



Introduction
Glass Systems
Point Supported Glazing Systems
Hurricane & Blast Resistant Systems

UPDATED: 2026



INTRODUCTION: COMPANY OVERVIEW

Super Sky Products has been a global leader in custom aluminum-framed skylights for decades. As a single-source provider for sloped glazing needs, Super Sky specializes in the design, manufacturing, and installation of custom skylight systems. We offer a wide variety of glazing solutions to meet your design intent. Our glazing systems are crafted to be visually appealing while minimizing condensation and delivering excellent thermal performance.

Whether you need a new skylight system or require skylight repair or renovation, Super Sky is your premier provider of hassle-free, turn-key solutions. Our designers, fabricators, and technical sales representatives adhere to the highest industry standards. With our highly skilled staff and diverse product offerings, combined with our innovative equipment, Super Sky delivers superior-performing systems at exceptional value.

We are committed to achieving the highest level of customer satisfaction by:

- Offering cost-effective solutions for energy-efficient skylight systems.
- Manufacturing skylight systems with exceptional precision and speed.
- Expertly installing top-quality skylighting systems in a highly efficient and professional manner.
- Delivering an industry-leading manufacturer's warranty that covers defective design, materials, construction, and leakage.
- Completing projects on schedule and within budget.
- Maintaining exceptional craftsmanship while continually advancing cutting-edge technology and innovative skylight solutions.
- Enhancing productivity and well-being through the benefits of natural light.
- This detail manual is created by Super Sky Products to assist you with your initial skylight design. We have included a variety of typical details for the different systems we offer, along with our guide specification for inclusion in your project manual. Both the details and the specification can be downloaded from our website at www.supersky.com.



INTRODUCTION: DETAIL MANUAL OVERVIEW

GLASS SYSTEMS:

Guide Specification

STRUCTURAL INFORMATION:

STR-CVR to STR-4: Engineering Guidelines

BASIC DETAILS:

BD-1:	2-Sided Capped Systems
BD-2:	Total Flush-Glazing Systems
BD-3:	Field Flush Glazing Systems
BD-4&5:	Sills
BD-6:	Head Details
BD-7&8:	Supports & Mounting
BD-9:	Ridges, Hips, & Valleys
BD-10&11:	Connections & Fasteners
BD-12&13:	Gutters
BD-14:	Expansion Joints
BD-15-17:	Options & Accessories; <i>Snow Guards, Sunscreens</i> <i>Vented Ridges, Cables</i> <i>Operable Vents</i>
BD-18&19:	Sheet Metal Flashing
BD-20:	Blast Resistance
BD-21:	Photovoltaic Glazing

SINGLE SLOPE:

SS-1 to SS-4: Single Slope Details

RIDGE:

R-1 to R-4: Ridge Details

PYRAMID:

P-1 to P-3: Pyramid Details

DOME:

D-1 to D-4: Dome Details

VAULT:

V-1 to V-3: Vault Details

POINT SUPPORTED GLAZING:

Guide Specification

PS-1 to PS-5: Point Supported Systems

PHOTOVOLTAIC (BIPV):

Guide Specification

PHOTO-1 to PHOTO-3: Photovoltaic Systems

HURRICANE COMPLIANT & BLAST RESISTANT SYSTEMS:

HBS-1 to HBS-5: Hurricane Compliant & Blast Resistant Systems





SUPER SKY PRODUCTS ENTERPRISES, LLC

10301 N. Enterprise Drive

Mequon, WI 53092

Phone: (262) 242-2000

FAX: (262) 242-7409

www.supersky.com

GLASS SYSTEMS

“METAL FRAMED SKYLIGHTS”

Guide Specification

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Engineering and drafting of production documents, including structural calculations of the entire skylight system.
- B. Fabrication and erection of skylight frames.
- C. Fabrication and erection 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. Structural Steel: *Division 05*
- B. Space Frames: *Division 05*
- C. Metal Fabrications: *Division 05*
- D. Flashing and Sheet Metal: *Division 07*
- E. Glazing: *Division 08*
- F. Glazed Curtain Walls: *Division 08*
- G. Roofing: *Division 07*
- H. Sealants: *Division 07*

1.03 REFERENCES

- A. Aluminum Association Incorporated (AA):SAS-30 Specifications for Aluminum Structures.
- B. 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: Specification 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 Specification and Inspection Methods for Clear Anodic Finishes for Architectural Aluminum.
- C. American National Standards Institute (ANSI): Z 97.1 - 2015 - Safety Glazing Materials Used in Buildings -Safety Performance Specifications and Methods of Test.
- D. American Society for Testing and Materials (ASTM):
 1. A193: Standard Specification for Alloy-Steel and Stainless Steel Bolting 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.
 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 and Doors.
- E. Consumer Product Safety Commission (CPSC): 16CFR 1201 - Architectural Glazing Standards and Related Material.
- F. Flat Glass Manufacturers Association (FGMA): Glazing Manual.
- G. Insulating Glass Certification Council (IGCC): Classification of Insulating Glass Units.

1.04 SYSTEM DESCRIPTION

- A. Design Requirements:
 1. Extruded aluminum members with a system of alternate serrations for attachment of exterior glass retainers with 1/4-in. x 20 stainless steel screws and snap-on beauty caps.
 2. Condensation guttering system integral with skylight framing members for positive drainage of condensation.
 3. Flush glazed exterior horizontal joints with field applied structural silicone.
 4. Full silicone wet seals along both sides of all exterior glass retainers.
 5. Optional aluminum rain gutters, with insulation and pitched liners, when applicable.
 6. Optional "4-sided", or "total flushed glazed system", with fully concealed mechanical fasteners and factory applied structural silicone.
- B. Performance Requirements:
 1. Structural Members: Of sufficient sizes to support design loads as prescribed by governing building codes.
 2. The deflection of the framing member in a direction normal to the plane of glass when subjected to a uniform load deflection test in accordance with ASTM E330, and per the above specified loads, shall not exceed L/175, up to 1-in. maximum, for clear spans under 20-ft., or L/240 for clear spans greater than 20-ft.

3. The deflection of a framing member in a direction parallel to the plane of glass, when carrying its full dead load, shall not exceed an amount which will reduce the glass or panel bite below 75% of the design dimension and the member shall have a 1/8-in. minimum clearance between itself and the edge of the fixed panel, glass, or component immediately adjacent, nor shall it impair the function of or damage any joint seals.
4. Water Penetration: No water penetration shall occur when the system is tested in accordance with ASTM E331 using a differential static pressure of (20% of the inward acting design wind load pressure, but not less than (12 psf). 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 water penetrating at joints, as well as condensation occurring within the system to exterior face of the work.
5. Thermal Movement: Provide for expansion and contraction of component materials as will be caused by an exterior surface temperature range of (+/-) 85 °F, ranging from -20 °F to 150 °F, and an interior surface temperature range of (+/-) 40 °F, ranging from 40 °F to 120 °F. Adjustments in the exterior and interior temperature ranges should be made, based on specific project locations and conditions. The skylight system should allow for thermal movements without buckling, sealant failure, undue material stress, and other detrimental affects.
6. Where permitted by code, a 1/3 increase in allowable stress for wind or seismic load shall be acceptable, but not in combination with any reduction applied to combined loads. In no case shall allowable values exceed the yield stress.
7. Compression flanges of flexural members may be assumed to receive effective lateral bracing only from anchors to the building structure and horizontal glazing bars or interior trim which are in contact with 50% of the member's total depth.
8. Skylight framing is designed to be self-supporting between the support construction. The skylight(s) will impose reactions to the support construction. All adjacent and support construction must support the transfer of all loads including horizontal and vertical, exerted by the skylight(s). Design or structural engineering services for the supporting structure or building components not included in the skylight scope are not included under this section.
9. Optional limited reaction design: The skylight framing is to be designed to exert no horizontal reactions under vertical gravity type loads, (dead, snow, live). Unbalanced live loads, (wind, seismic, etc.), acting upon the skylight will produce horizontal reactions that cannot be controlled by the skylights, but must be resisted by the support structure.
10. Optional Hurricane and Impact Resistant Skylight Systems: If the project is located in or near coastal areas, an impact resistant skylight design may be required. Manufacturer to provide tested system, in compliance with the IBC, Florida Building Code and Miami-Dade County requirements having Notice of Acceptance Numbers;
 - a. Large and Small Missile Impact [insulated glass] [laminated glass].
 - b. Small Missile Impact [insulated glass] [laminated glass].
11. Optional thermal break design: The skylight framing to incorporate extruded aluminum pour an de-bridge element to limit transfer of the flow of thermal energy between conductive materials.

1.05 SUBMITTALS

- A. Submit [] copies of shop drawings showing plans, elevations and sections as required to fully describe the skylight construction for the Architect's approval prior to starting fabrication.
- B. Submit structural calculations prepared in accordance with the Aluminum Association's Specifications for Aluminum Structures (SAS30) by a structural engineer qualified in the design of self-supporting sloped glazed systems licensed in (state where skylight is to be installed) [].
- C. 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.
- D. Submit [] 12-in. x 12-in. samples of each type of glass.

- E. Submit [] sets of as-built drawings and cleaning and maintenance manuals upon completion of skylight installation.
- F. Certification that insulating 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 frame is free of defects in design, material, and construction for a period of ten (10) years from the Date of Skylight Completion.
- C. Warrant glass against defective materials, delamination, seal failure, and defects in manufacture per the glass manufacturer's standard warranties from date of manufacture. Glass breakage is not warranted.
- D. Warrant structural sealant for a period of ten (10) 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.
- E. Warrant finish per the manufacturer's standard warranties from date of application.
- F. Optional extended warranties may be purchasable on some products at an additional cost.
- 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. Structural calculations, showing sizes of framing members and loads applied to the support structure, based on the design loads of this specification are submitted for review.
 - 4. 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. Principal Supporting Members: .125-in. minimum thickness extruded aluminum, alloy

- 6005-T5 or 6061-T6 per ASTM B221. Sizes, shapes and profiles (as per Super Sky Products' standard components) (as indicated on the Contract Drawings).
2. Snap-on Covers and Miscellaneous Non-supporting Trim: .062-in. minimum thickness extruded aluminum, alloy 6063-T5 per ASTM B221.
 3. Supporting aluminum gutters: thickness as prescribed by skylight engineer, based on skylight reactions and applied design loads.
 4. Principal Formed Metal Members: .125-in. minimum thickness aluminum, alloy [5052] [6061-T6] per ASTM B209.
- B. Glazing Strips:
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 Exterior Cap Retainers: ASTM A193 B8 300 series stainless steel screws.
 2. For Framework Connections: ASTM B211 2024-T4 aluminum, ASTM A193 B8 300 series stainless steel, and ASTM B316 aluminum rivets, as required by connection.
 3. For Anchoring Skylight to Support Structure: ASTM A307 zinc plated steel fasteners.
 4. Exposed stainless steel truss head mechanical fasteners are utilized in accordance with standard connection details.
- 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 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 properties after 21 days at 77 degrees F and 50% relative humidity:
 - a. Hardness: ASTM D2240 Shore A, 35 durometer.
 - b. Ultimate Tensile Strength: ASTM C1135: 25% extension – 45psi; 50% extension 60psi
 - c. Staining: ASTM C1248; None on concrete, marble, granite, limestone, and brick.
 - d. Joint Movement Capability after 14 Day Cure: ASTM C719, (+/-) 50%.
 - e. Peel Strength (aluminum, glass, concrete): ASTM C794, 32 ppi.
 - f. Service temperature range: -30 degrees F to 300 degrees F.
 - g. Weathering after 10,000 hours: ASTM C1135 using QUV Weatherometer: 25% extension – 35psi; 50% extension – 50psi.
 - 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. Construct skylight(s) using a continuous aluminum curb with expansion joints as required.
- C. Insofar as practicable, fit and assemble work in the manufacturer's shop. Work which cannot be permanently assembled shall be shop-assembled, marked, and disassembled before shipment to the jobsite.
- D. Design rafter bars for slide-in type spline glazing strips.
- E. Design glass retainer fasteners to resist uplift loadings. Spacing to be determined by structural calculations, when applicable.
- F. Use snap-on beauty caps to conceal glass retainers and glass retainer fasteners.
- G. Shop locate drill and bolt, or weld aluminum clips to framing members.
- H. Set glass with interior and exterior EDPM glazing strips.
- I. 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.

- J. Locate weepholes in curb to positively drain condensation to exterior of skylight at each rafter connection.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Upon arrival to the jobsite for installation of the specified work, the manufacturer's erector is to examine the structure and substrate to determine that they are properly prepared, dimensionally accurate, and ready to receive the skylight work included herein. Report any discrepancies to the General Contractor. Correction of faulty work to be at the expense of the responsible party/s. The skylight manufacturer is not responsible for faulty structure or substrate.

3.02 PREPARATION

- A. Contact between aluminum and dissimilar metals shall receive a protective coating of asphaltic paint for the prevention of electrolytic action and corrosion.
- B. Skylight manufacturer and manufacturer's erector excludes all field measuring, demolition, removal, replacement, or re-work of any existing material.

3.03 INSTALLATION

- A. Install skylight frame, glass and accessory items as needed in accordance with manufacturer's instructions.
- B. Install skylight system under the direction of the skylight manufacturer's designated erector.
- C. Erect system plumb and true, in proper alignment and relation to established lines and grades as shown on approved shop drawings.
- D. Anchor skylight to structure in strict accordance with approved shop drawings.
- E. Use high performance silicone sealants to seal horizontal joints between glass panels and silicone sealant to wet seal joints between snap-on cap retainers and glass.
- F. 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.
- G. 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 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-in. per 12-ft. length, or 1/2-in. 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 than 3-in.: 1/32-in.

3.05 CLEANING

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

3.07 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

THIS PAGE INTENTIONALLY LEFT BLANK

SKYLIGHT STRUCTURAL INFORMATION

In this section we publish simplified engineering span charts and forms for estimating the size of frame members. We also provide basic information about reactions for some skylight shapes. Framework sizes are directly related to governing building codes, specified design loads, deflection criteria, and many other criteria. The more accurately these criteria are identified, the more accurately the sizes may be predicted.

Skylights can be considered to behave in different ways depending on how they are supported. Consider this structural information to be introductory to assist in determining feasibility and general appearance. All aspects of any given project must be evaluated to determine the appropriate skylight framing system.

Aluminum is high strength with low stiffness. The design strength of aluminum alloy 6005-T5 is comparable to A-36 steel. However, the stiffness, or modulus of elasticity of aluminum, is only about one-third that of steel. The design of aluminum in skylights is most often governed by deflection rather than stress.

The deflection perpendicular (normal) to the glass plane is a primary concern of skylight engineering. This deflection is specified as a relative limit, for example, span/175 or L/175, and a maximum dimension, for example, 1". This assures proper glass support, effective condensation drainage and minimizes visible distortion. The deflection of the glazed frame in-plane is another concern. In-plane deflection is specified as a maximum ratio of edge clearance and glass bite, and a maximum dimension. The object is to prevent any glass-to-metal contact and to limit the movement of weatherseals and joints. As skylight geometric complexity increases, there are additional considerations for engineering concerns; side sway, story drift, racking, thermal movements, support settlement and stiffness. Some projects involve major expansion and seismic joints. When structures are complex, arched, segmented, cantilevered or multi-spanned, specific structural analysis and computer modeling may be required. Super Sky engineers all skylights with full consideration of all these factors.

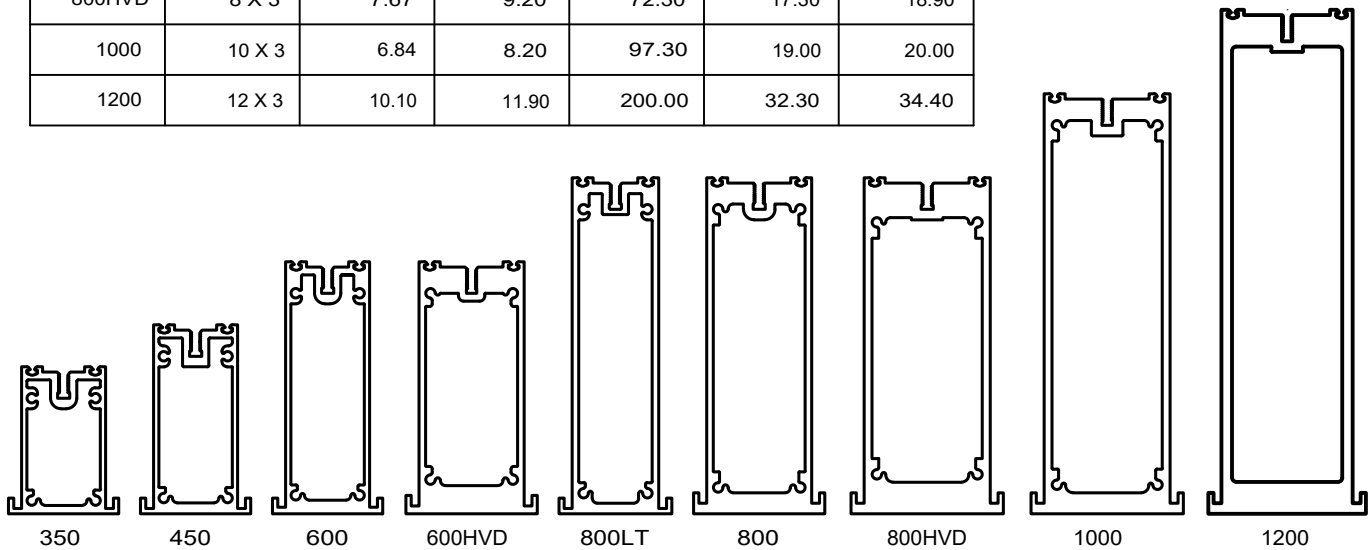
There is no substitute for full structural calculations. It is appropriate to give equal consideration to connections within the framework, as well as to the building structure.



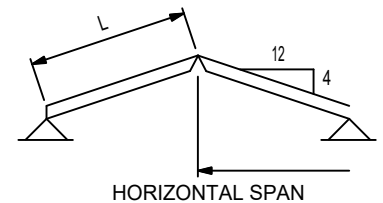
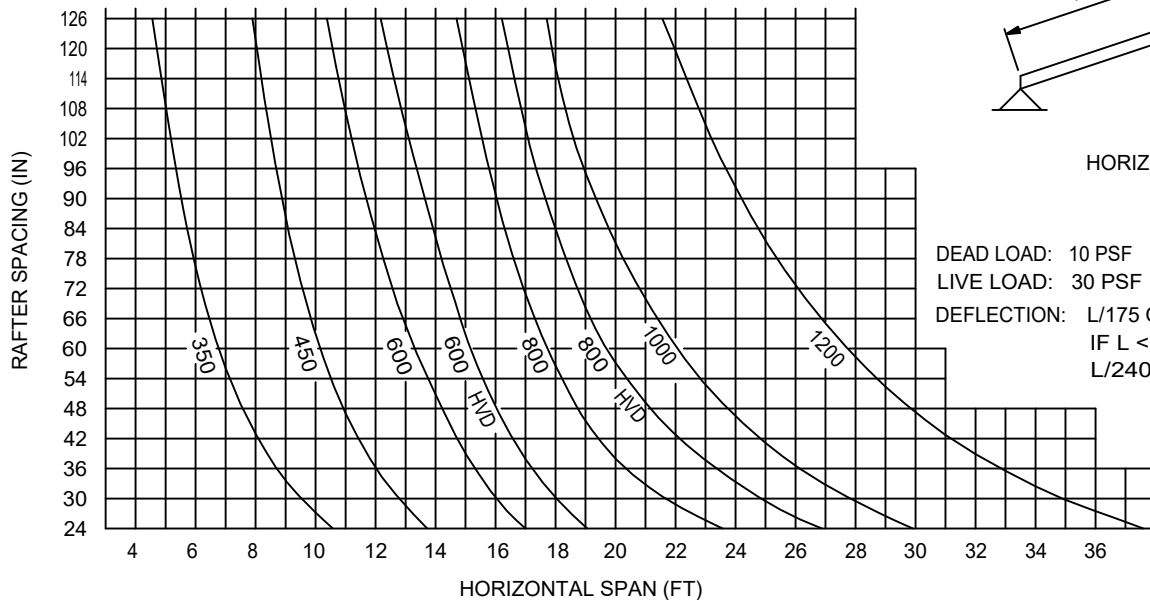
STRUCTURAL ENGINEERING GUIDELINES

TUBULAR SECTION PROPERTIES

STRUCTURAL SERIES	DEPTH X WIDTH (IN.)	AREA (IN ²)	WT. PER FOOT (LBS.)	MOMENT OF INERTIA	SECTION MODULUS	
					TOP	BOTTOM
350	3-1/2 X 2	2.12	2.54	3.51	1.91	2.11
450	4-1/2 X 2	2.56	3.07	7.31	3.12	3.39
600	6 X 2	3.19	3.83	16.60	5.44	5.63
600HVD	6 X 2-1/2	5.07	6.08	26.73	8.30	9.61
800	8 X 2-1/2	5.32	6.38	50.15	12.18	12.91
800LT	8 X 2	4.08	4.90	34.62	8.70	8.60
800HVD	8 X 3	7.67	9.20	72.30	17.30	18.90
1000	10 X 3	6.84	8.20	97.30	19.00	20.00
1200	12 X 3	10.10	11.90	200.00	32.30	34.40



4:12 SLOPE TUBE



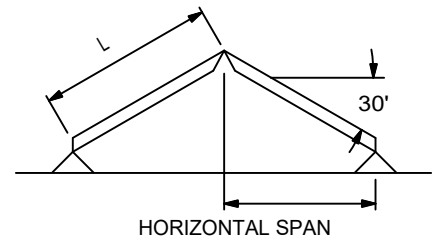
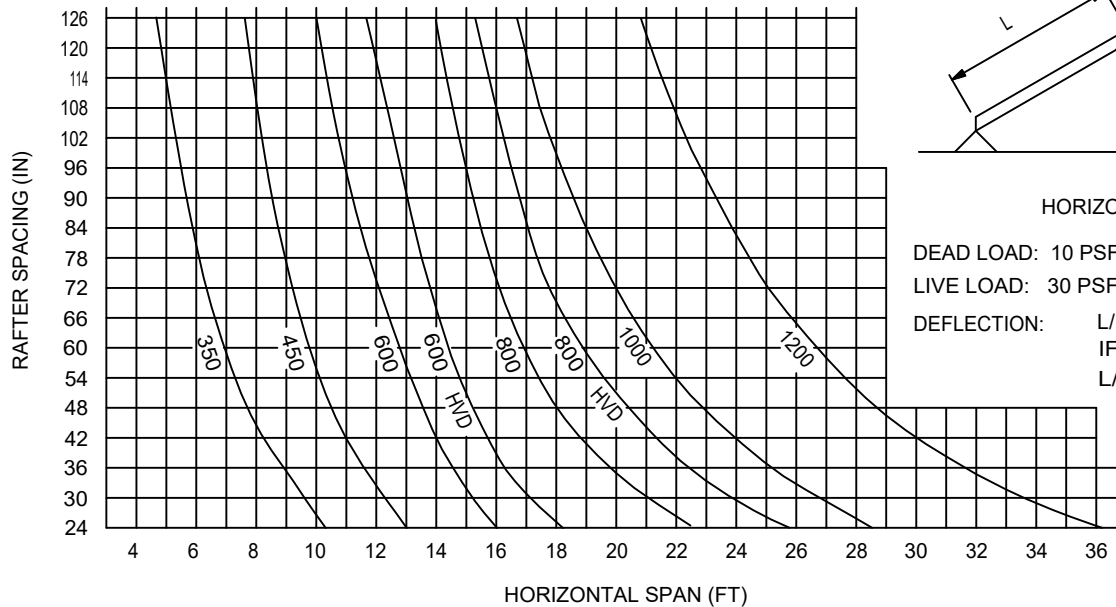
DEAD LOAD: 10 PSF
 LIVE LOAD: 30 PSF
 DEFLECTION: L/175 OR 1" MAX.
 IF L < 20 FT.
 L/240, IF L ≥ 20 FT.

STRUCTURAL GUIDELINES DO NO ACCOUNT FOR DESIGN ELEMENTS LIKE WIND LOAD, SNOW LOAD, SNOW DRIFT, AND SEISMIC MOVEMENT. EACH OF THESE ADDITIONAL DESIGN LOAD FACTORS CAN IMPART THE FINAL SIZE OF FRAMING.



STRUCTURAL ENGINEERING GUIDELINES

30 DEGREE SLOPE TUBE

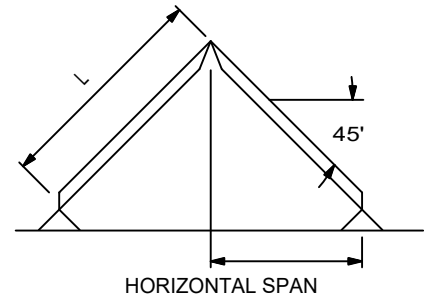
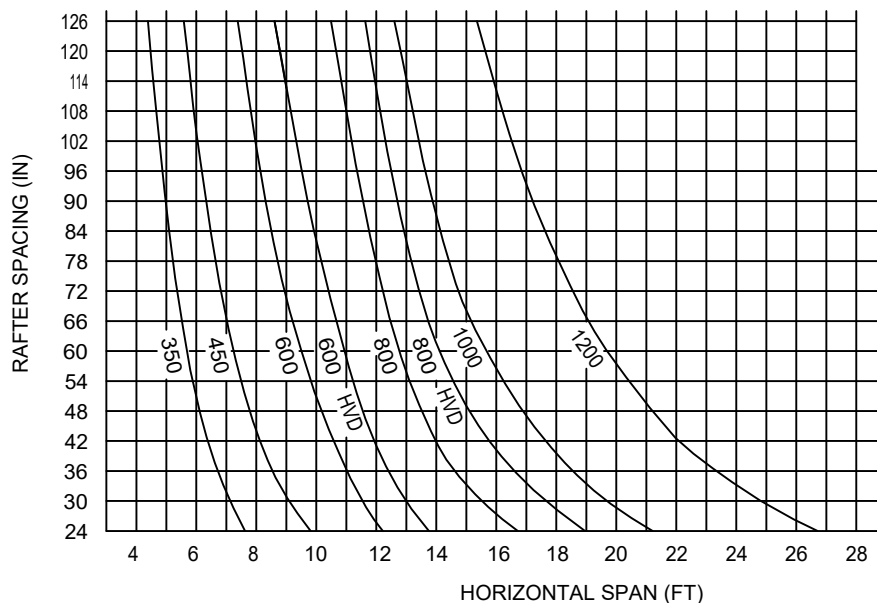


DEAD LOAD: 10 PSF

LIVE LOAD: 30 PSF

DEFLECTION: $L/175$ OR 1" MAX.
IF $L < 20$ FT.
 $L/240$, IF $L \geq 20$ FT.

45 DEGREE SLOPE TUBE



DEAD LOAD: 10 PSF

LIVE LOAD: 30 PSF

WIND LOAD: 20 PSF

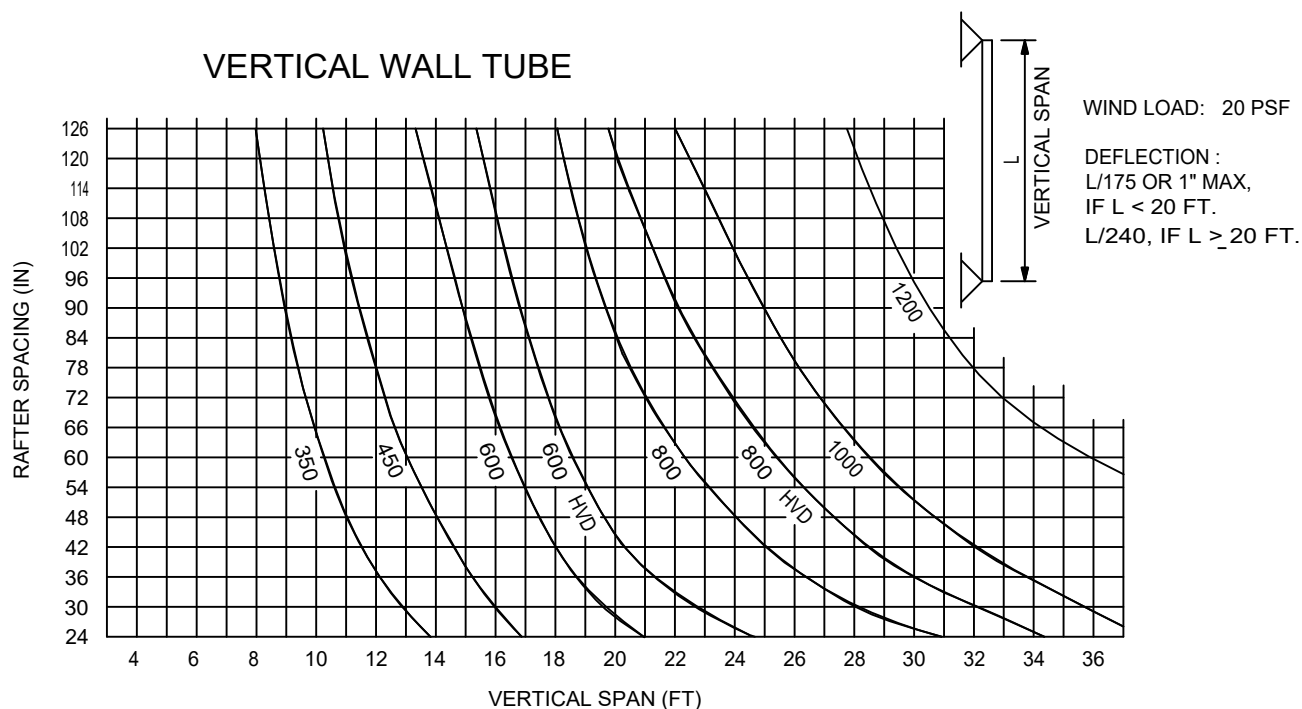
DEFLECTION: $L/175$ OR 1" MAX.
IF $L < 20$ FT.
 $L/240$, IF $L \geq 20$ FT.

CAUTION: RAFTER SPACING CANNOT BE MODIFIED FOR DIFFERING LIVE LOADS OR WIND LOADS ON 45° SLOPE. PLEASE CONTACT SUPER SKY PRODUCTS FOR ANY REVISIONS TO THE ABOVE LOAD VALUES.

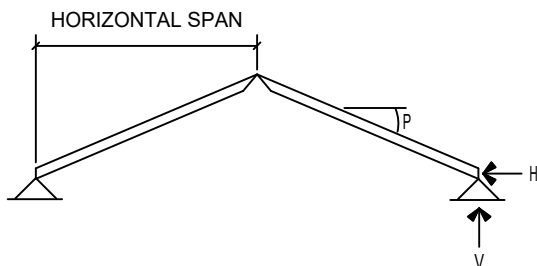
STRUCTURAL GUIDELINES DO NO ACCOUNT FOR DESIGN ELEMENTS LIKE WIND LOAD, SNOW LOAD, SNOW DRIFT, AND SEISMIC MOVEMENT. EACH OF THESE ADDITIONAL DESIGN LOAD FACTORS CAN IMPART THE FINAL SIZE OF FRAMING.



STRUCTURAL ENGINEERING GUIDELINES



VERTICAL & HORIZONTAL REACTIONS FOR RIDGE SKYLIGHTS



DL = DEAD LOAD
LL = LIVE LOAD
P = SKYLIGHT PITCH
 $C = 1/\cos(P)$
 $W = (C)(DL) + LL$
 $V = W(\text{RAFTER SPACING})(\text{HORIZONTAL SPAN})$
 $C_H = 1/[2\tan(P)]$
 $H = (C)(V)$

EXAMPLE:

10'-0" HORIZONTAL SPAN, 30° PITCH,
RAFTERS @ 36" C/C
LL = 40 PSF DL=10 PSF
 $W = (1.155)(10) + 40 = 52$
 $V = (52)(3'-0")(10'-0") = 1560 \text{ LBS.}$
 $H = 0.866 (1560) = 1351 \text{ LBS.}$

NOTE: IF PITCH IS LESS THAN 4 ON 12
PLEASE CONTACT SUPER SKY PRODUCTS
TO CONFIRM ENGINEERING ASSUMPTIONS.

