE EXTRUDED METAL - ULTRASPAN, EXTERIOR AND INTERIOR

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\*\* NOTE TO SPECIFIER \*\* Eva-Last Americas; Bamboo Composite Building Materials  
This section is based on the products of Eva-Last Americas, which is located at:  
8560 Belleview Dr., Suite 225  
Plano, TX 75024  
Tel: 325-933-2701  
Email: [request info (usasales@eva-last.com)](https://arcat.com/rfi?action=email&company=Eva-Last%252BAmericas&message=RE%253A%2520Spec%2520Question%2520(05770evl)%253A%2520&coid=54041&spec=05770evl&rep=&fax=)  
Web: <https://www.eva-last.com/us/>   
 [ [Click Here](https://arcat.com/company/eva-last-americas-54041) ] for additional information.  
Over a decade ago, Eva-Last was founded by a passionate and driven team that recognized the need for environmentally conscientious, practical, and durable construction solutions. Years of research and continual product refinement have resulted in Eva-Last gaining recognition as a leader in the international composite construction industry.  
CHANGING THE WAY BUILDING CAN BE DONE  
Eva-Last is revolutionizing how building can be done by offering eco-friendly composite products that do the job of timber or other traditional outdoor building materials in a smarter and more sustainable way. The Eva-Last brand is built on the principles of eco-consciousness, quality, and innovation, and our ever-growing success stands as testament to the care we put into all aspects of our business.  
A BRAND YOU CAN TRUST  
Eva-Last is a globally reputable brand that utilizes a solution driven business model to create innovative, sustainable building materials and systems that add value to customers' lives. At the heart of Eva-Last is a team of highly capable, creative specialists united by a passion to promote environmental consciousness through eco-friendly building products and operations. By embracing low environmental impact manufacturing and cutting-edge composite technology, Eva-Last is changing the status quo. We design and deliver beautiful, long-lasting green alternatives that make our customers' lives easier, healthier, and just plain better.  
A HASSLE-FREE ALTERNATIVE TO WOOD  
Eva-Last composite offers the beauty of timber, but in a hassle-free, durable option that's longer lasting, virtually maintenance-free, and eco-friendly. Cutting-edge engineering is bringing even greater structural advancements and lifestyle benefits to composite, and thoughtful detail to aesthetics now gives it an even more natural appearance in an expanded range of products, colors, and textures.

1. GENERAL
   1. SECTION INCLUDES

\*\* NOTE TO SPECIFIER \*\* Delete items below not required for project.

* + 1. Ultraspan composite beams.
    2. Composite end caps.
    3. Related fasteners.
  1. RELATED SECTIONS
     1. Section 06 10 00 - Rough Carpentry.
     2. Section 06 73 00 - Composite Decking and Fasteners.
     3. Section 07 46 43 - Composite Cladding and Decking.
     4. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section.

* + 1. ASTM International (ASTM):
       1. ASTM A653 - Standard Specification for Steel Sheet, Zinc-Coated, Galvanized or Zinc-Iron Alloy-Coated, Galvannealed by the Hot-Dip Process.
       2. ASTM D696 - Standard Test Method for Coefficient of Linear Thermal Expansion of Plastics Between -30 and 30 degrees C with a Vitreous Silica Dilatometer.
       3. ASTM D2395 - Standard Test Methods for Density and Specific Gravity (Relative Density) of Wood and Wood-Based Materials.
       4. ASTM D790 - Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
       5. ASTM G154 - Standard Practice for Operating Fluorescent Ultraviolet (UV) Lamp Apparatus for Exposure of Materials.
    2. European Standards Organization (EN):
       1. EN 10346 - Continuously hot-dip coated steel flat products for cold forming.
    3. South African National Standard (SANS):
       1. SANS 4998 - Continuous hot-dip zinc-coated carbon steel sheet of structural quality.
    4. Japanese Industrial Standard (JIS):
       1. JIS G 3302 SGCC - Hot-dip zinc-coated steel sheet and strip.
    5. International Standard of Quality (ISQ):
       1. ISQ 230 - Galvanized sheet standard.
    6. National Standard of the Peoples Republic of China:
       1. GBT 17657 - Test methods of evaluating the properties of wood-based panels and surface decorated wood-based panels.
       2. GBT 24508 - Wood plastic composite freeze thaw bending load resistance to freeze thaw.
  1. SUBMITTALS
     1. Submit under provisions of Section 01 30 00.
     2. Product Data:
        1. Manufacturer's data sheets on each product to be used.
        2. Preparation instructions and recommendations.
        3. Storage and handling requirements and recommendations.
        4. Typical installation methods.

\*\* NOTE TO SPECIFIER \*\* Delete if not applicable to product type.

