SECTION 07 72 36

HEAT AND SMOKE VENTS

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\*\* NOTE TO SPECIFIER \*\* Sunoptics Prismatic Skylights ; high-performance prismatic daylighting skylights for suspended-ceiling applications.  
This section is based on the products of Sunoptics Prismatic Skylights , which is located at:  
6201 27th St.  
Sacramento, CA 95822  
Toll Free Tel: 800-289-4700  
Fax: 916-395-9204  
Email: [request info (SunOpticsInsideSales@AcuityBrands.com)](https://admin.arcat.com/users.pl?action=UserEmail&company=Sunoptics+Prismatic+Skylights+&coid=44129&rep=&fax=916-395-9204&message=RE:%20Spec%20Question%20(07723sun):%20%20&mf=)  
Web: <http://sunoptics.acuitybrands.com>   
 [ [Click Here](https://www.arcat.com/arcatcos/cos44/arc44129.html) ] for additional information.  
Founded in 1978, Sunoptics Prismatic Skylights is a worldwide leader in high-performance daylighting. Our mission is to harness the power of the sun to maximize the cost-effective energy savings of daylighting.  
In 2011, Sunoptics joined forces with Acuity Brands to combine daylighting, electric luminaires and advanced lighting controls to offer the industry's most complete set of sustainable and energy-efficient lighting solutions.   
For a number of years, Sunoptics and Acuity Brand's Lighting Controls & Design products have been available in an integrated solution that enhances the value of prismatic skylighting solutions.  
Sunoptics leverages unique design, materials and construction to optimize lighting performance through prismatic lenses. These lenses provide maximum light transmittance while maintaining 100% diffusion, which eliminates undesirable hot spots, glare and UV damage to the daylighted space.  
Sunoptics manufactures all of its own plastic with its state-of-the-art extrusion equipment. This provides us the ability to control the light transmission capability of our plastics while maintaining the highest level of product quality in the industry. No other skylight manufacturer has this capability. Our state-of-the-art Photometric Lab as well as a multitude of third party testing confirms real-world performance of all our products.  
Sunoptics High Performance Prismatic Skylights have been installed in several hundred million square feet of buildings worldwide. These skylights have the potential of replacing over 500 megawatts of electrical lighting energy during a utilities' peak load hours. According to a recent study by Heschong Mahone Group, Inc., a leading expert in daylighting engineering and design, if the U.S. retrofitted all existing buildings that it makes sense to daylight, the potential peak load reduction would equal 20,000 megawatts. That's like replacing the energy produced by more than 40 coal fire energy plants.

1. GENERAL
   1. SECTION INCLUDES
      1. Smoke vents.
   2. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* + 1. Section 07 50 00 - Membrane Roofing.
    2. Section 07 62 00 - Sheet Metal Flashing and Trim
    3. Section 07 91 23 - Backer Rods.
    4. Section 09 21 16.33 - Gypsum Board Area Separation Wall Assemblies.
    5. Section 09 51 23 - Acoustical Tile Ceilings.
  1. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete any references below not relevant to this project; add others as required.

* + 1. American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE):
       1. ASHRAE 90.1 - Energy Standard for Buildings Except Low-Rise Residential Buildings.
    2. ASTM International (ASTM):
       1. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
       2. ASTM D1003 - Standard Test Method for Haze and Luminous Transmittance of Transparent Plastics
    3. Factory Mutual System (FM Global):
       1. FM Approval Guide, Chapter 18 - Building Materials.
       2. FM Standard 4430 - Test Criteria for Heat and Smoke Vents.
    4. UL (Underwriters Laboratory)
       1. UL 793 - Standard for Automatically Operated Roof Vents for Smoke and Heat
    5. Occupational Health and Safety Administration (OSHA):
       1. OSHA 1926.502 - Fall protection systems criteria and practices.
       2. OSHA 1910 - Occupational Safety and Health Standards.
  1. SUBMITTALS
     1. Submit under provisions of Section 01 30 00 - Administrative Requirements.
     2. Product Data:
        1. Manufacturers current published data on each product.
        2. Materials, dimensions, finishes and standard details.
        3. Compliance with design criteria and project conditions.
        4. Preparation instructions and recommendations.
        5. Storage and handling requirements.
        6. Installation instructions.
     3. Testing Reports: Submit Third Party Testing and Evaluation Reports as required by the local jurisdiction.
     4. Shop Drawings: Include the following items.
        1. Where design calculations are required, provide shop drawings and calculations bearing the seal of a professional engineer licensed in the jurisdiction of the Project.
        2. Plans, sections, elevations, flashing, connection, and termination details.
        3. Materials, thicknesses, fabrication and installation details including glazing types, methods of attachment and provisions for thermal movement.
        4. Type of roofing system provided by others including insulation.
        5. Interface details including overall dimensions, thicknesses, and adjacent materials.
        6. Safety requirements.
     5. Closeout Submittals: Maintenance instructions and Warranty.
  2. QUALITY ASSURANCE
     1. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with a minimum five years documented experience. Secondary products shall be acceptable to the primary manufacturer.
     2. Installer Qualifications: All specified products installed by a single installer with a minimum of five years demonstrated experience, with adequate equipment, skilled workers, and practical experience to meet the project schedule.
     3. Source Limitations: Provide each type of product from a single manufacturing source to ensure uniformity.

\*\* NOTE TO SPECIFIER \*\* Include mock-up if the project size or quality warrant the expense. The following is one example of how a mock-up on might be specified. When deciding on the extent of the mock-up, consider all the major different types of work on the project.

* + 1. Mock-Up: Construct a mock-up with actual materials in sufficient time for Architect's review and to not delay construction progress. Locate mock-up as acceptable to Architect and provide temporary foundations and support.
       1. Intent of mock-up is to demonstrate quality of workmanship and visual appearance.
       2. Provide mock-up of each type of assembly including associated components, accessories, and methods of adjoining construction.
       3. Finish areas designated by the Architect, minimum size: 3 x 3 feet (1 x 1 meter) including all flashing, sealants, and finishes to be provided in the final installation.
       4. If mock-up is not acceptable, rebuild mock-up until satisfactory results are achieved.
       5. Retain mock-up during construction as a standard for comparison with completed work.
       6. Do not alter or remove mock-up until work is completed or removal is authorized.
  1. PRE-INSTALLATION CONFERENCE
     1. Convene on the project site a minimum one week before beginning the Work. Attendees shall include Architect, Contractor and trades involved.
        1. Agenda shall include schedule, responsibilities, critical path items and approvals.
        2. Verify project requirements and site logistics.
        3. Coordinate between trades.
        4. Assess integrity of the roofing system and building structure.
        5. Review manufacturers installation instructions and warranty requirements.
  2. DELIVERY, STORAGE AND HANDLING
     1. Coordinate delivery schedule with the General Contractor and project schedule to minimize on site storage.
     2. Store products in manufacturer's unopened packaging until ready for installation. Store and handle in strict compliance with manufacturer's written instructions and recommendations. Store materials in a dry area, protected from freezing, staining, contamination or damage.
     3. Protect from damage due to weather, excessive temperature, and construction operations.
     4. Do not exceed structural loading with workers or installation materials.
  3. PROJECT CONDITIONS
     1. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's limits.
        1. Review manufacturers installation instructions and warranty requirements.

\*\* NOTE TO SPECIFIER \*\* Delete below if warranty is not required. Confirm model and warranties with each model type and the manufacturer based on glazing and frame selections.

* 1. WARRANTY
     1. Provide manufacturer's standard warranty covering defective materials, workmanship and performance including the following Warranty Periods:

\*\*NOTE TO SPECIFIER\*\* Choose either the 5 or 10 year warranty. Delete duration not required.

* + - 1. Leak Free Warranty: 5 years.
      2. Leak Free Warranty: 10 years.

1. PRODUCTS
   1. MANUFACTURERS
      1. Acceptable Manufacturer: Sunoptics Prismatic Skylights , which is located at: 6201 27th St.; Sacramento, CA 95822; Toll Free Tel: 800-289-4700; Fax: 916-395-9204; Email: [request info (SunOpticsInsideSales@AcuityBrands.com)](https://admin.arcat.com/users.pl?action=UserEmail&company=Sunoptics+Prismatic+Skylights+&coid=44129&rep=&fax=916-395-9204&message=RE:%20Spec%20Question%20(07723sun):%20%20&mf=); Web: <http://sunoptics.acuitybrands.com>

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
    2. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

\*\* NOTE TO SPECIFIER \*\* Delete below if Signature Series are not used. Select Fixed or Continuous Venting. Delete type not used.

* 1. SMOKE VENTS
     1. Model 870B, Daylighting Smoke Vents: Prefabricated, venting daylighting smoke vents with fusible link for use in industrial and commercial buildings where required by the local building code and the following:
     2. Standards Compliance: Conform to standards set forth by authorities having jurisdiction and be designed to meet design criteria as specified and the following.

\*\* NOTE TO SPECIFIER \*\* Include only as required; add others as required. Confirm testing and certification with each model, coordinate with Part 2. Delete below where not required.

* + - 1. Factory Mutual (FM) Approval Class Number 4431 as applicable.
      2. FM Approval No. 4430 with curb mounted design.
      3. UL 793 as applicable.
      4. UL Listed.
    1. Performance and Design Requirements:
       1. Smoke Vents shall be designed and installed to carry a minimum 30 psf (1.44 kPa) tributary roof load or greater per site.
       2. Energy Requirements: Glazing material shall have maximum light distribution per Addendum D of ASHRAE 90.1, where the diffusing qualities have a minimum haze factor of 90 percent or greater. The combined inner/outer lens target values shall be as follows:
          1. Light Transmission: 60 to 68 percent.
          2. Diffusion / Haze Factor: 100 percent.

\*\* NOTE TO SPECIFIER \*\* Delete hail resistance option not required. Coordinate outer lens materials with manufacturer as required.

* + - 1. Hail Resistance Level: Class 1 as tested by certified engineering firm.
      2. Hail Resistance Level: Class 3 as tested by certified engineering firm.
      3. Hail Resistance Level: Class 4 as tested by certified engineering firm.

\*\* NOTE TO SPECIFIER \*\* Delete snow load options not required. Coordinate outer lens materials with manufacturer as required. FM only available in 10 pounds (44.5 N). Delete types not required.

* + - 1. Snow Load Resistance Level: 10 pounds (44.5 N).
      2. Snow Load Resistance Level: 30 pounds (133.4 N).

\*\* NOTE TO SPECIFIER \*\* Delete frame dimension options not required. Custom sizes are available. Contact manufacturer for details.

* + - 1. Frame Dimensions: 51-1/4 x 63-1/4 inches (1302 x 1607 mm).
      2. Frame Dimensions: 51-1/4 x 75-1/4 inches (1302 x 1911 mm).
      3. Frame Dimensions: 51-1/4 x 87-1/4 inches (1302 x 2216 mm).
      4. Frame Dimensions: 52-1/4 x 100-1/4 inches (1327 x 2546 mm).
      5. Frame Dimensions: 63-1/4 x 87-1/4 inches (1607 x 2216 mm).
      6. Frame Dimensions: 63-1/4 x 99-1/4 inches (1607 x 2521 mm).
      7. Frame Dimensions: 63-5/8 x 75-5/8 inches (1616 x 1921 mm).
      8. Frame Dimensions (in / mm): \_\_\_\_\_\_\_\_\_\_\_.
      9. Frame Dimensions: As shown on the Drawings.
      10. Frame: ASTM B221 alloy 6063-T5 extruded aluminum frame with extruded aluminum dome retaining angle, Insulated thermal break, and integral condensate gutter and manufacturers standard weatherproofing accessories in the following profile:

\*\* NOTE TO SPECIFIER \*\* Delete frame configuration options not required. A 1/2 inch (13 mm) surround around finished and final flashed curb is recommended. Indicate on the drawings.

* + - * 1. Signature series dome.
        2. Double hip.
        3. As indicated on the Drawings.

\*\* NOTE TO SPECIFIER \*\* Delete glazing option not required. Double glazed is required for FM approval. Polycarbonate is required for FM approval. Delete types not required.

* + - 1. Glazing: Single glazed (SGZ).
         1. Acrylic: Visible Light Transmission (VLT): 0.74.
         2. Polycarbonate: Visible Light Transmission (VLT): 0.70.

\*\* NOTE TO SPECIFIER \*\* Delete color option not required. LENSWH White is default.

* + - * 1. Lens Color: White. LENSWH.
        2. Lens Color: Clear. LENSCL.
      1. Glazing: Double glazed (DGZ).
         1. Acrylic/Acrylic: Visible Light Transmission (VLT): 0.68.
         2. FM Approved Poly/Poly: Visible Light Transmission (VLT): 0.64.

\*\* NOTE TO SPECIFIER \*\* Delete color options not required. LENSCLWH Clear / White is default.

* + - * 1. Lens Colors: LENSWHCL: White / Clear.
        2. Lens Colors: LENSCLWH: Clear / White.
        3. Lens Colors: LENSWHWH: White / White.
        4. Lens Colors: LENSCLCL: Clear / Clear.
      1. Fusible Link: Mechanism includes gas shocks and exterior manual release cable for testing and the following temperature rating:

\*\* NOTE TO SPECIFIER \*\* Delete temperature rating options not required. FM approved must be at least 360 degrees.

* + - * 1. Temperature Rating: Minimum 165 degrees F (74 degrees C).
        2. Temperature Rating: Minimum 212 degrees F (100 degrees C).
        3. Temperature Rating: Minimum 286 degrees F (141 degrees C).
        4. Temperature Rating: Minimum 360 degrees F (182 degrees C).
        5. Temperature Rating: Minimum 370 degrees F (188 degrees C).
        6. Temperature Rating: Minimum 386 degrees F (197 degrees C).
      1. Operation: Remain tightly sealed against 30 lbs /sq ft (147 kg/sq m) internal uplift pressure until triggered by UL listed fusible link or opened manually from interior level. When released, doors shall be capable of opening against a 10 lbs/sq ft (49 kg/sq m) external snow or wind load and lock in open position.
         1. Opening Angle: Minimum 105 degrees.

\*\* NOTE TO SPECIFIER \*\* Delete finish options not required. Mill is default, which may be finished to match windows, curtain wall or other exterior aluminum finish system used elsewhere on the project.

* + - 1. Frame Finish: Mill (MI).
      2. Frame Finish: White (WH).
      3. Frame Finish: Bronze (BZ).
      4. Frame Finish: Custom Finish as selected by the Architect (CF).
  1. ACCESSORIES

\*\* NOTE TO SPECIFIER \*\* Delete accessories not required.

* + 1. Installation Screws: No. 12 x 1-1/2 inch (38 mm) 300 series stainless steel screws with neoprene stainless steel bonded washers in quantity recommended by the manufacturer.
    2. Metal Building Curb, Model AMBC-1: Insulated metal building curb, full height mitered and welded corners, cell caps supplied loose for field location, including fiberglass insulation, integral cricket water diverter.

\*\* NOTE TO SPECIFIER \*\* Delete material, finish and curb options not required. Confirm with manufacturer.

* + - 1. Material: 18 ga. galvalume construction.
      2. Material: Aluminum construction.
      3. Material: Heavier gauge steel.
      4. Finish: \_\_\_\_\_\_\_\_.
      5. Finish: Painted. Colors as determined by the Architect.
      6. Finish: As shown on the Drawings or as determined by the Architect.
      7. Perforated noise control baffles.
      8. Installed cell caps.
    1. Galvanized Insulated Curb, Model ARC-3: Fiberglass insulation and pressure treated wood nailer for mounting skylight. OSHA 1910 and 1926.502 compliant with wire mesh and welded security guard.

\*\* NOTE TO SPECIFIER \*\* Delete material and curb options not required. Confirm with manufacturer.

* + - 1. Material: Galvanized steel. 14 ga. with white painted interior.
      2. Material: Galvanized steel. 18 ga. with white painted interior.
      3. Security Bars: round.
    1. Galvanized Insulated Curb, Model ARC-6: Pressure treated wood nailer for mounting skylight. OSHA 1910 and 1926.502 compliant with wire mesh and welded security guard.

\*\* NOTE TO SPECIFIER \*\* Delete material and curb options not required. Confirm with manufacturer.

* + - 1. Material: Galvanized steel. 14 ga. with white painted interior.
      2. Material: Galvanized steel. 18 ga. with white painted interior.
      3. Security Bars: round.
    1. Wood Curb: 2X Douglas fir lumber with corners joined using 18 gauge galvanized strap, interior polyester white liner, and pre-mounted angle clips.

\*\* NOTE TO SPECIFIER \*\* Security guard options include Z frame, burglar bars. Confirm with the manufacturer.

* + 1. Safety Security Guard, Model CLPOG: Clip on guard of galvanized cold rolled steel, to meet OSHA 1910.23 requirements.
    2. Grid Guard: Drop in steel guard provided with screws, SSG welded to Z-frame on all four sides. Comply with manufacturers installation details.
  1. FABRlCATlON
     1. Fabricated frames from 6063 T6 aluminum with integral condensation and weeping gutters to drain interior moisture to the outside.
     2. Smoke Vents shall be factory assembled and glazed ready for installation, pre-drilled for anchorage to roof curbs.
     3. Fabricate skylights weather tight and free of visual distortions and defects.
     4. Multi-glazed units include Insulated Thermal Break (ITBR), Curb Seal Tape, Weather Sweep (WSW) and screws.
     5. Protect exterior drip counter flashing and drainage ports from weather and air-borne debris.
     6. Miter and full penetration weld all corners of curb and retaining frames with glazing separated from the skylight frame with a silicone seal along the full perimeter of the retaining frame.

1. EXECUTION
   1. EXAMINATION
      1. Verification of Conditions:
         1. Confirm work by others is installed per the project requirements. Do not cover work by others prior to inspection or acceptance.
         2. Do not begin installation until substrates have been properly prepared.
         3. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
      2. Do not proceed until unacceptable conditions are corrected.
   2. PREPARATION
      1. Clean surfaces thoroughly prior to installation.
      2. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
   3. INSTALLATION
      1. Install in accordance with manufacturer's instructions and in proper relationship with adjacent construction. Test for leaks as recommended by manufacturer.
   4. CLEANING
      1. Remove all debris from the project site in accordance with the Owner's construction waste management requirements.
   5. PROTECTION
      1. Protect installed products until completion of project.
      2. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION