

Product Data Sheet

Series 750–950 Structural Glazed Skylight System – Crystal Structures

CSI Section: 08 64 00 – Glazed Structural Skylights

1. Product Name & Description

Product Name: Series 300–950 Structural Glazed Skylight System

Description:

The Series 300–950 Structural Skylight System by Crystal Structures is a high-performance, aluminum-framed, glazed roof assembly engineered for long spans, complex geometries, and maximum daylighting. Designed to meet both architectural and environmental demands, this system combines strength, aesthetics, and weather integrity using precision-fabricated aluminum rafters, purlins, and mullions with high-performance glass or polycarbonate glazing.

These structural systems are fully engineered for project-specific load requirements and can be configured for low-slope, ridge, hipped, barrel vault, polygonal, or custom freeform designs.

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

System design and fabrication meet or exceed the following:

- **ASTM E283** – Air Leakage
- **ASTM E330** – Structural Load Testing
- **ASTM E331 / E547** – Water Penetration Resistance
- **AAMA 1503 / 2604 / 2605** – Thermal and Finish Performance
- **NFRC 100 / 200 / 500** – Thermal and Condensation Ratings
- **ASTM E1886 / E1996** – Impact Resistance (optional with glazing)
- **FM 4473 / UL 2218** – Hail and Impact Resistance (optional with glazing)
- Designed to **IBC** and **ASCE 7** structural load standards
- **LEED**, **Energy Star**, and **NFRC** compliant glazing options available

4. System Components

Framing / Structure

- **Material:** Extruded 6063-T5/T6 aluminum alloy with integral structural reinforcements where required.
- **Design:** Structural mullion and rafter framing system with aluminum pressure caps and continuous internal gutters for controlled drainage.
- **Profiles:** Series 750–950 frame sizes, accommodating light to heavy commercial and long-span applications up to 40 ft.
- **Connections:** Factory-prepared miters, welded curb frames, and mechanically fastened cap systems with continuous weep channels.
- **Thermal Break:** Poured-and-debridged or polyamide barrier, depending on span and climate zone.
- **Finish Options:**
 - **Anodized:** Clear, bronze, black per AAMA 611
 - **Painted:** 70% PVDF (Kynar®/Hylar®) per AAMA 2605
 - Custom colors and two-tone finishes available

Glazing / Light-Transmitting Elements

- **Standard:**
 - Insulated glass units (1" nominal) with tempered or laminated outer lites and safety laminated inner lites.
 - Low-E coatings to control solar heat gain.
- **Optional:**
 - Triple-glazed, spandrel, or tinted glass
 - Multiwall polycarbonate or acrylic for weight reduction or impact resistance
 - Bird-safe fritted glass, solar control coatings, or diffused interlayers
- **Glazing Retention:** Pressure-plate and snap-cap system using EPDM gaskets and structural sealant (ASTM C1184).
- **Thermal / Optical Performance (typical):**
 - U-Factor: 0.25 – 0.38
 - SHGC: 0.22 – 0.45
 - VT: 0.45 – 0.70

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).
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Flashing & Drainage

- Fully integrated, internal gutter and weep system channels water toward perimeter curbs.
 - Factory-notched drainage pathways ensure redundancy.
 - Aluminum curb flashing compatible with all major roofing membranes (TPO, EPDM, PVC, BUR, metal).
 - Optional stainless steel or copper flashing for heritage projects.
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5. Performance Criteria

Test / Property	Result / Description
Air Infiltration	≤ 0.06 cfm/ft ² @ 1.57 psf (ASTM E283)
Water Resistance	No leakage @ 15 psf (ASTM E331/E547)
Structural Deflection	L/175 max (ASTM E330)
Impact Resistance	Meets FM 4473 & UL 2218 (option)
Condensation Resistance Factor (CRF)	≥ 60
Thermal Break Performance	Maintains ≥ 50°F interior frame temperature at −10°F ambient

6. Design & Fabrication

- Custom-engineered to architectural design intent, site load criteria, and roof geometry.
- Shop fabrication ensures precise joinery, welded intersections, and pre-assembled curbs when required.
- Factory pre-glazing available for smaller modules; field glazing for large-span assemblies.
- Structural spans up to 40 ft clear (Series 950).
- Integrated thermal breaks and condensation control weep systems.

- Compatible with **vented sections, operable ridge vents, or smoke hatch modules.**
 - Optional **built-in accessory track** for interior shading systems or maintenance tie-off.
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7. Installation

- Install in accordance with Crystal Structures' written instructions and approved shop drawings.
 - Verify structural support, curb condition, and membrane compatibility before placement.
 - Flash and seal to roofing per manufacturer detail and NRCA guidelines.
 - Field test for water integrity (ASTM E1105 recommended).
 - Protect glass and finishes during construction.
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8. Maintenance & Warranty

- Annual inspection of sealants, gaskets, and flashings recommended.
 - Clean glazing with mild, non-abrasive solution.
 - **Warranty:**
 - 10 years – Structural frame and finish
 - 10 years – Insulated glass seal (standard)
 - Extended warranties available upon request
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9. Materials & Variants

- **Series 300:** Light commercial, short span
 - **Series 575:** Medium commercial, up to 20 ft spans
 - **Series 750:** Heavy commercial, up to 30 ft spans
 - **Series 950:** Super Heavy commercial, large-span systems
 - **Glazing options:** Clear, tinted, low-E, bird-safe, spandrel, or polycarbonate
 - **Finish:** Clear anodized, bronze anodized, or custom PVDF coatings
 - **Geometries:** Ridge, pyramid, barrel vault, polygonal, lean-to, custom freeform
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10. Typical Applications

- Atriums, canopies, concourses, courtyards, educational and institutional buildings
 - Airport terminals, retail centers, and office complexes requiring expansive daylight
 - Greenhouse or botanical enclosures using structural aluminum and glass
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11. Ordering Information

Provide the following when requesting pricing or fabrication:

- Project name and location
 - Design loads (wind, snow, seismic)
 - Span dimensions and slope
 - Framing finish and glazing type
 - Curb detail and roofing type
 - Desired geometry and accessories
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12. Compliance & Submittals

- Submittals include:
 - Product data and detailed drawings
 - Engineering calculations
 - Glazing certifications and finish samples
- Systems engineered and sealed by a licensed structural engineer where required.