



SUPER SKY PRODUCTS ENTERPRISES, LLC

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REPAIR & RENOVATION

“METAL FRAMED SKYLIGHTS”

Guide Specification

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Engineering and drafting of production documents; structural calculations not included.
- B. Fabrication and installation of new extruded aluminum pressure plates and snap-on cover caps.
- C. Fabrication and installation of the aluminum gutter system including, when applicable, insulation and pitched liners.
- D. Applied finish of aluminum extrusions and sheet.
- E. Skylight glass and glazing.
- F. Skylight related flashings.

1.02 RELATED SECTIONS

- A. Flashing and Sheet Metal: *Division 07*
- B. Glazing: *Division 08*
- C. Sealants: *Division 07*

1.03 REFERENCES

- A. Aluminum Association Incorporated (AA):SAS-30 Specifications for Aluminum Structures.
- B. American National Standards Institute (ANSI): Z 97.1 -2004- Safety Glazing Materials Used in Buildings -Safety Performance Specifications and Methods of Test.
- C. Consumer Product Safety Commission (CPSC): 16CFR 1201 - Architectural Glazing Standards and Related Material.
- D. Flat Glass Manufacturers Association (FGMA): Glazing Manual.
- E. Insulating Glass Certification Council (IGCC): Classification of Insulating Glass Units.

1.04 SYSTEM DESCRIPTION

- A. Design Requirements:
 - 1. Extruded aluminum pressure plates with 1/4-in. x 20 stainless steel screws and snap-on cover caps.
 - 2. Flush glazed exterior horizontal joints with field applied structural silicone.
 - 3. Full silicone wet seals along both sides of all pressure plates.
- B. Performance Requirements:
 - 1. Existing skylight support frame must be capable of withstanding loads imposed by new glass; verification of existing structures ability to resist these loads is required by others.

1.05 SUBMITTALS

- A. With regard to structural silicone joinery, submit, only if specifically requested:
 - 1. Certification that adhesion of sealant to samples of metal and glass is adequate when tested in accordance with ASTM C794.
 - 2. Certification that materials in contact with sealant are compatible with sealant after being exposed to 2,000-4,000 micro watt ultra-violet radiation for twenty-one (21) days.
 - 3. Statement that stress on each detailed sealant joint will not exceed design stress of sealant when exposed to specified wind loads.
- B. Submit [] 12-in. x 12-in. samples of each type of glass.
- C. Submit [] manufacturer's samples of each type of sealant.
- D. Submit [] finish sample chip
- E. Submit [] cleaning and maintenance manuals upon completion of repair/renovation installation.
- F. Certification that glass units will withstand specified design loads.

1.06 QUALITY ASSURANCE

- A. Work of this Section, including design, engineering, fabrication, finishing, preparation at the job site, erection and glazing of the skylight system shall be the responsibility of the skylight manufacturer. The manufacturer shall be regularly engaged in the preceding phases of construction of skylights and able to demonstrate that he has performed successfully on comparably sized projects and of comparable design complexity over at least the previous ten (10) years.

1.07 WARRANTY

- A. Submit manufacturer's warranty certifying that skylight work was furnished and installed in accordance with the Contract Documents.
- B. Certify that skylight pressure plates and snap-on cover caps are free of defects in design, material, and construction for a period of five (5) years from the Date of Skylight Completion.
- C. Certify that the skylight is free of leakage for a period of five (5) years from Date of Completion.
- D. Warrant glass against defective materials, delamination, seal failure, and defects in manufacture per the glass manufacturer's standard warranties. Glass breakage is not warranted.
- E. Warrant structural sealant for a period of five (5) years per sealant manufacturer's standard warranty of merchantable quality. Warranty shall certify that cured sealant:
 - 1. Will not become brittle or crack due to weathering or normal expansion and contraction of adjacent surfaces.
 - 2. Will not harden beyond a Shore A durometer of 50, nor soften below a minimum of 10 points.
 - 3. Will not change color significantly when used with compatible back-up materials.
 - 4. Will not bleed significantly.
- F. Warrant finish per the manufacturer's standard warranties.
- G. Warranty service becomes effective only following payment in full for the contract amount.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Contract documents are based on products manufactured by Super Sky Products Enterprises, LLC; 10301 N. Enterprise Drive; Mequon, WI 53092; Phone (800) 558-0457, (262) 242-2000; Fax (262) 242-7409; www.supersky.com.
- B. Other manufacturers will be considered when the following conditions have been met.
 - 1. Optional manufacturers must pre-qualify to bid not less than fourteen (14) days prior to the bid closing date.
 - 2. Complete details are submitted for review by the Architect showing compliance to the drawings and Contract Documents.
 - 3. Prospective manufacturers submit notarized certification that they have successfully performed in the phases of design, manufacture and installation of skylight projects comparable in nature over at least the previous ten (10) years.