* + 1. Verification Samples: Two representative units of each type, size, pattern, and color.
    2. Shop Drawings: Include details of materials, construction, and finish. Include relationship with adjacent construction.
  1. QUALITY ASSURANCE
     1. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with a minimum of five years documented experience.
     2. Installer Qualifications: Company specializing in performing Work of this section with minimum two years documented experience with projects of similar scope and complexity.
     3. Source Limitations: Provide each type of product from a single manufacturing source to ensure uniformity.

\*\* NOTE TO SPECIFIER \*\* Include mock-up if the project size or quality warrant the expense. The following is one example of how a mock-up might be specified. When deciding on the extent of the mock-up, consider all the major different types of work on the project.

* + 1. Mock-Up: Construct a mock-up with actual materials in sufficient time for Architect's review and to not delay construction progress. Locate mock-up as acceptable to Architect and provide temporary foundations and support.
       1. The intent of a mock-up is to demonstrate quality of workmanship and visual appearance.
       2. If the mock-up is not acceptable, rebuild the mock-up until satisfactory results are achieved.
       3. Retain mock-up during construction as a standard for comparison with completed work.
       4. Do not alter or remove mock-up until work is completed or removal is authorized.
  1. PRE-INSTALLATION CONFERENCE
     1. Convene a conference approximately two weeks before scheduled commencement of the Work. Attendees shall include Architect, Contractor and trades involved. Agenda shall include schedule, responsibilities, critical path items and approvals.
  2. DELIVERY, STORAGE, AND HANDLING
     1. Store and handle in strict compliance with manufacturer's written instructions and recommendations.
     2. Protect from damage due to weather, excessive temperature, and construction operations.
  3. PROJECT CONDITIONS
     1. Maintain temperature, humidity, and ventilation conditions within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.
  4. WARRANTY
     1. Manufacturer's standard limited warranty unless indicated otherwise.

1. PRODUCTS
   1. MANUFACTURERS
      1. Acceptable Manufacturer: Eva-Last Americas, which is located at:  
         8560 Belleview Dr., Suite 225  
         Plano, TX 75024  
         Tel: 325-933-2701  
         Email: [request info (usasales@eva-last.com)](https://arcat.com/rfi?action=email&company=Eva-Last%252BAmericas&message=RE%253A%2520Spec%2520Question%2520(05770evl)%253A%2520&coid=54041&spec=05770evl&rep=&fax=);Web: <https://www.eva-last.com/us/>

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
    2. Requests for substitutions will be considered in accordance with the provisions of Section 01 60 00.
  1. PERFORMANCE REQUIREMENTS
     1. Water Absorption: GB/T17657, GB/T24508, 180h.
        1. Change in Mass: 1.85 percent.
        2. Change in Length: -0.74 percent.
        3. Change in Width: 0.47 percent.
        4. Change in Height: 1.29 percent.
  2. DECORATIVE EXTRUDED METAL
     1. Basis of Design: Ultraspan Composite Architectural Beams with specialized aluminum core as manufactured by Eva-Last. Low-maintenance, more stable with less expansion and contraction. Requires basic cleaning for optimal longevity. The protective cap is cellulose-polymer, offering long-term fade, scratch, and stain resistance. Decay resistant against insects, moisture, and the elements.
     2. Tri-Extruded Aluminum Bamboo Composite Beams:
        1. Material: Aluminum core with cellulose-polymer composite cap.
           1. Core: Aluminum Alloy 6063-T5: 62 percent of mass.

\*\* NOTE TO SPECIFIER \*\* Delete cap option not required.

* + - * 1. Cap: Bamboo composite.
        2. Cap:

High Density Polyethylene (HDPE): 20 percent of mass.

Cellulose Fibers (Bamboo or Wood Fibers): 11 percent of mass.

Calcium Carbonate: 3 percent of mass.

* + - * 1. Additional Additives: percent of mass.
      1. Physical Properties:
         1. Core Density According to ASTM D2395: 95.35 lbs per cu ft (2700 kg per sq m).
         2. Cap Density According to ASTM D2395: 44.14 lb. per cu ft (1250 kg per sq m).
      2. Profile Properties:

\*\* NOTE TO SPECIFIER \*\* Delete profile options not required.

* + - * 1. Profile STLS01X: Beam.

Width x Height: 1.20 x 0.033 inches (30.5 x 100.5 mm).

Mass: 0.05 lbs per ft (1.3 kg per m).

* + - * 1. Profile STLS02: Beam.

Width x Height: 1.97 x 5.91 inches (50 x 150 mm).

Mass: 0.12 lbs per ft (3.3 kg per m).

* + - * 1. Profile STLS09: Beam.

Width x Height: 1.18 x 1.97 inches (30 x 50 mm).

Mass: 0.03 lbs per ft (0.8 kg per m).

* + - * 1. Profile STLS06: Post.

Width x Height: 3.82 x 3.82 inches (97 x 97 mm).

Mass: 0.16 lbs per ft (4.6 kg per m).

* + - * 1. Profile STLS07: Post.

Width x Height: 5.91 x 5.91 inches (150 x 150 mm).

Mass: 0.29 lbs per ft (8.1 kg per m).

* + - * 1. Profile STLS08: Post.

Width x Height: 8.07 x 8.07 inches (205 x 205 mm).

Mass: 0.47 lbs per ft (13.3 kg per m).

* + - * 1. Profile STR02T: Sleeve.

Width x Height: 4.035 x 4.035 inches (102.5 x 102.5 mm).

* + - * 1. Decorative Beam:

Width x Thickness: 1.97 x 1.18 inches (50 x 30 mm).

Length: 19.01 feet (5.8 m)

Mass: 0.03 lbs per ft (0.8 kg per m).

* + - * 1. Decorative Beam:

Width x Thickness: 3.94 x 1.18 inches (100 x 30 mm).

Length: 19.01 (5.8 m)

Mass: 0.05 lbs per ft (1.3 kg per m).

* + - * 1. Decorative Beam:

Width x Thickness: 3.94 x 1.18 inches (100 x 30 mm).

Length: 19.01 feet (5.8 m)

Mass: 0.05 lbs per ft (1.3 kg per m).

* + - * 1. Decorative Beam:

Width x Thickness: 5.91 x 1.38 inches (150 x 35 mm).

Length: 19.01 feet (5.8 m)

Mass: 0.09 lbs per ft (2.6 kg per m).

* + - * 1. Decorative Beam:

Width x Thickness: 5.91 x 1.97 inches (150 x 50 mm).

Length: 19.01 feet (5.8 m)

Mass: 0.12 lbs per ft (3.3 kg per m).

* + - 1. Bamboo Composite Endcaps:

\*\* NOTE TO SPECIFIER \*\* Delete endcap options not required.

* + - * 1. Width x Thickness: 3.96 x 1.2 inches (100.5 x 30.5 mm).
        2. Width x Thickness: 5.9 x 1.38 inches (150 x 35 mm).
        3. Width x Thickness: 5.9 x 1.97 inches (15 x 50 mm).
        4. Width x Thickness: 1.18 x 1.97 inches (30 x 50 mm).
      1. Mechanical Properties:
         1. Material Specific: GB/T17657, GB/T24508.

Shore Hardness: 72.

Scratch Resistance: 8 N.

Abrasion Resistance: 0.049 g/100r.

Impact Resistance: Pass.

Surface Bonding Strength: 2.2 MPa.

* + - * 1. Material Specific: Aluminum 6063 - T5.

Modulus of Elasticity: 9993100 lbs per sq inch (68.9 GPa).

Poisson Ratio: 0.33.

Flexural Strength: 21030 lbs per sq inch (145 MPa).

Shear Modulus: 3741973 lbs per sq inch (25.8 GPa).

Shear Strength: 16969 lbs per sq inch (117 MPa).

* + - * 1. Flexural Performance: Test Method: GN/T 17657.

Profile: STLS01X:

Horizontal Span: 19.68 inches (500 mm).

Ultimate Load: 854.27 lbf (3.8 kN).

Vertical Span: 19.68 inches (500 mm).

Ultimate Load: 1258.93 lbf (5.6 kN).

Profile: STLS02:

Horizontal Span: 19.68 inches (500 mm).

Ultimate Load: 4586.10 lbf (20.4 kN).

Vertical Span: 19.68 inches (500 mm).

Profile: STLS09:

Horizontal Span: 19.68 inches (500 mm).

Ultimate Load: 764.35 lbf (3.4 kN).

Vertical Span: 19.68 inches (500 mm).

Ultimate Load: 876.75 lbf (3.9 kN).

* + - * 1. Flexural Performance: Test Method: ASTM D790.

Profile: STLS01:

Horizontal Span: 19.68 inches (500 mm).

Yield Strength: 1371.33 lbf (6.1 kN).

Ultimate Failure Load: 1843.43 lbf (8.2 kN).

Vertical Span: 19.68 inches (500 mm).

Yield Strength: 1461.26 (6.5 kN).

Ultimate Failure Load: 2113.20 lbf (9.4 kN).

Profile: STLS02:

Horizontal Span: 19.68 inches (500 mm).

Yield Strength: 3776.79 (16.8 kN).

Ultimate Failure Load: 5148.12 lbf (22.9 kN).

Vertical Span: 19.68 inches (500 mm).

Yield Strength: 2113.20 (9.4 kN).

Ultimate Failure Load: 3934.16 lbf (17.5 kN).

