VELUX America Inc.
SPECIFICATION FOR MODEL VSE
ELECTRIC VENTILATING SKYLIGHT

SECTION 08610
WOOD WINDOWS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Production fabricated wood, electrically operated ventilating skylight with exterior maintenance free cladding with electrically operated accessories as indicated on window schedule.

1.02 REFERENCE STANDARDS

A. ANSI/ASTM E 283 - Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors.

B. ANSI/ASTM E 330 - Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.

C. ANSI/ASTM E 331 - Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Static Air Pressure Difference.

D. AAMA/WDMA 1600/IS7 - Voluntary Specifications for Skylights.

E. ANSI/ASTM E 1996 □ Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors, and Storm Shutters Impacted by Windborne Debris in Hurricanes. (impact glazing only)

F. National Evaluation Service Committee Report No. NER-216

G. National Fenestration Rating Council, NFRC 100, Procedure for Determining Fenestration Product U-factors.

H. National Fenestration Rating Council, NFRC 200, Procedure for Determining Fenestration Product Solar Heat Gain Coefficients at Normal Incidence.

I. National Fenestration Rating Council, NFRC 300, Procedures for Determining Solar Optical Properties of Simple Fenestration Products.

J. Occupational Safety & Health Administration, OSHA (Standards □ 29 CFE 1910.23, Guarding Floor Openings and Holes.

K. Underwriters Laboratories Inc., UL 325, Standard for Door, Drapery, Gate, Louver and Window Operators and Systems, Fourth Edition.

1.03 QUALITY ASSURANCE

A. Wood venting skylight with exterior maintenance free cladding and all accessories and components required for complete and weatherproof installation shall be manufactured to the highest standards of quality and craftsmanship in accordance with VELUX Manufacturing Standards.

1.04 SYSTEM DESCRIPTION

A. Skylight: Wood frame and sash, exterior maintenance free cladding, production fabricated flashings, glass and glazings, and anchorage.

B. Configuration: Outward opening, top hinged, production-installed electric chain operator. Sash removable for installation.

C. Operation: Sash and optional accessories are operated using a remote control. Wiring for optional sunscreen and awning accessories are integral to skylight and require no external field wiring.

1.05 PERFORMANCE REQUIREMENTS

A. Model VSE electrically operated venting skylight to withstand dead and live loads caused by pressure and uplift of wind acting normal to plane of roof as tested in accordance with National Evaluation Services, Inc. to a design pressure of 575 □ 8714 Pa (12-182 psf) and an uplift pressure of 1053 □ 4597 Pa (22-96 psf) as measured in accordance with AAMA/WDMA 1600/IS7 and ANSI/ASTM E 330.

B. Limit member deflection to flexure limit of glass with full recovery of glazing materials.

C. System to accommodate, without damage to components or deterioration of seals, movement between sash and frame and perimeter framing.

D. Air leakage through assembly limited to 0.86 l/s/m² (0.17 CFM/ft²) of total unit area, measured at a reference differential pressure across assembly of 75 Pa (1.57 psf) as measured in accordance with AAMA/WDMA 1600/IS7 and ANSI/ASTM E 283.

E. Water infiltration: No water penetration noted when measured in accordance with AAMA/WDMA 1600/IS7 and ANSI/ASTM E 331 with a test pressure differential of 140 Pa (2.86 psf).

F. Gasketing designed to drain water entering joints, condensation occurring in glazing channel, or migrating moisture occurring within system, to exterior by drainage network.

G. Model VSE skylight shall be certified as meeting UL 325.

H. Thermal Performance: Tested and certified in accordance with NFRC 100 and 200 procedures.

I. Model VSE with impact glazing (0099 69): Tested and certified in accordance with ANSI/ASTM E 1886 and ANSI/ASTM E 1996-01.

1.06 SUBMITTALS

A. Manufacturer□s unit dimensions, rough opening, and finished framing dimensions, affected related work, and installation requirements are shown in manufacturer's installation instructions.

B. Product Data: For Model VSE electrically operated ventilating skylight, glazing options and electrically operated accessories are indicated in manufacturer's printed material.

1.07 DELIVERY, HANDLING, STORAGE

A. Deliver products in manufacturer's original containers, dry, undamaged, seals and labels intact.

B. Store and protect products in accordance with manufacturer's recommendations.

PART 2 PRODUCTS

2.01 MANUFACTURER

A. VELUX America Inc. product Model VSE electrically operated ventilating skylight and flashing systems as specified in this section and as manufactured by VELUX America Inc.

2.02 MATERIALS

A. Wood: Kiln-dried, laminated Nordic Pine (Specific Gravity 0.51), temporarily treated for mold and mildew for transparent or opaque interior finish applied after installation.

B. Maintenance free exterior cladding: Roll formed 0.65 mm aluminum frame coverings, 0.57 mm aluminum sash coverings, 0.55 mm copper frame coverings, 0.50 copper sash coverings prefinished, production engineered, and fabricated to fit exterior exposed surfaces (Alloy AA 3003 H12 and AA 3003 H16).

C. Fasteners: #8 x 1□wood screw, Phillips recess, washer headed, full threaded, black lacquered stainless steel for exterior aluminum cladding. Number 8 x ½□pan head, Phillips recess, stainless steel with black lacquer for top covers.

2.03 COMPONENTS

A. Weather stripping: Factory applied neoprene weather stripping throughout entire frame and sash, profiled to effect weather seal.

B. Screen: Aluminum screen profile, spring metal clip attachment, 0.28 mm glass fiber thread with PVC coating, charcoal in color.

C. Fittings: Surface treatment with electro-galvanized, chromate passivated yellow.

D. Mounting brackets: Factory installed stamped steel, surface treatment electro-galvanized, chromate passivated yellow.

E. Fasteners: #8 x 1 3/16□wood screws, Phillips recess, countersunk, yellow passivated chromate steel for mounting bracket attachment to frame, two per bracket. 1¼□galvanized, ring shank drive fasteners for attachment to roof deck, three per bracket.

2.04 GLASS AND GLAZING MATERIALS

A. Standard 16 mm (5/8") overall dual sealed insulated glass unit with 11.1 mm (0.437") air space. Stainless steel spacer with desiccant, primary seal polyisobutylene, secondary seal silicone.

B. Gasketing: Each I.G. unit dry glazed with chloroprene gasket, no sealants.

C. Description of glazing options:

Type 74 Laminated Low-E Gas Filled: Exterior lite 3 mm (1/8") clear tempered with Low-E^2 coating on surface #2, 11.1 mm (0.44□) air space filled with argon gas, interior lite two plies of 2.3 mm (0.090□) heat-strengthened laminated with 0.76 mm (0.030□) vinyl interlayer.

Type 75 Low-E Gas Filled: Two lites 3 mm (1/8") clear tempered with 11.1 mm (0.44") airspace filled with argon gas. Low-E^2 coating is applied to surface #2.

Type 0099 10 (Snowload Glazing) Laminated Low-E Gas Filled: Exterior lite 3 mm (1/8") clear tempered with Low-E^2 coating on surface #2, 11.1 mm (0.44") air space filled with argon gas, interior lite two plies of 3 mm (1/8") tempered laminated with 0.76 mm (0.030") vinyl interlayer.

Type 0099 23 (White Laminated) Laminated Low-E Gas Filled: Exterior lite 3 mm (1/8") clear tempered with Low-E^2 coating on surface #2, 11.1 mm (0.44") air space filled with argon gas, interior lite two plies of 2.3 mm (0.090") heat-strengthened laminated with 0.76 mm (0.030") white vinyl interlayer.

Type 0099 69 (Impact Glazing) Laminated Low-E Gas Filled: Exterior lite 3 mm (1/8") clear tempered with Low-E^2 coating on surface #2, 11.1 mm (0.44") air space filled with argon gas, interior lite two plies of 2.3 mm (0.090") heat-strengthened laminated with 2.3 mm (0.090") vinyl interlayer.

2.05 HARDWARE

A. Sash: Top hinged, hinges allow for sash removal.

B. Electric chain operator: Consisting of factory installed and wired transformer, low voltage circuitry, and motor drive system with stainless steel chain. The chain is fitted to the sash with clip, pin, and limit stops; removable pins allow for sash separation. Two integral rain sensors are provided in the electric chain operator automatically close the sash when exposed to factory adjusted moisture levels.

2.06 FLASHING

A. Type EDL Flashing is a prefabricated step flashing system, designed for use with roofing materials less than 3/4" thick and for slopes of 15 degrees to 85 degrees.

B. Type EDW Flashing is a prefabricated gutter flashing system designed for use with roofing material greater than 3/4" thick, or high profile material, and for roof slopes of 15 degrees to 85 degrees. Sill flashing section consists of corrugated apron to allow form fit of high profile material.

C. Type EDM Flashing is a prefabricated flashing system designed for use with metal roofing materials and for roof slopes of 15 degrees to 85 degrees. Sill flashing section consists of corrugated apron to allow form fit of roofing material profile.

D. Type ECX/EMX Curb Flashings are flashing systems designed for use on flat and low-pitched roof slopes of 0 degrees to 15 degrees. The ECX/EMX curb flashings should be used with rolled roofing.

2.07 FABRICATION

A. Fabricate frame with slip joint/lock corners glued and nailed for hairline, weather tight fit.

B. Fabricate frame components within minimum tolerances enabling installation and movement of sash and dynamic movement of perimeter weather stripping.

C. Permit external drainage channels to migrate moisture to exterior. Provide internal drainage of glazing spaces to exterior through gasketing.

D. Assemble insect screen of rolled aluminum rectangular sections. Sections are square cut and assembled using square corner keys. Fit mesh taut and secure with vinyl spline.

E. All units factory glazed with chloroprene gasketing.

2.08 FINISHES

A. Exterior surfaces: Exposed exterior wood surfaces to be covered with roll formed maintenance free cladding pieces. Aluminum has umber gray, Kynar® 500 polyvinylidene fluoride resin finish. Copper is roll formed, mill finish.

C. Maintenance free flashing: Roll formed aluminum, umber gray, baked on polyester polyamid primer and finish coats. Copper is roll formed, mill finish.

D. Interior surface: All exposed interior wood surfaces to be clear unfinished wood.

E. Screens: Frames - light gray, mesh charcoal.

F. Operator - concealed beneath light gray covers.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify rough opening dimensions and proper orientation of skylight.

3.02 INSTALLATION

A. Install skylight in accordance with manufacturer's installation instructions.

B. Align skylight level, free of warp or twist; maintain dimensional tolerances.

C. Attach skylight to roof sheathing with manufacturer's brackets with screws and nails to accommodate construction tolerances and other irregularities.

D. Provide thermal isolation when components penetrate or disrupt building insulation. Pack fibrous insulation in rough opening to maintain continuity of thermal barriers.

E. Coordinate attachment and seal of perimeter air and vapor barrier material.

F. Install sash and connect operator.

G. Install manufacturer's engineered perimeter flashing in accordance with manufacturer's installation instructions to achieve weather tight installation.