2.02 MATERIALS

- A. Framework:
 - 1. Snap-on Covers and Miscellaneous Non-supporting Trim: .062-in. minimum thickness extruded aluminum, alloy 6063-T5 per ASTM B221.
 - 2. Supporting aluminum gutters: thickness as prescribed by skylight engineer, based on skylight reactions and applied design loads.
 - 3. Principal Formed Metal Members: .125-in. minimum thickness aluminum, alloy [5052] [6061-T6] per ASTM B209.
- B. Glazing Gaskets:
 - 1. Extruded EDPM rubber designed to comply with the following specifications:
 - a. Hardness: ASTM D2240, Type A: Durometer 50 (+/-5).
 - b. Tensile Strength: ASTM D412. 800 psi (min.).
 - c. Elongation: 300% (min.).
 - d. Color: Black.
 - 2. Compression Set: ASTM D395 Method B, 22 hours @ 212 °F: 25% (max.).
 - 3. Heat Aging Characteristics:
 - a. 70 hours @ 212 °F.
 - b. Hardness: ASTM D2240, Type A: Durometer 50 (+/-5).
 - c. Tensile Change: ASTM D412. -10%.
 - d. Elongation Change: ASTM D412: -20%.
 - 4. ASTM D1171 Weather Resistance at 1 Part Ozone per Million, 500 hours at 20% Elongation: No cracks.
 - 5. No visual checks, cracks or breaks after completion of tests.
- C. Setting Blocks:
 - 1. Extruded Type II silicone rubber designed to permit adhesion and comply with the following specifications:
 - a. Hardness: ASTM D2240, Type A: Durometer 80 (+/-5).
 - b. Color: Black.
- D. Fasteners:
 - 1. For glass retention pressure plates : ASTM A193 B8 300 series stainless steel screws.
- E. Flashing:
 - 1. [5005 H34 Aluminum] [Copper] [Stainless Steel], [.040-in.][] minimum thickness.
 - 2. Sheet metal flashings/closures/claddings are to be furnished shop formed to profile in min. 10-ft. lengths. When lengths exceed 10-ft., field trimming of the flashing and field forming the ends is necessary to suit as-built conditions. Sheet metal ends are to overlap 6-in. to 8-in. minimum, set in a full bed of sealant and riveted if required.
- F. Exposed metal finish [interior and exterior] [interior] [exterior] to comply with the following:

The following is a listing of all types of finishes that can be specified, therefore, only those finishes that apply should be used in an individual specification.

- 1. High Performance Pigmented Organic Coatings: AAMA 2605-05 [2-coat] [3-coat] [4-coat] min. 70% PVDF fluropolymers [standard] [custom] [mica] [exotic] [metallic].
- 2. Pigmented Organic Coatings: AAMA 2604-05 [2-coat] min. 50% PVDF fluropolymers [standard] [custom] [mica].
- 3. Anodized Coatings:
 - a. AAMA 611-98 Architectural Class I clear anodized Type AA-M10C22A41: **215-R1**.
 - b. AAMA 611-98 Architectural Class I electrolytically deposited color anodized Type AA-M10C22A44: [light bronze] [medium bronze] [dark bronze] [black].
- G. Glass:
 - 1. Standard Certification Requirements:
 - a. Heat Treated Glass: ASTM C1048, with surface stress of 5,000 (+/-) 1500 psi.
 - b. Laminated Glass: Two lites interleaved with polyvinyl butyral (PVB). Units must meet criteria of ANSI Z97.1- 1984 and CPSC 16 CFR 1201 for safety glazing. Provide PVB layer of minimum 0.030-in. for all glass units unless a coating, and/or frit is applied to the inside face of the laminate thereby necessitating a 0.060-in. PVB layer.

- c. Insulating Glass: CBA rated by the Insulating Glass Certification Council (IGCC) when tested in accordance with ASTM E773 and ASTM E774. Dual edge seals with the secondary seal being silicone. Exterior lite of [heat strengthened] [fully tempered] glass and interior lite of laminated glass.
- 2. Performance Requirements:
 - a. Probability of breakage not to exceed 8/1000 for vertical glass and 1/1000 for sloped glass upon first application of design wind and live load pressures. For glass selection, design wind pressure for a one minute duration. For loads of longer duration use standard engineering practices for glass selection.
 - b. Probability of breakage due to anticipated thermal stress not to exceed 8/1000 for vertical glass and 1/1000 for sloped glass.
- 3. Glazing Unit Composition:
 - a. Sloped glass units are to be [].
 - b. Vertical glass units are to be [].
- 4. For Impact Resistant Skylights, special tested glass products are required for laminated and insulated glass. Evidence of tested system, including glass to be provided.

Specifier should consult Glass and Glazing Specification, for glass make-up, sizes and compositions. Composition breakdown goes here.

- H. Sealants:
 - 1. Structural Flush Glazed Joints: High performance silicone sealant applied in accordance with manufacturer's recommendations.
 - 2. Non-structural Flush Glazed Joints and Weather Seal Joints: Silicone sealants applied in accordance with manufacturer's recommendations.
 - 3. Structural silicone sealant performance requirements:
 - a. Hardness: ASTM D2240 Type A, 30 durometer.
 - b. Ultimate Tensile Strength: ASTM D412, 170 psi.
 - c. Tensile at 150% Elongation: ASTM D412, 80 psi.
 - d. Joint Movement Capability after 14 Day Cure: ASTM C719, (+/-) 50%.
 - e. Peel Strength (aluminum, glass, concrete) after twenty-one (21) Day Cure: ASTM C794, 50 ppi.
 - 4. Structural silicone shall not be used to support dead weight of vertical glass or panels.

2.03 FABRICATION

- A. Construct skylight(s) using extruded aluminum members.
- B. Design glass retainer fasteners to resist uplift loadings. Spacing to be determined by structural calculations, when applicable.
- C. Use snap-on cover caps to conceal pressure plate fasteners.
- D. Set glass with interior and exterior EDPM glazing strips.
- E. Use silicone setting blocks to support glass and to provide edge clearances and glass bites as outlined below, in accordance with FGMA recommendations:
 - 1. Set blocks not less than 6-in. from edge of glass for support unit.
 - 2. Glass Bite: Not less than 1/2-in. nor more than 5/8-in. on any side of glass unit.
 - 3. Maintain 1/4-in. edge clearance between glass and adjacent metal framework.
 - 4. Use rubber spacers to maintain separation of glass and adjacent metal framework.

PART 3 EXECUTION

3.01 EXAMINATION

- A. One (1) trip to field measure all glass and existing caps to replacement materials can be fabricated. We are assuming Super Sky's standard caps, retainers, screws, glazing strips, etc are compatible with current frame. This will be verified during field measuring. A lite of glass will be removed and replaced during this visit.

3.02 PREPARATION

- A. Protection of the interior, and pedestrian traffic below skylight opening during construction is the responsibility of the general contractor.
- B. Moving of furniture and / or office personnel from below work areas, and roofing off areas for safety is the responsibility of the general contractor.
- C. Any hidden or unforeseen conditions uncovered during the renovation process will be immediately brought to the owner / general contractor's attention. These items could result in additional costs.
- D. Roofing repair work surrounding skylight, if required to be performed after installation of new skylight materials.
- E. Protection and repair of landscaping due to staging of crane is the responsibility of the general contractor.
- F. Super Sky will keep the building weather-tight while work is ongoing. Super Sky will only remove as many lites as then can be replaced in a day, so as to minimize the risk of water infiltration.

3.03 INSTALLATION

- A. Remove existing snap-on cover caps, pressure plates, glass, and sealant to dumpster (provided by others)
- B. Wipe down of existing skylight frame to remove surface dust; a complete cleaning / refurbishing of interior frame and steel support structure is not included.
- C. Clean out interior back-up drainage system and weeps to restore functionality.
- D. Installation of new glazing gaskets, glass, pressure plates, snap-on pressure plate cover caps and sealant.
- E. Install skylight system under the direction of the skylight manufacturer's designated erector.
- F. Use high performance silicone sealants to seal horizontal joints between glass panels and silicone sealant to wet seal joints between pressure plates and glass.
- G. Apply sealing materials in strict accordance with sealant manufacturer's instructions. Before application, remove mortar dirt, dust, moisture and other foreign matter from surfaces it will contact. Mask adjoining surfaces to maintain a clean and neat appearance. Tool sealing compounds to fill the joint and provide a smooth finish.
- H. Furnishing of temporary covering and weather-proofing of the skylight openings, if required by the General Contractor, and removal of the protective measures during and after the skylight installation is excluded by the manufacturer and the manufacturer's erector. ANY TEMPORARY COVERINGS THAT MAY BE REQUIRED ARE NOT TO OBSTRUCT OR INTERFERE WITH THE SKYLIGHT INSTALLATION IN ANYWAY.

3.04 CLEANING

- A. Install all associated materials to avoid soiling or smudging the finish.
- B. Clean glass at time of installation. Final cleaning, if required, subsequent to completion of project, is not to be performed by the manufacturer.

3.05 PROTECTION

- A. The skylight manufacturer does not provide, nor does it include any temporary protection of the skylight and its materials after the installation is complete. Protection of the skylight from ongoing work by other trades shall be the responsibility of the General Contractor. The manufacturer is responsible only for the damage caused by the personnel under its control and responsibility.

END OF SECTION