* + - 1. Connectors: ISQ 230, SANS 4998 Gr220, ASTM A653 Gr230 CS type A, EN 10346 DX 51D, JIS G3302 SGCC.
         1. Typical Yield Strength: 33359 lbs per sq inch (230 MPa).
         2. Ultimate Tensile Strength: 39160 to 72519 lbs per sq inch (270 to 500 MPa).
         3. Modulus of Elasticity: 29007548 lbs per sq inch (200 GPa).
         4. Bulk Modulus: 23206038 lbs per sq inch (160 GPa).
         5. Poisson Ratio: 0.29.
         6. Shear Modulus: 11603019 lbs per sq inch (80 GPa).
      2. Connector Strength Properties: Design Load Factor of Safety: 2.5. Failure Load: 202.33 lbf (900 N).
         1. Thickness: 0.08 inches (2.0 mm).
         2. Concealed Post Mount: Test Method: Internal.

Uplift Load:

Ultimate Load: 2974 lbf (13230 N).

Design Load: 1189 lbf (5290 N).

Lateral Load:

Ultimate Load: 3406 lbf (15150 N).

Design Load: 1362 lbf (6060 N).

Moment:

Ultimate Load: 508.92 ft per pound (690 N-m).

Design Load: 202.83 ft per pound (275 N-m).

\*\* NOTE TO SPECIFIER \*\* Delete bracket options not required.

* + - * 1. Concealed Clip-In U Bracket: Test Method: Internal.

Uplift Load:

Ultimate Load: 463 lbf (2060 N).

Design Load: 185 lbf (825 N).

Lateral Load:

Ultimate Load: 1102 lbf (4900 N).

Design Load: 441 lbf (1960 N).

* + - * 1. Concealed Clip-In U Bracket: Test Method: Internal.

Uplift Load:

Ultimate Load: 993 lbf (4415 N).

Design Load: 396 lbf (1765 N).

Moment: 33.93 ft per pound (46 N per m).

Lateral Load:

Ultimate Load: 993 lbf (4415 N).

Design Load: 396 lbf (1765 N).

Moment: 13.28 ft per pound (18 N per m).

* + - * 1. Weathering Coating: Powder Coating.

Ferro VEDOC VP Polyester, Matt Black.

Thickness: 0.002 to 0.003 inches (60 to 80 micrometers).

* + - * 1. Z - Point MDS Screw:

Screw Dimensions: M4.2 x 32 mm.

Screw Material: C1022 Carbon Steel.

Screw Coating: Magni 599, Dark Brown Epoxy, 20 micrometers thick.

Head Type: Pan head.

Drill Point Type: Pre-drilling point.

Effective Thread Length: 1.18 to 1.22 inches (30 to 31 mm).

Pre-Drilling Hole Size if Applicable: 0.13 inches (3.3 mm).

* + - 1. Aluminum Thermal Expansion Coefficient, ASTM D696: 23.4 x 10e-6 mm/mm degrees C.
      2. Thermal Conductivity of Aluminum at 77 degrees F (25 degrees C): 120.76 Btu/ft/hour (209 W/m/K)

\*\* NOTE TO SPECIFIER \*\* Delete color options not required.

* + - 1. Color: Rusteak, Brown (C04).
         1. Fading Properties, ASTM G154 1300 Hours: Delta E: 8.24.
      2. Color: Xavier, Grey (C11).
         1. Fading Properties, ASTM G154 1300 Hours: Delta E: 4.30.
      3. Color: Savanna.
      4. Color: Aruna.
      5. Finish: Brushed.

1. EXECUTION
   1. EXAMINATION
      1. Do not begin installation until the substrates have been properly constructed and prepared.
      2. If substrate preparation is the responsibility of another installer, notify Architect in writing of unsatisfactory preparation before proceeding.
   2. PREPARATION
      1. Clean surfaces thoroughly prior to installation.
      2. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
   3. INSTALLATION
      1. Install in accordance with local engineering and code requirements, local occupational health and safety regulations, manufacturer's instructions, approved submittals, and in proper relationship with adjacent construction.
         1. Install decorative extruded metal and components using manufacturer's recommended safety guidelines, and cutting, drilling, fastening, sanding, lubricating, adhering, and sealing methods.
   4. FIELD QUALITY CONTROL
      1. Field Inspection: Coordinate field inspection in accordance with appropriate sections in Division 01.

\*\* NOTE TO SPECIFIER \*\* Include if manufacturer provides field quality control with onsite personnel for instruction or supervision of product installation, application, erection, or construction. Delete if not required.

* + 1. Manufacturer's Services: Coordinate manufacturer's services in accordance with appropriate sections in Division 01.
  1. CLEANING AND PROTECTION
     1. Clean products in accordance with the manufacturers recommendations.
     2. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION