

TEXAS DEPARTMENT OF INSURANCE

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PRODUCT EVALUATION SK-20

Effective August 1, 2013

The following product has been evaluated for compliance with the wind loads specified in the **International Residential Code (IRC)** and the **International Building Code (IBC)**. This product shall be subject to reevaluation **December 2014**.

This product evaluation is not an endorsement of this product or a recommendation that this product be used. The Texas Department of Insurance has not authorized the use of any information contained in the product evaluation for advertising, or other commercial or promotional purpose.

This product evaluation is intended for use by those individuals who are following the design wind load criteria in Chapter 3 of the IRC and Section 1609 of the IBC. The design loads determined for the building or structure shall not exceed the design load rating specified for the products shown in the limitations section of this product evaluation. This product evaluation does not relieve a Texas licensed engineer of his responsibilities as outlined in the Texas Insurance Code, the Texas Administrative Code and the Texas Engineering Practice Act.

Model 750 DS Daylighting System, Impact Resistant, manufactured by

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will be acceptable in designated catastrophe areas along the Texas Gulf Coast when installed in accordance with the manufacturer's installation instructions and this product evaluation.

PRODUCT DESCRIPTION

The Model 750 DS is a double dome tubular daylighting device (TDD). The TDD consists of a light transmitting outer dome, a smooth inner dome, an adjustable reflective tube, a diffuser assembly, and a roof mounted support flashing with an integral curb.

General Description:

Description	Label Rating
Model 750 DS Daylighting System	CW-PG70 (21" Dia – Type TDD Missile Level D DP +/- 70 psf, 21" Diameter

Product Dimensions:

Tube Inner Diameter: 20 $\frac{5}{8}$ "

	Inner Dome	Outer Dome
Size	22 $\frac{5}{8}$ "	23 $\frac{7}{8}$ "
Height	9 $\frac{1}{4}$ "	13 $\frac{1}{4}$ "
Thickness	0.168"	0.210"
Material	Polycarbonate	Acrylic by Cyro (ZK5) or Acrylic by Arkema (DR101)

Tube Ring: A tube ring is utilized to connect the top of the reflective tubing to the curb of the flashing and to secure the domes. The inner dome is placed on top of the tube ring. The dome ring, inner dome, and the exterior dome are attached to the flashing with three (3) No. 8 x 1 $\frac{5}{8}$ " sheet metal screws equally spaced on the perimeter through the outer dome, the inner dome, the tube ring, and a plastic insert. The screws are dipped in roofing sealant prior to installation. On both configurations, open ceiling and closed/hard ceiling applications, a butyl putty tape sealed the tube ring to the flashing.

Ceiling Ring / Diffuser Construction: The open ceiling diffuser assembly was constructed of an acrylic dress ring and a single glazed diffuser. The dress ring included four (4) equally spaced tabs on the inside perimeter which snapped into slots in the extension tube. The diffuser was exterior glazed onto the dress ring using a plastic welding solvent. The hard ceiling diffuser application consisted of a square diffuser assembly that measures 22 $\frac{3}{8}$ " x 22 $\frac{3}{8}$ " square and is constructed of an aluminum frame with all corners metered and attached with one (1) No. 6 x $\frac{5}{8}$ " screw at each end. A diffuser, with dimensions of 21 $\frac{1}{2}$ " x 21 $\frac{1}{2}$ " x $\frac{1}{16}$ " thick is exterior glazed onto double-sided adhesive tape at the frame perimeter. A clear circular lens is used at the top end of the round to square transition box in a retainer ring. The lens is exterior glazed onto a double-sided adhesive tape on the retainer ring and the ring is attached to the transition box with eight (8) equally spaced rotating tabs to secure the ring in place. The 23 $\frac{3}{8}$ " square to round acrylic transition adaptor is attached to the bottom of the daylight dimmer assembly with 2" wide foil tape. The dimmer assembly is attached to the reflective tube with foil tape. The diffuser is latched to the transition box using quarter turn aluminum locks which engage slots at the mid span of each side of the bottom square of the transition box.

Flashing Construction: The flashing is made of aluminized formed steel and has conical sides to create a curb 11" high with a circular mounting flange 33 $\frac{1}{2}$ " in diameter.

Product Identification: A certification program label (Keystone) will be affixed to the TDD. The certification program label includes the manufacturer's name; the product name: **Model 750 DS Daylighting System**; the CAR numbers (110-202; 110-110); performance characteristics, the approved inspection agency (Keystone); and the applicable standards: AAMA/WDMA/CSA 101/I.S.2/A440-05, ASTM E 1886-05, and ASTM E 1996-05.

LIMITATIONS

Design pressures:

System	Diameter	Design Pressures (psf)
1	21"	± 70

Impact Resistance: These TDD assemblies satisfy the Texas Department of Insurance's criteria for protection from windborne debris in both the **Inland I zone** and the **Seaward zone**. The TDD assemblies passed Missile Level D specified in ASTM E 1996-05. The TDD assemblies may be installed at any height on the structure as long as the design pressure rating for the assembly is not exceeded. These TDD assemblies will not need to be protected with an impact protective system.

Acceptance of Smaller Assemblies: TDD assemblies with dimensions equal to or smaller than those specified in this evaluation report are acceptable within the limitations specified in this report.

INSTALLATION INSTRUCTIONS

General Requirements: The TDD shall be installed in accordance with the manufacturer's installation instructions and this product evaluation report. Detailed installation instructions and drawings are available from the product manufacturer.

Installation: The TDD shall be secured to a minimum nominal $\frac{3}{4}$ " thick plywood roof deck. A 22 $\frac{1}{2}$ inch diameter hole is cut into the plywood deck. Avoid cutting roof framing members. Remove or loosen enough roof covering material along the perimeter of the roof hole to allow for the installation of the flashing. Apply a continuous $\frac{1}{2}$ " bead of roofing sealant to the underside of the flashing along the line of the screw holes. Turn the flashing upright and center over the roof hole. The metal non-pitch flashing is attached to the plywood roof deck with sixteen (16) No. 10 x 2" screws through equally spaced pre-drilled holes in the flashing. The fasteners shall be long enough to penetrate into and through the roof deck material. The TDD is assembled as described in this evaluation report and in the manufacturer's installation instructions.

Note: The manufacturer's installation instructions shall be available on the job site during installation. All fasteners shall be corrosion resistant as specified in the International Residential Code (IRC); the International Building Code (IBC); and the Texas Revisions.