

DIVISION SPECIFICATIONS — SECTION 08620 - UNIT SKYLIGHTS

PART 1 — GENERAL

1.1 SECTION INCLUDES

- A. Self flashing skylights.
- B. Curb mounted skylights.

1.2 RELATED SECTIONS

- A. Section 05500 - Metal Fabrications: Miscellaneous steel framing for rough opening.
- B. Section 06112 - Framing and Sheathing: Wood framing for rough opening.
- C. Section 06114 - Wood Blocking and Curbing: Wood support curbs.
- D. Section 07260 - Vapor Retarders: Sealing roof vapor retarder at penetrations.
- E. Section _____ - _____: Roofing system at skylight curb.

1.3 REFERENCES

- A. AAMA/WDMA/CSA 101/I.S.2/A440 - Standard Specification for Windows, Doors and Unit Skylights.
- B. TAS201-94 - Impact Test Procedures.
- C. TAS203-94 - Criteria for Testing Products Subject to Cyclic Wind Pressure Loading.
- D. ASTM D 635 - Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position.
- E. ASTM D 638 - Standard Test Method for Tensile Properties of Plastics.
- F. ASTM D 746 - Test Method for Brittleness Temperatures of Plastics and Elastomers by Impact.
- G. ASTM D 790 - Standard Test Method for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
- H. ASTM D 1929 - Standard Test Method for Determining Ignition Temperature of Plastics.
- I. ASTM D 2565 - Xenon-Arc Exposure of Plastics Intended for Indoor or Outdoor Applications (Weather-Ometer)
- J. ASTM D 2843 - Standard Test Method for Density of Smoke from the Burning or Decomposition of Plastics.
- K. ASTM D4226 - Standard Test Methods for Impact Resistance of Rigid Poly(Vinyl Chloride) (PVC) Building Products.
- L. ASTM D 4803 - Standard Test Method for Predicting Heat Buildup in PVC Building Products.
- M. ASTM E 283 - Standard test method for rate of air leakage through exterior windows, curtain walls and doors.
- N. ASTM E 330 - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure.
- O. ASTM E 331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference.
- P. ASTM E 547 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Cyclic Static Air Pressure Difference.

1.4 PERFORMANCE REQUIREMENTS

- A. General: Skylights tested in conformance with AAMA/WDMA/CSA 101/I.S.2/A440 - Standard Specification for Windows, Doors and Unit Skylights as follows.
 - 1. ASTM E 283: Air Infiltration at 1.57 psf (75 pa) and 6.24 psf (300pa) 0.01 sfm/sf (0.01 L/s/sm).
 - 2. ASTM E 547 and ASTM E331-00: Water resistance test, no leakage.
 - 3. ASTM E 330: Uniform load deflection, no damage 50 psf (2400 pa) positive/negative load with a measured 1.010 inch (1 mm) positive/negative deflection.
- B. Fire Performance: Provide unit skylight glazing materials tested by UL or Intertek Testing Services (Warnock Hersey Listed) with labels indicating compliance.
 - 1. Self-Ignition Test: 650 deg F (343.33 deg C) or greater when tested in accordance with ASTM D 1929.
 - 2. Smoke Density: 75 or less when tested in accordance with ASTM D 2843.

3. Combustibility:
 - a. Acrylics Average Burning Rate: Maximum 2.5 inch/minute (63.5 mm/minute), when tested in accordance with ASTM D 635.
 - b. Polycarbonate Extent of Burning of Glazing: Maximum 1 inch (25.4mm), when tested in accordance with ASTM D 635.
- C. Florida Building Code Protocols: Test specimens evaluated in accordance with the following Florida Building Code Protocols.
 1. TAS 201 - Miami Dade Large Missile Impact test, tested and passed
 2. TAS 203 - Miami Dade cyclic test, no cracks or tears 90 psf
- D. Frame material ASTM D1929: Spontaneous ignition temperature, 680° F (360° C).
- E. Frame material ASTM D 2565: Accelerated weathering tests: Exposure Time 2900 hours.
 1. ASTM D 638: Tensile properties, retained 88 percent tensile strength, 91 percent elongation.
 2. ASTM D 790: Flex modulus, retained 113 percent flexure modulus.
 3. ASTM D 4803: Heat build-up, 98 minutes to equilibrium.
- F. ASTM D 4226: Impact resistance at 23 degrees C, 74 in-lbs (0.60 in-lbs/mil), passed.
- G. ASTM D 746: Brittleness at minus 40 degrees C, passed.
- H. ASTM G 1970 - Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection.

