

SECTION 08630

METAL FRAMED SKYLIGHTS

This section includes site assembled metal-framed skylight systems with glass glazing.

Contact Dome'l at domel@handi-hut.com for additional information about this specification. Visit the Dome'l web site at www.domelskylights.com for current product announcements.

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Metal framed skylights.
 - 2. Glass and plastic glazing.
 - 3. Fasteners, anchors, reinforcement, and flashings.

- B. Related Sections:
 - 1. Section 06100 - Rough Carpentry: Wood for field assembled curb.
 - 2. Section 08800 - Glazing: Glass and glazing not integral with metal-framed skylights.

1.2 REFERENCES

Reference standards from the following organizations are included in this specification. The standards are available on the organization's websites.

- A. Aluminum Association [http: www.aluminum.org](http://www.aluminum.org).
- B. American Architectural Manufacturers Association: www.aamanet.org.
- C. American Society of Civil Engineers: www.asce.org.
- D. ASTM International: www.astm.org.
- E. Consumer Products Safety Commission: www.cpsc.gov.
- F. SSPC - Society for Protective Coatings: www.sspc.org.

1.3 PERFORMANCE REQUIREMENTS

Use this article carefully; restrict statements to identify system performance requirements or function criteria only. Use the second paragraph below to specify loads when not shown on the Drawings.

- A. System Design: Design and size components to withstand loads [as indicated on Drawings] [as required by applicable code].

***** [OR] *****

- B. System Design: Design and size components to withstand the following load requirements [as measured in accordance with ASTM E330]:

1. Roof [Snow Load] [Live Load]: [] lbf/sq ft ([] Pa).
2. Positive Wind Load: [] lbf/sq ft ([] Pa).
3. Negative (Uplift) Wind Load: [] lbf/sq ft ([] Pa).
4. Concentrated load at any location on framing: 250 lb (114 kg).

- C. Deflection: Design and size components for the following maximum allowable deflection of glazing support members:

1. Normal to Glass Plane: 1/175 of span.
2. Parallel to Glass Plane: 1/360 of span.

- D. Allow for expansion and contraction within system components caused by a cycling surface temperature range of 170 F degrees (95 C degrees) without causing detrimental effects to system or components.

- E. Water Penetration: None, when tested in accordance with ASTM E331 at test pressure of 15 psf (718 Pa) positive static air pressure difference.

- F. Air Infiltration: Not to exceed 0.06 cfm/sq ft (0.3 L/s/m²) under static air pressure of 6.24 psf (300 Pa), when tested in accordance with ASTM E283.

1.4 SUBMITTALS

Only request submittals needed to verify compliance with Project requirements.

- A. Shop Drawings: Indicate configurations, dimensions, fastening methods, and installation details for Architects approval.

- B. Samples:

1. Submit samples of framing materials with interior and exterior finishes.
2. Submit samples of glass and glazing materials.

- C. Test Reports: Submit reports by independent testing laboratory certifying performance ratings.

1.5 QUALITY ASSURANCE

- A. [Tempered] [and] [Laminated] Glass: Conform to CSPC 16 CRF 1201, Category II with each light labeled as safety glass.

1.6 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum [ten] [_____] years [documented] experience.
- B. Installer: Company specializing in performing work of this section with minimum five [_____] years [documented] experience [and approved by manufacturer].

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Accept skylights on site in manufacturers packaging. Inspect for damage and report to manufacturer within 24 hours of receipt.
- B. Provide [wrapping] [strippable material] to protect prefinished aluminum surfaces. Do not use adhesive papers or spray coatings that bond when exposed to sunlight or weather.

1.8 FIELD MEASUREMENTS

- A. Verify field measurements prior to fabrication of skylight unit.

1.9 COORDINATION

- A. Coordinate work with installation of specified roof system, sheet metal flashing and vapor barriers to ensure continuity of weather and environmental barriers.

1.10 WARRANTY

- A. Furnish warranties for the following beginning at date of Substantial Completion:
 - 1. Installed system will be free of defects in materials and workmanship and water leakage in compliance with manufacturer's standard five year warranty.
 - 2. Finish will be free of defects in materials in compliance with supplier's standard one year warranty.
 - 3. Glass will be free of defective material, delamination, and insulating glass seal failure in compliance with glass manufacturer's standard ten year warranty. Glass breakage is not covered under warranty.

PART 2 PRODUCTS

2.1 SKYLIGHTS

A. Manufacturer:

1. Dome'l Inc., 3 Grunwald Street, Clifton, New Jersey 07013.
 - a. Phone: 973-614-1800, fax: 973-614-8011.
 - b. Website: www.domelskylights.com.
 - c. Substitutions: [Permitted as approved by Architect.] [Not permitted.]

Edit the following descriptive specifications to identify project requirements.

When more than one skylight type is in Project, modify the following paragraph to differentiate. Coordinate type designations with schedules and Drawing indications.

