

Specifier Notes: This product guide specification is written according to the Construction Specifications Institute (CSI) Format, including MasterFormat, SectionFormat, and PageFormat, contained in the CSI Manual of Practice.

The section must be carefully reviewed and edited by the Architect to meet the requirements of the project and local building code. Coordinate this section with other specification sections and the drawings.

Delete all "Specifier Notes" when editing this section.

SECTION 08630 / 08 63 00

METAL FRAMED SKYLIGHTS (POLYCARBONATE)

Specifier Notes: This section covers Auburn® metal-framed skylights with polycarbonate glazing. Consult Major Industries for assistance in editing this section for the specific application.

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Metal-framed skylights with polycarbonate glazing.

Specifier Notes: Edit the following list of related sections as required for the project. List other sections with work directly related to the skylights.

1.2 RELATED SECTIONS

- A. Section 06100 - Rough Carpentry: Wood blocking.
- B. Section 07620 - Sheet Metal Flashing and Trim.
- C. Section 07720 - Roof Accessories: Manufactured curbs.
- D. Section 07920 - Joint Sealants.

Specifier Notes: List standards referenced in this section, complete with designations and titles. This article does not require compliance with standards, but is merely a listing of those used.

1.3 REFERENCES

- A. AAMA 501.2 - Field Test of Metal Store Fronts, Curtainwall and Sloped Glazing for Water Leakage.
- B. AAMA/WDMA 1600/I.S. 7 - Skylights.
- C. AAMA 2604 – High Performance Organic Coatings on Aluminum Extrusions and Panels.
- D. AAMA 2605 - Superior Performing Organic Coatings on Aluminum Extrusions and Panels.
- E. ANSI Z97.1 - Safety Glazing Materials Used in Buildings.

- F. ASTM A 193 - Alloy-Steel and Stainless Steel Bolting Materials for High-Temperature Service.
- G. ASTM B 211 - Aluminum and Aluminum-Alloy Bar, Rod, and Wire.
- H. ASTM B 221 - Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
- I. ASTM B 316 - Aluminum and Aluminum-Alloy Rivet and Cold-Heading Wire and Rods.
- J. ASTM C 864 - Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers.
- K. ASTM C 1036 - Flat Glazing.
- L. ASTM C 1048 - Heat-Treated Flat Glazing - Kind HS, Kind FT Coated and Uncoated Glazing.
- M. ASTM C 1115 - Dense Elastomeric Silicone Rubber Gaskets and Accessories.
- N. ASTM D 2240 - Rubber Property - Durometer Hardness.
- O. ASTM E 283 - Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
- P. ASTM E 330 - Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
- Q. ASTM E 331 - Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
- R. ASTM E 773 - Accelerated Weathering of Sealed Insulating Glazing Units.
- S. ASTM E 774 - Classification of the Durability of Sealed Insulating Glazing Units.
- T. CPSC 16 CFR 1201 - Safety Standard for Architectural Glazing Materials.

1.4 DESIGN / PERFORMANCE REQUIREMENTS

- A. Design Requirements:
 1. Extruded aluminum members with an integral screw race for secure attachment of exterior caps and setting blocks.
 2. Integral guttering system within skylight framing members for positive condensation drainage.
- B. Performance Requirements:
 1. Framing Members: Sufficient sizes as required to support design loads.
 2. Deflection of a Framing Member in a Direction Normal to Plane of Glazing: Shall not exceed L/100.

Specifier Notes: Provide project design data as required.

- C. Design Loads: Framing components shall be designed to support following loads:

1. Live Load:
 - a. _____ psf.
 - b. As indicated on the Drawings.
 2. Wind Load:
 - a. _____ psf.
 - b. As indicated on the Drawings.
 3. Alternate Design Loads: Conform to applicable state and local codes.
- D. Physical Properties: Allowable stresses shall incorporate following safety factors, unless otherwise specified:
1. Air Infiltration:
 - a. ASTM E 283: Not to exceed 0.05 cfm/sq ft at a static pressure of 6.24 psf (50 mph).
 - b. AAMA/WDMA 1600/I.S. 7, SKG-HC40: Not to exceed 0.10 cfm/sq ft at a static pressure of 6.24 psf (50 mph).
 2. Static Water Penetration:
 - a. ASTM E 331: No uncontrolled water leakage at a static pressure of 12 psf (69.3 mph) and a minimum water flow rate of 5 gal/hr/sq ft for 15 minutes.
 - b. AAMA/WDMA 1600/I.S. 7, SKG-HC40: No uncontrolled water leakage at a static pressure of 6 psf and a minimum water flow rate of 5 gal/hr/sq ft for 15 minutes.
 3. Structural Load Test:
 - a. ASTM E 330: Maximum allowable deflection of any member shall not exceed L/175.
 - b. AAMA/WDMA 1600/I.S. 7, SKG-HC40: Permanent set of any frame member shall not exceed 0.4 percent of its unsupported span at 60 psf positive and negative test pressures.
 4. Simulated Field Test: Test skylights for dynamic water resistance at a static pressure of 12 psf in accordance with AAMA 501.2. No uncontrolled water leakage.
- E. Expansion and Contraction: Design and install components with provisions for expansion and contraction due to a 100 degree F (56 degrees C) temperature variation.

1.5 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 1. Preparation instructions and recommendations.
 2. Storage and handling requirements and recommendations.
 3. Installation methods.
 4. Maintenance instructions.
- C. Shop Drawings: Include plans, elevations, sections, and details, indicating dimensions, tolerances, profiles, anchorage, connections, fasteners, provisions for expansion and contraction, drainage, flashing, finish, glazing, and attachments to other Work.
- D. Design Data:
 1. Submit manufacturer's structural calculations showing sizes of framing members and loads applied to supporting structure based on design loads.
 2. Structural calculations shall be prepared in accordance with Aluminum Association Specifications for Aluminum Structures SAS30 by a professional engineer qualified in design of self-supporting, sloped glazed systems and licensed in state where skylights are to be installed.

- E. LEED Submittals: Provide documentation of how the requirements of Credit will be met:
 1. Product data indicating percentages by weight of post-consumer and post-industrial recycled content for products having recycled content.
 2. Data related to distance of project from manufacturing site, as well as distance of project from material source.
- F. Test Reports: Submit certified test reports from a qualified independent testing agency, indicating skylights comply with specified requirements, based on testing of current products. Submit results from the following tests:
 1. Air infiltration, ASTM E 283.
 2. Water penetration, ASTM E 331.
 3. Uniform load deflection, ASTM E 72 and E 330.
 4. Simulated Field Test, ASTM E 501.2.
 5. Burn Extent: ASTM D635
 6. Self Ignition: ASTM D1929
 7. Flame Spread and Smoke Developed: ASTM E84
- G. Selection Samples: Submit manufacturer's sample(s) of each type of finish and glazing material as requested before fabrication.
- H. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Manufacturer to have minimum ten years documented experience in the fabrication of skylights of the type required for this project and be capable of providing field service representation during installation.
- B. Installer Qualifications: Installer to have minimum five years documented experience in the work of this section who has specialized in the installation of work similar to that required for this project and is approved by the manufacturer.

Specifier Notes: Describe requirements for a preinstallation meeting to coordinate the installation of the skylights. Edit the paragraph as required for the project.

- C. Preinstallation Meeting: Convene a Preinstallation meeting 2 weeks before start of installation of skylights. Require attendance of parties directly affecting work of this section, including Contractor, Architect, installer, and manufacturer's representative. Review requirements for preparation, installation, cleaning, protection, and coordination with other work.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name, manufacturer, and location of installation.
- B. Storage: Store products above the floor and under cover in a clean, dry area until ready for installation.
- C. Handling: Protect materials and finish from damage during handling and installation.

1.8 SEQUENCING

- A. Ensure that locating templates and other information required for installation of products of this section are furnished to affected trades in time to prevent interruption of construction progress.

- B. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

1.9 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.10 WARRANTY

- A. Framing System: To be free from defects in materials and workmanship for a period of 1 year from date of shipment.
- B. Polycarbonate Glazing: 10 year warranty referring to the following characteristics:
 - a. Change in yellowness index, tested in accordance to ASTM D1925-77, will be inferior to 10 delta E after 10 years in comparison with the original value.
 - b. Light transmittance, tested in accordance to ASTM D 1033-77, will not undergo the 6% after 10 years in comparison with the original value.
 - c. No loss of impact strength through weathering leading to hail breakage, for 10 years.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Auburn® Skylights, a Division of Major Industries Inc., which is located at: PO Box 306, Wausau, WI 54402-0306; Toll Free Tel: 888-759-2678; Tel: 715-842-4616; Fax: 715-848-3336; Email: info@majorskylights.com; Web: www.majorskylights.com
- B. Substitutions: Not permitted.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01600.

2.2 METAL-FRAMED SKYLIGHTS

- A. Standard Skylights:
 - 1. Style: [Single Slope] [Standard Ridge] [Hip Ridge] [Pyramid].
 - 2. Overall Dimensions: [_____ width x _____ length]
[As indicated on the drawings].

2.3 MATERIALS

- A. Framing Materials:
 - 1. Extruded Aluminum: ASTM B 221, Alloy 6063-T5/T6, 6061-T5/T6, or equivalent. Material alloy, temper and thickness shall be as required for loading, deflection, cross-sectional configuration and finish.
- B. Glazing Strips:
 - 1. Extruded EPDM rubber, ASTM C 864 and C 1115.
 - 2. Durometer: 70 plus or minus.
 - 3. Color: Black
- C. Flashing:
 - 1. Anodized Coating: Aluminum, Alloy 5005.
 - 2. Pigmented Organic Coating: Aluminum, Alloy 5052.
 - 3. Thickness: 0.040 inch.

- D. Setting Blocks: Extruded Type II EPDM.
 - 1. Support glass and provide proper edge clearances and glass bites in accordance with manufacturer's instructions.
 - 2. Hardness, ASTM D 2240, Type A: Durometer 80 plus or minus
 - 3. Color: Black.

- E. Condensation Control System:
 - 1. Mechanically design entire condensation control system to function properly with minimal dependency upon sealants.
 - 2. Skylight system provided with an integral gutter system on all framing members, including rafters.

- F. Custom Designs:
 - 1. Perform fitting and assembly of custom designs at factory, insofar as practicable.
 - 2. Completely assemble, mark, and disassemble components which cannot be permanently factory assembled, before delivery to site to ensure proper assembly in field.

- G. Glazing Caps:
 - 1. Extruded aluminum, Alloy 6063-T6.
 - 2. Attach glazing caps with glazing cap fasteners located at a maximum of 9 inches on center or as required to resist negative loading.

- H. Curb:
 - 1. Continuous aluminum curb with expansion joints as required.
 - 2. Locate weep holes in curb to positively drain condensation to exterior of skylight at each rafter connection.

- I. Fasteners:
 - 1. For Framing Connections: As required by connection.
 - a. Aluminum: ASTM B 211, Alloy 2024-T4.
 - b. Stainless Steel: ASTM A 193, Series B8 300.
 - c. Aluminum Rivets: ASTM B 316.
 - 2. For Exterior Cap Retainers: Stainless steel screws, ASTM A 193, Series B8 300.
 - 3. Finish: Exposed fasteners to match aluminum finish

- J. Sealants:
 - 1. Nonstructural Flush Glazed Joints and Weather Seal Joints: Silicone sealants. Apply in accordance with sealant manufacturer's instructions.
 - 2. Do not use structural silicone sealants to support dead weight of vertical glass or panels.

- I. Reinforcement Straps:
 - 1. Attach reinforcement straps with fasteners. Located at a maximum of 60 inches on center or as required to resist loading on polycarbonate glazing.

Specifier Notes: Specify one of the following aluminum finishes and delete the others. Consult Major Industries for assistance in determining required finish for the specific application.

2.4 ALUMINUM FINISHES

- A. Anodized Coating: Architectural Class I clear anodized, Type AA-M10C22A41.
- B. Anodized Coating: Architectural Class II clear anodized, Type AA-M10C22A31.

- C. Anodized Coating: Architectural Class I pigmented anodized, Type AA-M10C22A42/A44.
 - 1. Color: _____.
 - 2. Color: As selected by Architect from manufacturer's standard colors.
 - 3. Color: As indicated on the Drawings.
- D. Pigmented Organic Coating: AAMA 2604.
 - 1. Color: _____.
 - 2. Color: As selected by Architect from manufacturer's standard colors.
 - 3. Color: As indicated on the Drawings.
- E. High-Performance Pigmented Organic Coating: AAMA 2605.
 - 1. Color: _____.
 - 2. Color: As selected by Architect from manufacturer's standard colors.
 - 3. Color: As indicated on the Drawings.

2.5 GLAZING

- A. Multi-wall polycarbonate with manufactures UV stabilized surface to provide resistance to color change.
- B. Polycarbonate face sheet shall pass the requirements of:
 - a. Class A per ASTM D635
 - b. Gardner Impact Falling Dart
 - c. Exceed Hail Impact requirements of ASTM E822
- C. Sloped Glazing Units:
 - 1. Thickness: 16mm
 - 2. Color:
 - a. [Clear: 74% LT, .75 SHGC, .86 SC] [Bronze: 37% LT, .57 SHGC, .65 SC] [Opal: 52% LT .63 SHGC, .72 SCLT] [As selected by Architect from manufacturers standard colors.]
 - 3. U-Value: .40 Btu/h/ft²/°F
- D. Sloped Glazing Units:
 - 1. Thickness: 25mm
 - 2. Color:
 - a. [Clear: 69% LT, .61 SHGC, .61 SC] [Bronze: 35% LT, .50 SHGC, .57 SC] [Opal: 42% LT .50 SHGC, .57 SCLT] [As selected by Architect from manufacturers standard colors.]
 - 3. U-Value: .26 Btu/h/ft²/°F
- E. Sloped Glazing Units:
 - 1. Thickness: 32mm
 - 2. Color:
 - a. [Clear: 66% LT, .60 SHGC, .69 SC] [Bronze: 35% LT, .50 SHGC, .57 SC] [Opal: 42% LT .54 SHGC, .62 SCLT] [As selected by Architect from manufacturers standard colors.]
 - 3. U-Value: .24 Btu/h/ft²/°F

PART 3 EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. Examine areas to receive skylights with installer and manufacturer's representative present, including supporting structure and substrate for dimensions, tolerances, material conditions, and support.
- C. Notify Architect of conditions that would adversely affect installation or subsequent utilization of skylights. Do not proceed with installation until unsatisfactory conditions are corrected.

3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Ensure supports to receive skylights are clean, flat, level, plumb, and square.
- C. Aluminum Protection: Apply a protective coating of bituminous paint or other neutral material to dissimilar materials coming in contact with aluminum or separate with a nonabsorbent isolator.

3.3 INSTALLATION

- A. Install skylights in accordance with manufacturer's instructions at locations indicated on the Drawings.
- B. Install skylights level, plumb, square, accurately aligned, correctly located, and without warp or rack.
- C. Do not install skylight components with deficiencies or dimensional errors. Do not proceed with installation until unsatisfactory components are replaced.
- D. Anchor skylights securely in place to supports. Use attachment methods permitting adjustment for construction tolerances, irregularities, alignment, and expansion and contraction.
- E. Install skylights including flashings, fasteners, hardware, sealants, and glazing materials required for a complete, weatherproof installation.
- F. Isolate with protective barrier contact areas between aluminum and dissimilar metals.
- G. Sheet Metal Flashing: Install sheet metal flashing at skylight perimeter as specified in Section 07620.
- H. Sealants: Install sealants at sill flashing and perimeter framing as required to prevent air and water intrusion as specified in Section 07920.

3.4 FIELD QUALITY CONTROL

- A. Inspect installed skylights for required fasteners, wet-sealing and uniformity of retaining caps.
- B. Inspect skylight framing members for level and plumb.
- C. Inspect installation of sheet metal flashing and sealants.
- D. Inspect glazing units for cracks, deep scratches, and other damage.

3.5 CLEANING

- A. Clean installed skylights in accordance with manufacturer's instructions.
- B. Clean skylights inside and outside, including member connections and inside corners, immediately after installation and after sealants have cured.
- C. Remove temporary protective coverings and strippable coatings from prefinished metal surfaces.
- D. Remove labels and part number markings from components.
- E. Remove excess sealant in accordance with sealant manufacturer's instructions.
- F. Do not use harsh cleaning materials or methods that would damage metal finishes or glazing.

3.6 PROTECTION

- A. Protect installed products until completion of project in accordance with manufacturer's instructions.
- B. Maintain protection to ensure that, except for normal weathering, skylights will be without deterioration at time of substantial completion.
- C. Remove and replace glass units that are chipped, cracked, abraded or otherwise damaged.

3.7 SCHEDULES

- A. :
- B. :

END OF SECTION