

Product Data Sheet

Series 300-950 Aluminum Framed Skylight System – Crystal Structures

CSI Section: 08 63 00 – Metal-Framed Skylights

1. Product Name & Description

Product Name: Series 300-950 Aluminum Framed Skylight System

Description:

A prefabricated, metal-framed skylight system designed and manufactured by Crystal Structures. The Series 300-850 system offers architectural flexibility with proven durability, engineered performance, and customizable daylighting solutions. It is available in a range of configurations—pyramidal, ridge, hipped, barrel vault, and custom geometries—to meet design intent and project requirements.

2. Manufacturer

Manufacturer: Crystal Structures

Address: 3333 N Mead, Wichita, KS 67219

Phone: (316) 838-0033

Website: <https://www.crystalstructuresglazing.com>

3. Applicable Standards & Specifications

- Designed and manufactured in accordance with industry standards for aluminum-framed skylights.
 - Complies with applicable sections of the following:
 - **ASTM E283** – Air Leakage
 - **ASTM E331 / E547** – Water Penetration Resistance
 - **ASTM E330** – Structural Performance of Exterior Windows, Doors, Skylights
 - **NFRC 100 / 200 / 500** – Thermal and Condensation Performance
 - **AAMA 1503 / 2604 / 2605** – Thermal and Finish Performance
 - Systems can be engineered for IBC and ASCE 7 load requirements (wind, snow, dead, seismic).
 - Meets or exceeds **LEED daylighting** and **energy code** requirements depending on glazing selection.
-

4. System Components

Framing / Structure

- **Material:** 6063-T5 or T6 aluminum alloy extrusions.
- **Design:** Thermally enhanced, pressure-plate framing system using continuous aluminum mullions, rafters, and purlins engineered for load and span.
- **Configuration:** Available in Series 300 (light commercial) through Series 950 (large span/high load) profiles.
- **Thermal Break:** Polyamide or polyurethane poured-and-debrided thermal break for condensation control.
- **Finish Options:**
 - Clear anodized, bronze anodized, black anodized per **AAMA 611**.
 - High-performance fluoropolymer coatings (Kynar® 70% PVDF) per **AAMA 2605**.
 - Custom colors available.

Glazing / Light-Transmitting Elements

- **Standard Glazing:**
 - Insulated glass units (IGU) with low-E coated, tempered, or laminated outer lites.
 - Inner lites may be clear, tinted, or laminated safety glass for fall protection.
- **Optional Glazing:**
 - Monolithic glass, acrylic, or multiwall polycarbonate depending on performance needs.
- **Thickness Range:** 1" IGU typical (5/8" – 1-1/4" range available).
- **Seals:** Continuous EPDM glazing gaskets; perimeter sealant secondary defense.
- **Thermal & Optical Performance (typical ranges):**
 - U-Factor: 0.26 – 0.40
 - SHGC: 0.25 – 0.45
 - Visible Light Transmittance (VT): 0.45 – 0.68

Water Management / Flashing

- Integral gutter and weep system designed for rapid water evacuation.
- 4× typical weep capacity and 3× water movement compared to traditional skylight designs.
- Factory-formed aluminum sill and head flashing integrate with roofing systems (TPO, EPDM, modified bitumen, or metal panel).

5. Performance Criteria

- **Air Infiltration:** ≤ 0.06 cfm/ft² at 1.57 psf (ASTM E283).
- **Water Resistance:** No leakage at 15 psf (ASTM E331).

- **Deflection:** L/175 under design load (ASTM E330).
 - **Impact / Hail Resistance:** Meets FM 4473 and UL 2218 (for impact-resistant configurations).
 - **Thermal Break Efficiency:** Maintains interior frame temperature $\geq 50^{\circ}\text{F}$ at -10°F exterior ambient.
 - **Condensation Resistance Factor (CRF):** ≥ 60 (varies by configuration).
-

6. Design & Fabrication

- Custom fabricated to project size, span, pitch, and geometry.
 - Factory fabrication ensures precision mitered corners, fully sealed internal gutters, and continuous thermal barriers.
 - Welded aluminum curb frames available for pre-glazed or site-assembled installation.
 - Optional built-in accessory tracks for shading systems or hanging loads.
 - Compatible with electric shades, photovoltaic panels, or integrated smoke-vent systems.
-

7. Installation

- Install per Crystal Structures' shop drawings and written instructions.
 - Verify substrate and curb conditions before installation.
 - Provide sealant transitions between skylight frame and roof membrane.
 - Set units plumb, square, and true; torque fasteners to manufacturer recommendations.
 - Protect glazing from debris and construction residue.
-

8. Maintenance & Warranty

- Minimal maintenance required—inspect sealants, flashings, and gaskets annually.
 - Clean glass with mild, non-abrasive agents.
 - **Warranty:** 10-year standard warranty on aluminum frame and seal integrity; 10-year limited warranty available on insulated glass units (varies by glazing type).
-

9. Materials & Variants

- **Series 300:** Light commercial applications, spans $\leq 10'$.
- **Series 575:** Medium commercial, spans $\leq 20'$.
- **Series 750:** Large commercial spans $\leq 30'$.
- **Series 950:** Heavy commercial/large span, spans $\leq 40'$.

- Configurations include pyramidal, hipped, ridge, barrel vault, polygonal, and custom geometric forms.
 - Optional removable skylight modules for maintenance or equipment access.
-

10. Typical Applications

- Atriums, clerestories, corridors, industrial bays, educational and institutional facilities.
 - Ideal for buildings requiring large spans and durable framing with long service life.
 - Suitable for new construction or retrofit over existing curbs.
-

11. Ordering Information

- Provide the following data for fabrication:
 - Project name, size, and geometry.
 - Design loads (wind, snow, seismic).
 - Glazing type and thickness.
 - Finish specification and curb detail.
 - Roof system interface.
 - Shop drawings must be approved before production begins.
-

12. Compliance & Submittals

- Submittals include:
 - Product data and performance reports.
 - Shop drawings with load and attachment details.
 - Finish samples and glazing certifications.
- Engineering calculations sealed by a licensed professional engineer when required.