B. Skylights:

1. Skylight Frame: Extruded aluminum, mitered corners, structural members [with integral condensation collection and guttering system].
2. Glazing System: [Mechanically retained glazing system] [Mechanically retained glazing system for vertical joints and structural adhesive glazing for horizontal joints].
3. Glazing: [Insulating glass] [Non-insulating glass] [Structural, multi-wall polycarbonate sheets] [_____].
4. Profile: [Pyramid] [Ridge type with vertical ends] [Ridge type with hip ends] [Single pitch] [Single pitch with vertical wall] [Ridge] [Polygon] [As indicated on Drawings].

2.2 COMPONENTS

A. Extruded Aluminum: 6063-T5 or 6063-T6 members complying with ASTM B221.

B. Internal Reinforcement: Aluminum or steel shapes as required for strength and mullion size limitations. [Steel shapes hot-dip galvanized after fabrication in accordance with ASTM A123/A123M.]

Guardian Sun-Guard LE-63 clear low-E insulating glass is standard with Dome'l. A variety of glass options are available including tinted exterior lights.

For insulating glass units larger than 16 sf (1.47 sq m), use second paragraph below to specify 1-3/16 inch (30 mm) overall thickness. Use first paragraph for smaller lights. Use only one glass thickness for each skylight.

- C. Insulating Glass: ASTM E774 and ASTM E773; double pane; interpane space filled with dry air; 1 inch (25 mm) total thickness.
1. Product: Sun-Guard LE-63 manufactured by Guardian Industries.
 2. Outer Pane: ASTM C1048; 1/4 inch (6 mm) thick clear, [tempered] [heat strengthened] glass, with Low-E coating on surface 2.
 3. Inner Pane: ASTM C1177; 1/4 inch (6 mm) total thickness clear laminated glass with 0.030 inch (0.76 mm) thick interlayer.
 - a. Light Transmittance: 62 percent minimum.
 - b. Maximum Reflectance: 12 percent indoors; 13 percent outdoors.
 - c. Direct Solar Energy: 40 percent maximum transmittance; 14 percent minimum reflectance.
 - d. Maximum U-Value: 0.35 Btu/hr/sf/deg F (2.0 W/sq m/deg K) winter; and 0.38 Btu/hr/sf/deg F (2.16 W/sq m/deg K) summer.
 - e. Solar Heat Gain Coefficient: 0.501 maximum.

***** [OR] *****

- D. Insulating Glass: ASTM E774 and ASTM E773; double pane; interpane space filled with dry air; 1-3/16 inch (30 mm) total thickness.
1. Product: Sun-Guard LE-63 manufactured by Guardian Industries.
 2. Outer Pane: ASTM C1048; 1/4 inch (6 mm) thick clear, [tempered] [heat strengthened] glass, with Low-E coating on surface 2.

For inner pane, use annealed glass for lights up to 18 sf (1.67 sq m) and use heat strengthened glass for larger lights.

3. Inner Pane: ASTM C1177; 7/16 inch (11 mm) total thickness comprised of two panes of 3/16 inch (5 mm) thick clear laminated [annealed] [heat strengthened] glass and 0.060 inch (1.5 mm) thick interlayer.
 - a. Light Transmittance: 60 percent minimum.
 - b. Maximum Reflectance: 12 percent indoors; 13 percent outdoors.
 - c. Direct Solar Energy: 36 percent maximum transmittance; 14 percent minimum reflectance.
 - d. Maximum U-Value: 0.34 Btu/hr/sf/deg F (2.0 W/sq m/deg K) winter; and 0.38 Btu/hr/sf/deg F (2.16 W/sq m/deg K) summer.
 - e. Solar Heat Gain Coefficient: 0.491 maximum.

***** [OR] *****

When glass other than standard is required, specify requirements with other glass required for project.

- E. Insulating Glass: As specified in Section 08800.
- F. Sealants:
 - 1. Glazing Sealant: ASTM C920, single component; neutral curing; medium modulus silicone for glazing applications.
 - 2. Perimeter Sealant: ASTM C920, Grade NS, Class 25, Uses M, G, and A; component, silicone color as selected.
- G. Glazing Accessories: Setting block, edge blocks, and spacers; manufacturer's standard compatible with insulating glass.

2.3 ACCESSORIES

Use operable vent only in skylights with 1 inch (25 mm) thick insulating glass.

- A. Operable Vent Unit: Manufacturer's standard extruded aluminum unit with triple thermal break; integral condensation weep system, [manual] [motor] operator, insulating glass, and insect screen.
 - 1. Manual Operator: Aluminum telescoping pole with eyelet.

***** [OR] *****
 - 2. Motor Operator: Manufacturer's standard with remote infrared control and rain sensor.
 - 3. Insect Screen: Aluminum frame with fiberglass mesh screen.
- B. Flashing: Aluminum sheet; thickness to suit application, same finish as skylight framing; secured with [concealed] [exposed to view] fastening method.
- C. Perimeter Anchors and Fasteners: Stainless steel or aluminum; non-corroding and non-electrolytic with other system components.
- D. Bituminous Coating: SSPC Paint 12; cold-applied asphalt mastic.

2.4 FABRICATION

- A. Make joints rigid, with connections that are flush, hairline, and weatherproof.
- B. Fabricate components to allow for expansion and contraction with minimum clearance and shim spacing around perimeter of assembly.
- C. Fabricate components true to detail and free from defects impairing appearance, strength and durability.

- D. Form rafters and sill extrusions to act as gutters to weep water to exterior. Do not penetrate drainage area with fasteners.
- E. Separate dissimilar metals with bituminous paint applied to minimum 30 mils (0.76 mm) thick.

2.5 FACTORY FINISHING

Dome'l offers clear anodized, dark bronze anodized and white baked enamel as standard finishes. Kynar 500 finishes and other baked enamel colors are available as optional finishes. Selecting standard finishes will permit faster fabrication and shipment times.

Different finishes and paint colors can be specified for interior and exterior surfaces using any combination of standard and optional finishes.

- A. Standard Clear Anodized Finish: AAMA 611; AA-M12C22A41 non-specular as fabricated mechanical finish, medium matte chemical finish, and Architectural Class I 0.7 mils (0.018 mm) clear anodized coating.

***** [OR] *****

- B. Standard Dark Bronze Anodized Finish: AAMA 611; AA-M12C22A44 non-specular as fabricated mechanical finish, medium matte chemical finish, and Architectural Class I 0.7 mils (0.018 mm) color anodized coating.

***** [OR] *****

- C. Standard White Painted Finish: AA-M12C12R1x non-specular as fabricated mechanical finish, chemically cleaned, and prepared for applied coating; with organic coating.
 - 1. Standard Painted Finish: AAMA 2603; baked enamel finish system, white color.

***** [OR] *****

- D. Optional Custom Painted Finish:
 - 1. Baked Enamel Finish: AAMA 2603; [_____] color [as selected from manufacturer's standard range].
 - 2. High Performance Finish: AAMA 2605; Kynar 500 fluoropolymer coating with 70 percent polyvinylidene fluoride resin; two-coat system; [_____] color [as selected from manufacturer's standard range].

- E. Two Tone Finishes:
 - 1. Interior Finish: [Clear anodized] [Bronze anodized] [[Standard] [Optional] painted finish].
 - a. Paint Color: [White] [As selected from manufacturer's standard range].

2. Exterior Finish: [Clear anodized] [Bronze anodized] [[Standard] [Optional] painted finish].
 - a. Paint Color: [White] [As selected from manufacturer's standard range].

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify structural curb is ready to receive skylight and conditions are satisfactory for installation to proceed.
 1. Notify Architect of unsatisfactory conditions capable of affecting skylight installation or performance.
 2. Do not begin installation until unsatisfactory conditions are corrected.

3.2 PREPARATION

- A. Apply minimum 1 coat of bituminous coating to concealed aluminum [and steel] surfaces in contact with dissimilar metals.
- B. Clean surfaces prior to installation.

3.3 INSTALLATION

- A. Install skylights in accordance with manufacturer's instructions.
- B. Set skylight structure plumb, level, and true to line, without warp or rack of frames or glazing panels. Anchor securely in place [in accordance with approved shop drawings].
- C. Maintain assembly dimensional tolerances, aligning with adjacent Work.
- D. Install glazing in accordance with manufacturer's recommended procedures for field installed glazing.
- E. Mask adjacent surfaces, clean joint surfaces, and install backing and field-applied sealants for weathertight installation.

3.4 ERECTION TOLERANCES

- A. Maximum Variation from Plumb, Level, or Line: **1/8 inch per 10 feet (1 mm/m)**, or **1/2 inch (13 mm)** total in overall dimension.
- B. Alignment of Two Adjoining Members Abutting in Plane: Within **1/16 inch (1.6 mm)**.

3.5 FIELD QUALITY CONTROL

The test in the first paragraph below is relatively simple, using a hand held spray nozzle to apply water to the skylight framing and glass to check for potential leaks. The second test is more involved, requiring a test chamber to apply pressure to the skylight assembly and a spray rack to apply water to the entire test surface. Select a test appropriate to the project conditions.

- A. Field Water Test: [Contractor] [Owner] performed test in compliance with AAMA 501.2.

***** [OR] *****

- B. Field Water Test: ASTM E1105; [Contractor] [Owner] performed uniform static air pressure test with minimum 80 percent of test pressure specified for skylight water leakage performance.
- C. Perform one test on [designated] [each] skylight assembly after completion.
- D. When testing results in leakage, eliminate causes of leaks and retest until no leaks occur.

3.6 CLEANING

- A. Remove protective material from prefinished aluminum surfaces.
- B. Wash down exposed surfaces; wipe surfaces clean.
- C. Remove excess sealant by methods recommended by skylight manufacturer.
- D. Touch up damaged finishes so repair is imperceptible from **10 feet (3 meters)**. Remove and replace components that cannot be satisfactorily touched up.

3.7 PROTECTION OF FINISHED WORK

- A. Protection of installed skylight system from damage by work of other trades is not the responsibility of skylight manufacturer.

END OF SECTION