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Product Evaluation Report *of*

Diversified Window Solutions, Inc.

Lite Kit Guard
for
Florida Product Approval
FL#

Report No. 1177

Florida Building Code 2007
Per Rule 9N-3

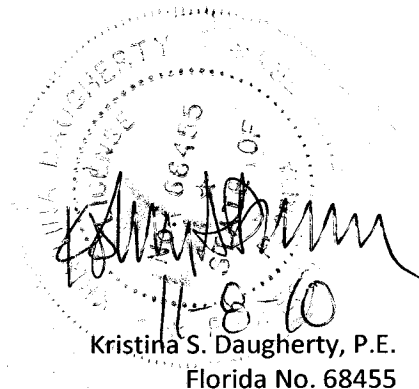
Method: 1 – D (Engineering Evaluation)
Category: Shutters
Sub – Category: Storm Panels

Product: *Lite Kit Guard*
Material: Aluminum 6063-T5
Product Dimensions: 36" x 96.25"

Prepared For:
Diversified Window Solutions, Inc.
215 Pineda St
Longwood, FL 32750

Prepared by:
Kristina S. Daugherty, P.E.
Florida Professional Engineer # 68455
Date: 11/03/2010

Contents:
Evaluation Report Pages 1 – 3
Additional Calculations Pages 4



Kristina S. Daugherty, P.E.
Florida No. 68455



Manufacturer: Diversified Window Solutions, Inc.
Product Category: Shutters
Product Sub-Category: Storm Panels
Compliance Method: State Product Approval Rule 9N-3.005 (1)(d)
Product Name: Lite Kit Guard
96.25" Maximum Height

Scope: This is a Product Evaluation Report issued by Kristina S. Daugherty, P.E. (FL # 68455) for **Diversified Window Solutions, Inc.** based on Rule Chapter No. 9N-3.005, Method 1d of the State of Florida Product Approval, Department of Community Affairs - Florida Building Commission.

Kristina S. Daugherty, P.E. does not have nor will acquire financial interest in the company manufacturing or distributing the product or in any other entity involved in the approval process of the product named herein.

This product has been evaluated for use in locations adhering to the 2007 Florida Building Code.

See Installation Instructions, signed and sealed by Kristina S. Daugherty, P.E. (FL # 68455) for specific use parameters.

Limits of Use:

1. This product has been evaluated and is in compliance with the 2007 Florida Building Code, excluding the "High Velocity Hurricane Zone" (HVHZ).
2. Product anchors shall be as listed and spaced as shown on details. Anchor embedment into substrate material shall be beyond wall dressing or stucco.
3. When used in areas requiring wind borne debris protection this product complies with Section 1609.1.2 of the 2007 Florida Building Code and does not require an impact resistant covering.
4. Site conditions that deviate from the details of drawing require further engineering analysis by a licensed engineer or registered architect.
5. See Installation Instructions, for size and design pressure limitations.

Kristina S. Daugherty, P.E.
Florida No. 68455



Quality Assurance:

The manufacturer has demonstrated compliance of window products in Accordance with the Florida Building Code and Rule 9N-3.005 (3) for manufacturing under a quality assurance program audited by an approved quality assurance entity through **National Accreditation and Management Institute** (FBC Organization #: QUA1789)

Performance Standards:

The product described herein has been tested per:

- ASTM E330
- ASTM E1886-02
- ASTM E1996-02
- TAS 201-94
- TAS 202-94
- TAS 203-94

Referenced Data:

1. Product Testing performed by **National Certified Testing Laboratory, Inc.**
(FBC Organization # TST1589)
Report #:NCTL-210-3057-2, Report Date: 7/14/04
2. Product Testing performed by **National Certified Testing Laboratory, Inc.**
(FBC Organization # TST1589)
Report #:NCTL-210-3057-2A, Report Date: 7/14/04
3. Quality Assurance
National Accreditation and Management Institute
(FBC Organization #QUA1789)

Kristina S. Daugherty, P.E.
Florida No. 68455
Page 3 of 3

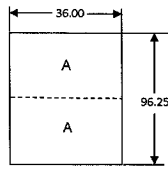


Product Evaluation Report

Diversified Window Solutions, Inc.
FBC-P-10-0934 Lite Kit Guard

Anchor Calculations : Lite Guard Kit

Design pressure: 60.0 psf



Window Total Area: 24.06

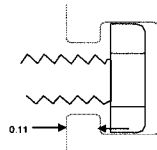
Zone	Area (ft ²)	Load (lbs)	Anchor	
			Qty	Load (lbs)
A1	12.0	721.9	7	103.1

Applicable Test Reports: NCTL-210-3057-2
NCTL-210-3057-2A
NCTL-210-3057-2B

(Window protective panels used to qualify door protective panels)

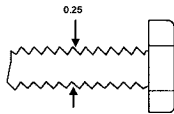
Key Load Calculations : Lite Guard Kit

Bolt Tear Out:



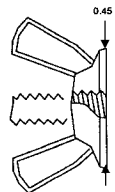
Tear-out Section Length: 0.699 in.
Extrusion Thickness: 0.11 in.
Allowable Shear: $0.4 \times (16600) \times (0.699 \times 0.11) = 510.5 \text{ lbs} > 103.1 \text{ OK}$

1/4-20 x 3/4" Bolt Tensile Strength:



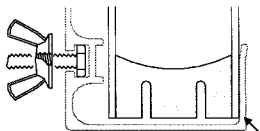
Material: 304 Stainless Steel
Root Thread Diameter: 0.185 in
Tensile Load: $0.25 \times (73200) \times (\pi \times (0.185^2 / 4)) = 492 \text{ lbs} > 103.1 \text{ OK}$

Steel Shutter Pull-Through:



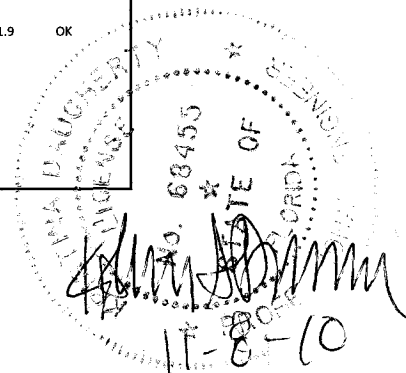
Material: Worst Case: A36 Steel
Wing Nut Diameter: 0.450 in
Shutter Thickness: 0.030 in
Section Length: $\pi \times d = 1.41 \text{ in}$
Working Load: $0.4 \times (36000) \times (1.41 \times 0.03) = 609.1 \text{ lbs} > 103.1 \text{ OK}$

Shear Limit of Frame Extrusion:



SHEAR POINT

Material: 6063-T5 Aluminum
Extrusion Thickness: 0.075 in.
Extrusion Length: 36 in.
Working Load: $0.4 \times (16600) \times (36 \times 0.075) = 17928 \text{ lbs} > 721.9 \text{ OK}$



Kristina S. Daugherty, P.E.
Florida No. 68455