SLOPE	C	C _H
4 ON 12	1.054	1.5
30°	1.155	0.866
45°	1.414	0.5

SPANNING CHART MODIFIER AND REACTIONS FOR RIDGE SKYLIGHTS

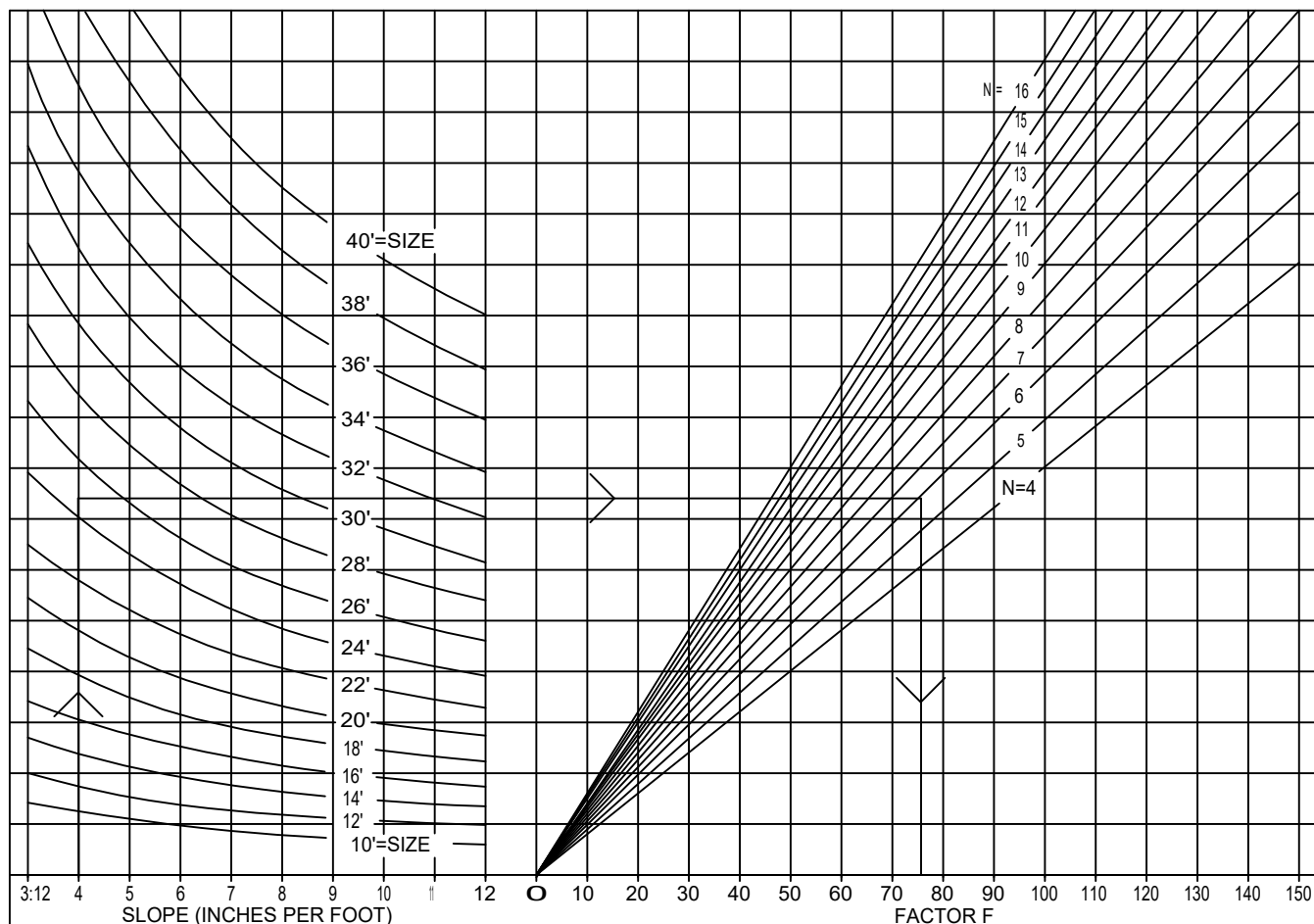
STRUCTURAL GUIDELINES DO NO ACCOUNT FOR DESIGN ELEMENTS LIKE WIND LOAD, SNOW LOAD, SNOW DRIFT, AND SEISMIC MOVEMENT.
EACH OF THESE ADDITIONAL DESIGN LOAD FACTORS CAN IMPART THE FINAL SIZE OF FRAMING.



STRUCTURAL ENGINEERING GUIDELINES

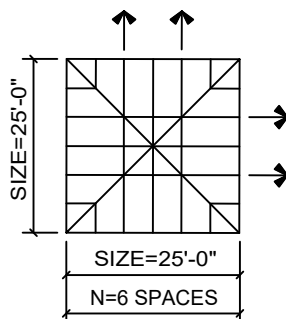
MAXIMUM HORIZONTAL THRUST

FOR PYRAMIDS



EXAMPLE

4:12 SLOPE
SIZE = 25'-0"
N = 6 SPACES
DEAD LOAD = 10 PSF
LIVE LOAD = 30 PSF



PYRAMID DESIGN

THE SIZE OF A PYRAMID'S HIP RAFTER CAN BE MINIMIZED WHEN THE SUPPORTING CURB IS CAPABLE OF RESISTING HORIZONTAL THRUST. A STIFF CURB ALLOWS THE PYRAMID RAFTERS TO SUPPORT AND STABILIZE THE HIP. A FLEXIBLE CURB FORCES THE HIP RAFTER TO ACT AS A SIMPLE BEAM. THE NOMOGRAPH ABOVE PREDICTS THE MAXIMUM HORIZONTAL THRUST WHEN ASSUMING AN INFINITELY RIGID SUPPORTING CURB. THIS ASSUMPTION IS CONSERVATIVE IN ALL CASES.

THRUST (T) = FACTOR F [DEAD LOAD +
(LIVE LOAD X COSINE OF SLOPE)]
 $T = F [DL + (LL \times \cos)]$
 $T = 76 [10 \text{ PSF} + (30 \text{ PSF} \times .9487)]$
 $T = 76 [10 + 28.46]$
 $T = 2923 \text{ LBS. (MAXIMUM OUTWARD AT RAFTERS APPROX. AT THIRD POINTS)}$

PYRAMID DESIGN & REACTIONS

STRUCTURAL GUIDELINES DO NO ACCOUNT FOR DESIGN ELEMENTS LIKE WIND LOAD, SNOW LOAD, SNOW DRIFT, AND SEISMIC MOVEMENT. EACH OF THESE ADDITIONAL DESIGN LOAD FACTORS CAN IMPART THE FINAL SIZE OF FRAMING.

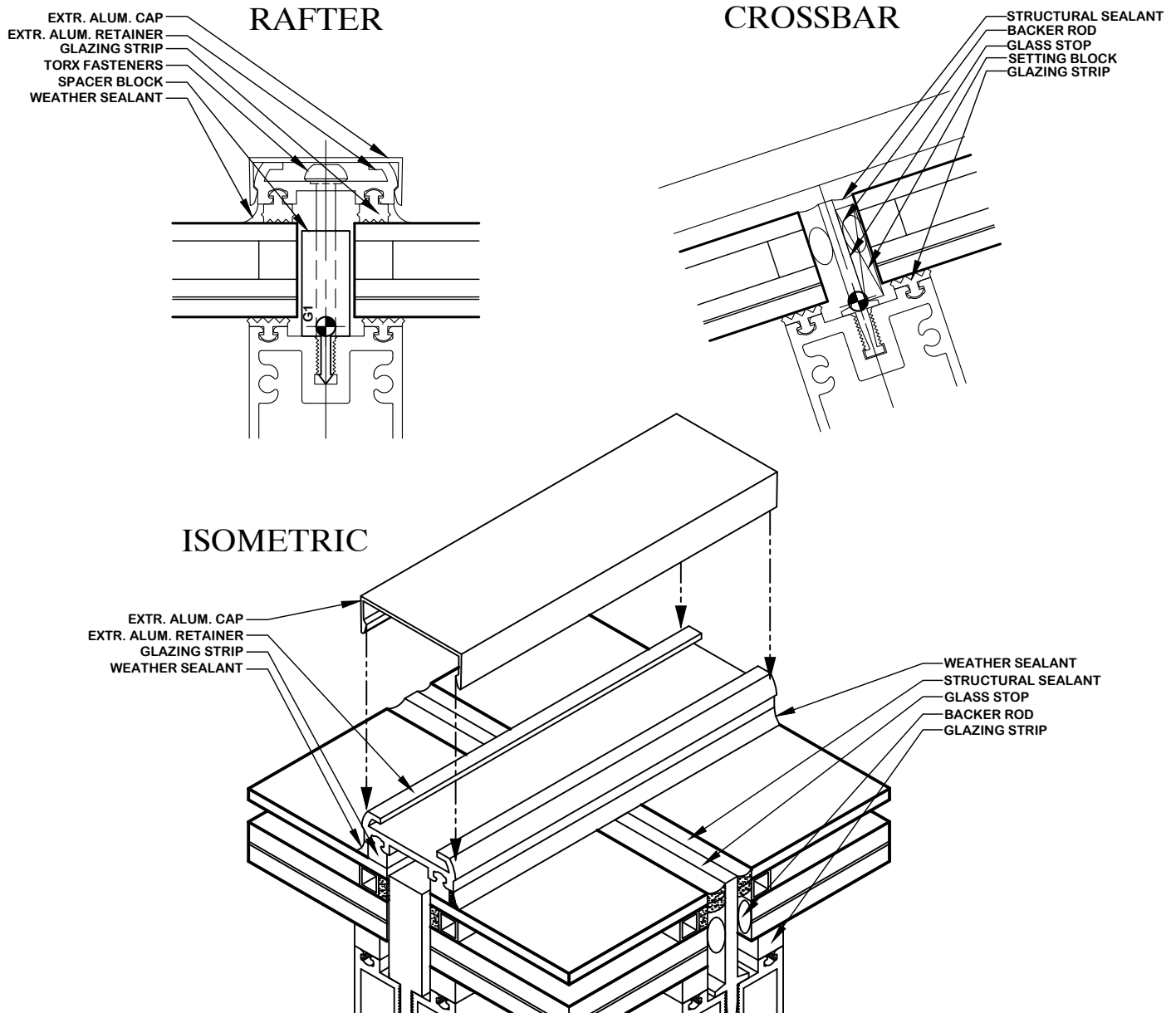


THIS PAGE INTENTIONALLY LEFT BLANK

2-SIDED CAPPED SYSTEMS

Super Sky Products' typical glazing system consists of glass panels, or "lites," set on main framing members using extruded aluminum retainers or pressure plates. These retainers are typically fastened to the main framing members with Torx fasteners, sealed with vinyl washers, and spaced at a maximum of 12 inches on center. EPDM glazing gaskets separate the glass from the aluminum above and below. Retainers are continuously wet-sealed in the field with high-performance silicone sealant and covered with a finished aluminum "snap-on cap" extrusion to conceal the retainer fasteners.

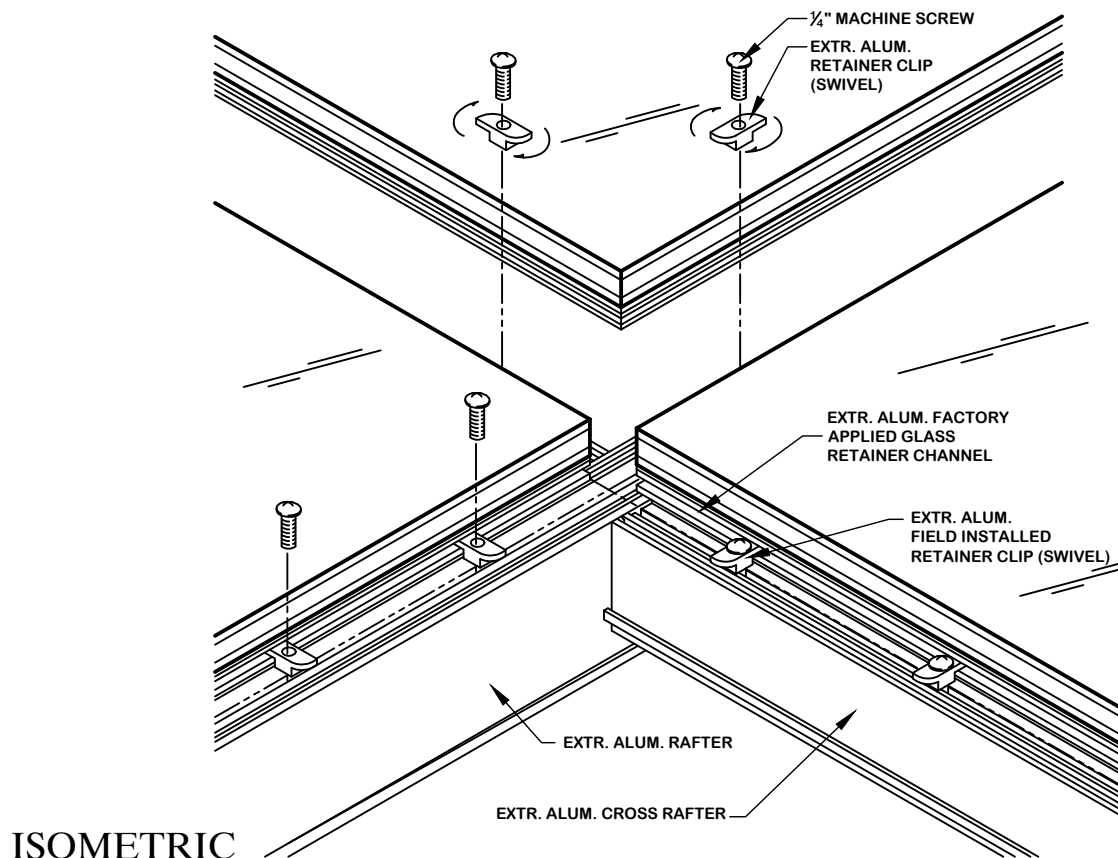
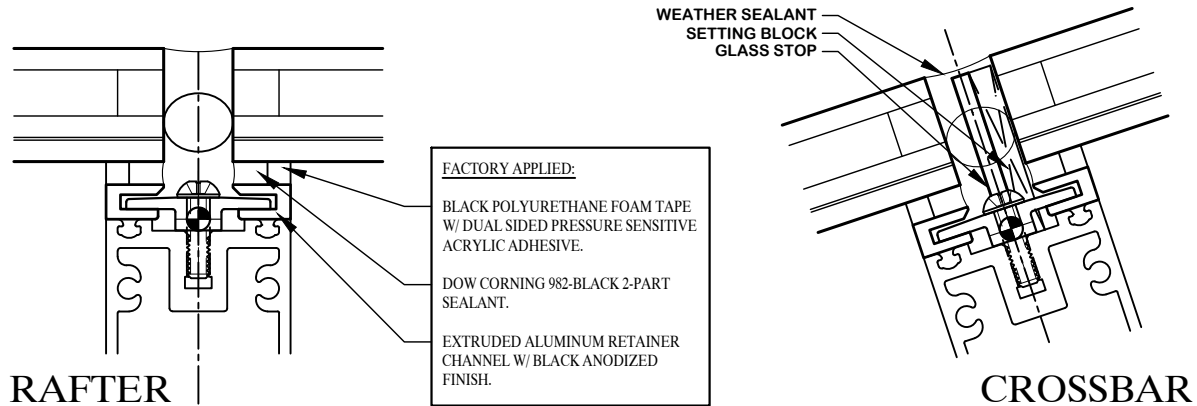
The glass is retained in the frame at horizontal framing members using structural silicone sealant, with joints formed between the glass edges and the cross-rafter glass stop. This design creates a flush joint that prevents water damming and debris accumulation. A slide-in PVC glass stop is standard, while the continuous pressure plate weather seal joints are aligned to ensure a fully watertight installation.



TOTAL FLUSH GLAZING SYSTEMS

Super Sky Products' Total Flush Glazing (TFG) system utilizes advanced silicone sealant technology and features continuous aluminum retainers with intermittent hold-down clips to secure glass to the frame. The retainers are bonded to the glass with structural silicone sealant, applied and cured in a controlled factory environment. With no exterior fasteners or aluminum caps beyond the glass surface, the system ensures a true thermal break.

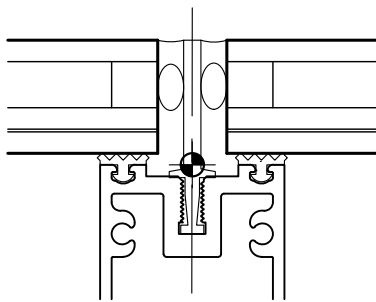
Each lite operates independently from its neighboring lites and can be replaced without having to remove the others. High-performance silicone is used for the exterior weather seals, which are applied after all lites have been secured. The entire exterior surface of the glass is a flat plane, free of obstructions that could trap water or allow dirt and debris to accumulate.



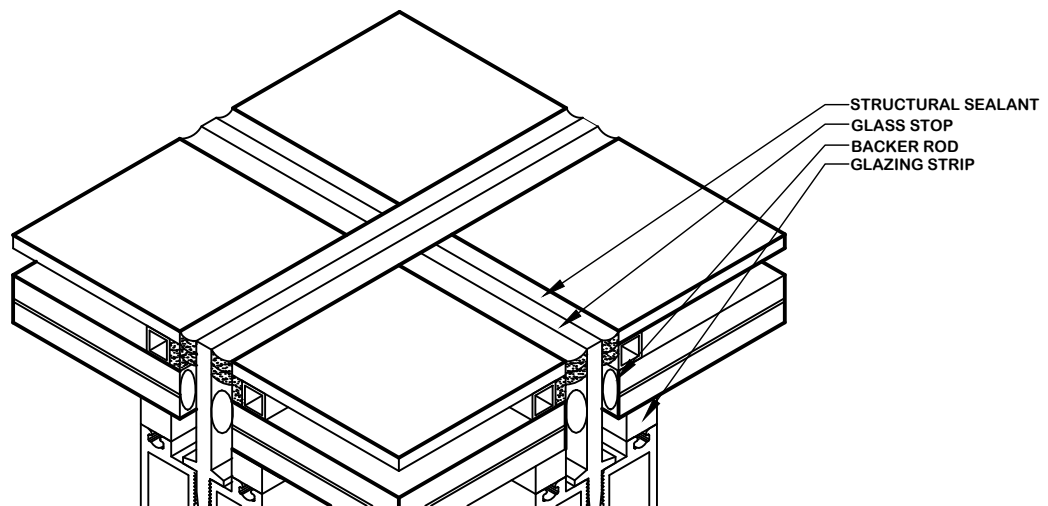
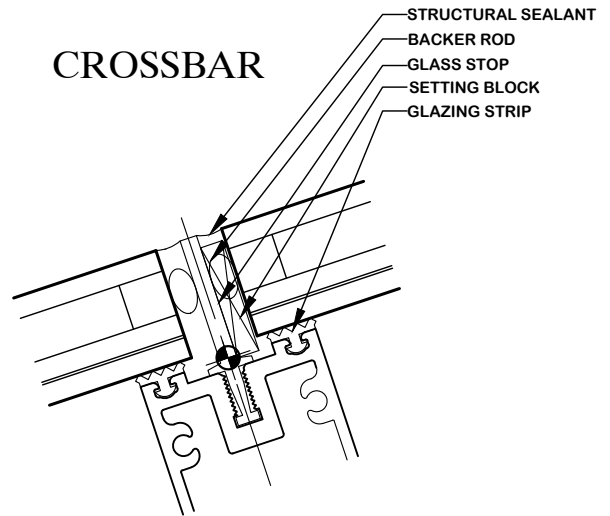
FIELD FLUSH GLAZING SYSTEMS

A field flush glazing system installs glass panels that align flush with one another, resulting in a smooth, uninterrupted appearance. The glass is usually bonded with structural silicone glazing, which eliminates visible pressure plates or caps, thereby reducing water damming and debris accumulation. This system improves aesthetics, drainage performance, and long-term weather resistance while accommodating thermal movement and structural loads.

RAFTER



CROSSBAR

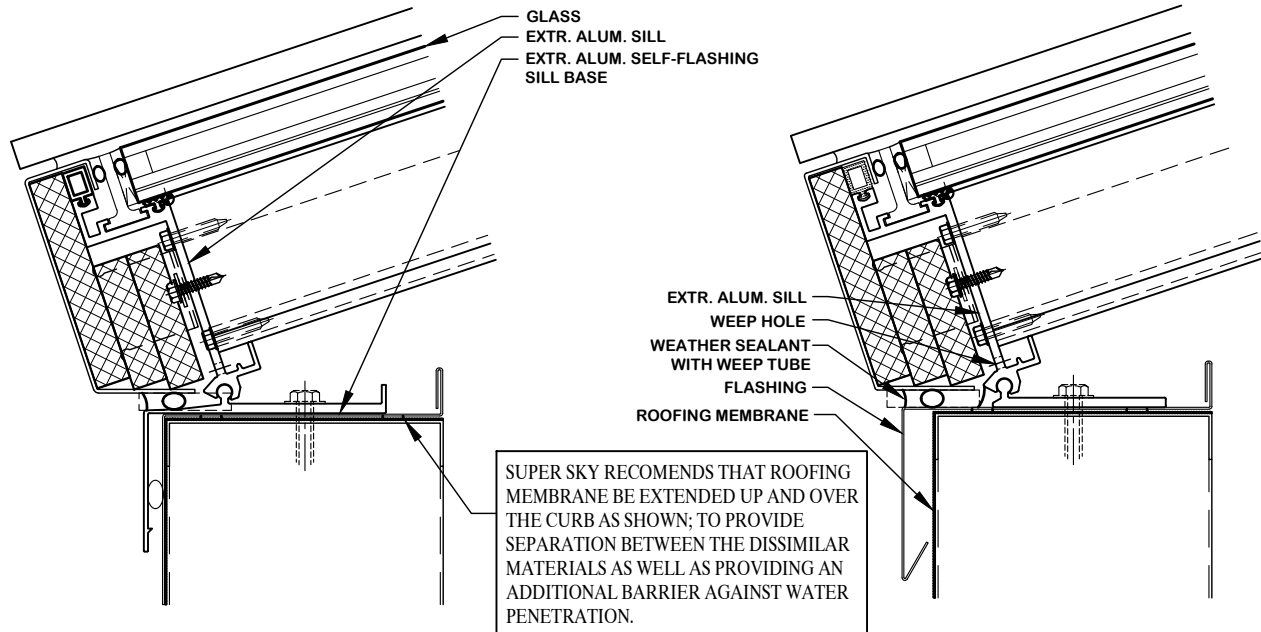


ISOMETRIC



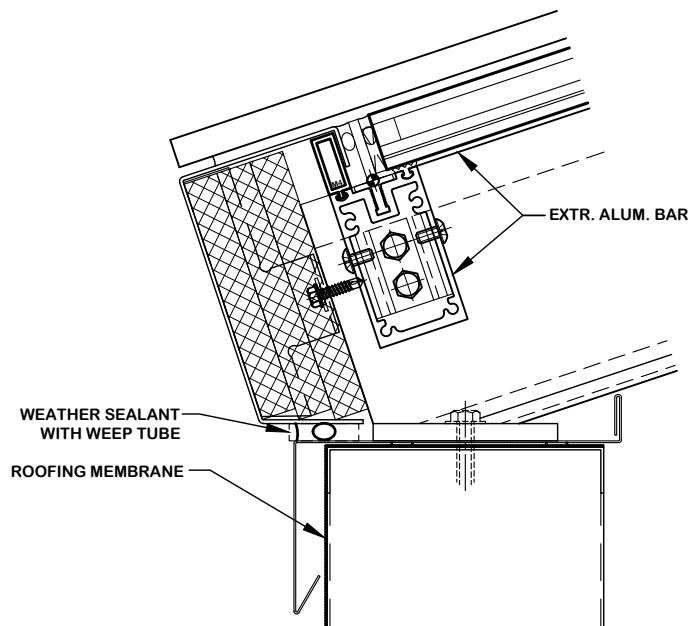
SILLS

Sill, Head, and Endrafters ensure proper sealing of the perimeter with adjacent construction and incorporate formed sheet metal flashing to maintain watertightness. The sill conditions, which are generally the lowest point, function as a condensation gutter system. This design allows for drainage through weep holes that are drilled in the sill extrusion, typically located at each rafter. The weep holes are usually positioned at each rafter.



1 SELF-FLASHING SILL
BD-4 SCALE: 3" = 1'-0"

2 VARIABLE SILL
BD-4 SCALE: 3" = 1'-0"



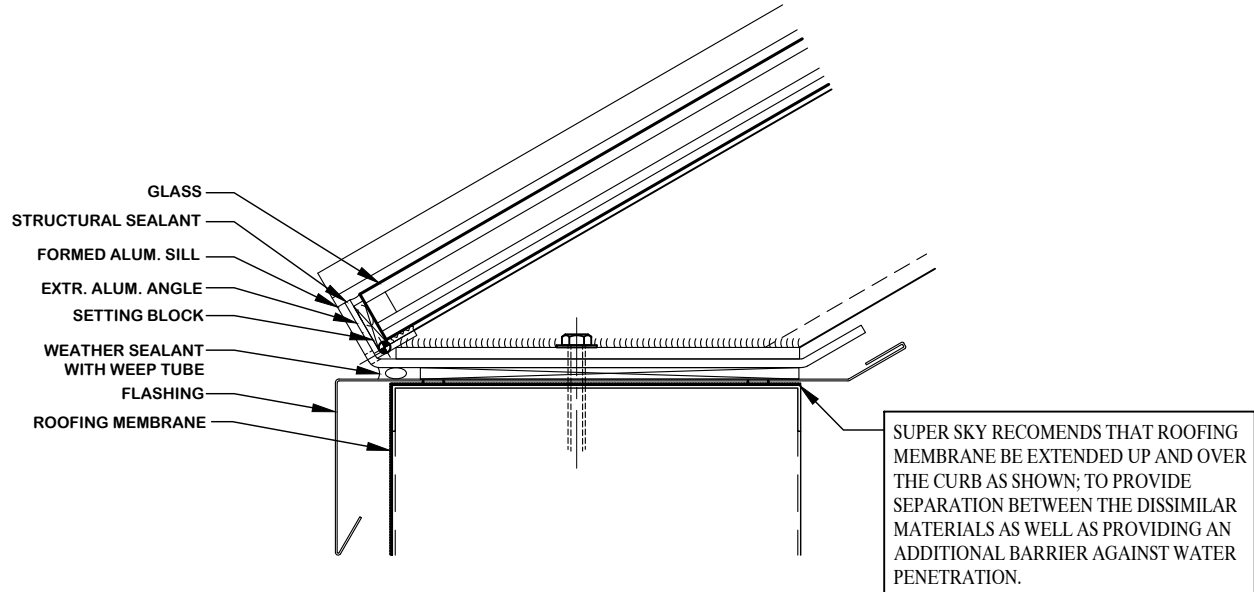
3 CROSSBAR SILL
BD-4 SCALE: 3" = 1'-0"



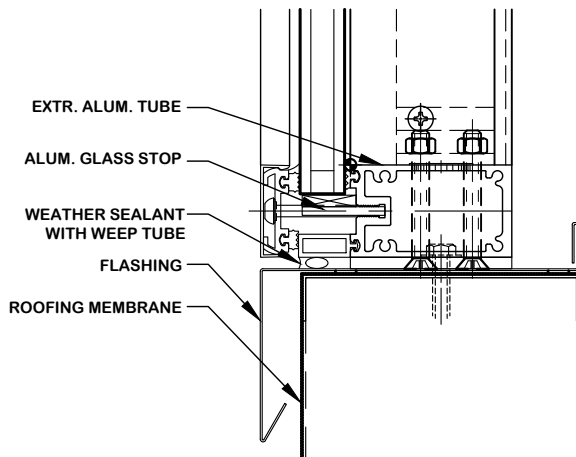
SILLS

(Note, framing size will be determined per design load criteria)

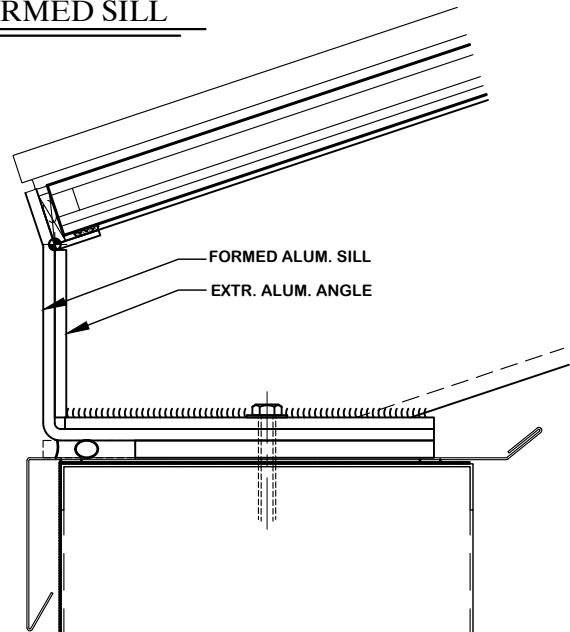
Sill, Head, and Endrafters ensure proper sealing of the perimeter with adjacent construction and incorporate formed sheet metal flashing to maintain watertightness. The sill conditions, which are generally the lowest point, function as a condensation gutter system. This design allows for drainage through weep holes that are drilled in the sill extrusion, typically located at each rafter. The weep holes are usually positioned at each rafter.



1 LOW-PROFILE FORMED SILL
BD-5 SCALE: 3" = 1'-0"



3 SILL
BD-5 SCALE: 3" = 1'-0"

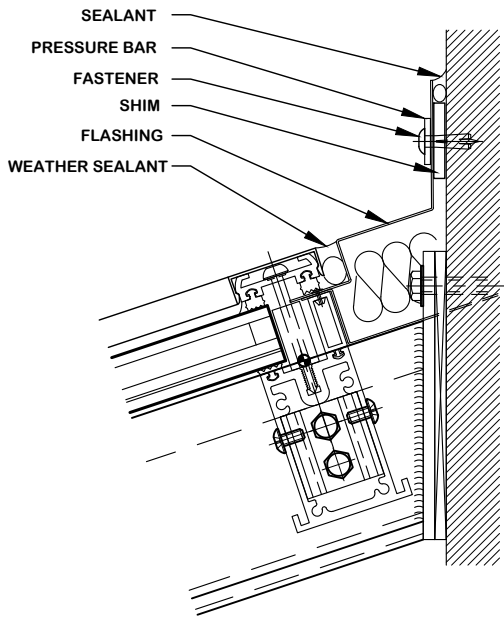


2 FORMED SILL
BD-5 SCALE: 3" = 1'-0"



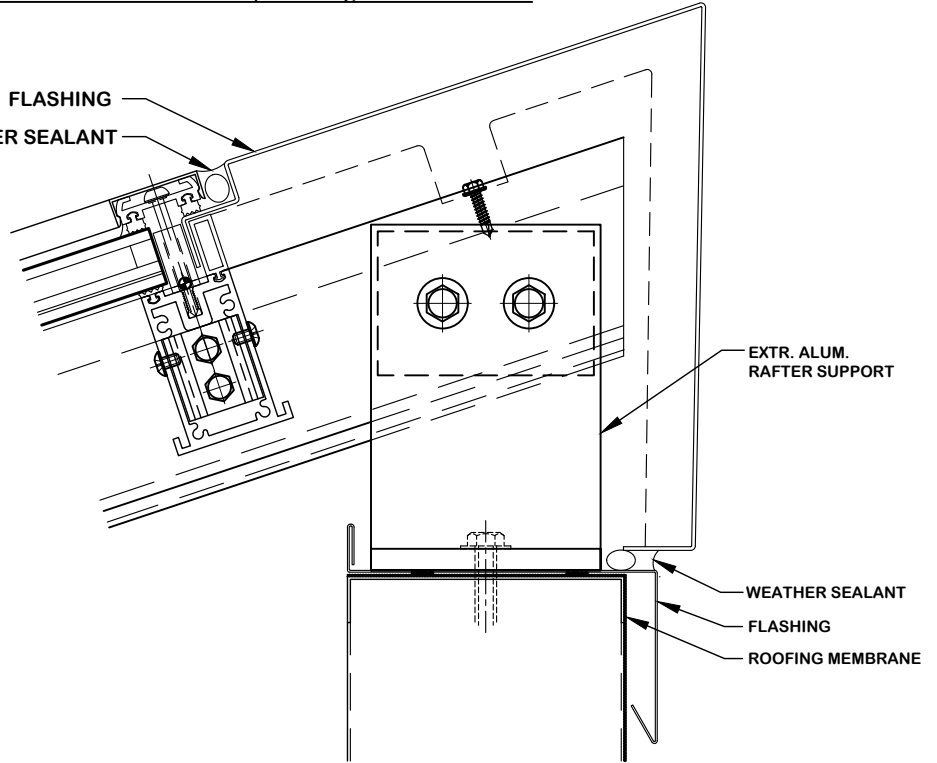
HEAD DETAILS

(Note, framing size will be determined per design load criteria)

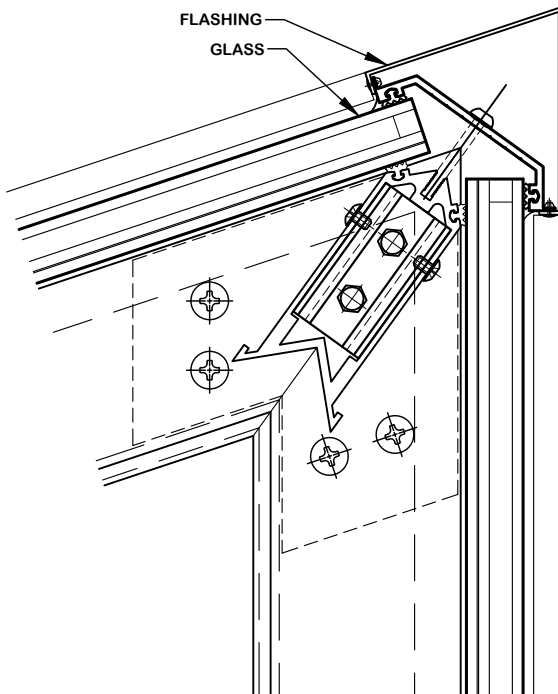


1 HEAD
BD-6 SCALE: 3" = 1'-0"

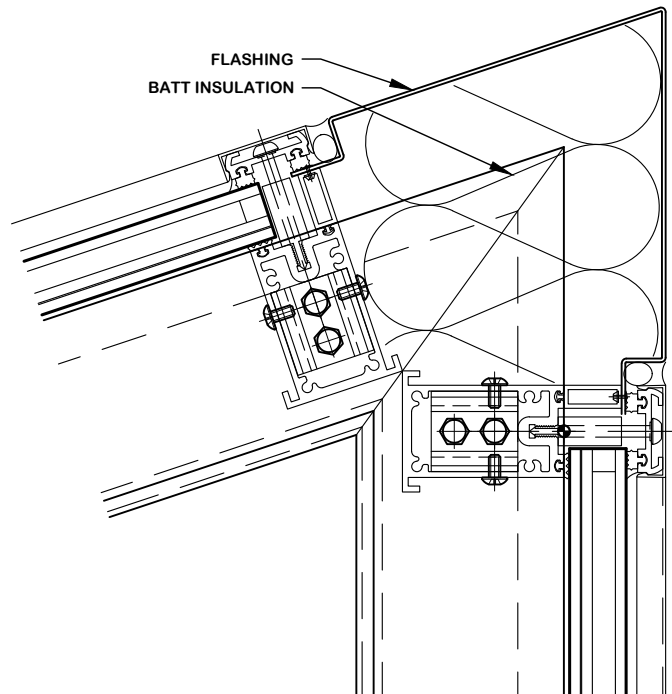
FLASHING
WEATHER SEALANT



3 RAFTER SUPPORT
BD-6 SCALE: 3" = 1'-0"



2 SINGLE KNEE
BD-6 SCALE: 3" = 1'-0"



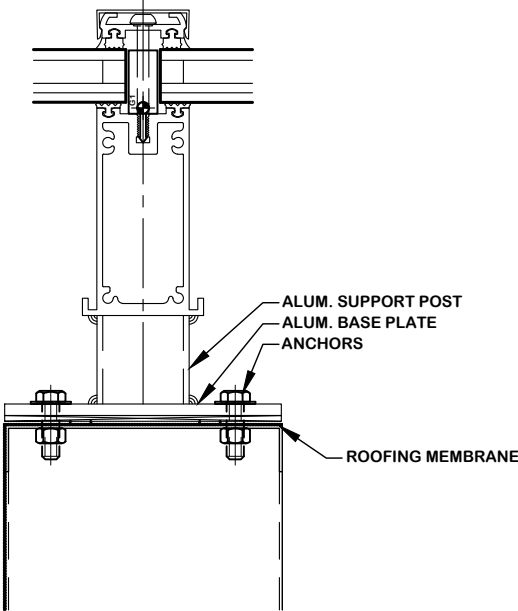
2 DOUBLE KNEE
BD-6 SCALE: 3" = 1'-0"



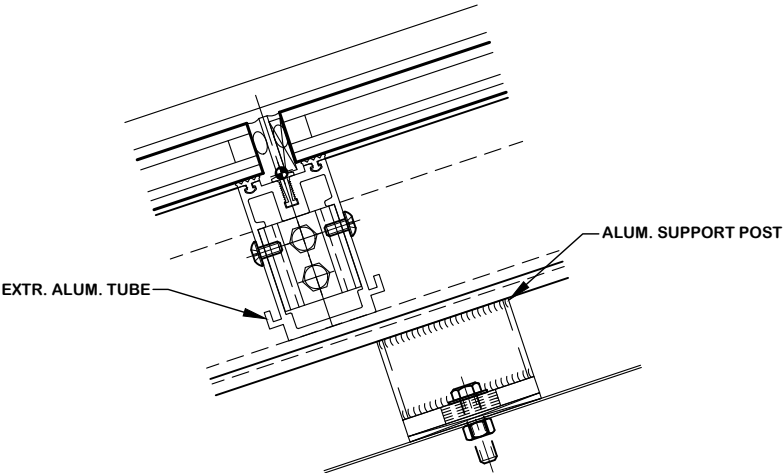
SUPPORTS & MOUNTING

(Note, framing size will be determined per design load criteria)

Support and mounting methods are employed to connect extrusions to supporting structures when constructing entirely with aluminum may be impractical due to the length of the spans. Even with properly designed support structures, it is crucial to have the ability to level, adjust, and allow for thermal movement. The sizes of plates and fasteners are tailored for each specific project, based on the unique loading requirements of that project.



1 RAFTER
BD-7 SCALE: 3" = 1'-0"

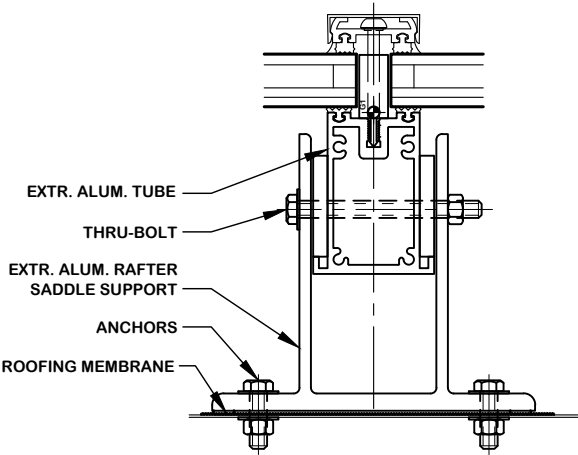


1A CROSSBAR
BD-7 SCALE: 3" = 1'-0"

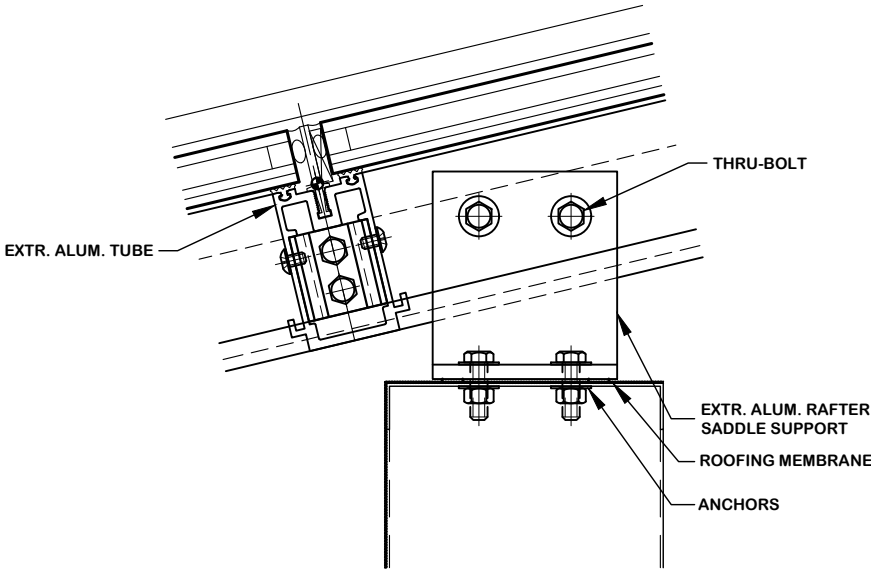


SUPPORTS & MOUNTING

(Note, framing size will be determined per design load criteria)



1 RAFTER SUPPORT
BD-8 SCALE: 3" = 1'-0"



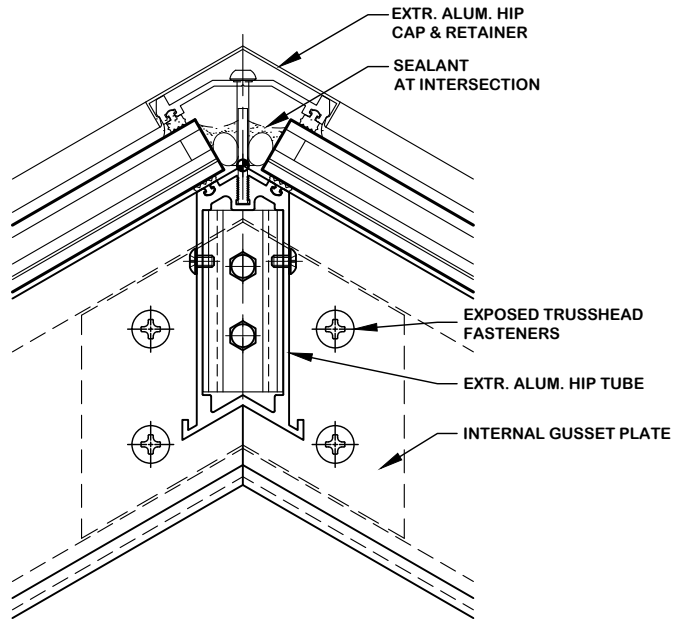
1a RAFTER SUPPORT
BD-8 SCALE: 3" = 1'-0"



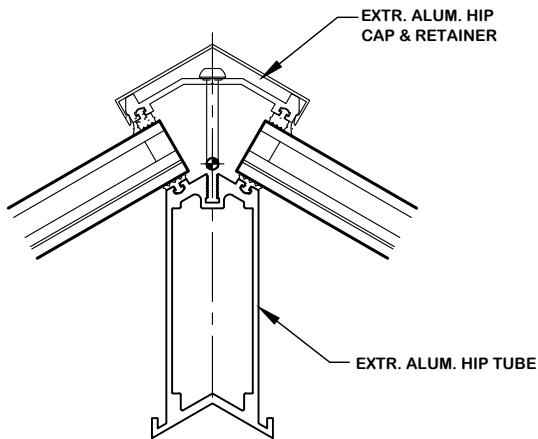
RIDGES, HIPS, & VALLEYS

(Note, framing size will be determined per design load criteria)

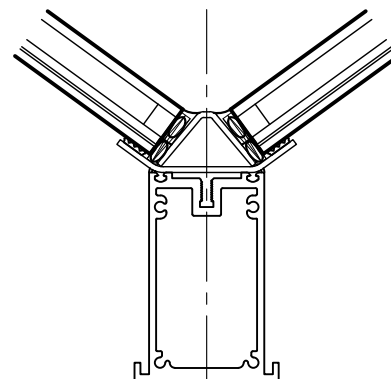
Ridges and hips facilitate adjustments in the planes of the glass, typically utilizing single extruded members. The sizes are determined by structural analysis. The shapes depend on the geometry of the skylight and the angle of the intersecting rafters.



1 RIDGE
BD-9 SCALE: 3" = 1'-0"



2 HIP
BD-9 SCALE: 3" = 1'-0"



3 VALLEY
BD-9 SCALE: 3" = 1'-0"

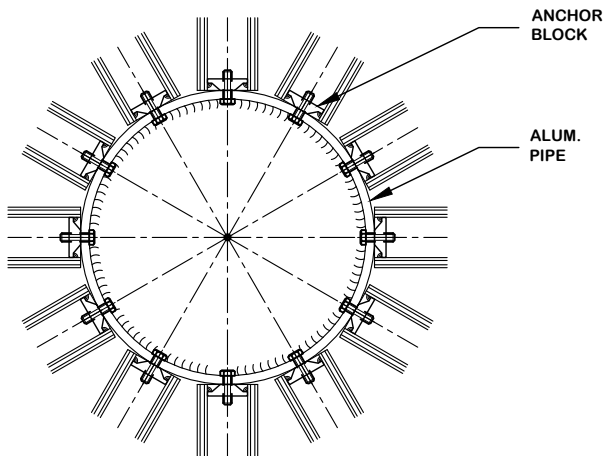


CONNECTIONS & FASTENERS

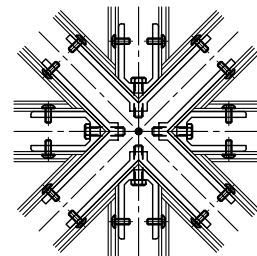
(Note, framing size will be determined per design load criteria)

Connections hold equal importance to the size of the spanning members in skylight design. This section outlines the methods used to join multiple members together.

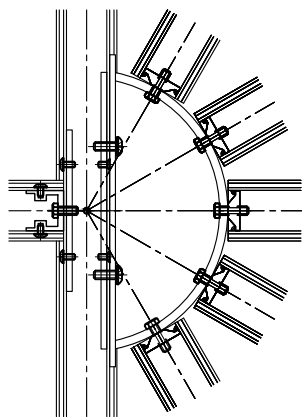
Clips, plates, and fasteners are depicted in standard configurations for detailing purposes; however, all connections will differ based on specific design loads and resultant calculations.



1 CROWN
BD-10 SCALE: 1 1/2" = 1'-0"

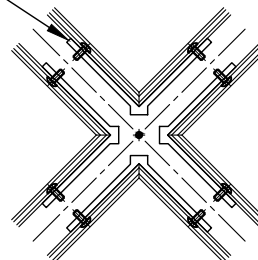


2 APEX (8 BARS)
BD-10 SCALE: 3" = 1'-0"



3 HALF CROWN
BD-10 SCALE: 1 1/2" = 1'-0"

INTERNAL ANGLE &
CHANNEL CLIPS



4 APEX (4 BARS)
BD-10 SCALE: 3" = 1'-0"



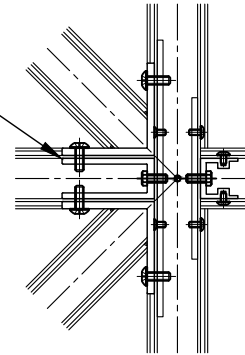
CONNECTIONS & FASTENERS

(Note, framing size will be determined per design load criteria)

Connections hold equal importance to the size of the spanning members in skylight design. This section outlines the methods used to join multiple members together.

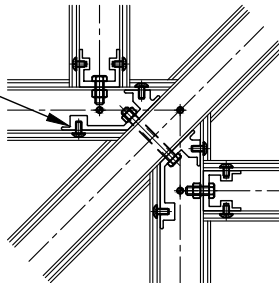
Clips, plates, and fasteners are depicted in standard configurations for detailing purposes; however, all connections will differ based on specific design loads and resultant calculations.

INTERNAL ANGLE &
CHANNEL CLIPS

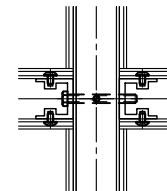


1 APEX (HIP END)
BD-9 SCALE: 1-1/2" = 1'-0"

INTERNAL ANGLE &
CHANNEL CLIPS

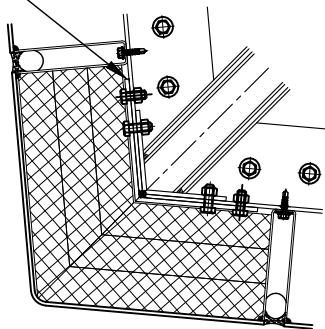


2 HIP/RAFTER
BD-9 SCALE: 1-1/2" = 1'-0"

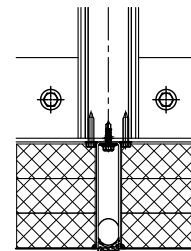


3 RAFTER /
CROSS RAFTER
BD-9 SCALE: 1-1/2" = 1'-0"

FORMED ALUM.
ANGLE CLIPS



4 HIP / SILL
BD-9 SCALE: 1-1/2" = 1'-0"



5 RAFTER / SILL
BD-9 SCALE: 1-1/2" = 1'-0"

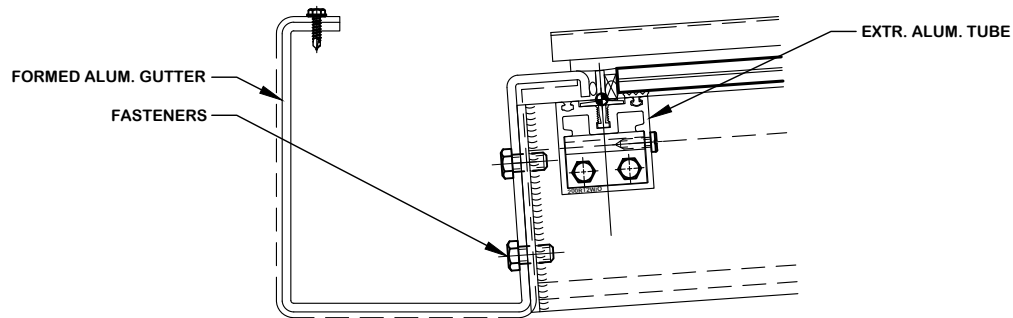


GUTTERS

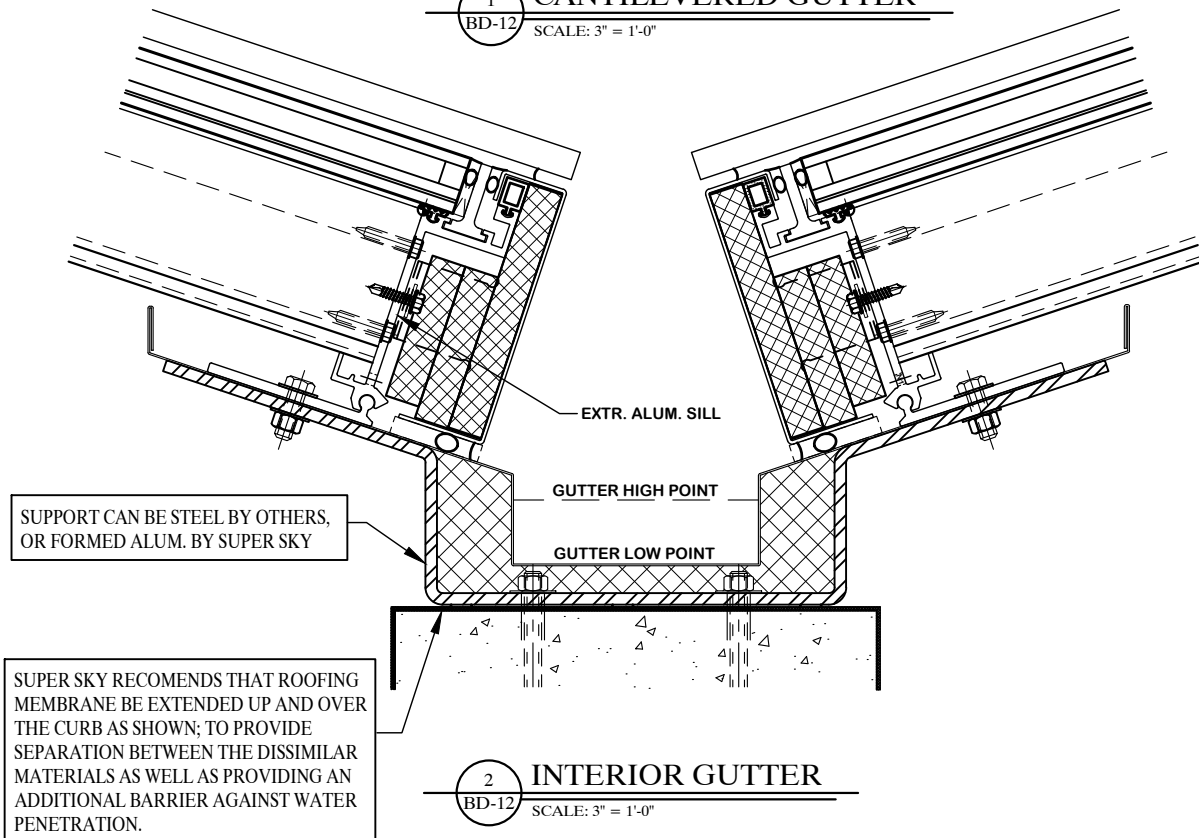
(Note, framing size will be determined per design load criteria)

Gutters come in various forms and are primarily designed at the base of a skylight to efficiently drain water to a discharge point. Eave gutters help manage water and ice at the transition from sloped to vertical glass planes above doors and walkways. Additionally, gutters are utilized in skylight clusters, featuring a built-in slope for rapid drainage.

Gutters can be either formed or extruded and typically include pitched sheet metal or neoprene liners that slope toward scuppers or drain locations. They should be insulated to minimize condensation inside and to provide structural support for the pitched liners. The details of the gutters are closely connected to the support system details.



1 CANTILEVERED GUTTER
BD-12 SCALE: 3" = 1'-0"



2 INTERIOR GUTTER
BD-12 SCALE: 3" = 1'-0"

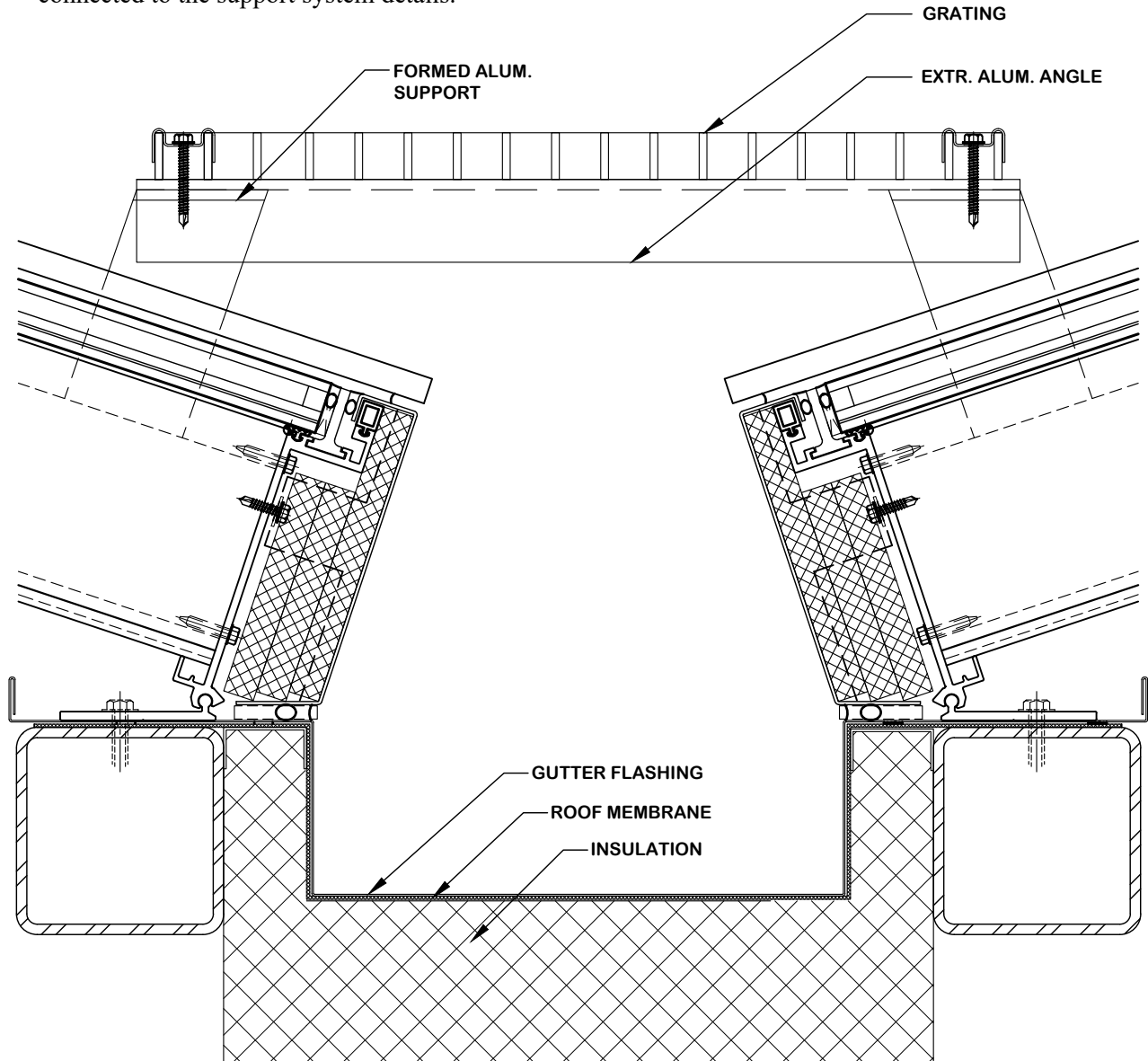


GUTTERS

(Note, framing size will be determined per design load criteria)

Gutters come in various forms and are primarily designed at the base of a skylight to efficiently drain water to a discharge point. Eave gutters help manage water and ice at the transition from sloped to vertical glass planes above doors and walkways. Additionally, gutters are utilized in skylight clusters, featuring a built-in slope for rapid drainage.

Gutters can be either formed or extruded and typically include pitched sheet metal or neoprene liners that slope toward scuppers or drain locations. They should be insulated to minimize condensation inside and to provide structural support for the pitched liners. The details of the gutters are closely connected to the support system details.



1 GUTTER
BD-13 SCALE: 3" = 1'-0"



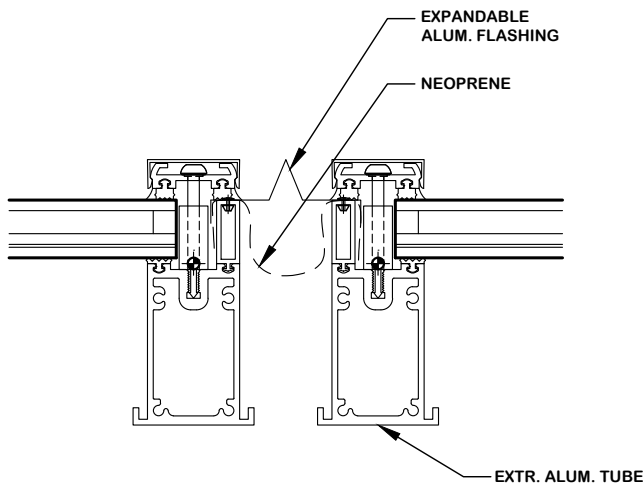
EXPANSION JOINTS

(Note, framing size will be determined per design load criteria)

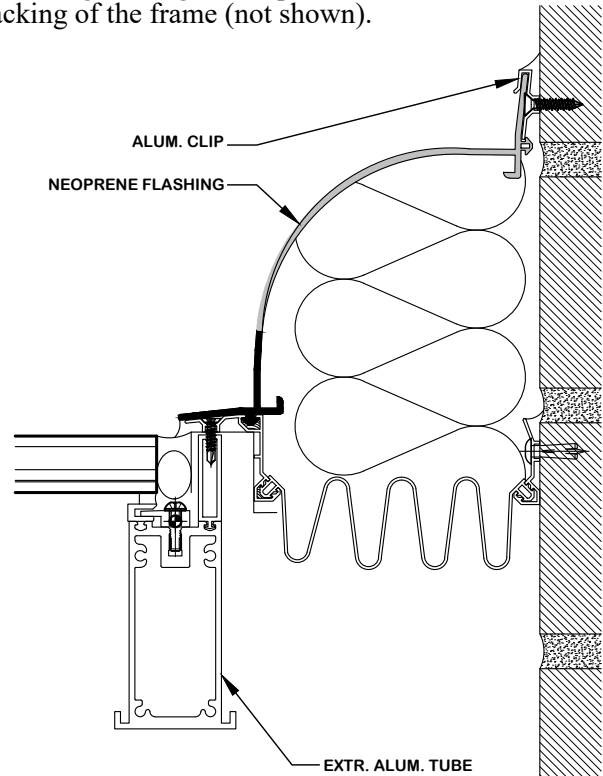
Thermal expansion provisions are typically incorporated into each horizontal crossrafter to manage thermal expansion incrementally, preventing accumulation at one end. Additionally, expansion joints are placed in the sills and heads every 10 to 20 feet to allow for movement while maintaining water-tightness.

There are certain combinations of size, geometry, and supporting structure that may necessitate the use of double members bridged by expansion materials. This condition typically arises when the skylight frame intersects with building expansion joints, requiring the frame to be separated to allow for the building's movement.

Seismic activity in certain regions necessitates specialized engineering techniques, such as the use of sliding connections and expansion joints, to prevent racking of the frame (not shown).



1 EXPANSION JOINT
BD-14 SCALE: 3" = 1'-0"



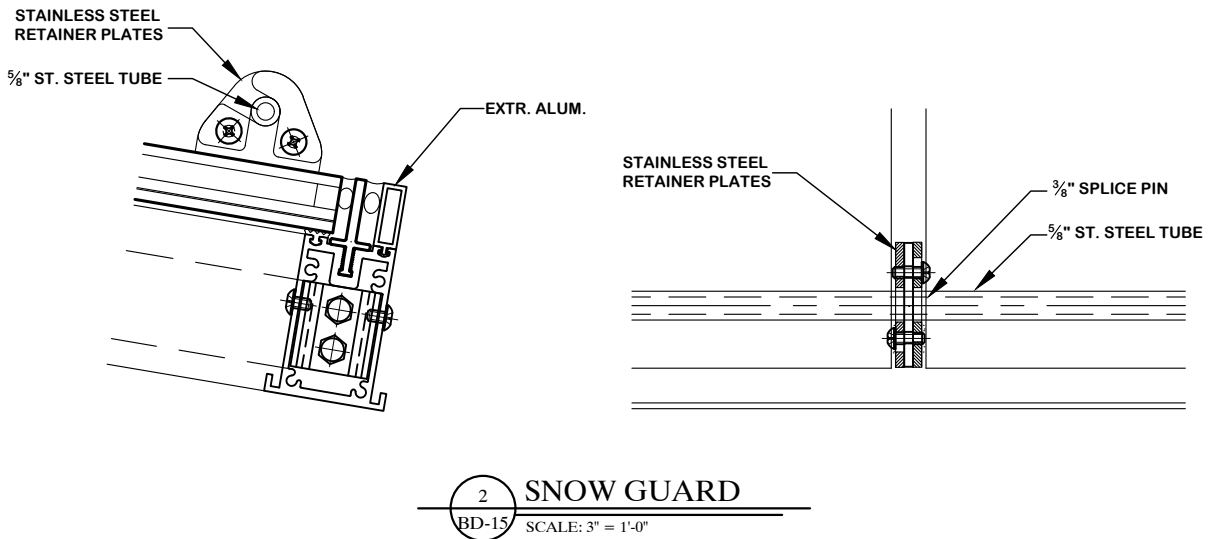
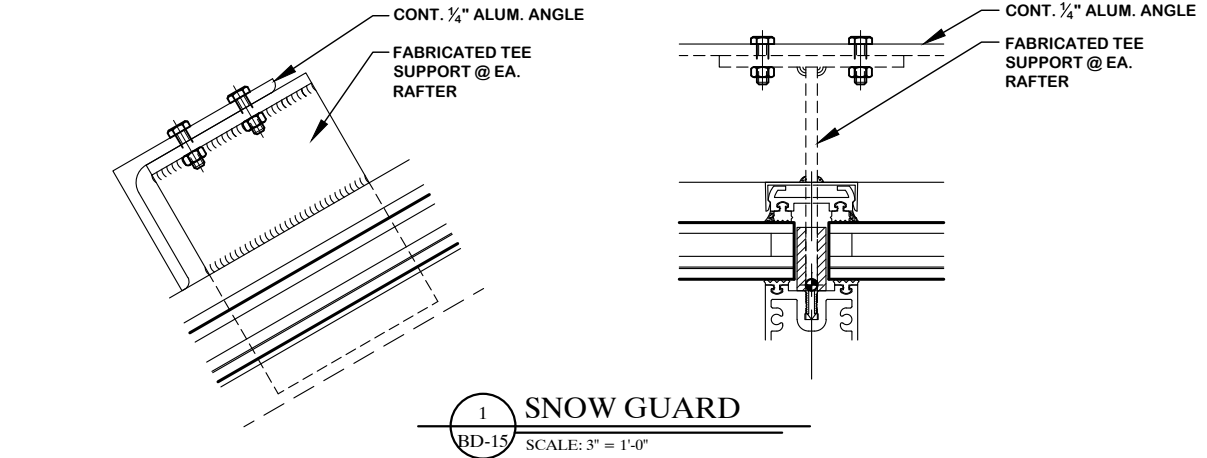
2 END RAFTER w/
EXPANSION JOINT
BD-14 SCALE: 3" = 1'-0"



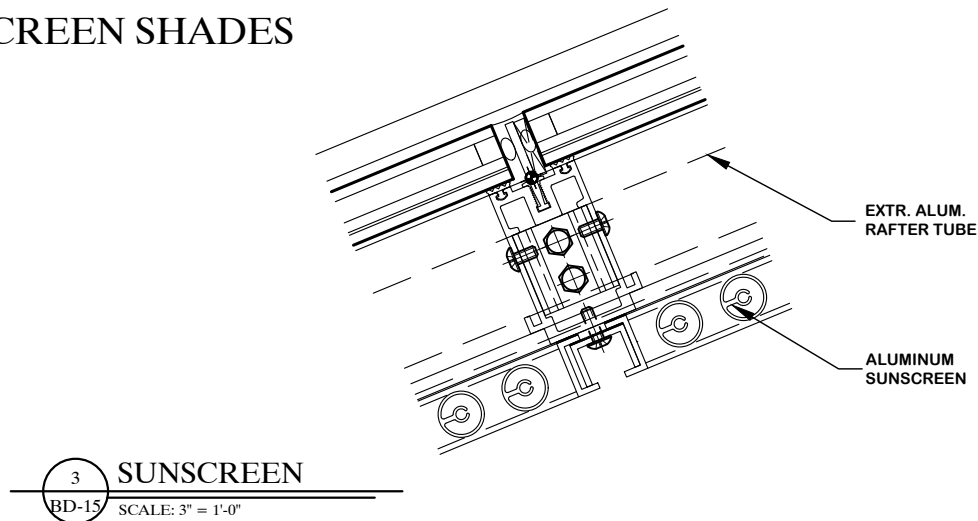
OPTIONS & ACCESSORIES

(Note, framing size will be determined per design load criteria)

SNOW GUARDS

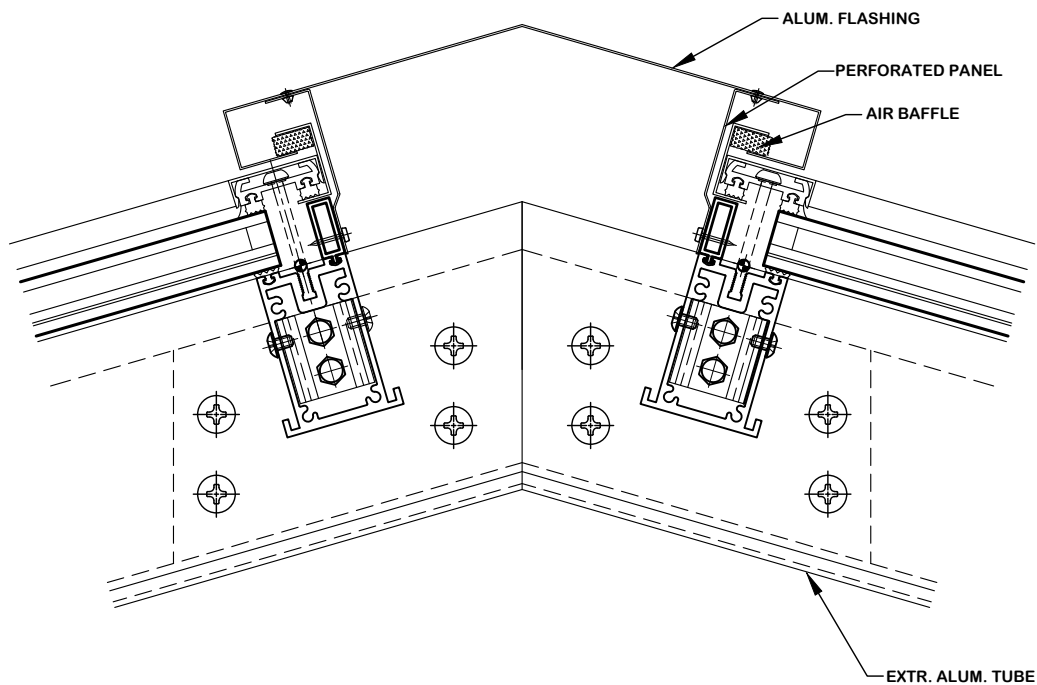


SUNSCREEN SHADES



OPTIONS & ACCESSORIES

(Note, framing size will be determined per design load criteria)

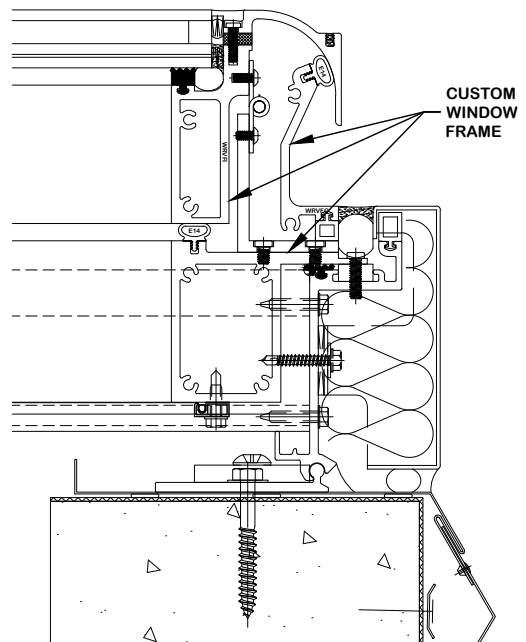
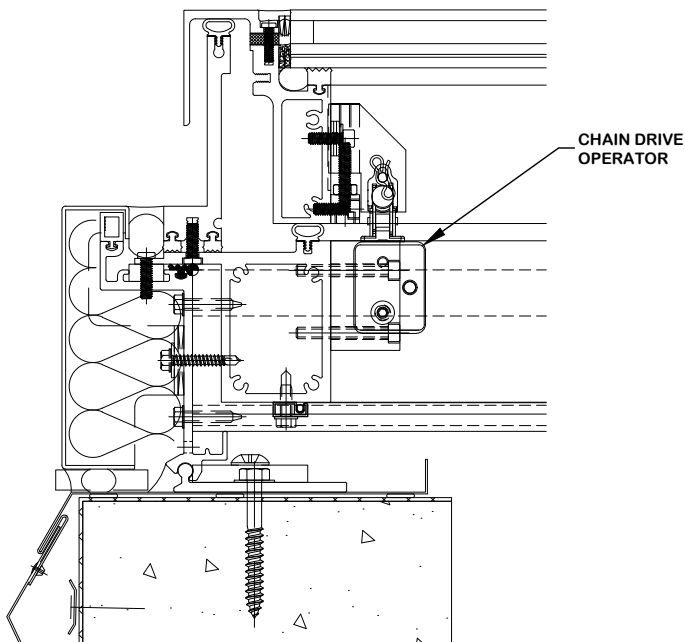
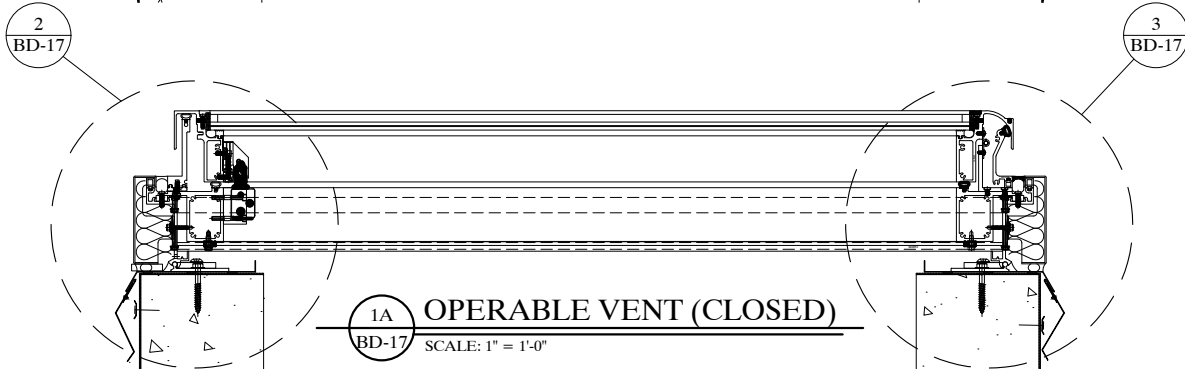
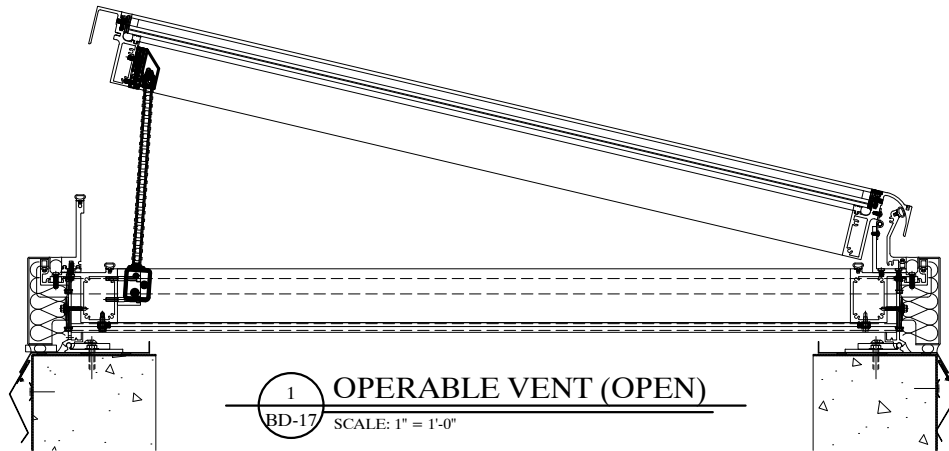


1 VENTED RIDGE
BD-16 SCALE: 3" = 1'-0"



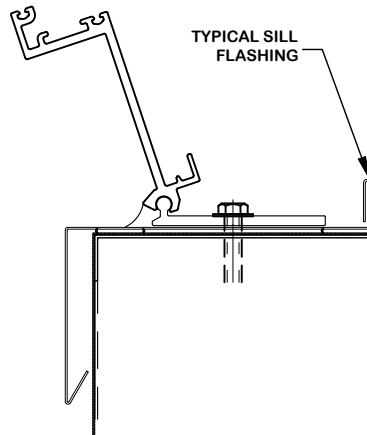
OPTIONS & ACCESSORIES

(Note, framing size will be determined per design load criteria)

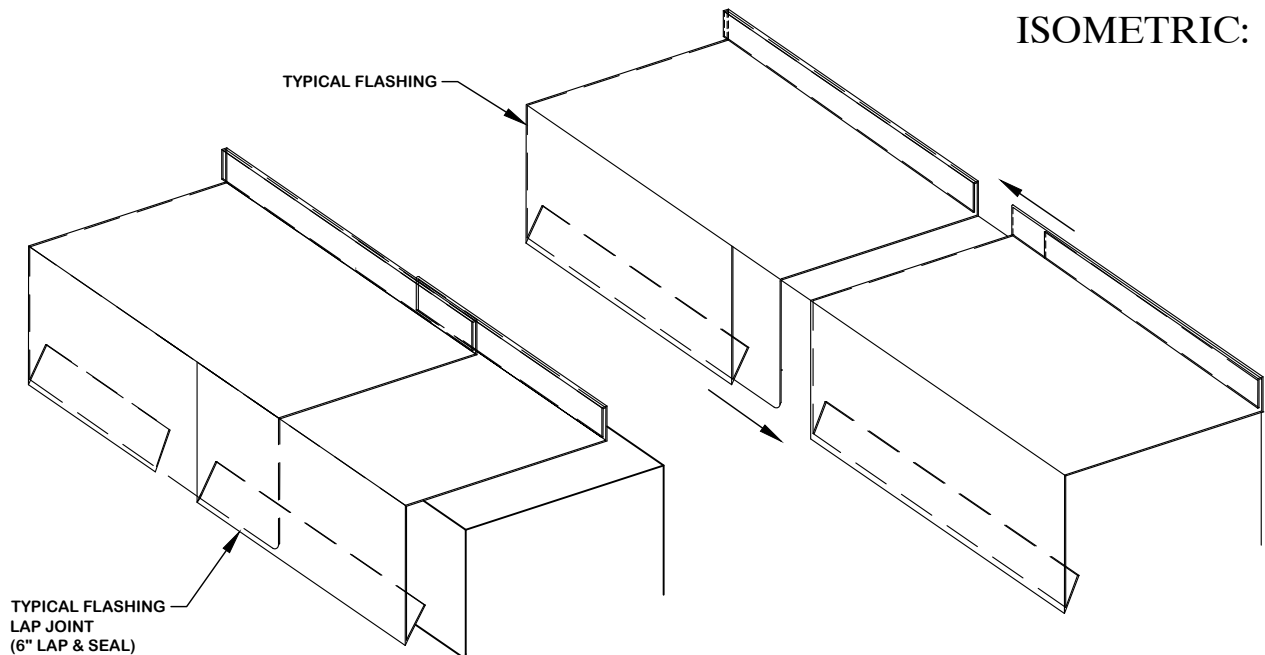


SHEET METAL FLASHING

SECTION:



ISOMETRIC:



SASH FLASHING

GABLE END FLASHING

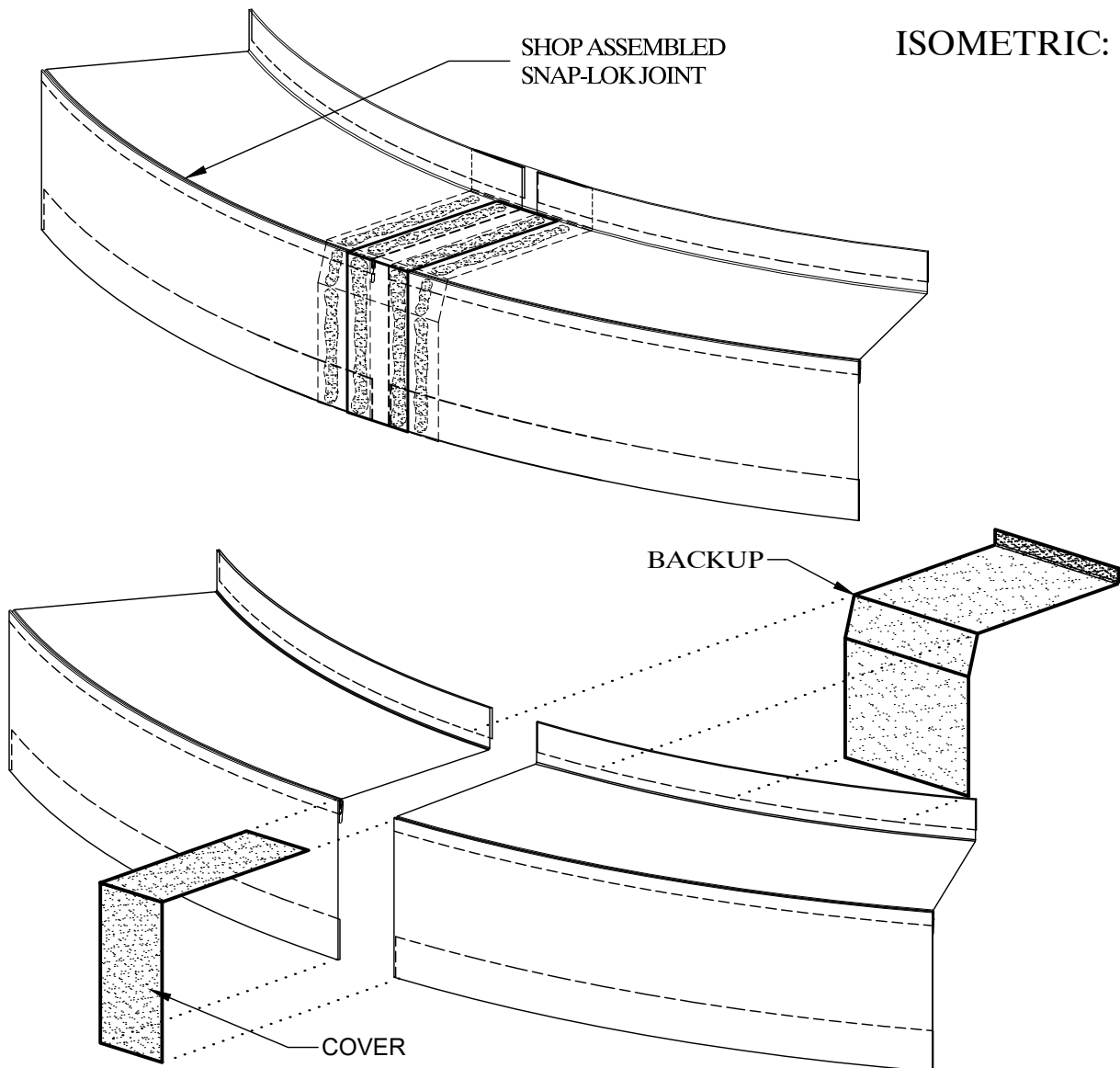
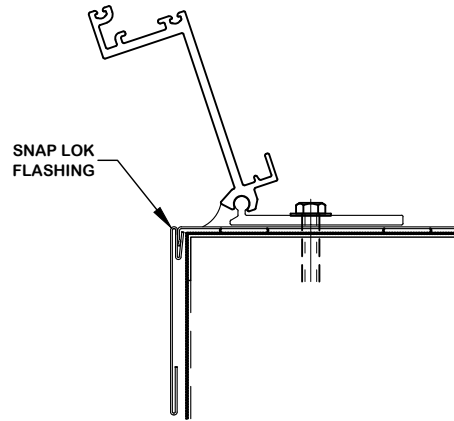
ISOMETRIC:
FLASHING
TRANSITION

ISOMETRIC:
GABLE END



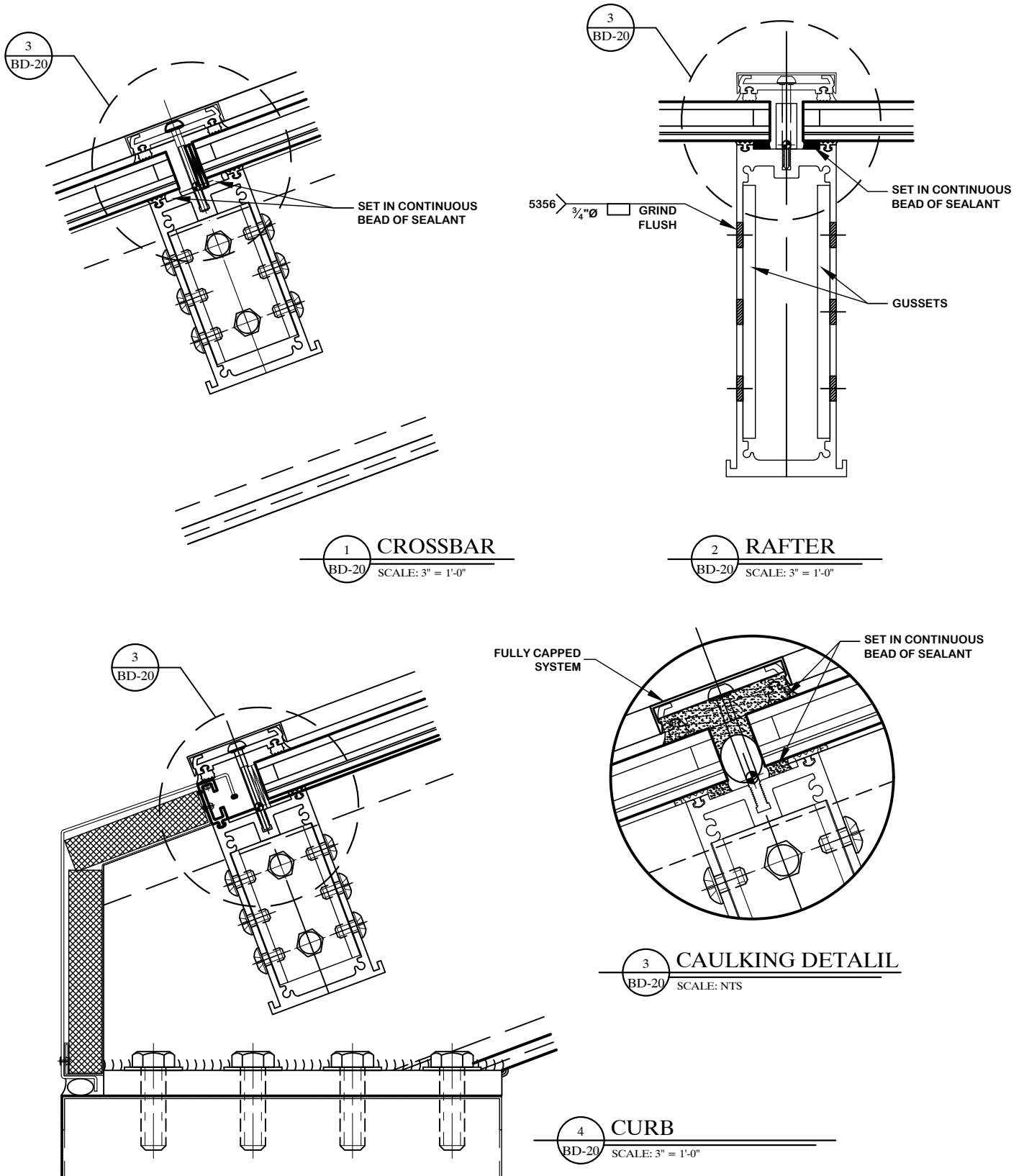
SHEET METAL FLASHING

CURVED SPLICE SOLUTIONS:



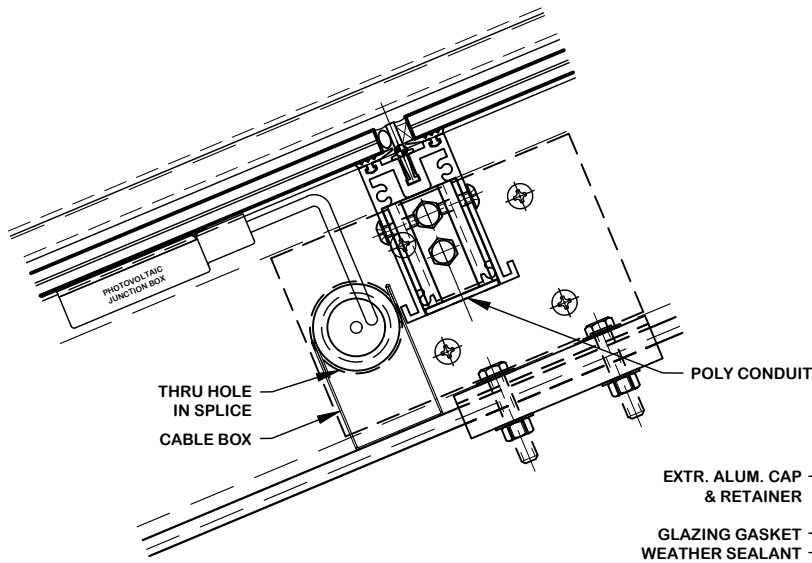
BLAST RESISTANCE

(Note, framing size will be determined per design load criteria)



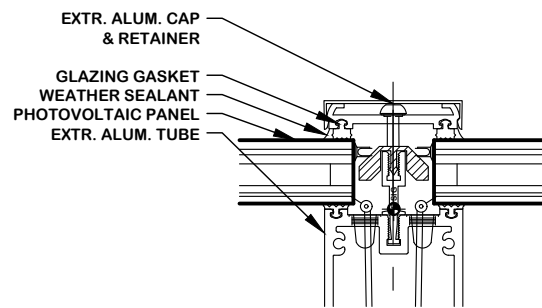
PHOTOVOLTAIC GLAZING

(Note, framing size will be determined per design load criteria)



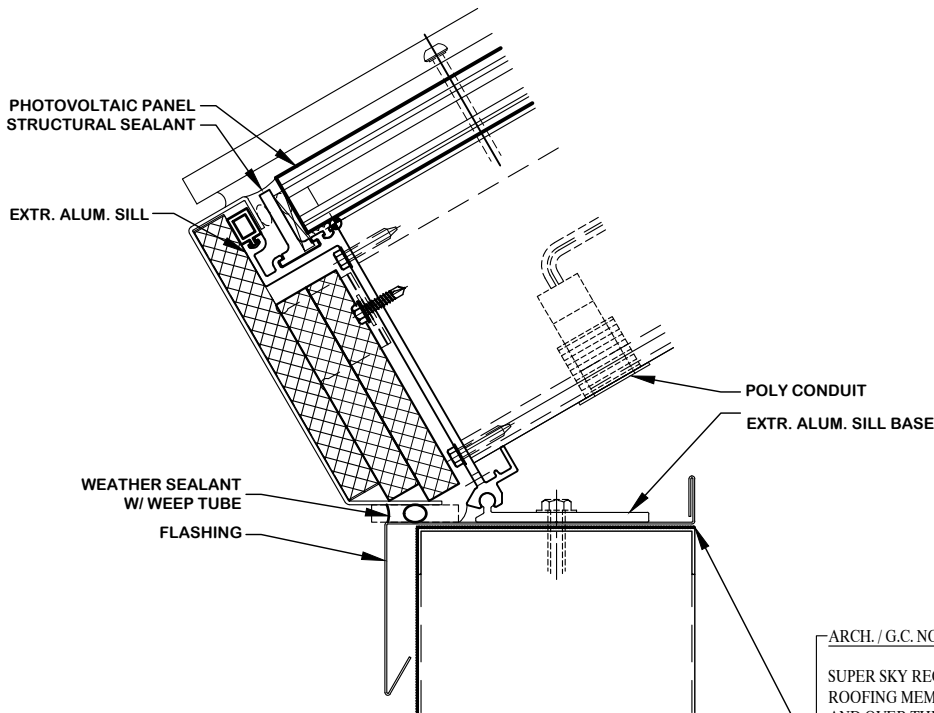
CROSSBAR SECTION

SCALE: 3" = 1'-0"



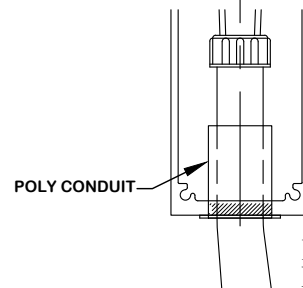
RAFTER TOP

SCALE: 3" = 1'-0"



SILL SECTION

SCALE: 3" = 1'-0"



RAFTER BOTTOM

SCALE: 3" = 1'-0"

ARCH. / G.C. NOTE:

SUPER SKY RECOMMENDS THAT ROOFING MEMBRANE BE EXTENDED UP AND OVER THE CURB AS SHOWN; TO PROVIDE SEPARATION BETWEEN THE DISSIMILAR MATERIALS AS WELL AS PROVIDING AN ADDITIONAL BARRIER AGAINST WATER PENETRATION.

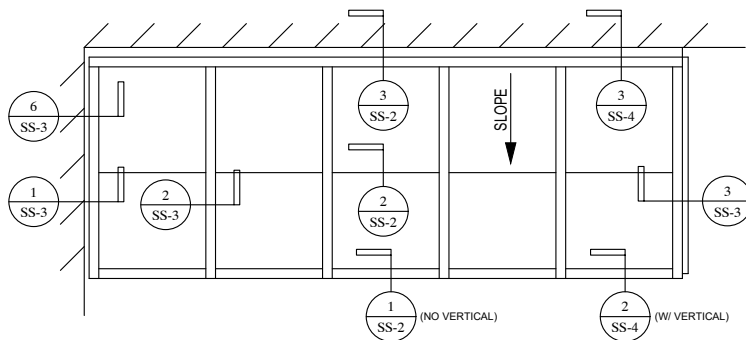
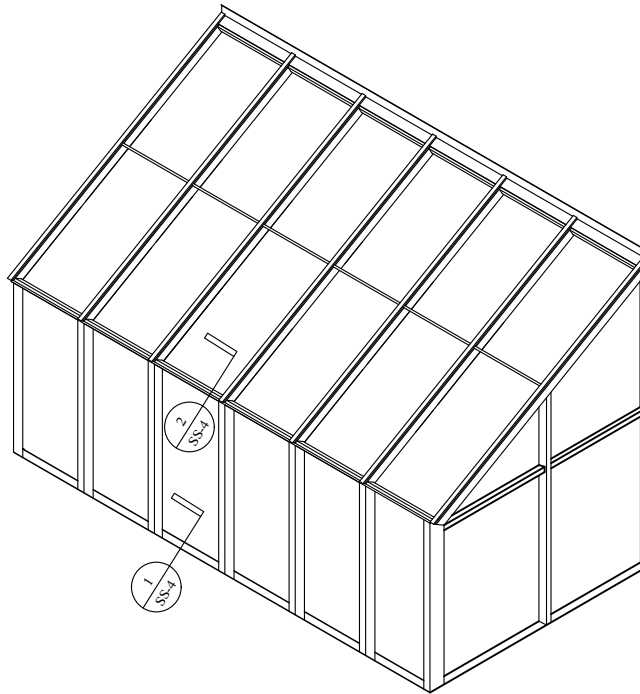


THIS PAGE INTENTIONALLY LEFT BLANK

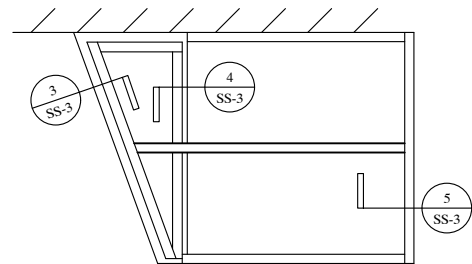
GLASS SYSTEMS: SINGLE SLOPE

(Note, framing size will be determined per design load criteria)

ISOMETRIC



PLAN



SIDE

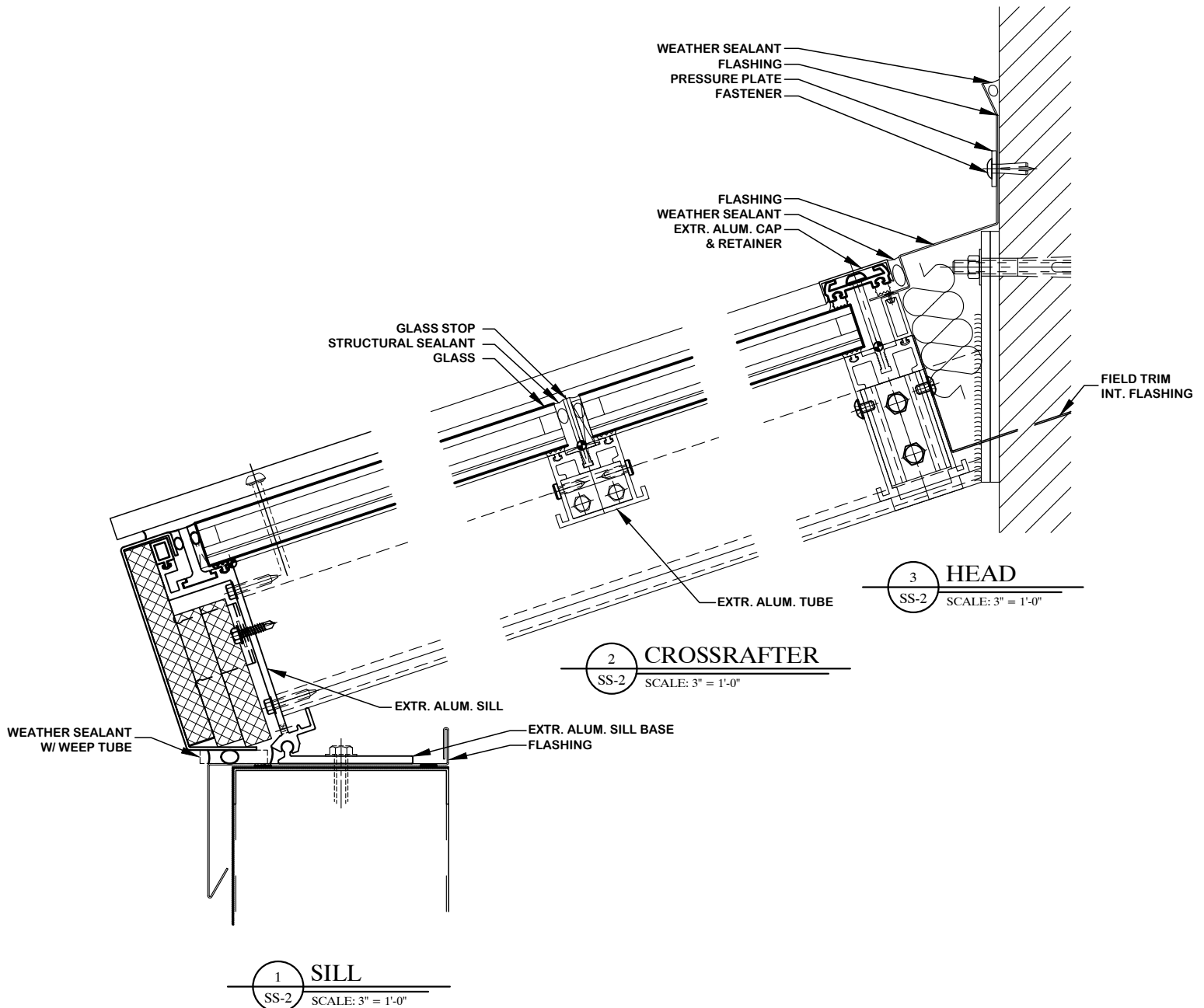
Single slope skylights typically consist of a single plane of glass, although two or more planes can be connected by hips or valleys, or transition into a vertical plane with a "knee." Additionally, single slopes can feature vertical ends, creating a greenhouse-like enclosure. Most details related to plane changes can be achieved with a single extrusion; however, engineering considerations may necessitate double framing members to accommodate movement or building structure tolerances.

Super Sky can integrate vertical glazing below the sill into a single product system, ensuring single-source responsibility for the design, engineering, fabrication, and installation of skylights.



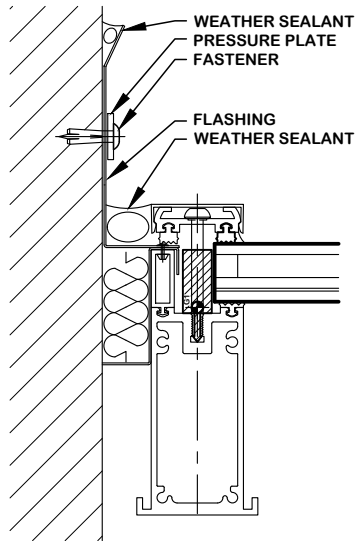
SINGLE SLOPE

(Note, framing size will be determined per design load criteria)

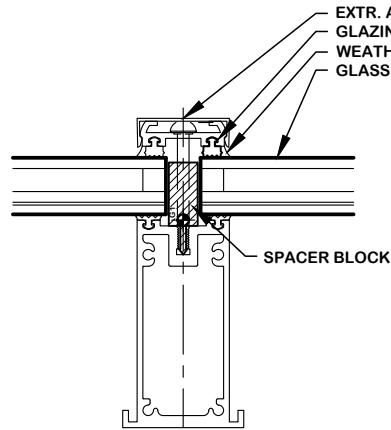


SINGLE SLOPE

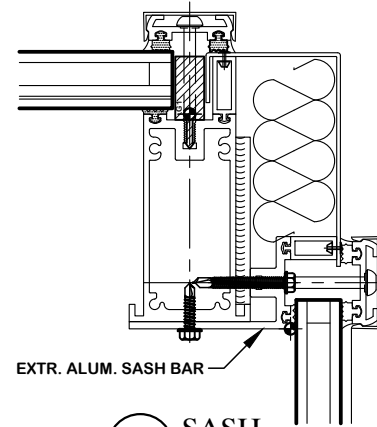
(Note, framing size will be determined per design load criteria)



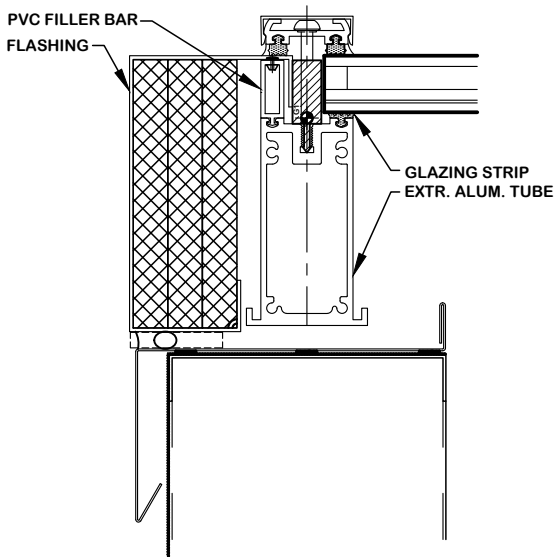
1 END RAFTER
SS-3 SCALE: 3" = 1'-0"



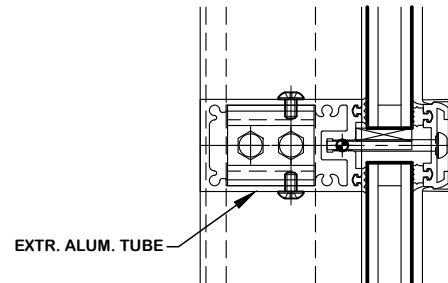
2 RAFTER
SS-3 SCALE: 3" = 1'-0"



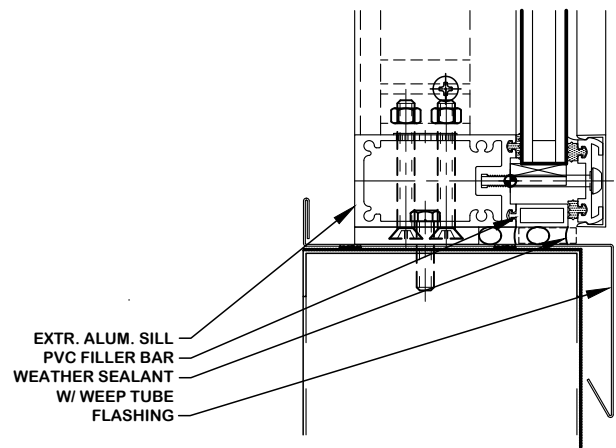
3 SASH
SS-3 SCALE: 3" = 1'-0"



6 END RAFTER - ALT
SS-3 SCALE: 3" = 1'-0"



4 CROSSRAFTER
SS-3 SCALE: 3" = 1'-0"

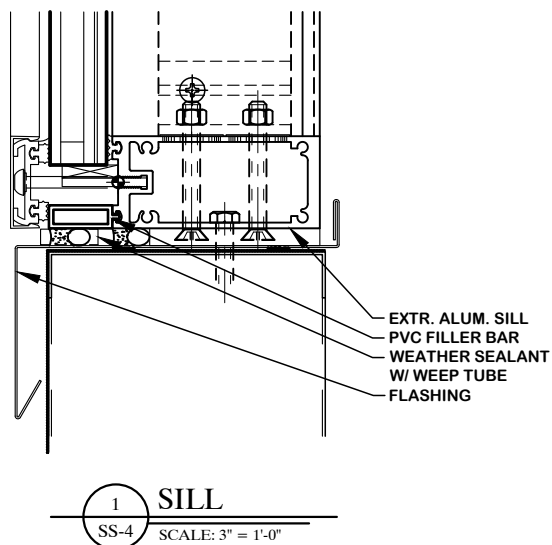
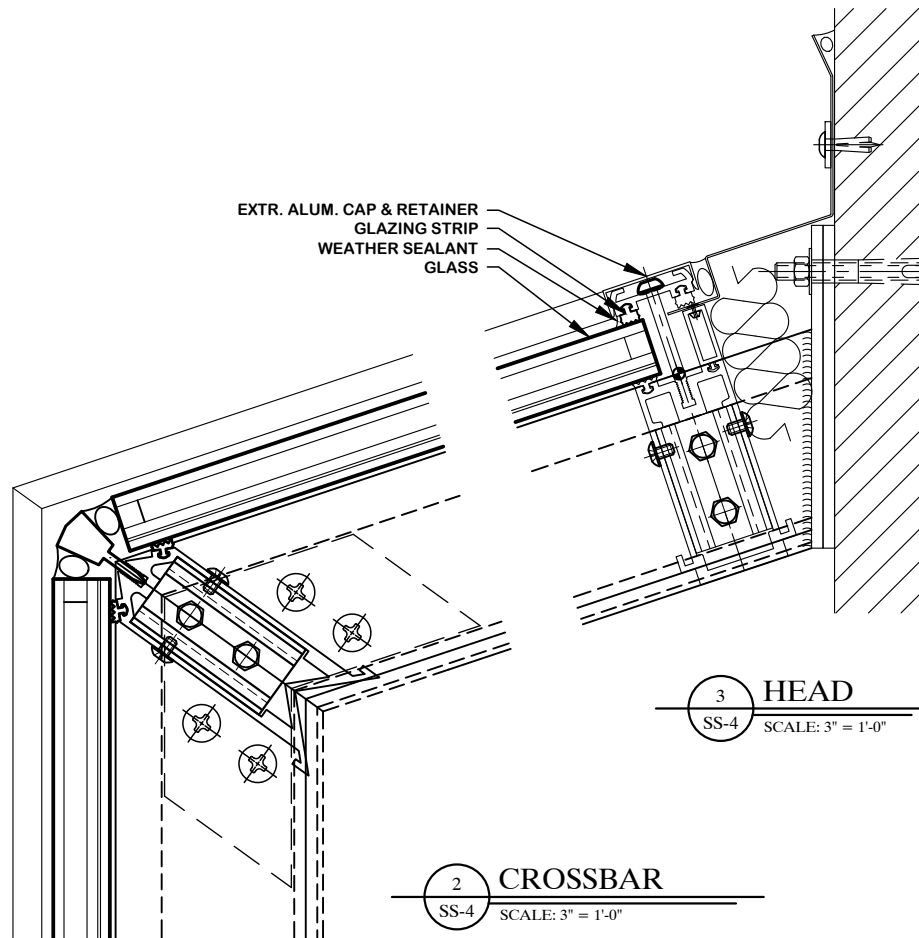


5 SILL
SS-3 SCALE: 3" = 1'-0"

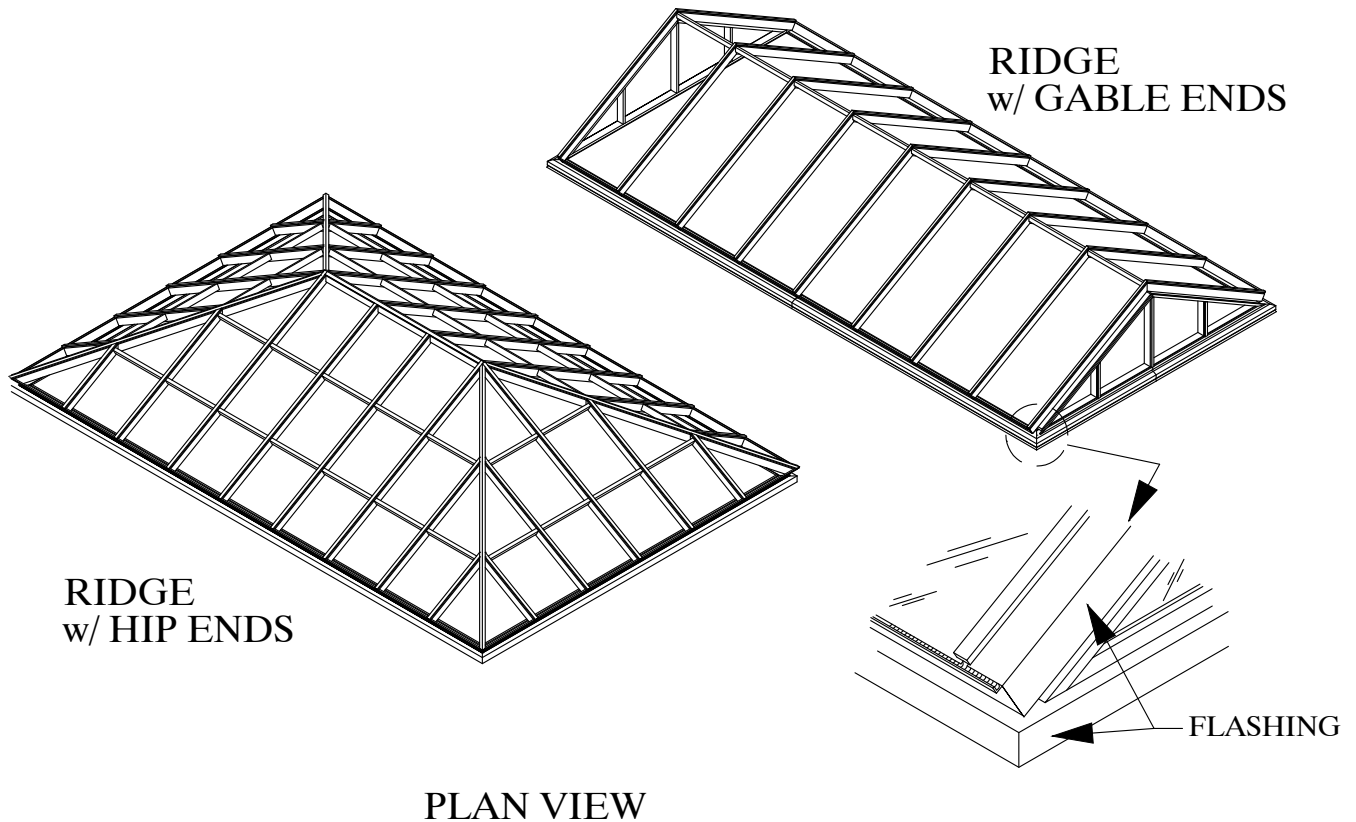


SINGLE SLOPE

(Note, framing size will be determined per design load criteria)



GLASS SYSTEMS: RIDGE



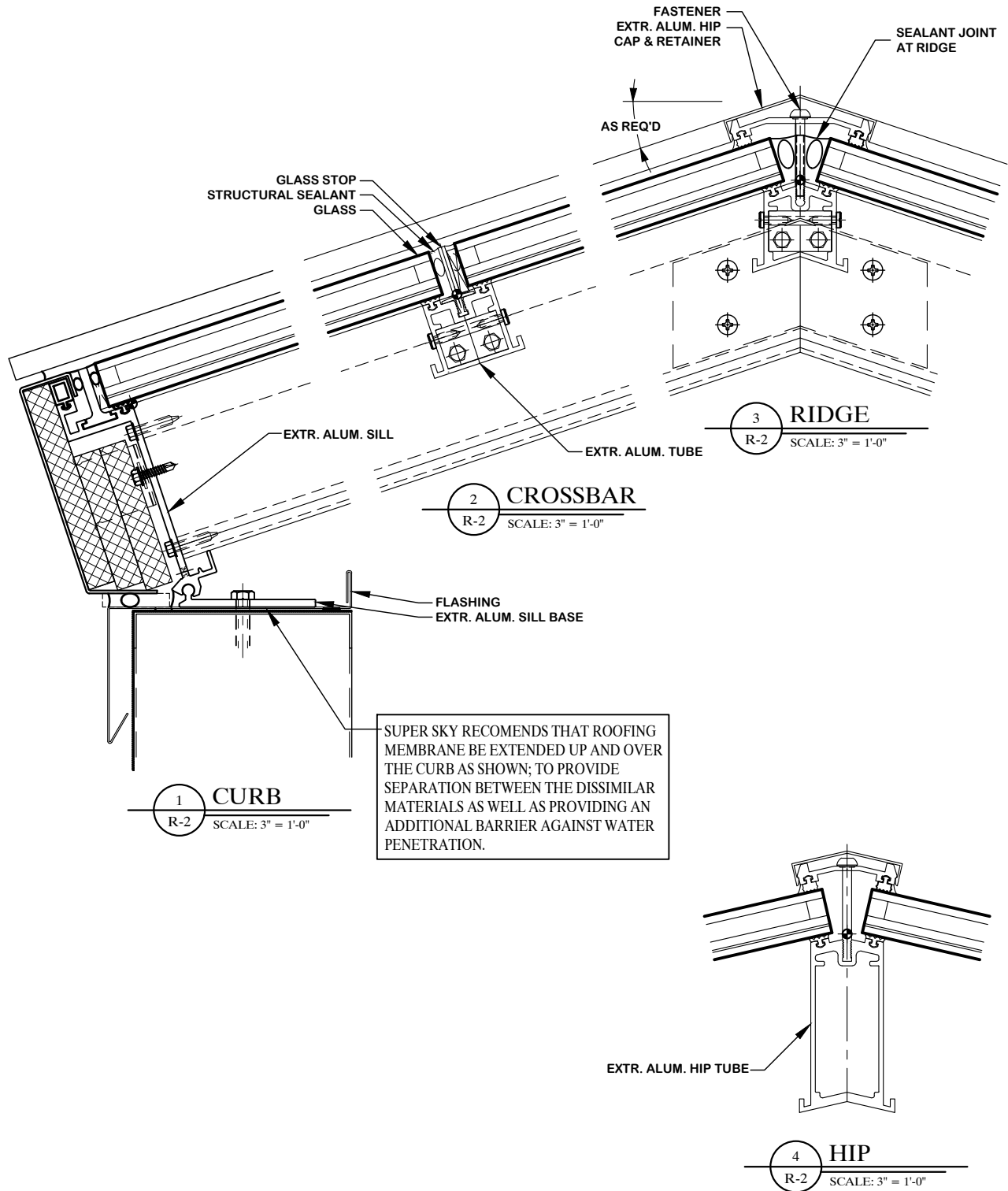
Ridge skylights generally consist of two equal planes of glass that are equally sloped, joined by a single ridge extrusion. In special cases, double ridge members may be utilized. Additionally, ridge forms can include a transition into a vertical plane with a "knee." Ridges can have vertical ends, hipped ends, pointed hips, and single-sloped dome or fanned ends. They may also feature unequal slope angles and lengths, and can be classified as "sawtooth" ridges if a single slope is attached to a vertical or near-vertical back wall. Super Sky can integrate vertical glazing below the sill into a single product system, ensuring single-source responsibility for the design, engineering, fabrication, and installation of skylights.

Note: The supporting structural frame must resist horizontal thrust loads, unless specified as a "minimal horizontal thrust design". Such designs may require larger extrusions, moment plates, or possibly cross-ties.



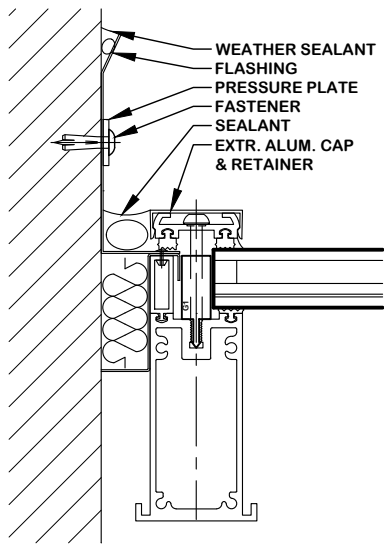
GLASS SYSTEMS: RIDGE

(Note, framing size will be determined per design load criteria)

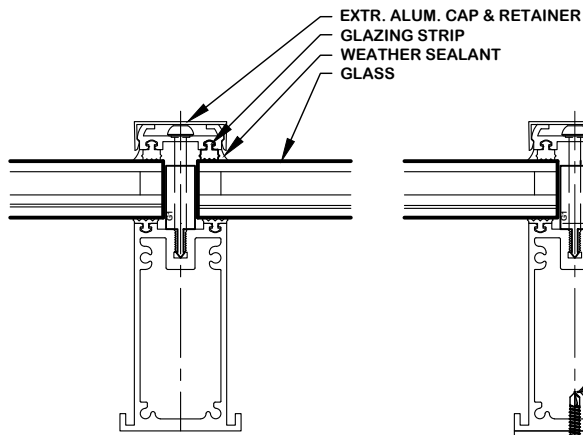


GLASS SYSTEMS: RIDGE

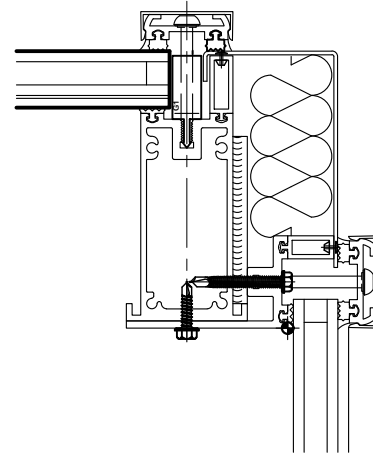
(Note, framing size will be determined per design load criteria)



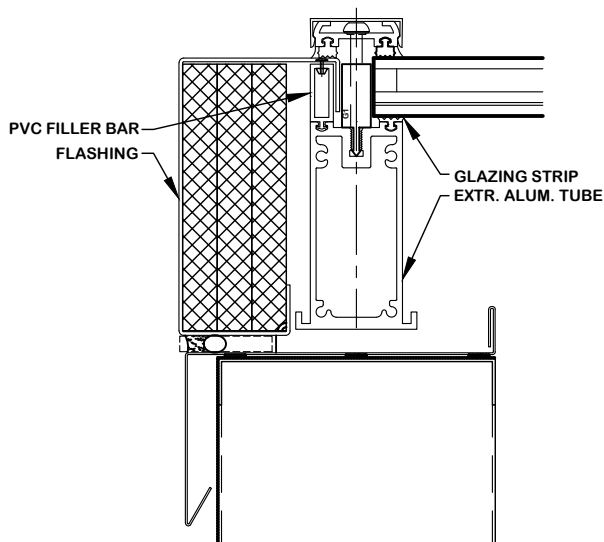
1 END RAFTER
R-3 SCALE: 3" = 1'-0"



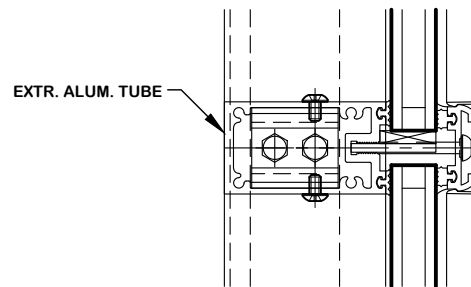
2 RAFTER
R-3 SCALE: 3" = 1'-0"



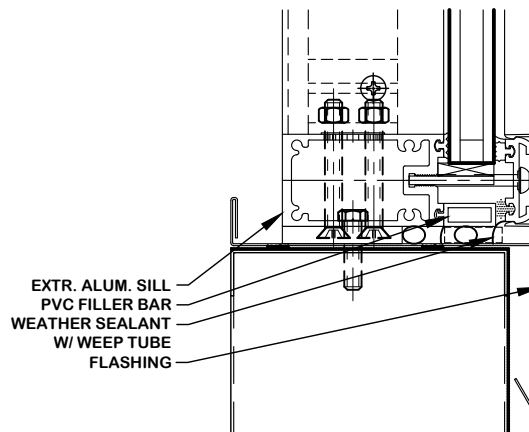
3 SASH
R-3 SCALE: 3" = 1'-0"



6 END RAFTER - ALT
R-3 SCALE: 3" = 1'-0"



4 CROSSBAR
R-3 SCALE: 3" = 1'-0"

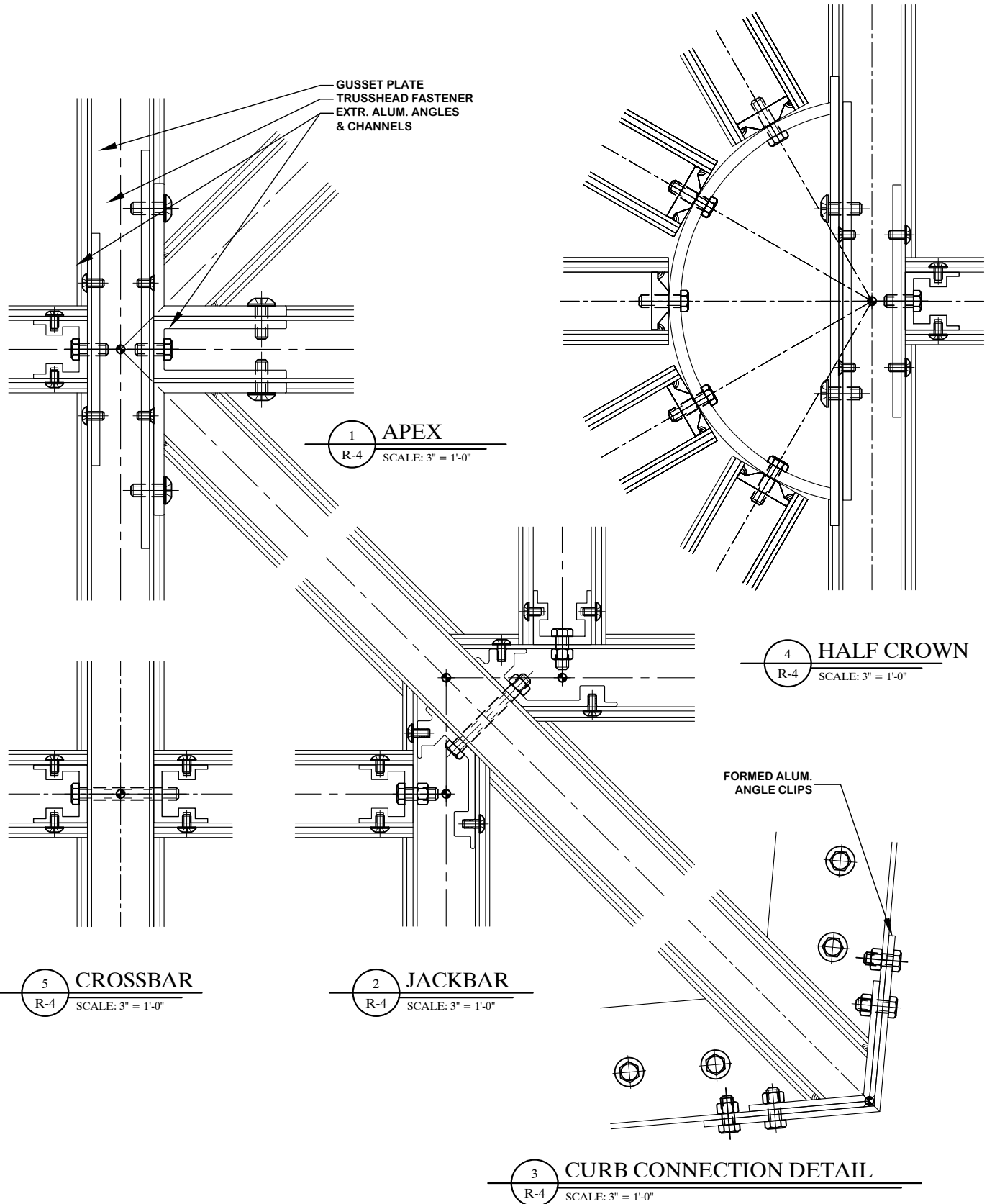


5 CURB
R-3 SCALE: 3" = 1'-0"



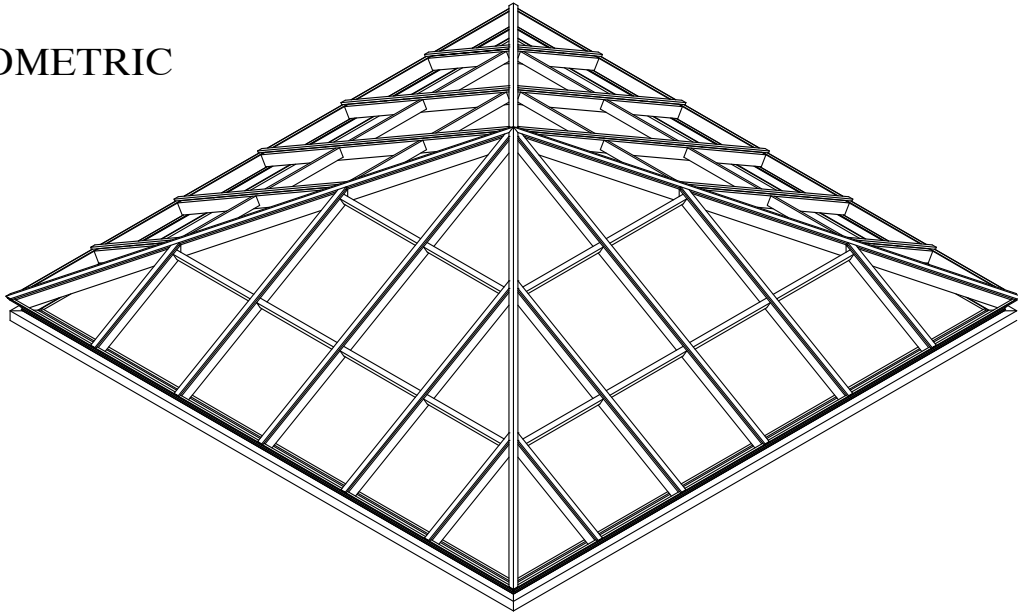
GLASS SYSTEMS: RIDGE

(Note, framing size will be determined per design load criteria)

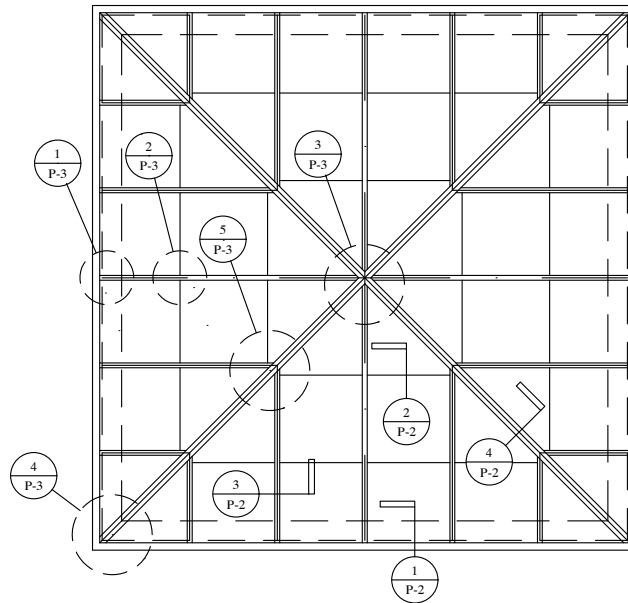


GLASS SYSTEMS: PYRAMID

ISOMETRIC



PLAN VIEW



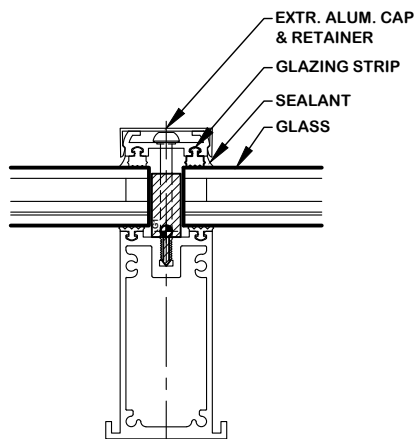
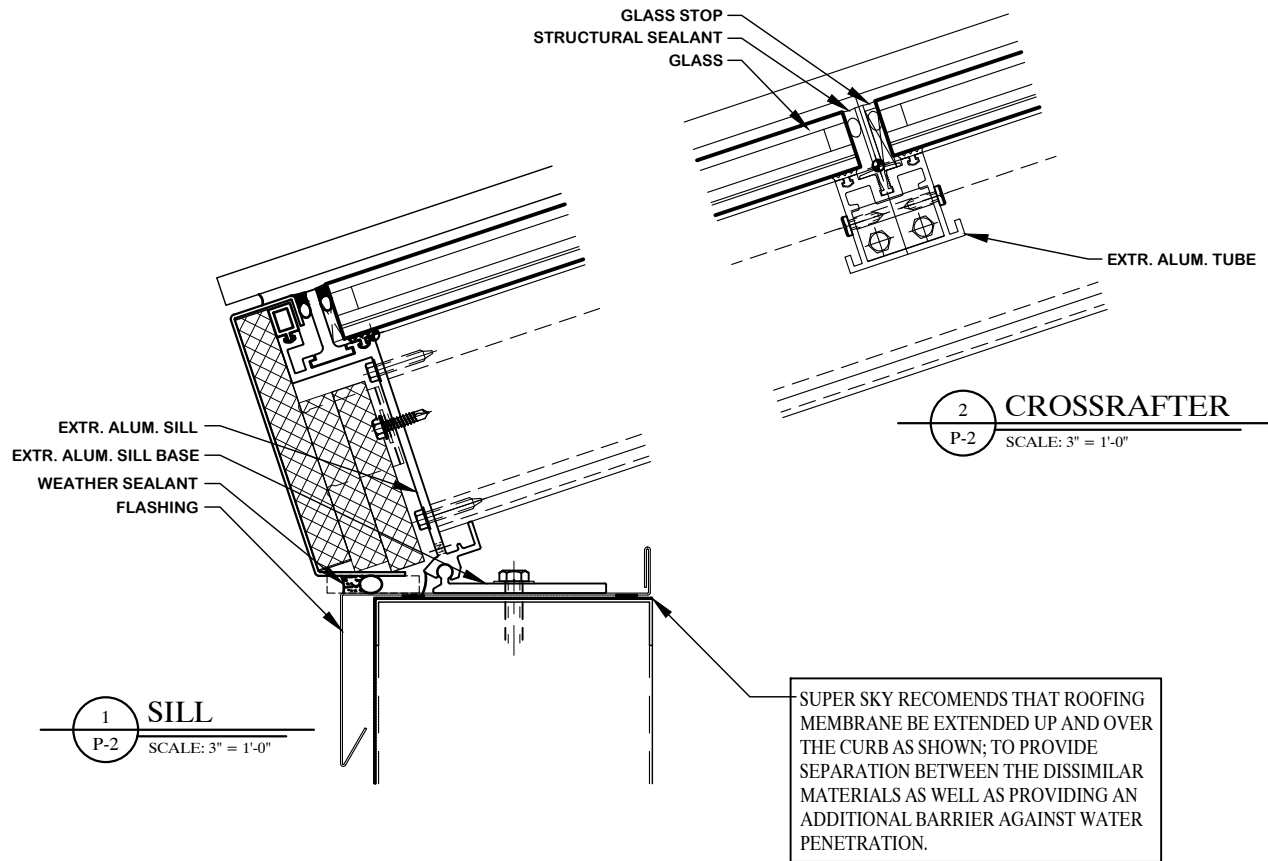
Pyramid skylights typically consist of three or four triangular glass planes (if there are more, it forms a dome), connected by hips to create a peaked skylight. Almost any variation of this basic definition is available.

Super Sky can integrate vertical glazing below the sill into a single product system, ensuring single-source responsibility for the design, engineering, fabrication, and installation of skylights.

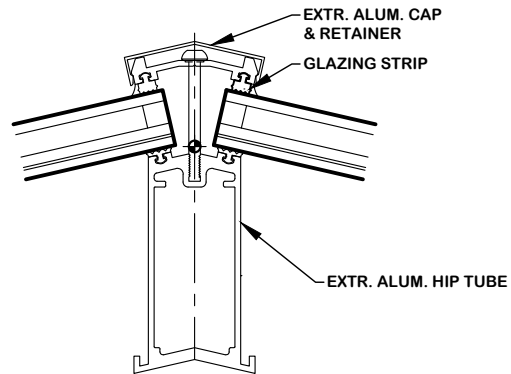


GLASS SYSTEMS: PYRAMID

(Note, framing size will be determined per design load criteria)



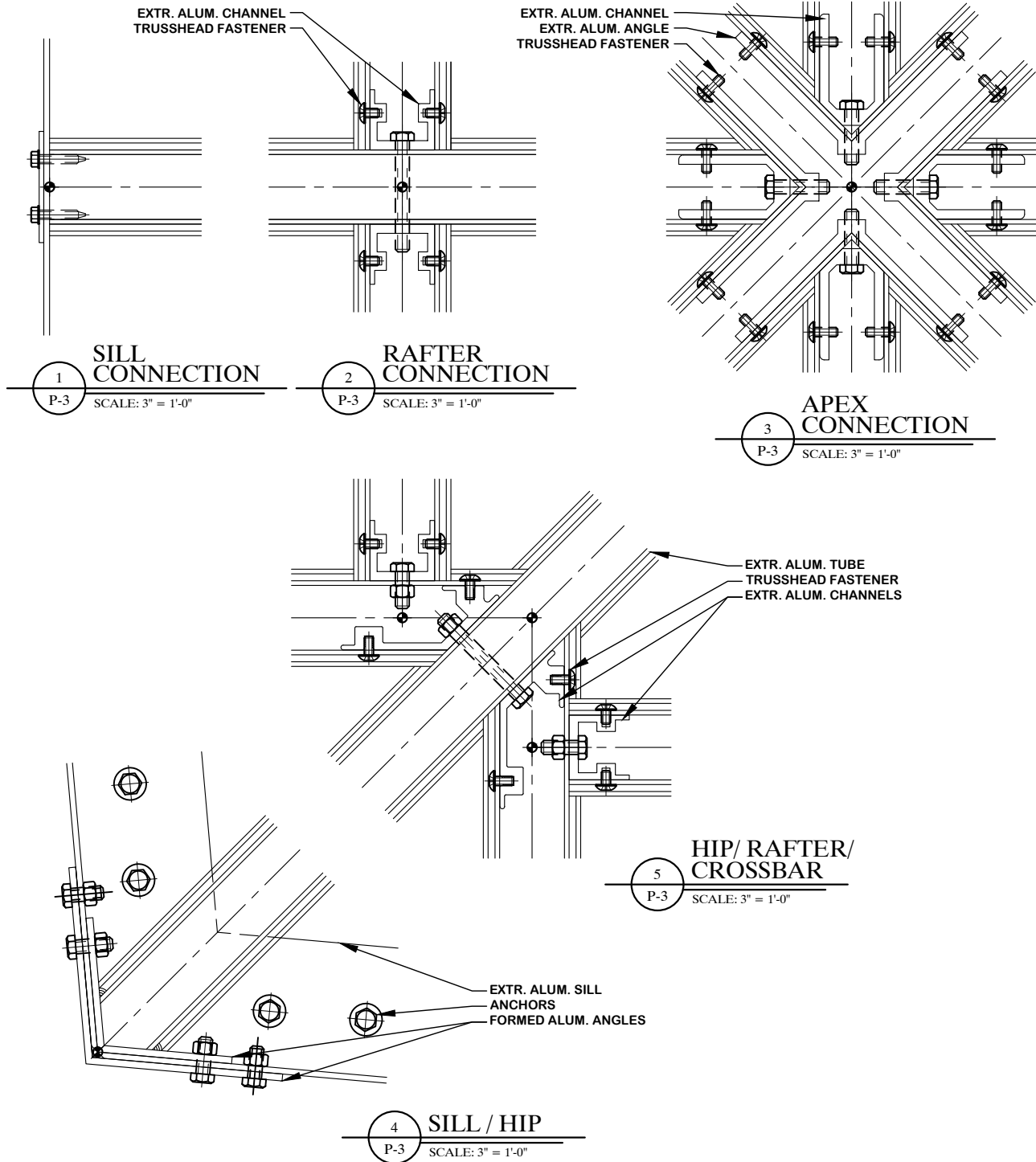
3 RAFTER
P-2
SCALE: 3" = 1'-0"



4 HIP
P-2
SCALE: 3" = 1'-0"

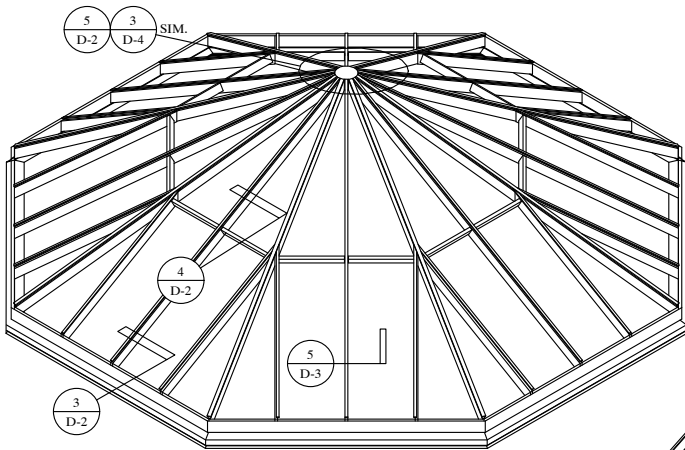


GLASS SYSTEMS: PYRAMID

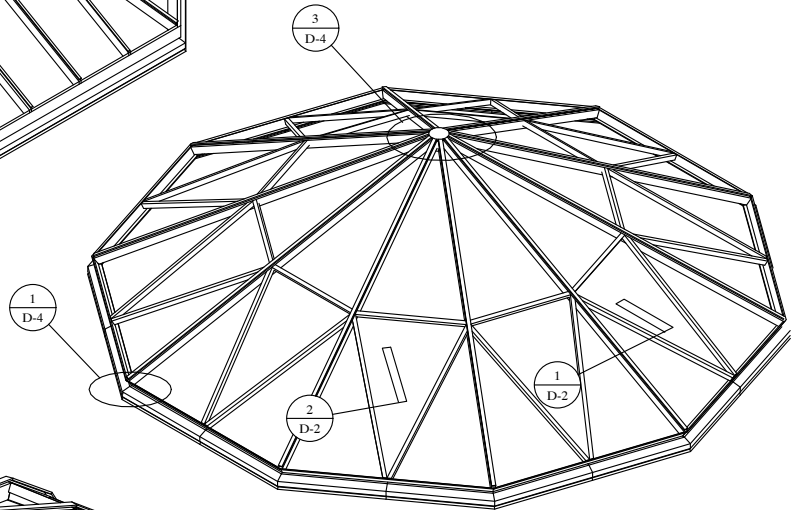


THIS PAGE INTENTIONALLY LEFT BLANK

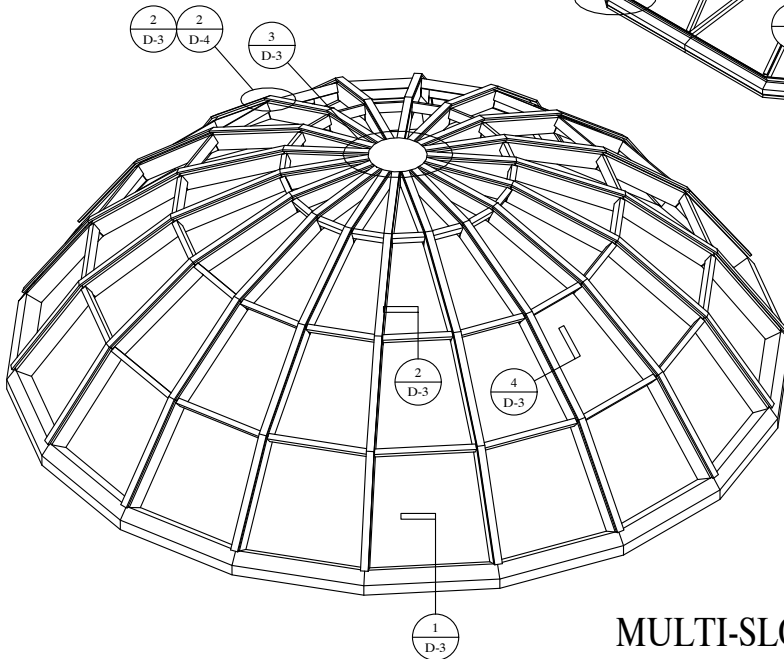
GLASS SYSTEMS: DOME



SINGLE-SLOPE DOME:
"A" PATTERN



SINGLE-SLOPE DOME:
"B" PATTERN



MULTI-SLOPE DOME

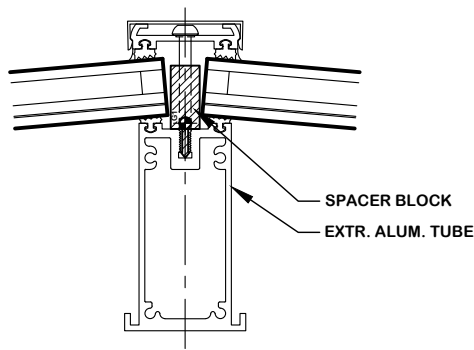
Dome skylights typically consist of five or more curb segments in plan, which distinguishes them from pyramidal structures, although they share similar construction methods. Domes can be designed with either a single slope or multiple slopes. Common economical framing patterns are categorized as "A" radial or "B" triangulated within each structural bay, located between the hips. Both of these patterns feature many similarly shaped lites, in contrast to geodesic domes, which may contain numerous lites.

Super Sky offers single source responsibility for skylight design, engineering, fabrication, and installation.

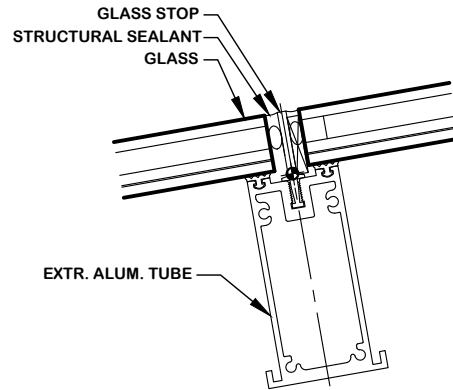


DOME - SINGLE SLOPE

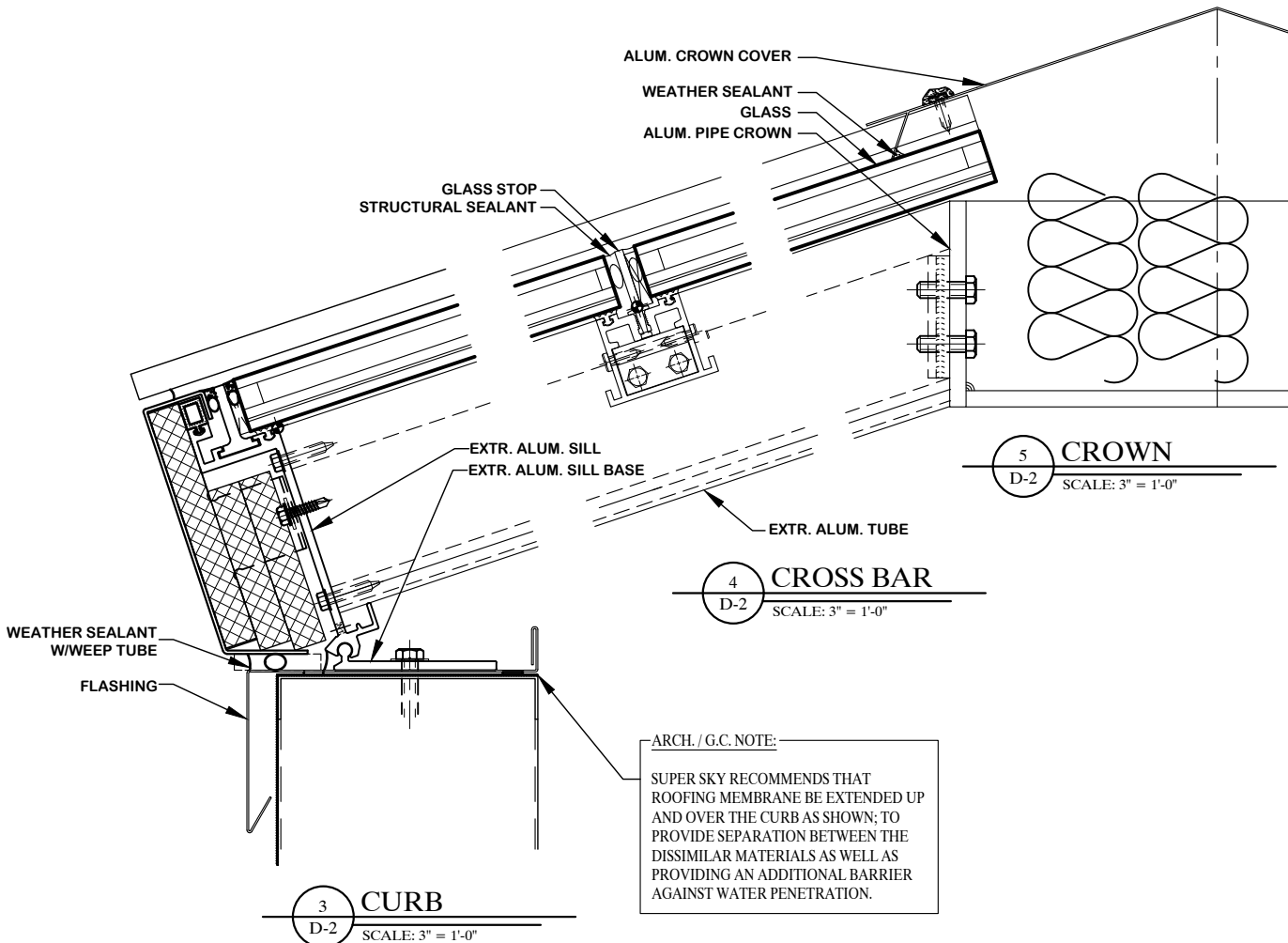
(Note: framing size will be determined per design load criteria)



1 HIP
D-2 SCALE: 3" = 1'-0"



2 JACK BAR
D-2 SCALE: 3" = 1'-0"



5 CROWN
D-2 SCALE: 3" = 1'-0"

4 CROSS BAR
D-2 SCALE: 3" = 1'-0"

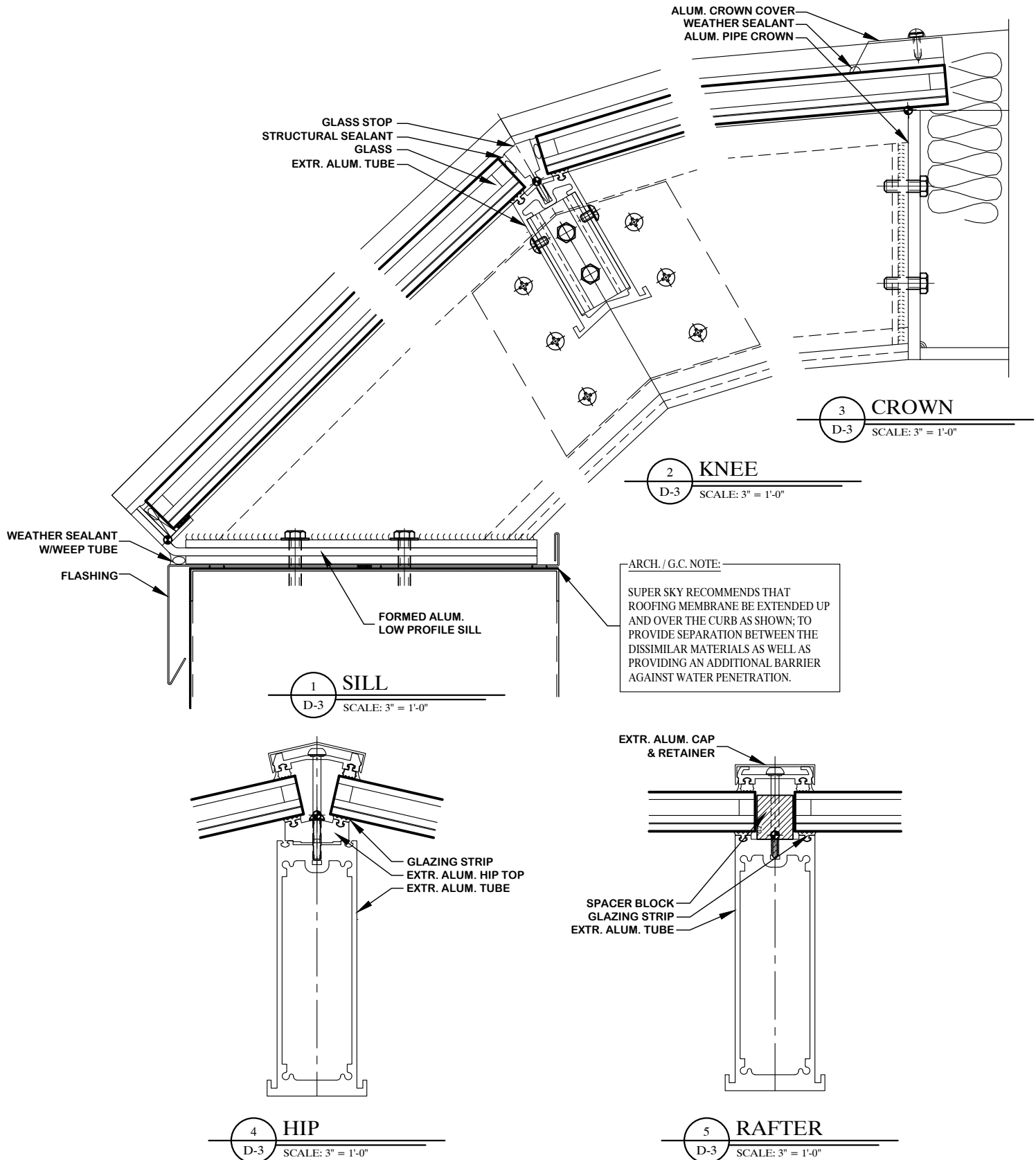
3 CURB
D-2 SCALE: 3" = 1'-0"

ARCH./G.C. NOTE:
SUPER SKY RECOMMENDS THAT ROOFING MEMBRANE BE EXTENDED UP AND OVER THE CURB AS SHOWN; TO PROVIDE SEPARATION BETWEEN THE DISSIMILAR MATERIALS AS WELL AS PROVIDING AN ADDITIONAL BARRIER AGAINST WATER PENETRATION.



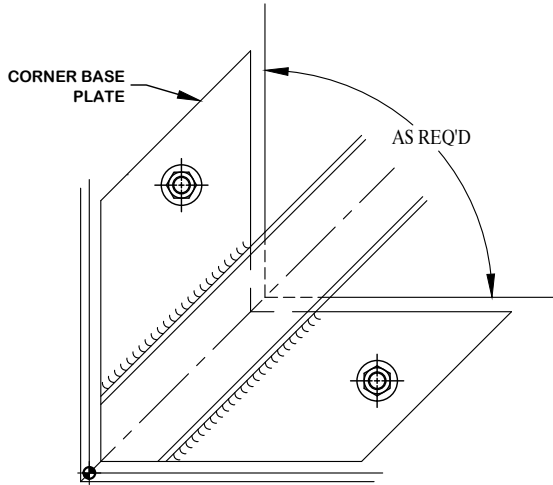
DOME - MULTI-SLOPE

(Note: framing size will be determined per design load criteria)



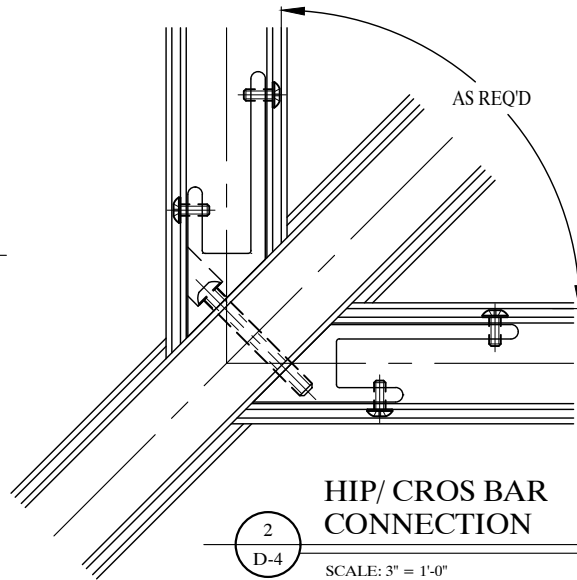
STANDARD DOME: CONNECTION DETAILS

(Note: framing size will be determined per design load criteria)



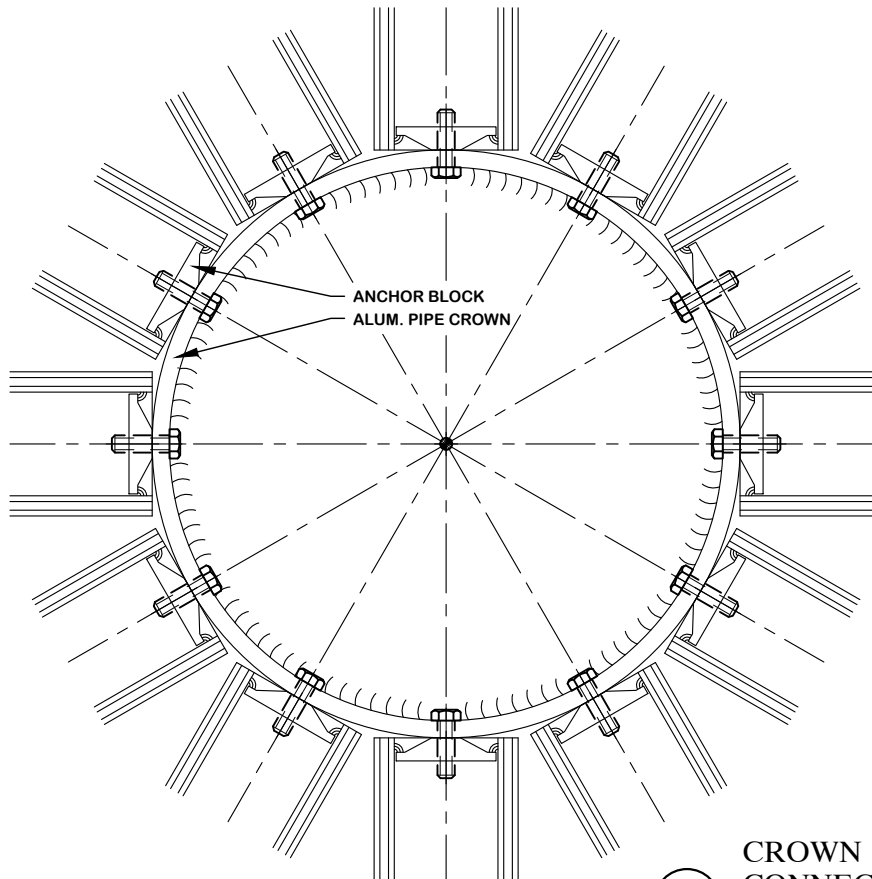
1
D-4
SILL/ HIP
CONNECTION

SCALE: 3" = 1'-0"



2
D-4
HIP/ CROS BAR
CONNECTION

SCALE: 3" = 1'-0"



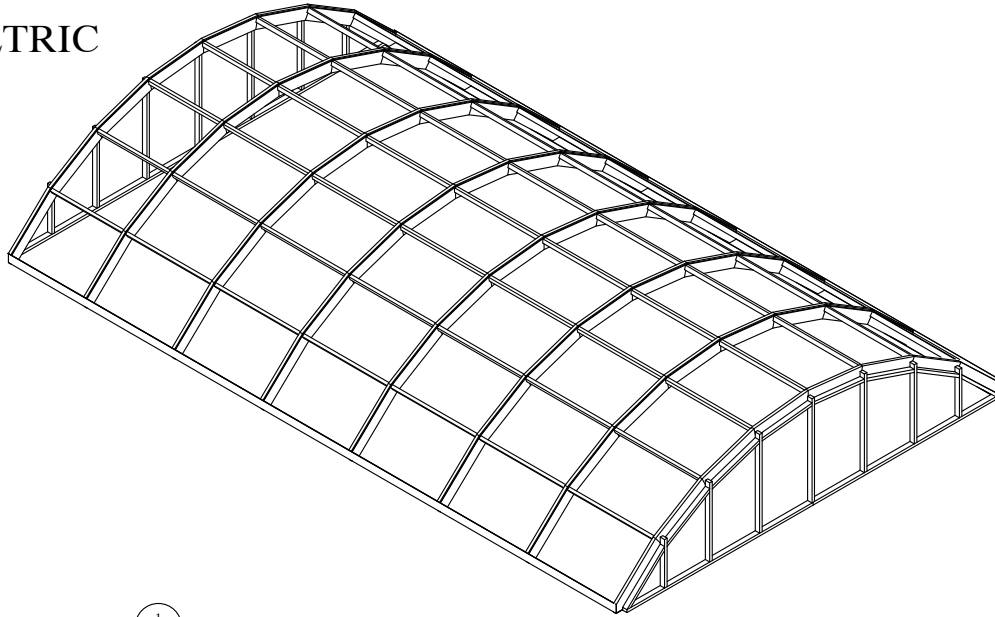
3
D-4
CROWN
CONNECTION

SCALE: 3" = 1'-0"

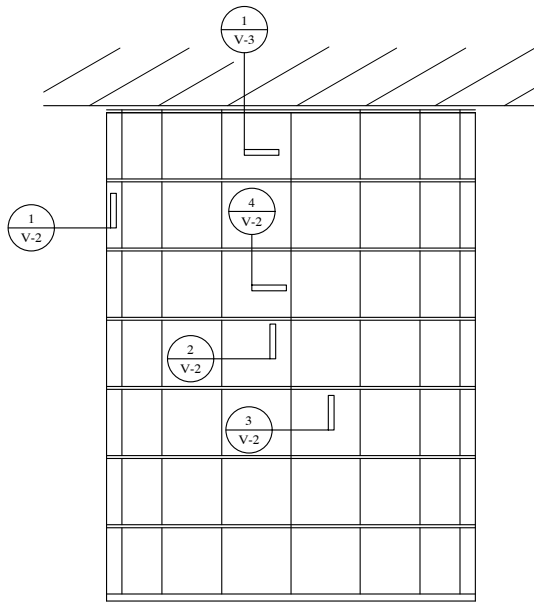


GLASS SYSTEMS: SEGMENTED VAULT

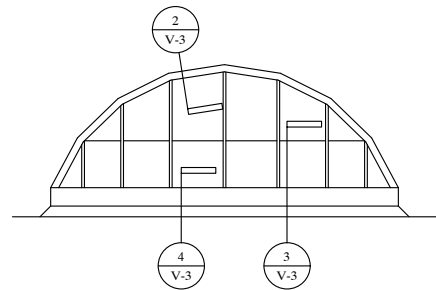
ISOMETRIC



PLAN



ELEVATION



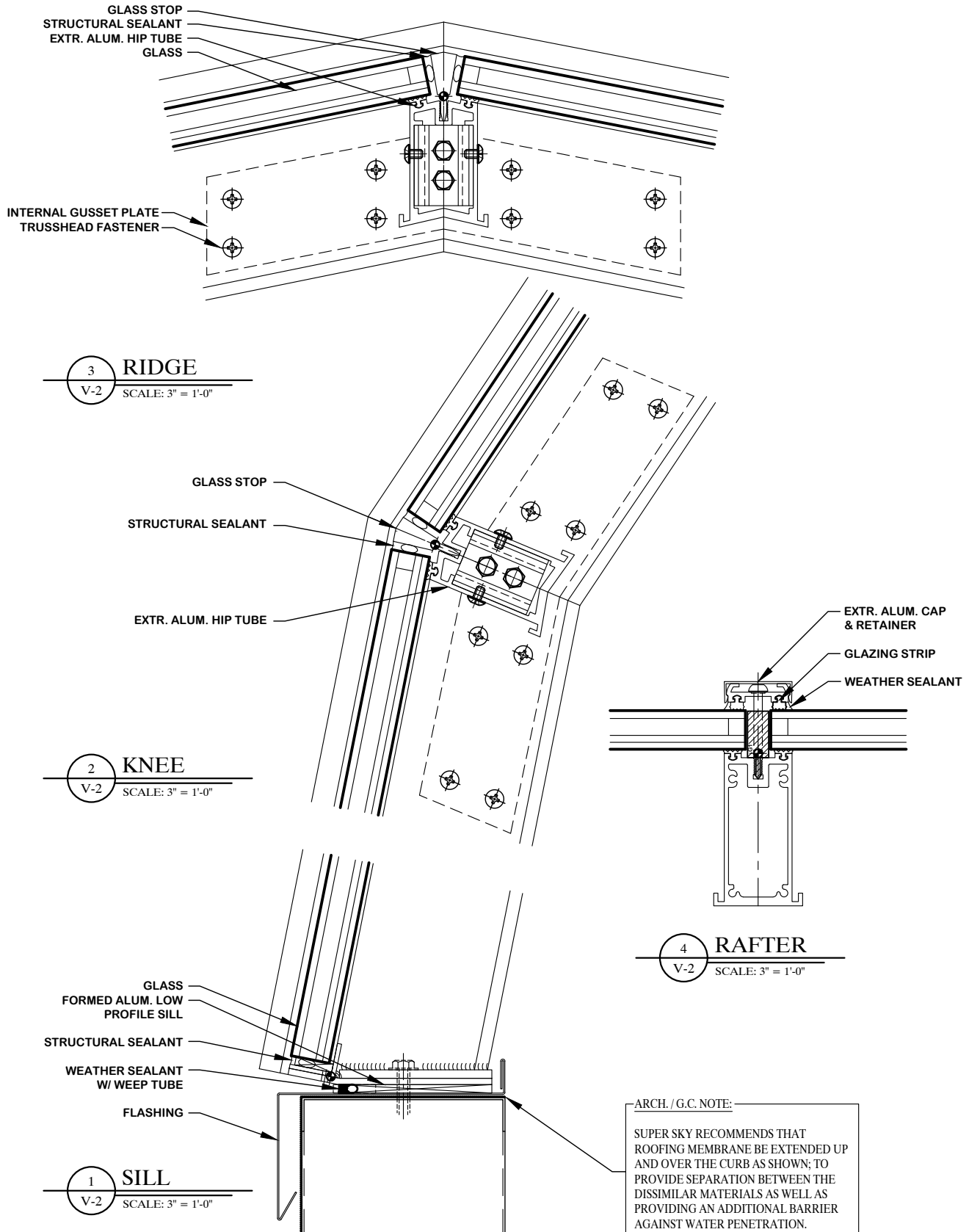
Segmented vault skylights contain multiple facets of frame and glass. Any number of sloped segments is possible, limited only by economical lite size and reasonable frame segmentation. It is highly advisable to limit segments to even numbers to avoid a flat lite at the top, which can lead to ponding water. Additionally, vaults do not have to be semi-circular in cross-section. Lower profiles, reduced to 20% of the width, can create dramatic vaulted forms while significantly saving on surface area and costs. Vaults may also feature vertical or domed ends.

Super Sky can integrate vertical glazing below the sill into a single product system, ensuring single-source responsibility for the design, engineering, fabrication, and installation of skylights.



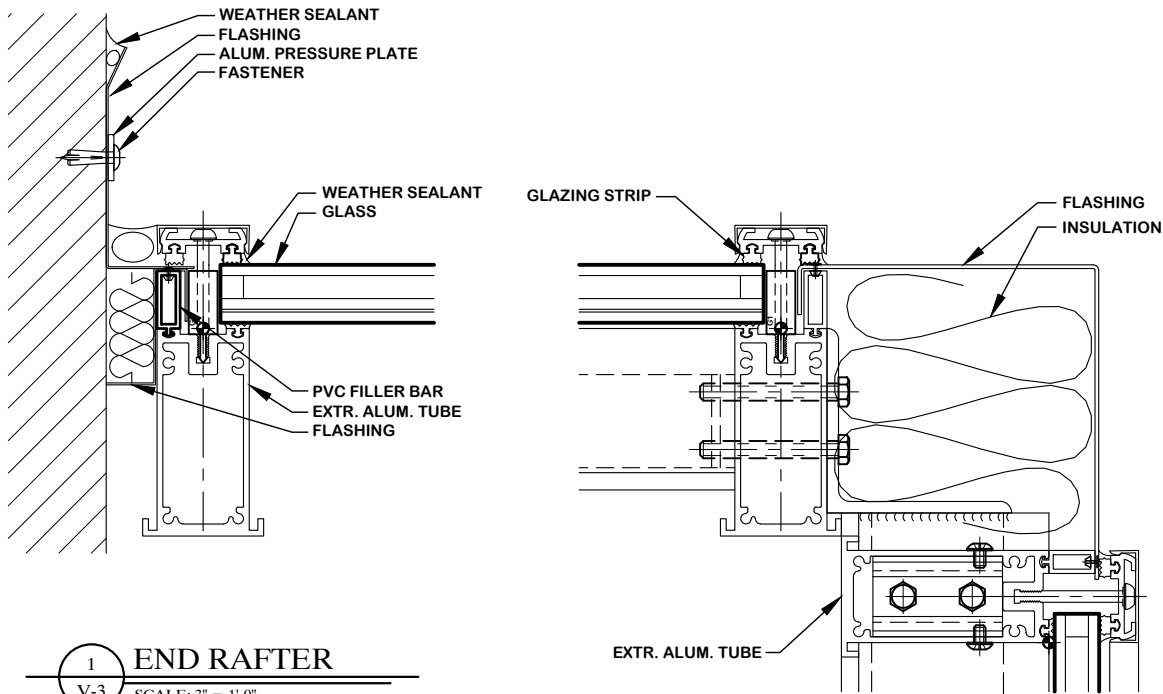
SEGMENTED VAULT

(Note: framing size will be determined per design load criteria)



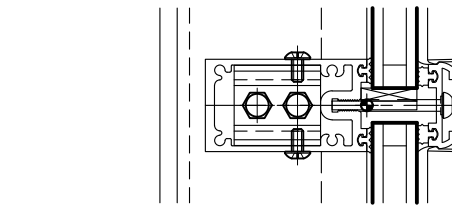
SEGMENTED VAULT

(Note: framing size will be determined per design load criteria)



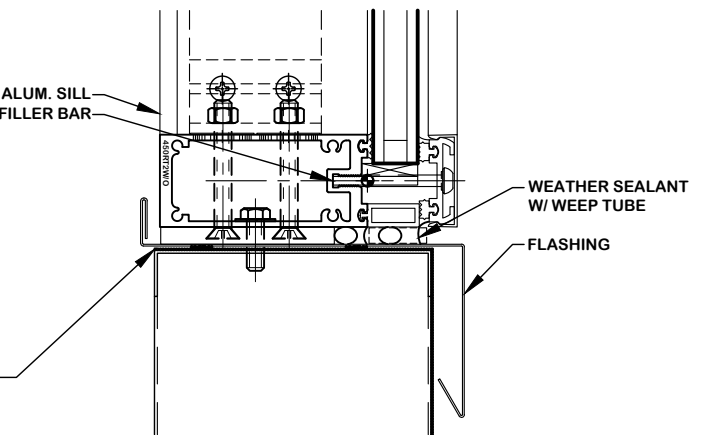
1 END RAFTER
V-3 SCALE: 3" = 1'-0"

2 END RAFTER
V-3 SCALE: 3" = 1'-0"



3 CROSSBAR
V-3 SCALE: 3" = 1'-0"

ARCH. / G.C. NOTE:
SUPER SKY RECOMMENDS THAT ROOFING MEMBRANE BE EXTENDED UP AND OVER THE CURB AS SHOWN; TO PROVIDE SEPARATION BETWEEN THE DISSIMILAR MATERIALS AS WELL AS PROVIDING AN ADDITIONAL BARRIER AGAINST WATER PENETRATION.



4 SILL
V-3 SCALE: 3" = 1'-0"



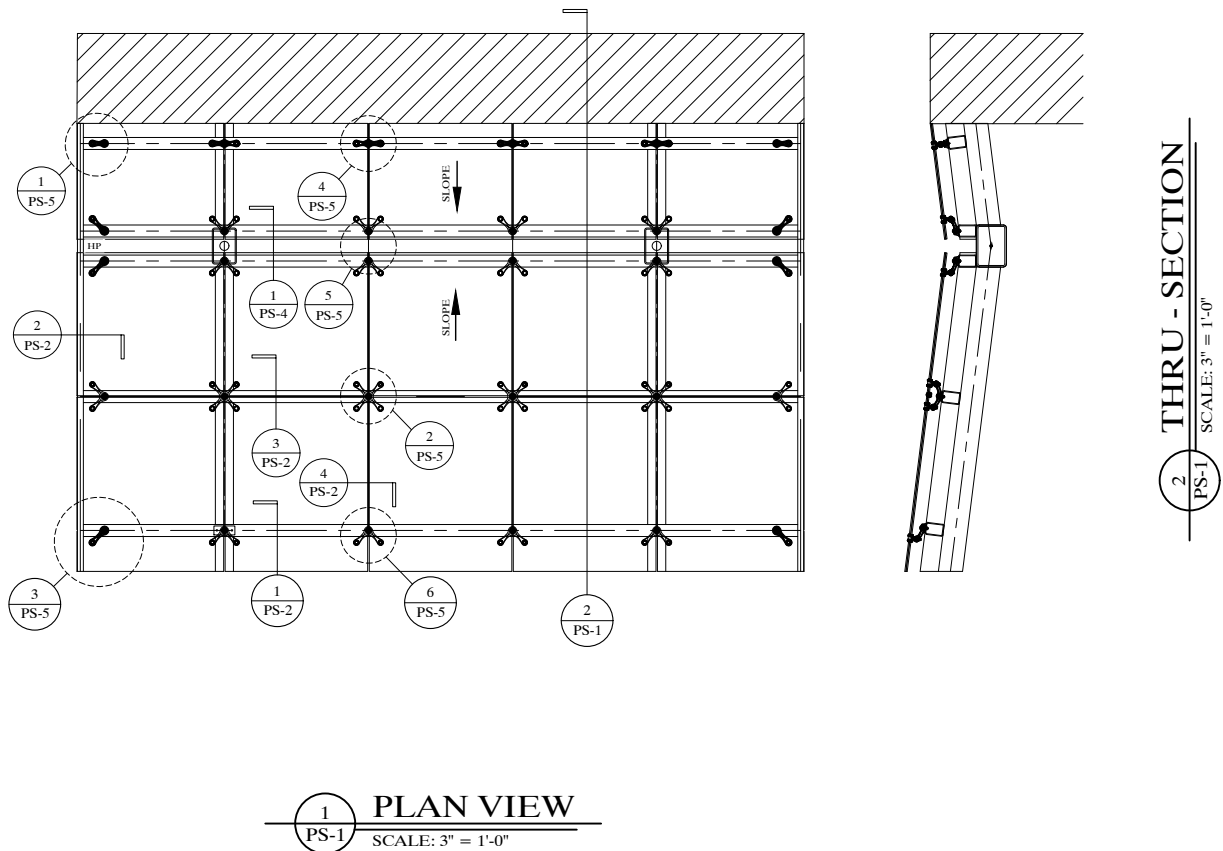
THIS PAGE INTENTIONALLY LEFT BLANK

POINT SUPPORTED GLAZING

As an alternative to conventional skylight systems, Super Sky offers a Point-Supported Glazing (PSG) option. This type of skylight requires minimal framework beyond the primary steel structure (provided by others) and relies solely on precision-machined stainless steel “spider fittings” and “rotules” to support the glazing. This type of system has no exterior pressure plates, resulting in a flat glass plane that allows for unobstructed water flow off the skylight and provides extremely clean aesthetics.

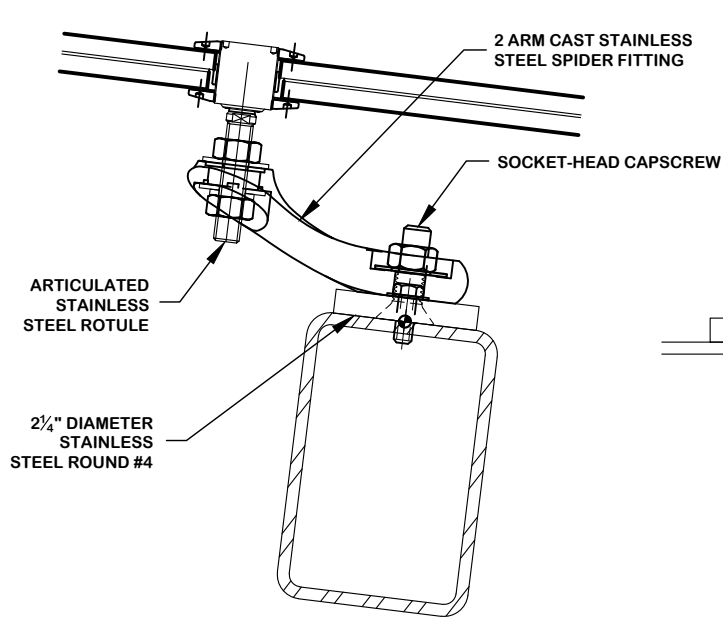
In a PSG system, rotules are inserted through the glass in predrilled holes made by the glass fabricator. The rotules are then attached to the spider supports, which are in turn connected directly to the supporting steel frame (provided by others). If the support structure is level, the spider support may vary in height to give the skylight the necessary pitch to shed water. If the steel structure is pitched, the spider supports will all be the same height, and the skylight will follow the established pitch of the steel. Rotules are available in either a buttonhead or countersunk design. Note: underhung canopies must utilize buttonhead-designed rotules.

Super Sky brings its extensive experience to create elegant and competitively priced PSG systems, utilizing either single laminated safety glass or insulated-laminated safety glass. PSG designs are flexible, customizable, and boundless in scope. Super Sky's engineers and project teams can turn your design vision into reality. Our erection crews are available to install the system, or you may choose to purchase materials for installation by others.

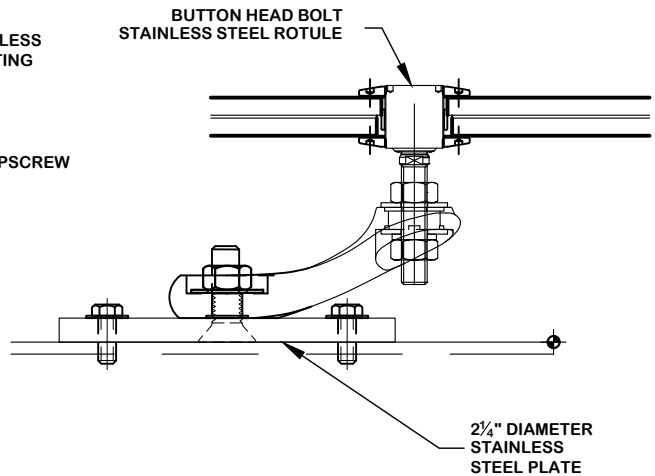


POINT SUPPORTED GLAZING

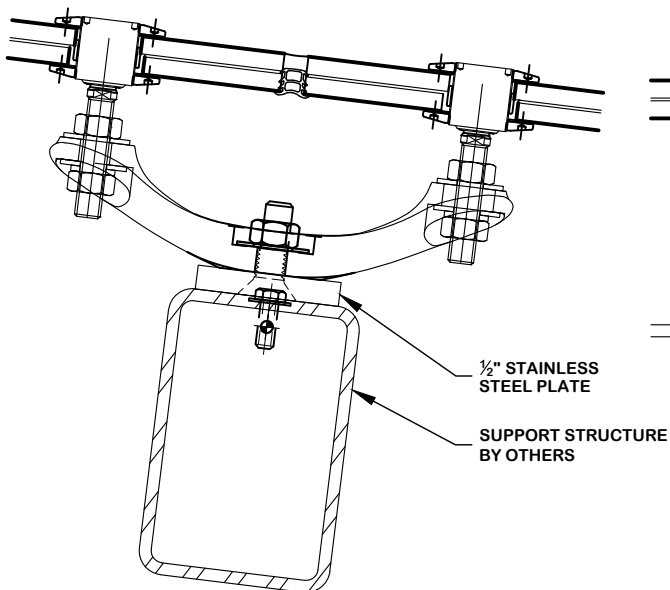
(Note, framing size will be determined per design load criteria)



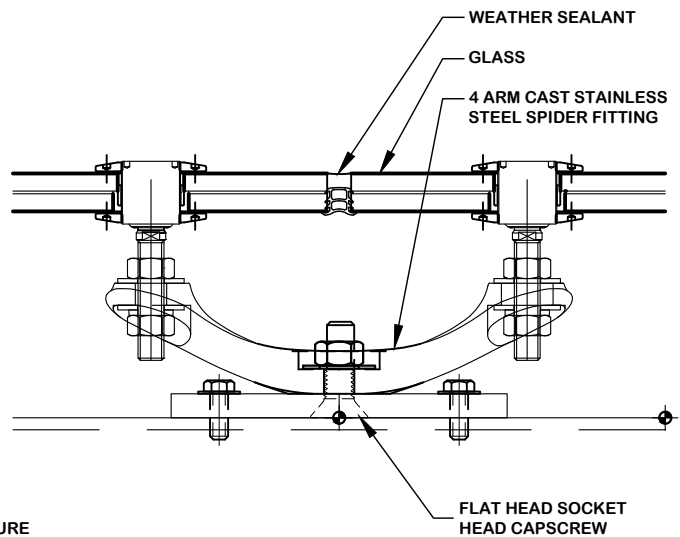
1 SECTION
PS-2 SCALE: 3" = 1'-0"



2 SECTION
PS-2 SCALE: 3" = 1'-0"



3 SECTION
PS-2 SCALE: 3" = 1'-0"

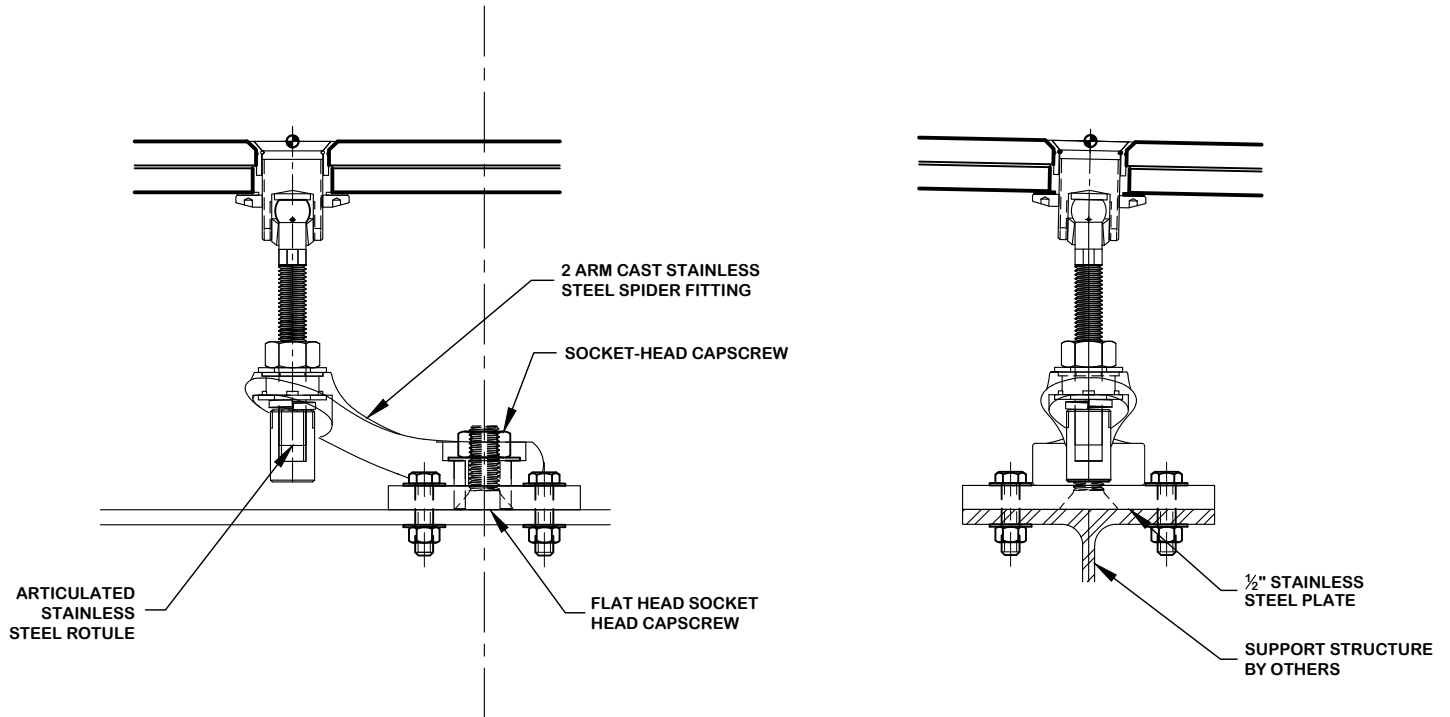


4 SECTION
PS-2 SCALE: 3" = 1'-0"



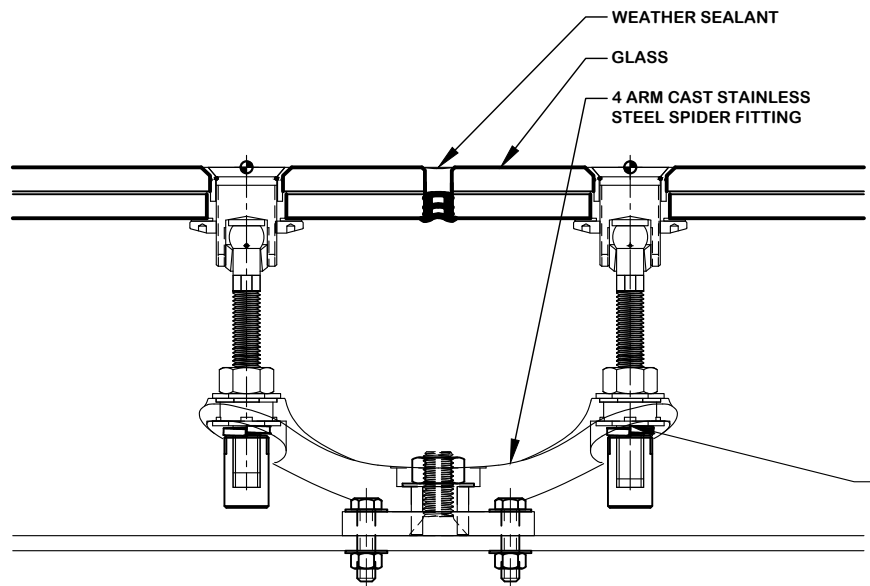
POINT SUPPORTED GLAZING

(Note, framing size will be determined per design load criteria)



1 SECTION
PS-3 SCALE: 3" = 1'-0"

2 SECTION
PS-3 SCALE: 3" = 1'-0"

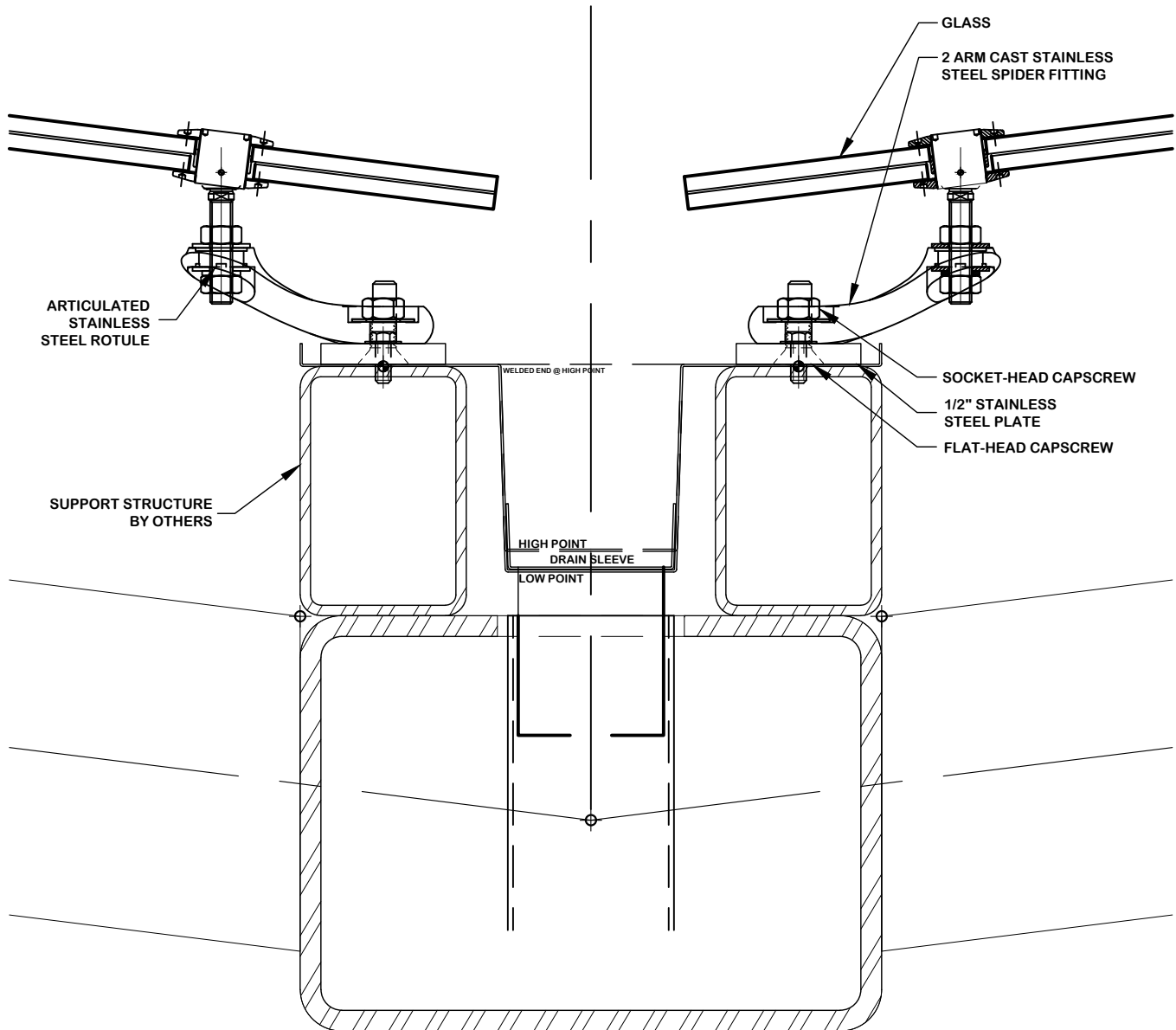


3 SECTION
PS-3 SCALE: 3" = 1'-0"



POINT SUPPORTED GLAZING

(Note, framing size will be determined per design load criteria)

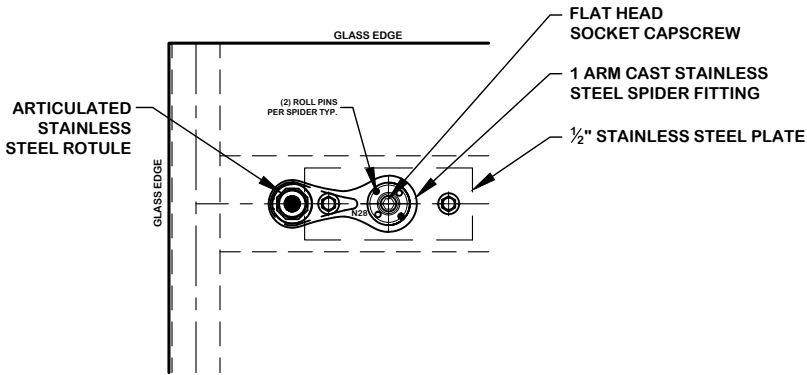


1 CROSS SECTION
PS-4 SCALE: 3" = 1'-0"

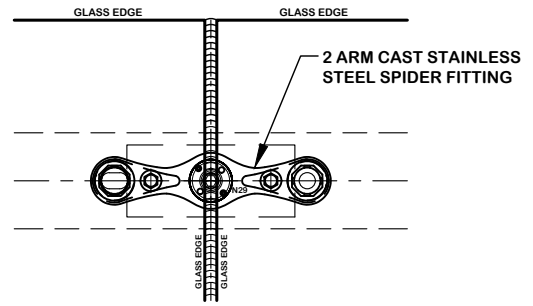


POINT SUPPORTED GLAZING

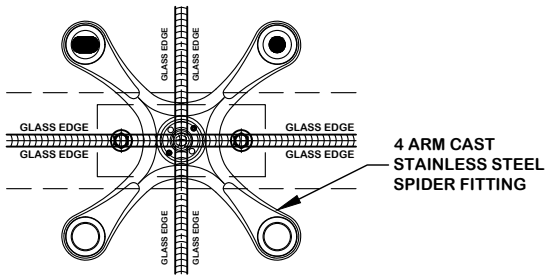
(Note, framing size will be determined per design load criteria)



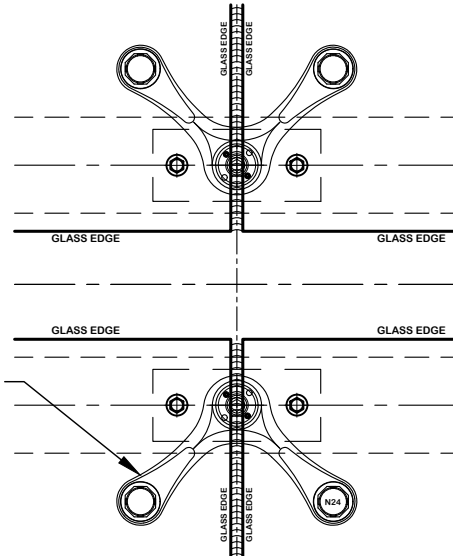
1
PS-5
CONNECTION
DETAIL
SCALE: 1/8" = 1'-0"



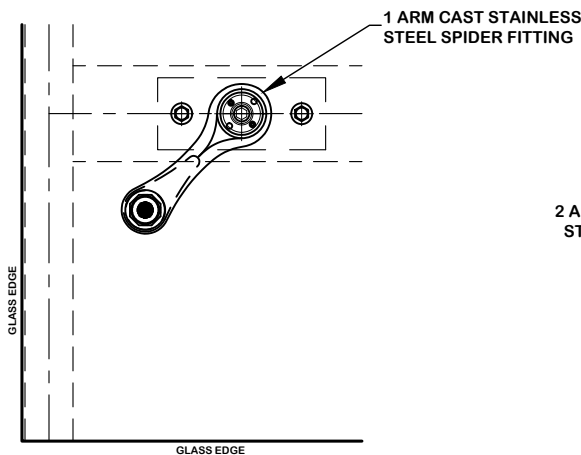
4
PS-5
CONNECTION
DETAIL
SCALE: 1/8" = 1'-0"



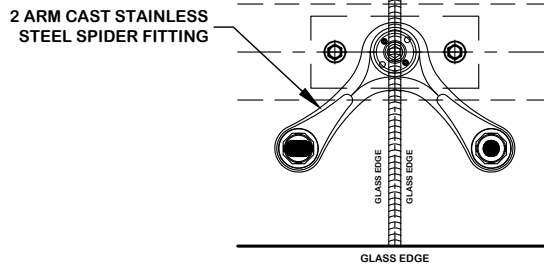
2
PS-5
CONNECTION
DETAIL
SCALE: N.T.S.



5
PS-5
CONNECTION
DETAIL
SCALE: N.T.S.



3
PS-5
CONNECTION
DETAIL
SCALE: N.T.S.



6
PS-5
CONNECTION
DETAIL
SCALE: N.T.S.





SUPER SKY PRODUCTS ENTERPRISES, LLC

10301 N. Enterprise Drive

Mequon, WI 53092

Phone: (262) 242-2000

FAX: (262) 242-7409

www.supersky.com

POINT SUPPORTED GLAZING SYSTEMS

Guide Specification

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Engineering and drafting of production documents, including structural calculations of the entire point supported skylight system.
- B. Fabrication and erection of point supported skylight materials.
- C. Fabrication and erection of the aluminum gutter system including, when applicable, insulation and pitched liners.
- D. Applied finish of aluminum sheet, if required.
- E. Skylight glass and glazing.
- F. Skylight related flashings.

1.02 RELATED SECTIONS

- A. Structural Steel: *Division 05*
- B. Space Frames: *Division 05*
- C. Metal Fabrications: *Division 05*
- D. Flashing and Sheet Metal: *Division 07*
- E. Glazing: *Division 08*
- F. Glazed Curtain Walls: *Division 08*
- G. Roofing: *Division 07*
- H. Sealants: *Division 07*

1.03 REFERENCES

- A. American National Standards Institute (ANSI): Z 97.1 – 2015 - Safety Glazing Materials Used in Buildings -Safety Performance Specifications and Methods of Test.
- B. American Society for Testing and Materials (ASTM):
 - 1. C1036: Specification for Flat Glass.
 - 2. C1048: Specification for Heat-Treated Flat Glass-Kind HS, Kind FT Coated and Uncoated Glass.
 - 3. C1172: Standard Specification for Laminated Architectural Flat Glass
- C. Consumer Product Safety Commission (CPSC): 16CFR 1201 - Architectural Glazing Standards and Related Material.

1.04 SYSTEM DESCRIPTION

A. Design Requirements:

1. Point-supported structural glass system: Laminated butt glazed joints with field applied silicone, supported by ball and joint rotules with 10 degree rotation capacity to anchor perpendicular to the plane of the glass.
2. Glass fittings, rotules are available with button or countersunk (flush) heads. Note under hung systems are not available with countersunk (flush) rotules.
3. Spider fittings shall be fabricated from 316 series stainless steel and have a smooth, machined finish.
4. Spider arms are designed to resist all stipulated design loads.
5. Glass joints consist of silicone sealant with an inner extruded silicone compression seal.
6. The support structure, for connecting spider fittings, must be held to within (+/-) 1/4-in. of all theoretical locations and must be capable of withstanding loads imposed by the glass system. The deflection of the support structure should not exceed (+/-) 1/4-in. The point supported glass system does not provide lateral bracing for support structure.
7. *Optional* stainless steel (316 series) pedestal post for incorporating a sloped surface.
8. *Optional* aluminum rain gutters (gutter drains, downspouts, and splash blocks – by others)

1.05 SUBMITTALS

- A. Submit [] copies of shop drawings showing plans, elevations and sections as required to fully describe the skylight construction for the Architect's approval prior to starting fabrication.
- B. Submit structural calculations prepared by a [civil] [] engineer qualified in the design of point-supported sloped glazed systems licensed in (state where skylight is to be installed) [].
- C. With regard to structural silicone joinery, submit, only if specifically requested:
 1. Certification that adhesion of sealant to samples of 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.
- D. Submit [] 12-in. x 12-in. samples of each type of glass.
- E. Submit [] sets of as-built drawings and cleaning and maintenance manuals upon completion of skylight installation.

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 the system is free of defects in design, material, and construction for a period of five (5) years from the Date of Skylight Completion.
- C. Warrant glass against defective materials, delamination, and defects in manufacture per the glass manufacturer's standard five (5) year warranty from date of manufacture. Glass breakage is not warranted.

- D. Warrant 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.
- E. Warrant finish per the manufacturer's standard warranties from date of application.
- F. Optional extended warranties may be purchasable on some products at an additional cost.
- 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. Structural calculations, showing loads applied to the support structure, based on the design loads of this specification are submitted for review.
 - 4. 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. Point Supported Structural Glass Fittings:
 - 1. Spiders and rotules manufactured from 316 series stainless steel with machined finish.
 - 2. Aluminum rain gutters, if required.
- B. Fasteners:
 - 1. For Anchoring Spiders to Support Structure: ASTM F593, 316 series stainless steel fasteners.
- C. 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.
- D. 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].

E. Glass:

1. Standard Certification Requirements:
 - a. Tempered Glass: ASTM C1048, with a minimum surface compression of 10,000 psi. Tempered glass should be heat-soaked for 2 hours at 536 °F in accordance with EN14179.
 - b. Heat Strengthened Glass: ASTM C 1048, with a surface compression of 5,500 (+/-) 1500 psi for 1/4-in. glass, and 6,500 (+/-) 1500 psi for 5/16-in. and 3/8-in. glass.
 - c. 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 0.060-in. Solutia RA or RB for all glass units (poured or cast in resin laminates will not be allowed). A coating, and/or frit is applied to the inside face of the laminate is also available.
 - d. Exposed edges are polished.
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.
 - c. Probability of breakage due to anticipated spontaneous breakage from nickel sulfide inclusions not to exceed 5/1000.
3. Glazing Unit Composition:
 - a. Sloped glass units are to be [].
 - b. Vertical glass units are to be [].

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

F. Sealants:

1. Weather Seal Joints: Silicone sealants applied in accordance with manufacturer's recommendations.
2. Silicone sealant performance requirements:
 - a. Hardness: ASTM D2240, Type A, Durometer 30.
 - b. Ultimate Tensile Strength: ASTM D412, 170 psi.
 - c. Tensile at 150% Elongation: ASTM D412, 80 psi.
 - d. Joint Movement Capability after fourteen (14) Day Cure: ASTM C719, (+/-) 50%.
 - e. Peel Strength (aluminum, glass, concrete) after twenty-one (21) Day Cure: ASTM C794, 50 ppi.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Upon arrival to the jobsite for installation of the specified work, the manufacturer's erector is to examine the structure and substrate to determine that they are properly prepared, dimensionally accurate, and ready to receive the skylight work included herein. Report any discrepancies to the General Contractor. Correction of faulty work to be at the expense of the responsible party/s. The skylight manufacturer is not responsible for faulty structure or substrate.

3.02 PREPARATION

- A. Skylight manufacturer and manufacturer's erector excludes all field measuring, demolition, removal, replacement, or re-work of any existing material.

3.03 INSTALLATION

- A. Installation of materials in strict accordance with the approved shop drawings and requirements.
- B. Install skylight system under the direction of the skylight manufacturer's designated erector.
- C. Stainless steel fittings to be mounted to the support steel. Design of device per contract documents for aesthetic and all structural criteria.
- D. Erect system plumb and true, in proper alignment and relation to established lines and grades as shown on approved shop drawings.
- E. Use high performance silicone sealants to seal joints between glass panels in conjunction with an extruded silicone compression seal on the underside.
- F. 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.
- G. 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 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-in. per 12-ft. length, or 1/2-in. 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 than 3-in.: 1/32-in.
 - 3. Steel support frame for point supported glazing must be limited to +/- 1/4" from theoretical locations including outer most steel edge.

3.05 CLEANING

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

3.06 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

PHOTOVOLTAIC GLAZING

Building Integrated Photovoltaics (BIPV) are increasingly specified by architects and owners who are interested in energy-efficient and environmentally friendly designs. Super Sky Products has completed hundreds of photovoltaic installations. Our scope includes framing and PV panels, other balance of system components, such as inverters and associated wiring, are provided by the project electrician.

- 1. Preliminary Design:** The design of the BIPV system must be thoroughly researched, detailed, and specified to ensure that no aspects are overlooked and that proper coordination among trades is maintained.
- 2. Aesthetic Design:** The primary concern is how the BIPV skylight will be integrated into the overall building design. Will it serve as an entrance canopy, an atrium skylight, or a sunshade? The design possibilities are nearly as limitless as those of a standard skylight; however, using primarily rectangular PV models can help reduce costs.
- 3. Geometry:** Virtually any geometry is possible; however, curved glass surfaces are currently not feasible. Nevertheless, segmented vaults can approximate a curved surface.
- 4. Locations and Orientation:** Ideally, the BIPV system should be oriented toward the south, southeast, or southwest. It should have a slope of approximately 30 degrees from horizontal. Most importantly, it should be free from shading by other buildings or architectural elements.
- 5. Structural Design:** The design of the supporting aluminum framework, proper glazing techniques, and details must be implemented to effectively support and protect the PV modules while ensuring a watertight system. Since the BIPV system serves as the building envelope, it requires the same level of attention to detail as any other skylight or curtain wall project. The PV components are essential; however, it is crucial that the system remains leak-free for many years and delivers the appropriate thermal performance required by the building's mechanical system.
- 6. Power Output:** The size of the PV array, along with the type of PV module, determines how much power is generated. Typically, a crystalline PV system generates about 10 watts per square foot, while a thin-film system generates about 4 watts per square foot. Usually, on a commercial building, the PV system will generate only a portion of the building's electrical needs; therefore, a connection to the electrical grid is recommended. The local power company should be contacted for questions about grid connection and net metering, which allows for credits on the owner's electric bill when excess power is generated by the PV system. For residential systems, it is possible to generate enough power to meet the house's energy needs for the entire year. However, a grid connection is still recommended; otherwise, large battery storage systems will be necessary.
- 7. PV Modules:** Both Crystalline and Thin Film modules can be customized in size and pattern; however, there are certain limitations regarding the sizes and thickness of the glass. Insulated glass units are also offered, but it is important to consult with the manufacturer during the preliminary design phase to ensure that the desired output, light transmission, thermal performance, and aesthetic qualities are achieved.
- 8. PV System Electrical Design:** Careful consideration is essential when designing the PV system, particularly regarding the wiring layout and its integration with the building's electrical system. Decisions must be made about the type of system--whether it will be grid-connected, with or without battery backup and it is important to specify the appropriate BOS (balance of system) components.
- 9. BOS (Balance of System):** BOS components encompass all necessary fittings, conduits, junction boxes, wiring, connectors, inverters, charge controllers, and other elements required for a complete installation. Specifications and bills of materials must be meticulously prepared to ensure the proper functioning of the system and its integration with the building's electrical system.



PHOTOVOLTAIC GLAZING

10. Coordination of Installation: Coordination of Installation: The installation of a BIPV system involves several different trades that typically do not collaborate closely. Sheet metal workers, glaziers, and electricians must all coordinate their efforts during the same BIPV installation for the project to be successful. With the proper preliminary planning and installation details established, along with Super Sky's experience in the field, this process can be made much more efficient.

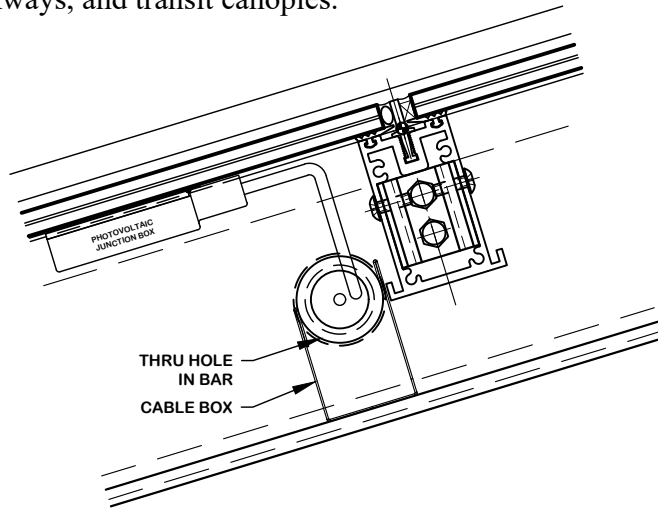
11. Financial Incentives: Incentives for using photovoltaic systems are available from both the federal and state governments. These incentives include grants, low-interest loans, special depreciation, tax credits, and net energy billing, also known as net metering. Each state has its own specific incentive programs.



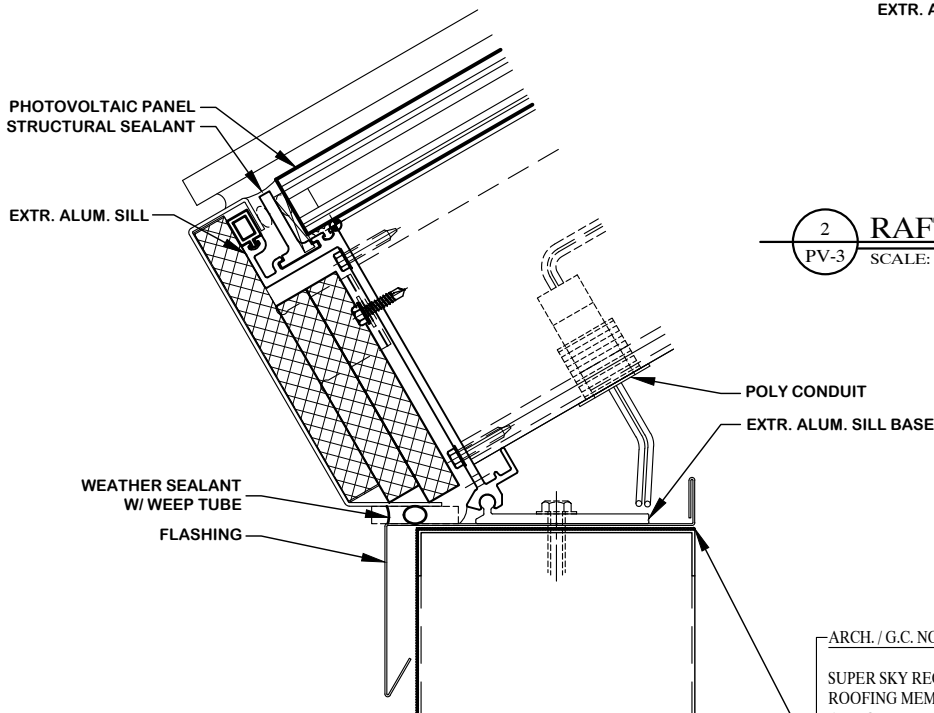
PHOTOVOLTAIC GLAZING

(Note, framing size will be determined per design load criteria)

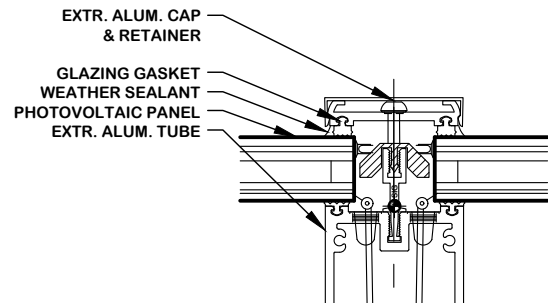
Super Sky possesses the resources to fully design, engineer, fabricate, and install your photovoltaic skylight system. Our extensive experience includes BIPV (Building Integrated Photovoltaic Systems), as well as entrance canopies, shade structures for parking, covered walkways, and transit canopies.



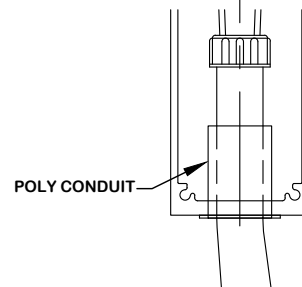
3 CROSSBAR SECTION
PV-3 SCALE: 3" = 1'-0"



1 SILL SECTION
PV-3 SCALE: 3" = 1'-0"



2 RAFTER SECTION
PV-3 SCALE: 3" = 1'-0"



ARCH. / G.C. NOTE:

SUPER SKY RECOMMENDS THAT ROOFING MEMBRANE BE EXTENDED UP AND OVER THE CURB AS SHOWN; TO PROVIDE SEPARATION BETWEEN THE DISSIMILAR MATERIALS AS WELL AS PROVIDING AN ADDITIONAL BARRIER AGAINST WATER PENETRATION.





SUPER SKY PRODUCTS ENTERPRISES, LLC

10301 N. Enterprise Drive

Mequon, WI 53092

Phone: (262) 242-2000

FAX: (262) 242-7409

www.supersky.com

PHOTOVOLTAIC SYSTEMS

UL Classification File Number E247515

Category #QHZZ

Guide Specification

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Engineering and drafting of production documents, including structural calculations of the entire photovoltaic skylight system. (BIPV Skylight System–Building Integrated Photovoltaic)
- B. Fabrication and erection of skylight frames.
- C. Fabrication and erection of the aluminum gutter system including, when applicable, insulation and pitched liners.
- D. Applied finish of aluminum extrusions and sheet.
- E. Photovoltaic modules and glazing.
- F. Skylight related flashings.

1.02 RELATED SECTIONS

- A. Structural Steel: *Division 05*
- B. Metal Fabrications: *Division 05*
- C. Flashing and Sheet Metal: *Division 07*
- D. Photovoltaic Panels: *Division 26*
- E. Roofing: *Division 07*
- F. Sealants: *Division 07*

1.03 REFERENCES

- A. Aluminum Association Incorporated (AA):SAS-30 Specifications for Aluminum Structures.
- B. 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: Specification 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 Specification and Inspection Methods for Clear Anodic Finishes for Architectural Aluminum.
- C. American National Standards Institute (ANSI): Z 97.1 – 2015 - Safety Glazing Materials Used in Buildings Safety Performance Specifications and Methods of Test.
- D. American Society for Testing and Materials (ASTM):
 1. A193: Standard Specification for Alloy-Steel and Stainless Steel Bolting 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.
 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 and Doors.
- E. Consumer Product Safety Commission (CPSC): 16CFR 1202 - Architectural Glazing Standards and Related Material.
- F. Flat Glass Manufacturers Association (FGMA): Glazing Manual.
- G. Insulating Glass Certification Council (IGCC): Classification of Insulating Glass Units.
- H. UL Standard QHZQ for Building Integrated Photovoltaic Mounting System.
- I. National Electrical Code.

1.04 SYSTEM DESCRIPTION

- A. Design Requirements:
 1. Extruded aluminum members with a system of alternate serrations for attachment of exterior glass retainers with 1/4-in. x 20 stainless steel screws and snap-on beauty caps.
 2. Condensation guttering system integral with skylight framing members for positive drainage of condensation.
 3. Flush glazed exterior horizontal joints with field applied structural silicone.
 4. Full silicone wet seals along both sides of all exterior glass retainers.
 5. Optional aluminum rain gutters, with insulation and pitched liners, when applicable.
- B. Performance Requirements:
 1. Structural Members: Of sufficient sizes to support design loads as prescribed by governing building codes.
 2. The deflection of the framing member in a direction normal to the plane of glass when subjected to a uniform load deflection test in accordance with ASTM E330, and per the above specified loads, shall not exceed L/175, up to 1-in. maximum, for clear spans under 20-ft., or L/240 for clear spans greater than 20-ft.

3. The deflection of a framing member in a direction parallel to the plane of glass, when carrying its full dead load, shall not exceed an amount which will reduce the glass or panel bite below 75% of the design dimension and the member shall have a 1/8-in. minimum clearance between itself and the edge of the fixed panel, glass, or component immediately adjacent, nor shall it impair the function of or damage any joint seals.
4. Water Penetration: No water penetration shall occur when the system is tested in accordance with ASTM E331 using a differential static pressure of (20% of the inward acting design wind load pressure, but not less than 12 psf). 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 water penetrating at joints, as well as condensation occurring within the system to exterior face of the work.
5. Thermal Movement: Provide for expansion and contraction of component materials as will be caused by an exterior surface temperature range of (+/-) 85 °F, ranging from -20 °F to 150 °F, and an interior surface temperature range of (+/-) 40 °F, ranging from 40 °F to 120 °F. Adjustments in the exterior and interior temperature ranges should be made, based on specific project locations and conditions. The skylight system should allow for thermal movements without buckling, sealant failure, undue material stress, and other detrimental affects.
6. Where permitted by code, a 1/3 increase in allowable stress for wind or seismic load shall be acceptable, but not in combination with any reduction applied to combined loads. In no case shall allowable values exceed the yield stress.
7. Compression flanges of flexural members may be assumed to receive effective lateral bracing only from anchors to the building structure and horizontal glazing bars or interior trim which are in contact with 50% of the member's total depth.
8. Skylight framing is designed to be self-supporting between the support construction. The skylight(s) will impose reactions to the support construction. All adjacent and support construction must support the transfer of all loads including horizontal and vertical, exerted by the skylight(s). Design or structural engineering services for the supporting structure or building components not included in the skylight scope are not included under this section.
9. The 4 Element UL Classification Mark to be provided at a location readily visible after installation on a major system component, such as a rafter.
10. *Optional* limited reaction design: The skylight framing is to be designed to exert no horizontal reactions under vertical gravity type loads, (dead, snow, live). Unbalanced live loads, (wind, seismic, etc.), acting upon the skylight will produce horizontal reactions that cannot be controlled by the skylights, but must be resisted by the support structure.
11. *Optional* Balance of System (BOS): Design of photovoltaic array, including electrical paths, wiring, and specification for the balance of system components (combiner boxes, junction boxes, inverters, wiring to Data Acquisition System (DAS), and/or grid core.

1.05 SUBMITTALS

- A. Submit [] copies of shop drawings showing plans, elevations and sections as required to fully describe the skylight construction for the Architect's approval prior to starting fabrication.
- B. Submit structural calculations prepared in accordance with the Aluminum Association's Specifications for Aluminum Structures (SAS30) by a structural engineer qualified in the design of self-supporting sloped glazed systems licensed in (state where skylight is to be installed) [].
- C. 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.
- D. Submit [] 12-in. x 12-in. samples of each type of glass.
- E. Submit [] sets of as-built drawings and cleaning and maintenance manuals upon completion of skylight installation.
- F. Certification that insulating glass units will withstand specified design loads.
- G. Instruction manual containing:
 1. Photovoltaic laminate ratings:

- a. Open-circuit voltage.
- b. Short-circuit voltage.
- c. Maximum power.
- d. Operating voltage.
- e. Current voltage.
- f. Current at operating voltage.
- g. Maximum allowed series fuse.
- h. The fire resistance rating for the PV modules, or a statement that the PV modules are not fire rated.
- 2. Electrical ratings.
- 3. Module field replacement instructions: replacement of the photovoltaic laminates used in an array is limited to the same manufacturers type and model to maintain conformance with the UL Listing requirements.

1.06 QUALITY ASSURANCE

- A. Work of this Section, including design, engineering, fabrication, finishing, preparation at the jobsite, 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.
- B. Commissioning of the photovoltaic array to be supervised by the designer.

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 frame is free of defects in design, material, and construction for a period of ten (10) years from the Date of Skylight Completion.
- C. Warrant photovoltaic panels against defective materials, delamination, seal failure, and defects in manufacture per the glass manufacturer's standard warranties from date of manufacture. Glass breakage is not warranted.
- D. Warrant structural sealant for a period of ten (10) 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.
- E. Warrant finish per the manufacturer's standard warranties from date of application.
- F. Optional extended warranties may be purchasable on some products at an additional cost.
- 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.
 - 1. UL Classification file number E247515 for Category #QHZQ.
- 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. Structural calculations, showing sizes of framing members and loads applied to the support structure, based on the design loads of this specification are submitted for review.
4. 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. Principal Supporting Members: .125-in. minimum thickness extruded aluminum, alloy 6005-T5 or 6061-T6 per ASTM B221. Sizes, shapes and profiles (as per Super Sky Products' standard components) (as indicated on the Contract Drawings).
2. Snap-on Covers and Miscellaneous Non-supporting Trim: .062-in. minimum thickness extruded aluminum, alloy 6063-T5 per ASTM B221.
3. Raised aluminum screw slot for separation of mechanical fastener and wiring.
4. Supporting aluminum gutters: thickness as prescribed by skylight engineer, based on skylight reactions and applied design loads.
5. Principal Formed Metal Members: .125-in. minimum thickness aluminum, alloy [5052] [6061-T6] per ASTM B209.

B. Glazing Strips:

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 Exterior Cap Retainers: ASTM A193 B8 300 series stainless steel screws.
2. For Framework Connections: ASTM B211 2024-T4 aluminum, ASTM A193 B8 300 series stainless steel, and ASTM B316 aluminum rivets, as required by connection.
3. For Anchoring Skylight to Support Structure: ASTM A307 zinc plated steel fasteners.
4. Exposed stainless steel truss head mechanical fasteners are utilized in accordance with standard connection details.
5. Internal wiring miscellaneous components: 1001 Bridgeport anti-short bushing, 5/8-in. diameter grommet, and 1-1/4-in. Crouse-Hinds LNR4 non-metallic conduit liner.

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 fluoropolymers [standard] [custom] [mica] [exotic] [metallic].
 2. Pigmented Organic Coatings: AAMA 2604-05 [2-coat] min. 50% PVDF fluoropolymers [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. Photovoltaic Glazing:
1. Standard Certification Requirements:
 - a. UL Listed Panel [poly-crystalline, mono-crystalline, thin-film].
 - b. Heat Treated Glass: ASTM C1048, with surface stress of 5,000 (+/-) 1500 psi.
 - c. 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 0.030-in. for all glass units unless a coating is applied to the inside face of the laminate thereby necessitating a 0.060-in. PVB layer.
 - d. 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. Photovoltaic Unit Composition:
 - a. Sloped glass units are to be [].
 - b. Vertical glass units are to be [].

Specifier should consult Photovoltaic Panel Specification, for glazing make-up, sizes and compositions. Composition breakdown goes here.

4. Design of electrical array, balance of system (BOM), and data acquisition system (DAS) are not included.
- 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 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. Construct skylight(s) using a continuous aluminum curb with expansion joints as required.
- C. Insofar as practicable, fit and assemble work in the manufacturer's shop. Work which cannot be permanently assembled shall be shop-assembled, marked, and disassembled before shipment to the jobsite.
- D. Design rafter bars for slide-in type spline glazing strips.

- E. Design glass retainer fasteners to resist uplift loadings. Spacing to be determined by structural calculations, when applicable.
- F. Use snap-on beauty caps to conceal glass retainers and glass retainer fasteners.
- G. Shop locate drill and bolt, or weld aluminum clips to framing members.
- H. Set glass with interior and exterior EDPM glazing strips.
- I. 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.
- J. Locate weepholes in curb to positively drain condensation to exterior of skylight at each rafter connection.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Upon arrival to the jobsite for installation of the specified work, the manufacturer's erector is to examine the structure and substrate to determine that they are properly prepared, dimensionally accurate, and ready to receive the skylight work included herein. Report any discrepancies to the General Contractor. Correction of faulty work to be at the expense of the responsible party/s. The skylight manufacturer is not responsible for faulty structure or substrate.

3.02 PREPARATION

- A. Contact between aluminum and dissimilar metals shall receive a protective coating of asphaltic paint for the prevention of electrolytic action and corrosion.
- B. Skylight manufacturer and manufacturer's erector excludes all field measuring, demolition, removal, replacement, or re-work of any existing material.

3.03 INSTALLATION

- A. Install skylight frame, glass and accessory items as needed in accordance with manufacturer's instructions.
- B. Install skylight system under the direction of the skylight manufacturer's designated erector.
- C. Erect system plumb and true, in proper alignment and relation to established lines and grades as shown on approved shop drawings.
- D. Anchor skylight to structure in strict accordance with approved shop drawings.
- E. Installation includes panel-to-panel hook-up only. All electrical wiring to the grid core and/or to the Balance of System (BOS) and/or to the Data Acquisition System (DAS) is by others.
- F. Use high performance silicone sealants to seal horizontal joints between glass panels and silicone sealant to wet seal joints between snap-on cap retainers 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 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-in. per 12-ft. length, or 1/2-in. 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 than 3-in.: 1/32-in.

3.05 CLEANING

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

3.06 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

THIS PAGE INTENTIONALLY LEFT BLANK

HURRICANE, BLAST RESISTANT & SEISMIC

HURRICANE COMPLIANT DESIGN & TESTING

Super Sky has extensive experience in designing Hurricane Compliant skylights in all applicable areas of the United States, as well as throughout the world. Since 1999, Super Sky has passed the rigorous testing required by Dade County, Florida and has received product approvals for its tubular skylight systems for both large and small missile impact ratings. These tests include;

- * Air infiltration per ASTM E283 and TAS 202
- * Water infiltration by static pressure differential (18 psf) per ASTM E331 and TAS 202
- * Large and small missile impact testing per ASTM E1886/1996 and TAS 210
- * Static loading per ASTM E330 and TAS 202
- * Cyclic load testing per ASTM E1886/1996 and TAS 203

Large Missile:

- $\frac{9}{16}$ " Laminated Glass w/ .090" SentryGlas Interlayer
- $1\frac{5}{16}$ " Insulated Glass w/ Solutia .077" VS02 Interlayer
- $1\frac{5}{16}$ " Insulated Glass w/ .090" SentryGlas Interlayer

Small Missile:

- $\frac{9}{16}$ " Laminated Glass w/ .060" PVB Interlayer
- $1\frac{5}{16}$ " Insulated Glass w/ .060" PVB Interlayer

Note, current numbers are available on our website at www.supersky.com. All Super Sky Miami-Dade NOAs are current and are reviewed and renewed as required by the Miami-Dade Building Code Compliance Office.

The design criteria for all NOA rated systems are as follows:

1. Maximum Design Pressures: Large Missile = +80/-90 psf
Small Missile = +/-140 psf
2. Glass Types: As indicated above
3. Maximum Allowable Glass Lite Size: 30 sq. ft. (for large missile)
40 sq. ft. (for small missile)
4. The glass must be mechanically captured on all edges; structural silicone flush glazed joints are not allowed.



HURRICANE, BLAST RESISTANT & SEISMIC

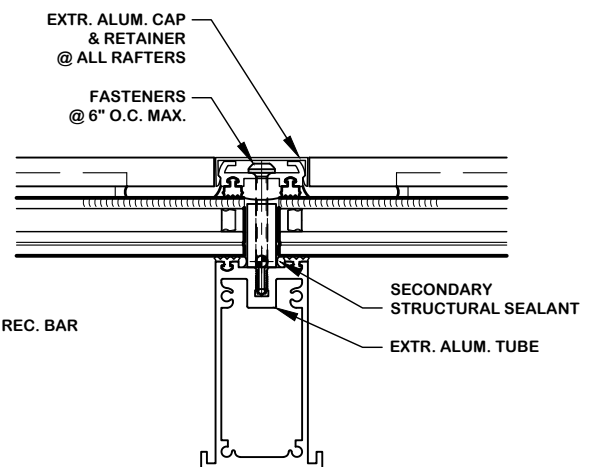
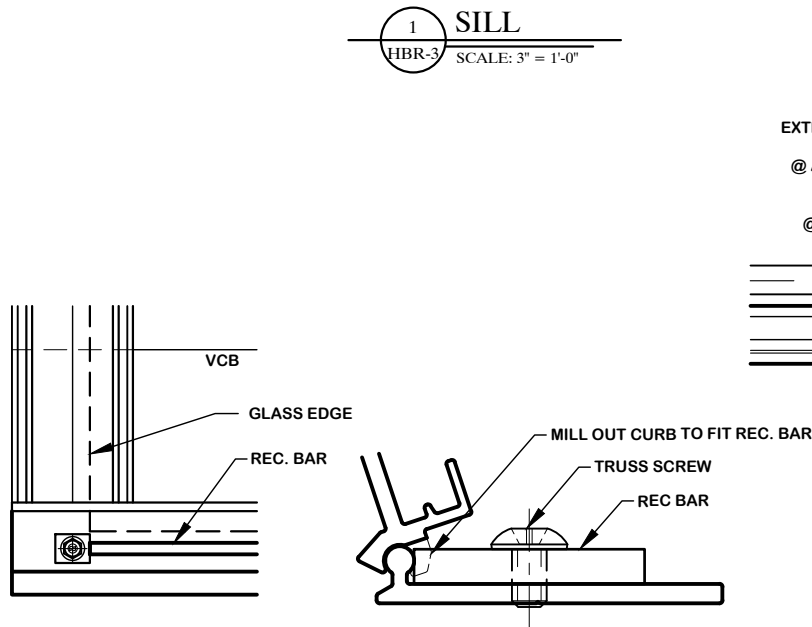
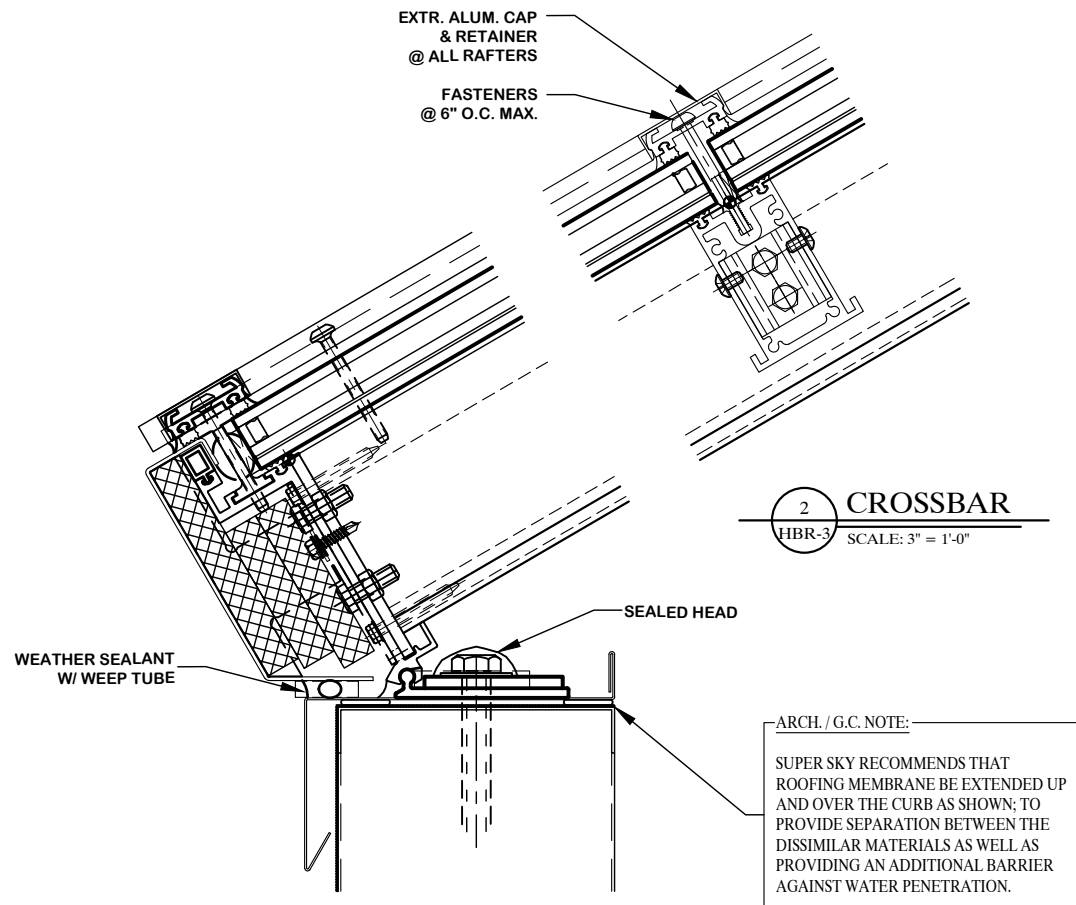
Super Sky's blast-resistant skylights are primarily designed and installed for the government, military, and defense sectors. However, our blast-resistant products are also commonly used in public gathering spaces. Super Sky takes pride in meeting and exceeding the engineering standards required to effectively address various threat levels. Our blast-resistant systems feature intricate connections and framing for the support structure. The thickness of the glass is determined based on the assessed level of threat and is fully capped with secondary structural sealants to ensure exceptional protection.

Super Sky has successfully completed projects that range from minimal threat levels to those requiring comprehensive dynamic glass and frame analysis. Our team of highly skilled engineers employs the latest GSA-controlled software, enabling direct collaboration and communication with our skylight design team. This approach ensures the most cohesive and efficient processes. Super Sky is recognized as the expert in accommodating all threat scenarios.



HURRICANE, BLAST RESISTANT & SEISMIC

(Note, framing size will be determined per design load criteria)



3 SEISMIC DETAILS
HBR-3 SCALE: 3" = 1'-0"

4 RAFTER
HBR-3 SCALE: 3" = 1'-0"



HURRICANE, BLAST RESISTANT & SEISMIC

(Note, framing size will be determined per design load criteria)

