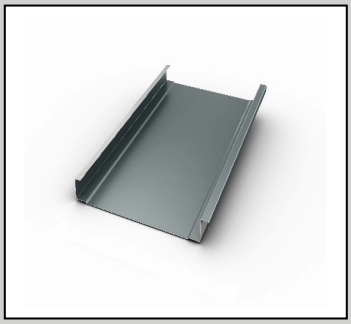
Product Data Sheet



DefendEX™ SS2000

Metal Paneling

Standing Seam Panel for Architectural Metal Roofing

Description

DefendEX™ SS2000 Double-Lock Standing Seam Roofing Panel (SS2000) utilizes the proven seaming process of Pittsburgh locking, in conjunction with a concealed-clip assembly. This design allows for expansion & contraction, with exceptional wind uplift ratings. An optional, pre-assembly, thermally-applied, in-seam sealant is available.

For standard color selection, consult the current *EXCEPTIONAL® Metals Color Chart*.
Custom color services are available upon request.

The minimum slope requirement for an EXCEPTIONAL Metals warranty is 3:12.
Contact the Duro-Last® Quality Assurance Department for additional warranty information.

NOTE: SS2000 is designed and tested for roofing applications only. Any other installation is at the risk of the contractor and is not the responsibility of Amrize™ Building Envelope LLC.

Method of Application

1. A smooth, solid substrate of plywood, OSB, or a rigid insulation board, mechanically fastened to a steel deck, is required for SS2000 panels.
2. SS2000 panels must be installed in a sequential order.
3. Prior to panel installation, application of an approved underlayment is required.
4. Panels must be locked in the field by a mechanical seamer.

NOTE: Install assembly according to the *Metal Roofing Design Guide* and the *Metal Roofing System Application Guide* found on the EXCEPTIONAL Metals website. Follow approved installation details.

Storage

- DefendEX metal panels should be stored in a well-ventilated, dry location, where no moisture can contact them. Moisture (From rain, snow, condensation, etc.) trapped between layers of material may cause water stains or white rust, which can affect the service life of the material and will detract from the appearance.
- If outdoor storage cannot be avoided, protect the panels with a ventilated canvas or waterproof paper cover. Do not use plastic, which can cause condensation. Keep the material off the ground in an inclined position with an insulator such as wood, or keep panels crated.
- Storage of end-use materials with protective film applied to the surface should be:
  - Wrapped/packaged to prevent exposure to direct UV, water, oils, or other contaminants.
  - Stored in an enclosed building or holding facility.
  - Within a temperature range of 45° – 90° F (7° – 32° C) and 20 – 80% relative humidity.
  - Less than six months with masking applied (warehouse storage and outdoor exposure combined).
  - Protective film may become brittle with long-term UV exposure.

Precautions

- Oil canning is not a cause for rejection.
    - Heavier gauges, narrower widths, striations, and embossing minimize oil canning.
- Ensure that the load weight of product pallets do not exceed the capabilities of the structure.
- Sealant for end laps and lap joints shall be non-drying, non-toxic, and non-shrinking with a serviceable temperature of -60° – 212° F (-51° – 100° C).
- Quality, long-life butyl sealants work best as a gasket sandwiched between two pieces of metal. Non-acetic cured, silicone, color-matching sealants are recommended when voids must be filled. Sealants are not a substitute for proper assembly and workmanship.
- Exercise caution when handling to avoid injury or product damage.
- Refer to Safety Data Sheets (SDS) for safety information, including PPE.
- **Immediately remove protective film after installation.**

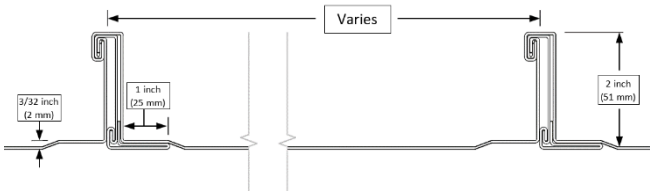
Manufacturing Location: Anoka, MN

Product Data

Property	Value
Tapered Panels	No
Radius Panels	Yes; 8 ft (2,438.00 mm) Min. Convex Only* (not available in 0.040 aluminum)
Stiffening Ribs Striations Sealant	Optional Optional Optional: In-seam, thermally-applied
Standard Panel Surface Optional Panel Surface Clip	Smooth Stucco Embossed: 26 ga (0.48 mm) Steel: 24 ga (0.64 mm) & 22 ga (0.64 mm) Aluminum: 0.032 in. (0.81 mm) & 0.040 in. (1.02 mm) SS2000 Low Float Clip, SS2000 Super Clip, & SS2000 Fixed Clip

Product Size

Property	Value
Panel Width Optimal Panel Width	8 – 24 in. (203.20 – 609.60 mm) 18 in. (457.20 mm)
Seam Height Minimum Panel Length Maximum Panel Length	2 in. (50.80 mm) 36 in. (914.40 mm) 600 in. (15.24 m)



Technical Information

Property	Value
Uplift Resistance Air Infiltration Structural Performance	UL 580, Class 90 ASTM E1680 ASTM E1592
Water Penetration Fire Rating Hail Impact Rating	ASTM E1646-95 & E2140 UL 263, UL 790, & UL Class A Rated Assemblies UL 2218, Class 4

NOTE: Testing is not applicable for all combinations of substrates, materials, and dimensions. All construction assemblies must be installed in accordance with the tested assembly. Refer to the *Metal Tested Assembly Guide* on the EXCEPTIONAL Metals website for tested assemblies and code listings.

Contact the Engineering Services Department for warranty requirements and additional Information.

Typical Properties

Material and Thickness	Metal Specification	Available Finishes
Aluminum 0.032 in. (0.81 mm) 0.040 in. (1.02 mm)	**Base Metal**: Aluminum **Minimum Yield**: 21 KSI (145 MPa) **Thermal Expansion**: 12.6 x 10^{-6} in/in/ °F (22.68 x 10^{-6} mm/mm/°C) **Modulus of Elasticity**: 10.0 x 10^{3} x KSI (68.9 MPa)	Anodized Kynar 500®/Hylar 5000® Unpainted/Mill-Finished
Zincalume®/Galvalume® Steel 26 ga (0.48 mm) 24 ga (0.64 mm) 22 ga (0.79 mm)	**Base Metal**: AZ-50 Hot Dipped Galvalume **Minimum Yield**: 50 KSI (345 MPa) **Thermal Expansion**: 6.7 x 10^{-6} in/in/ °F (12.06 x 10^{-6} mm/mm/°C) **Modulus of Elasticity**: 29.0 x 10^{6} x KSI (200 GPa)	Zincalume Plus/ Galvalume Plus/ Acrylume® – Clear Acrylic Coated Kynar 500/Hylar 5000
AGSC Copper 16 oz (0.56 mm) 20 oz (0.69 mm)	**Minimum Content**: 99.9% copper, silver counting as copper, cold rolled from ingots of 122 alloy. **Thermal Expansion**: 9.3 x 10^{-6} in/in/ °F (1.674 x 10^{-5} mm/mm/°C) Meets and/or exceeds ASTM B370 specification.	Natural

NOTE: Consult the appropriate base metal sheet and coil product data sheet for additional information on the base metal and coating. Not all materials and thicknesses are available from all locations.

Contact EXCEPTIONAL Metals Technical Services at (866) 337-4599 for further information.

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