SECTION 08620

UNIT SKYLIGHTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

A. This Section includes factory-assembled unit skylights for installation in flat roof areas.
   1. Type: Aluminum-framed hipped end skylights mounted on site-built curb.
   2. Glazing: Insulating glass.

B. Related Sections include the following:
   1. Division 6 Section "Rough Carpentry" for wood framing and blocking at unit skylights.
   2. Division 7 Section " Flashing and Sheet Metal" for flashing at unit skylights.
   3. Division 7 Section "Roof Accessories" for roof hatches.

1.03 PERFORMANCE REQUIREMENTS

A. Structural Loads: Provide unit skylights, including glazing and anchorage, complying with the requirements of the following code and capable of withstanding the effects of the following design loads:
   1. Building Code: International Building Code, 2003.
   2. Live Load: As indicated on structural drawings.
   3. Negative Pressure (Uplift) Load: 20 lbs/sq. ft.

B. Thermal Movements: Provide aluminum-framed systems that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures without causing any detrimental effects to the system or components. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
   1. Temperature Change (Range): 100 deg. F (37.8 deg C).

C. Independent Test Certification: Factory-assembled unit skylights shall be certified by an independent test lab to meet the following minimum criteria:
   1. Water Penetration Under Static Pressure: Provide aluminum-framed systems that do not evidence uncontrolled water penetration through fixed glazing and framing areas when tested according to ASTM E 331 at 15 lbf/sq. ft. (718 Pa).
   2. Air Infiltration: Provide aluminum-framed systems with maximum air leakage through fixed glazing and framing areas of 0.06 cfm/sq. ft. (0.03 L/s per sq. m) of fixed wall area when tested according to ASTM E 283 at a minimum static-air-pressure difference of 6.24 lbf/sq. ft. (300 Pa).
   3. Condensation Resistance: Provide aluminum-framed systems with fixed glazing and framing areas having condensation-resistance factor (CRF) of not less than 54 when tested according to AAMA 1503.
   4. Deflection: Maximum deflection of L/175 at 60 PSF when tested in accordance with ASTM E330, permanent set to be less than L/500.

1.04 SUBMITTALS

A. General: Submit in accordance with Section 01300.

B. Product Data: For unit skylights. Include construction details, material descriptions, dimensions of individual components and profiles, glazing light transmission values, thermal characteristics, and finishes.

C. Shop Drawings: For unit skylights. Include plans, elevations, sections, details, and attachments to other Work.

D. Certificates: Submit copies of certification of performance requirements as stated above.

1.05 QUALITY ASSURANCE

A. Source Limitations: Obtain factory-assembled unit skylights through one source from a single manufacturer.

1.06 WARRANTY

A. General: Special warranties specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and will be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.

B. Manufacturer's Special Warranty on Insulating Glass: Manufacturer's standard form, made out to Owner and signed by insulating-glass manufacturer agreeing to replace insulating-glass units that deteriorate as defined in "Definitions" Article, f.o.b. the nearest shipping point to Project site, within specified warranty period indicated below.
1. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Products: Classic Extended Pyramid Unit, C-PYH; Wasco Products, Inc.

2.02 UNIT SKYLIGHTS

A. General: Factory-assembled units that include glazing, extruded-aluminum glazing retainers, gaskets, and inner frames and that are capable of withstanding design loads indicated.

B. Site-Built Curb: As specified in Division 6 Section "Rough Carpentry."

C. Insulating Glass with Ceramic Frit: Clear, sealed units that comply with Division 8 Section "Glazing," in manufacturer's standard overall thickness.
1. Exterior Lite: 1/4-inch clear heat-strengthened glass with white ceramic frit silk-screened on No. 2 surface, standard dot pattern with 40% coverage.
a. Oldcastle Glass.
2. Interior Lite: Low-E laminated glass; 2 plies of 1/8-inch clear heat-strengthened glass with clear polyvinyl butyral interlayer as follows:
a. Outer Ply: 1/8-inch PPG Sungate 500 Low-E #3.
b. Interlayer: 0.060 inch Saflex Clear PVB.
c. Inner Ply: 1/8-inch clear.
3. Interspace Content: Argon.
4. Transmittance: 52% visible light. 33% solar energy.

D. Glazing Gaskets: Manufacturer's standard.

E. Aluminum Components:
1. Extruded Shapes: ASTM B 221, alloy and temper to suit structural and finish requirements but with not less than the strength and durability of alloy 6063-T6, minimum thickness of 0.109 inches (2.8 mm).
2. Exterior Retainer Bars: Extruded 6063-T5 aluminum, minimum thickness of 0.090 inches (2.3 mm).
3. Brackets and Reinforcements: Provide manufacturer's standard high-strength aluminum brackets and reinforcements. Provide nonstaining, nonferrous shims to install and align skylights.

4. Flashings and Closures: 1100-H14 aluminum, minimum thickness of 0.060 inches (1.5 mm).
5. Anodic Coating: Class I, clear anodic coating complying with AAMA 611.

F. Fasteners: Same metal as metal being fastened, nonmagnetic stainless steel, or other noncorrosive metal as recommended by manufacturer. Finish exposed fasteners to match material being fastened.
1. Where removal of exterior exposed fasteners might allow access to building, provide nonremovable fastener heads.
2. Provide stainless steel fasteners for retainer bars.

G. Condensation Control: Fabricate unit skylights with integral internal gutters and nonclogging weeps to collect and drain condensation to the exterior.

H. Thermal Break: Fabricate unit skylights with thermal barrier separating interior metal framing from materials exposed to outside temperature.

2.03 INSTALLATION MATERIALS

A. Bituminous Coating: SSPC-Paint 12, solvent-type, bituminous mastic, nominally free of sulfur and containing no asbestos fibers, formulated for 15-mil dry film thickness per coating.

B. Mastic Sealant: Polyisobutylene; nonhardening, nonskinning, nondrying, nonmigrating sealant.

C. Elastomeric Sealant: ASTM C 920; Type S; Grade NS; Class 25; and Uses NT, G, A, and (as applicable to joint substrates indicated) O; recommended by unit skylight manufacturer and compatible with joint surfaces.

D. Roofing Cement: ASTM D 4586, asbestos free, designed for trowel application or other adhesive compatible with roofing system.

2.04 FABRICATION

A. General: Factory fit and assemble (where practical), piece marked and shipped knocked down for final assemble at the jobsite.

B. Framing Members: Manufacturer's standard extruded-aluminum framing members of thickness required and reinforced as required to support imposed loads.
1. Pitch: 5:12.

C. Welding: Shall be by the heliarc process.

D. Frame Weep System: Properly located for drainage of condensation to exterior.

E. Retainer Bars: Attach with gasketed stainless steel fasteners spaced at 12 inches (300 mm) maximum.

F. Glazing: Provide extruded elastomeric setting blocks and spacers located and sized in accordance with the glazing manufacturer's recommendations. Prevent glazing from coming in contact with skylight frame or fasteners.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine substrates and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work.
1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

A. General: Comply with manufacturer's instructions and recommendations.

B. Coordinate unit skylight installation with installation of substrates, vapor retarders, roof insulation, roofing, and flashing as required to ensure that each element of the Work performs properly and that combined elements are waterproof and weathertight.
   1. Unless otherwise indicated, install unit skylights according to construction details of NRCA's "The NRCA Roofing and Waterproofing Manual."

C. Where metal surfaces of units will contact incompatible metal or corrosive substrates, including wood, apply bituminous coating on concealed metal surfaces, or provide other permanent separation recommended in writing by unit skylight manufacturer.

D. Anchor unit skylights securely to supporting substrates, adequate to withstand lateral and thermal stresses as well as inward and outward loading pressures.

E. Flange Seals: Except as otherwise indicated, set unit skylight flanges in thick bed of roofing cement to form a seal, unless otherwise indicated.

F. Cap Flashing: Where cap flashing is indicated, install to produce waterproof overlap with roofing or roof flashing (as counterflashing). Seal with thick bead of mastic sealant except where overlap is indicated to be left open for ventilation.

3.03 CLEANING

A. Clean exposed surfaces according to manufacturer's written instructions. Touch up damaged metal coatings.
   1. Operating Units: Clean and lubricate joints and hardware. Adjust for proper operation.

B. Clean and polish skylight units, inside and out, not more than 5 days prior to date of Substantial Completion.

END OF SECTION