1.5 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 1. Preparation instructions and recommendations.
 2. Storage and handling requirements and recommendations.
 3. Installation methods.
- C. Shop Drawings: Indicate configurations, dimensions, locations, fastening methods, and installation details.
- D. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.
- E. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum five years documented experience.
- B. Installer Qualifications: Company specializing in installing products similar to those specified in this section with minimum five years documented experience.
- C. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
 1. Finish areas designated by Architect.
 2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
 3. Refinish mock-up area as required to produce acceptable work.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Store and dispose of solvent-based materials, and materials used with solvent based materials, in accordance with requirements of local authorities having jurisdiction.

1.8 SEQUENCING

- A. Ensure that locating curbs and other information required for installation of products of this section are furnished to affected trades in time to prevent interruption of construction progress.

- B. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

1.9 PROJECT CONDITIONS

- A. 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 absolute limits.

1.10 WARRANTY

- A. Units: 20 year Limited Warranty on the complete system.
- B. Commercial Acrylic Units: 10 Year Limited Warranty.

PART 2— PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: VTECH Industries, which is located at: 5534 Harvey Wilson Dr, Houston, TX 77020; Toll Free: 866-491-0853; Email: sales@vtechindustries.com; Web: www.vtechindustries.com
- B. Substitutions: Not permitted.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01600.

2.2 SEAMLESS SELF-FLASHING SKYLIGHT UNIT

- A. General Description: Seamless Self-Flashing Skylight:
 - 1. Skylights: Seamless Self-Flashing Model SSF.
 - a. Size: 2 feet by 2 feet (305 mm by 305 mm).
 - 1) Rough Opening 22.5 inches by 22.5 inches (572 mm by 572 mm).
 - 2) Finished Opening 21.5 inches by 21.5 inches (546 mm by 546 mm).
 - 3) Fits on Center Spacing 24 inches (610 mm).
 - b. Size: 2 feet by 4 feet (610 mm by 1219 mm).
 - 1) Rough Opening 22.5 inches by 46.5 inches (572 mm by 1181 mm).
 - 2) Finished Opening 21.5 inches by 45.5 inches (1174 mm by 1156 mm).
 - 3) Fits on Center Spacing 24 inches (610 mm).
 - c. Size: 3 feet by 3 feet (914 mm by 914 mm).
 - 1) Rough Opening 30.5 inches by 30.5 inches (775 mm by 775 mm).
 - 2) Finished Opening 29.5 inches by 29.5 inches (749 mm by 749 mm).
 - 3) Fits on Center Spacing 16 inches (406 mm).
 - 2. Glass Selections:
 - a. Safety: LoE, Argon Filled Tempered Glass, No Lamination.
 - b. Storm: LoE, Argon Filled Tempered Glass with 0.030 inch Lamination.
 - c. Hurricane: LoE, Argon Filled Tempered Glass with 0.120 inch Lamination.
 - 3. Frame Finish: Aliphatic Polyurethane, color as follows:
 - a. Black.

2.3 CURB MOUNTED SKYLIGHT

- A. General Description: Curb mounted Cap Skylight Unit:
 - 1. Skylights: Curb-Mounted Cap Model CMC.
 - a. Size: 2 feet by 2 feet (305 mm by 305 mm).
 - 1) Rough Opening 22.5 inches by 22.5 inches (572 mm by 572 mm).
 - 2) Finished Opening 21.5 inches by 21.5 inches (546 mm by 546 mm).
 - 3) Curb Maximum Outside Dimension 26.25 inches by 26.25 inches (667 mm by 667 mm).
 - 4) Finished Framing Dimension 24 inches (610 mm).

- b. Size: Size: 2 feet by 4 feet (610 mm by 1219 mm).
 - 1) Rough Opening 22.5 inches by 46.25 inches (572 mm by 1200 mm).
 - 2) Finished Opening 21.5 inches by 45.5 inches (546 mm by 1156 mm).
 - 3) Curb Maximum Outside Dimension 26.25 inches by 50.25 inches (667 mm by 1276 mm).
 - 4) Finished Framing Dimension 24 inches (610 mm).
 - c. Size: 3 feet by 3 feet (914 mm by 914 mm).
 - 1) Rough Opening 30.5 inches by 30.5 inches (775 mm by 775 mm).
 - 2) Finished Opening 29.5 inches by 29.5 inches (749 mm by 749 mm).
 - 3) Curb Maximum Outside Dimension 34.25 inches by 34.25 inches (870 mm by 870 mm).
 - 4) Finished Framing Dimension 16 inches (406 mm)
 - d. Size: 4 feet by 4 feet (1219 mm by 1219 mm).
 - 1) Rough Opening 46.25 inches by 46.25 inches (1200 mm by 1200 mm).
 - 2) Finished Opening 45.5 inches by 45.5 inches (1156 mm by 1156 mm).
 - 3) Curb Maximum Outside Dimension 50.25 inches by 50.25 inches (1276 mm by 1276 mm).
 - 4) Finished Framing Dimension 16 inches (406 mm) or 24 inches (610 mm)
- 2. Glass Selections:
 - a. Safety: LoE, Argon Filled Tempered Glass, No Lamination.
 - b. Storm: LoE, Argon Filled Tempered Glass with 0.030 inch Lamination.
 - c. Hurricane: LoE, Argon Filled Tempered Glass with 0.120 inch Lamination.
 - 3. Frame Finish: Aliphatic Polyurethane, color as follows:
 - a. Black.

2.4 ACCESSORIES

- A. Anchorage Devices: Type recommended by manufacturer.
- B. Flashing: Under layment membrane, self-adhesive, self-sealing and self-healing and meet ASTM D1970.
- C. Sealant: Manufacturer's recommended sealants integral with each unit skylight installation.

2.5 FABRICATION

- A. Factory-assembled unit consisting of glass or acrylic glazing encapsulated with an aliphatic polyurethane frame material incorporated into an integral curb with self-contained roof flashing flanges
- B. Factory-assembled unit consisting of glass or acrylic glazing encapsulated with an aliphatic polyurethane frame material designed to mount on separate curb and flashing.
- C. Fabricate free of visual distortion and defects.
- D. Fabricate to achieve leakproof and weathertight assemblies.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until openings, curbs and substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Seamless Self-Flashing Model.
 - 1. Apply 24 inch (610 mm) wide strips of self-adhering roofing under layment membrane around perimeter of skylight opening.
 - a. Begin by installing the first strip at bottom edge of opening.
 - b. Next, install the 2 side strips of membrane, overlapping the bottom strip.

- c. Finally, install the top strip of membrane, overlapping the side strips.
 - d. Install four alignment posts, supplied in the VTECH Installation Kit, at each corner of opening using screws. Extend Alignment Posts a minimum of 2 inches (51 mm) above roof surface.
2. Apply two 1 inch (25.5 mm) wide beads of polyurethane mastic, supplied in the VTECH Installation Kit, around outside edge of opening.
 - a. Be sure to keep mastic approximately 3/4 inch (19 mm) from the inside edge to prevent squeezing out when the skylight is set.
 3. Place skylight over the opening using the Alignment Posts to center the skylight.
 - a. Make sure the end with the pre-marked anchor points is on top and press firmly into place.
 - b. Make sure that the bottom flange of skylight is on top of the roofing material.
 4. Secure skylight to the roof deck with screws provided in the VTECH Installation Kit.
 - a. Install all screws at all pre-marked anchor points on the skylight apron.
 5. Apply a 14 inch (356 mm) minimum wide strip of self-adhering roofing under layment membrane on top of skylight apron.
 - a. Install the two side strips of membrane making sure to extend on to the roofing material.
 - b. Install the top strip of membrane overlapping the side strips.
 6. Finish installing roofing material along the sides and across the top of the skylight.
- C. Curb-Mounted Model:
1. Build curb to the height necessary to meet local building codes. Waterproof the curb completely with self-adhering roofing under layment membrane.
 - a. Begin by installing the first strip at bottom and extend up to the top of the curb.
 - b. Next, install the two side strips, extending up to the top of the curb and overlapping the bottom strip.
 - c. Install the top strip, extending up to the top of the curb and overlapping the side strips.
 2. Flash the curb.
 - a. Install the Base Flashing at the bottom of the curb.
 - b. Install Step-Flashing on each side of the curb overlapping the base flashing.
 - c. Install the Base Flashing at the top of the curb overlapping the step flashing on each side of the curb.
 3. Apply a 1 inch (25.5 mm) bead of polyurethane mastic (supplied in the VTECH Installation Kit), to the top of the curb. Position the bead on the outer perimeter of the curb.
 4. Set skylight on the curb and press firmly into place.
 5. Secure skylight to the curb with screws provided in the installation kit. Install all screws at the pre-marked anchor points on the skylight.
 6. Should there be a gap 3/8 inch to 1/2 inch (9.5 mm to 12.5 mm) between the skylight and the curb, a shim made of pressure treated wood may be inserted in the gap, prior to installing the anchor screws. The shim length must be equal to the inside length of the skylight.
- D. Remove labels and protective material from surfaces.
- E. Wash down exposed surfaces; wipe surfaces clean.
- F. Remove excess sealant.
- G. Only waterproof and weathertight assemblies will be acceptable.

3.4 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION