Bristolite® Daylighting Systems
harnessing sunlight for energy savings

SECTION 08625
METAL FRAMED SKYLIGHT

PART 1 GENERAL

1.01 SECTION INCLUDES:

A. Engineering, preparation of fabrication drawings and structural calculations for the entire skylight system.

B. Fabrication and installation of extruded aluminum skylight assembly.

C. Finish of skylight assembly and related flashings

D. Gasket and sealants

E. Skylight glass and glazing

F. Skylight related flashings

1.02 RELATED SECTIONS

A.	Section 05120	Structural Steel
B.	Section 05160	Space Frame
C.	Section 05500	Metal Fabrication
D.	Section 07600	Flashing and Sheet Metal
E.	Section 08800	Glass and Glazing
F.	Section (____)	Roofing

1.03 REFERENCED (OPTIONAL)

A. American Architectural Manufacturers Association (AAMA):

1. 501.1: Standard Test Method for Metal Curtain Walls for Water Penetration Using Dynamic Pressure

2.	501.2:	Field Check of Metal Curtain Walls for Water Leakage
3.	501.3:	Field Check of Water Penetration Through Installed Exterior Windows, Curtain Walls and Doors by Uniform Air Pressure Difference
4.	603.8:	Performance Requirements and Test Procedures for Pigmented Organic Coatings on Extruded Aluminum
5.	605.2:	Specifications for High Performance Organic Coatings on Architectural Extrusions and Panels
6.	606.1:	Voluntary Guide Specification and Inspection Methods for Integral Color Anodic Finishes for Architectural Aluminum
7.	607.1:	Voluntary Guide Specifications and Inspection Methods for Clear Anodize Finishes for Architectural Aluminum
8.	*****	AAMA Sloped Glazing Literature

B. American Society for Testing and Materials (ASTM):

1.	A193:	Standard Specifications for Alloy-Steel and Stainless Steel Materials for High Temperature Service
2.	A307:	Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength
3.	B209:	Specification for Aluminum and Aluminum-Alloy Sheet and Plate
4.	B211:	Specification for Aluminum-Alloy Bar, Rod, and Wire
5.	B221:	Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes
6.	B316:	Specification for Aluminum and Aluminum-Alloy Rivet and Cold-Heading Wire and Rods
7.	C719:	Standard Test Method for Adhesion and Cohesion of Elastomeric Joint Sealants Under Cycle Movement
8.	C794:	Test Method for Adhesion-in-Peel of Elastomeric Joint

Sealants

9. C1036: Specification for Flat Glass

10. C1048: Specification for Heat-Treated Flat Glass-Kind HS, Kind FT Coated and Uncoated Glass

11. D395: Test Methods for Rubber-Property - Compression Set

12. D412: Test Methods for Rubber Properties in Tension

13. D1171: Test Method for Rubber Deterioration - Surface Ozone Cracking Outdoors or Chamber (Triangular Specimens)

14. D2240: Test Method for Rubber Property - Durometer Hardness

15. E283: Test Method for Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors by Uniform Static Air Pressure Difference

16. E330: Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference

17. E331: Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference

18. E773: Test Method for Seal Durability of Sealed Insulating Glass Units

19. E774: Specification for Sealed Insulating Glass Units

20. E783: Method for Field Measurement of Air Leakage Through Installed Exterior Windows

C. American National Standards Institute (ANSI): Z 97.1-1948-Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test

D. Flat Glass Manufacturers Association (FGMA): Glazing Manual

E. Insulating Glass Certification Council (IGCC): Classification of Insulating Glass Units

1.04 SYSTEM DESCRIPTION

A. A complete skylight assembly that is weather tight and air tight conforming to the performance requirements in this section.

B. Performance Requirements

1. Structural Members shall be of sufficient size to support design loads [as prescribed by government building codes] [as specified below].

2. Deflection of skylight framing members shall not exceed L/175 when subject to a uniform load deflection test in accordance with ASTM E330, and per the above specified loads.

3. Water Penetration: No water penetration shall occur when system is tested in accordance with ASTM E331. Water penetration is defined as the appearance of uncontrolled water other than condensation on the interior surface of any part of the skylight.
   a. Drain to the exterior all water entering at joints or glazing reveals as well as all condensation occurring within unit construction.

4. Air Infiltration: Air infiltration through the skylight assembly when tested in accordance with ASTM E283 shall not exceed 0.06 cubic feet per minute per square foot of fixed area.

5. Thermal Movement: Skylight assembly shall be so designed and anchored that there will be no objectionable distortion or stresses in fastening and joinery due to expansion and contraction when subjected to temperature variance.

1.05 QUALITY ASSURANCE

A. The work in this section including design, engineering, fabrication and glazing and erection shall be the responsibility of the skylight manufacturer. The skylight manufacturer shall have been regularly engaged in the specialized type of work for at least 10 years and have satisfactorily completed projects of a similar scope.

1.06 SUBMITTALS

A. Submit full scale shop drawings indicating methods of construction. location and spacing of anchorage, joinery, finishes, size, shape and thickness, alloy of framing members glazing materials and relationships to surrounding work.
[ ] Sepias shall be submitted
[ ] Blue lines shall be submitted

B. Submit structural calculations by a licensed structural engineer demonstrating structural compliance with requirements specified in this section.

C. Submit [ ] 12'-0" x 12'-0" glass samples.

D. Submit [ ] 6" long extrusions with appropriate finish.

1.07 MOCK-UP (OPTIONAL)

A. Erect mock-up at an approved testing lab. Configuration shall be as indicated in contract documents and drawings. All construction shall be identical to that proposed for use on the project.

1.08 WARRANTY

A. Submit manufacturer's warranty that the skylight system was furnished and installed in accordance with the contract documents.

B. Certify that skylight system will remain free from defects in material and workmanship and remain free of leakage for a period of [ ] years from the date of substantial completion.

C. Glass warranty, as furnished by the supplier, shall include defective materials, delamination, seal failure and defects in manufacture.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Contact documents are based on Bristolite Skylights, Inc.

B. Substitution will be considered under provisions of section [01600] [01630] [only when the following conditions have been met]

1. Products of other manufacturers must be pre-qualified to bid not less than 10 days prior to bid date.

2. Submit supporting technical data, engineering calculations, certification of equivalent experience and samples for comparison.

The following provisions are optional and should be added to clarify sections 01600 and 01630.

2.02 MATERIALS

A. Extruded aluminum framing members shall be 6063-T5, 6061-T6, or 6063-T6 per ASTM B221.

B. Flashing, trim, closures and other accessory items shall be a minimum .032" thick aluminum.

C. Glazing Gaskets: Shall be dense EPDM, 50 durometer per ASTM C-509.

D. Setting Blocks: Compatible with glass edge seals; shall conform to ASTM D2240 Type A 80 durometer.

E. Fasteners:
1. Exterior fasteners used as cap retainers shall be 300 series stainless steel per ASTM A 193 B8.
2. Framework connections shall be cadmium plated steel or as required by connection.

F. Finish: [Standard] [Custom] [ ] color coat to following specification.

The following is a list of finish types that can be specified.

1. Organic Coatings: AAMA 603.8 and AAMA 605.2
2. Anodic Coatings: a) AAMA 607.1 Class I Clear Anodize A41
   b) Class II Clear Anodize A31

G. Glass:

.The following is a list of glass make-ups. Actual glass composition shall be chosen and listed here.

2. Laminated units [5/16] [7/16] [9/16] (color or tint) [annealed] [heat strengthened] glass [with reflective coating as specified] using a [.030] [.060] PVB interlayer.

3. Insulating units:
   a. 1'-1/16" consisting of 1/4" [heat strengthened] [tempered] [optional tinted] (with reflective coating as specified) exterior lite, 1/2" A.S. and 1/2" clear annealed laminated interior lite with .030 PVB interlayer.

   b. 1'-5/16" consisting of 1/4" [heat strengthened] [tempered] [optional tinted] (with reflective coating as specified) exterior lite 1/2" A.S. and [7/16] [9/16] clear heat strengthened laminated interior lite with a [.030] [.060] PVB interlayer.

H. Sealants: Compatible with all substrates and applied in accordance with manufacturer's recommendations.

2.03 FABRICATION

A. Skylights shall be factory fabricated and preassembled in largest size assemblies consistent with economic considerations for shipping to and handling at the job site.

B. All cap retainers shall be attached using stainless steel fasteners. These fasteners shall be designed and located such that all glazing strips are compressed to provide a uniform compression seal. Fasteners shall be located at 12" O.C. or less.

C. All clips for the attachment of the rafter bars shall be of aluminum or stainless steel and by shop-riveting, bolting or welding to the rafter bars attain fully rated structural loading.

D. All welding shall be by the heliarc process. All exposed welds to be dressed where practical.

E. Waterproofing shall not be reliant on additional continuous exterior silicone sealant beads. Horizontal flush butt joints may rely on a continuous silicone seal.

F. Silicone or neoprene setting blocks shall be used for the support of the glass and shall be sized and located in accordance with the glass manufacturer's recommendations. At no point shall the glass come into contact with metal parts of the skylight.

08625-6

G. Skylights shall have a properly designed weep system for drainage to the exterior without excessive air infiltration.

PART 3 EXECUTION

3.01 EXAMINATION

A. Prior to beginning work of this section, an authorized representative shall examine the associated support structure to determine that it is properly prepared and ready to receive the skylight work included herein. No installation shall proceed until any discrepancies have been resolved.

3.02 PREPARATION

A. Aluminum surfaces in contact with masonry, concrete or dissimilar materials if not organically coated shall be given a heavy coat of zinc chromate or bituminous paint.

3.03 INSTALLATION

A. Skylight installation shall be the sole responsibility of the skylight manufacturer in strict accordance with the approved shop drawings.

B. Install skylights plumb, true without warping or racking of panels.

C. Anchor system in strict accordance with approved shop drawings.

D. During erection, provide for thermal movement with a minimum ambient air temperature shift of 100° Fahrenheit without creating undue stresses.

E. Apply sealant where indicated on shop drawings. Before application, clean surfaces as recommended by manufacturer.

3.04 TOLERANCES

A. All parts of the work, when completed shall be within the following tolerances:

1. Maximum variation from plane or location shown on approved shop drawings: 1/8" per 12 feet of length or 1/2" in total length.
2. Maximum offset from true alignment between two members abutting end-to-end, edge-to-edge in line or separated by less that 3": 1/32".

3.05 FIELD QUALITY CONTROL

The following is optional.

A. Water Penetration: Field test in accordance with AAMA 501.3, at an air pressure difference [equal to 20% of the positive design wind pressure with a minimum of 6.24 psf and a maximum of 12 psf] [of [_____]psf] in area(s) [as indicated on Contract Drawings] [_____]. There shall be no uncontrolled water penetration as defined in AAMA 501.3 at this pressure difference.

3.06 CLEANING AND PROTECTION

A. Glazing panels shall be left in scratch free condition inside and out.

B. Remove all debris created by this work

END OF SECTION
08625-8