



## National Slate Association

1014 West 36th Street  
Baltimore, MD 21211

866-256-2111

[www.slateassociation.org](http://www.slateassociation.org)

### OFFICERS COMMITTEE

John Chan

*President*

Brian Chalsma

*Senior Vice President*

Bob Pringle

*Vice President*

Dave Large

*Vice President*

Jeffrey Levine

*Immediate Past President*

Matt Millen

*Treasurer*

Tim Underhill

*Executive Director*

### BOARD MEMBERS

Alan Buhol

Dan Cornwell

Robert Fulmer

Clay Heald

Russ Watsky

Tom Stortz

March 31, 2016

*This Cover Letter Must Be Included With Any Distribution Of The Five Page PRI Construction Materials Technologies LLC Report Attached, And Is Considered Part Of The Report By The National Slate Association. The Report (Including The Cover Letter) Must Be Reproduced In Full. No Partial Reproduction or Distribution Is Permitted Without The Written Approval Of The National Slate Association.*

When referencing the report, please use the following citation: National Slate Association, "ASTM D3161/D3161M-15 Test Report," PRICMT Project No: NSA-002-02-01, Poultney, VT, December 8, 2015 (available at [www.slateassociation.org](http://www.slateassociation.org)).

ASTM D3161/D3161M-15 Test Report NSA-002-02-01 Standard Test Method for Wind-Resistance of Step Slope Roofing Products (Fan-Induced Method) dated December 8, 2015 is distributed by the National Slate Association for reference where the resistance to wind is a consideration in the selection of roof coverings.

The testing was conducted by PRI Construction Materials Technologies LLC of Tampa, Florida under contract to the National Slate Association, and was undertaken to independently establish the ability of North American produced, S-1 rated roofing slate to withstand elevated wind speeds without damage. Two panels were assembled with a representative range of colors from National Slate Association quarry members from the United States and Canada. Test panels were constructed to meet the \*minimum requirements of the National Slate Association's 2010 printing of the *Slate Roofs-Design and Installation Manual*.

Under the ASTM D3161/D3161M-15 testing conducted by PRI Construction Materials Technologies LLC, 1/4" thick, S-1 rated, North American produced roofing slate met the requirements of the highest Class F (110 mph) roofing product. In addition, both panels withstood increased wind speeds of 120, 130, 140 and 150 mph for 10 minute intervals as required under Section 4.1.1 of FM Approvals Class Number 4475 for steep slope roof covers and then an additional increase to 160 mph, the maximum capability of the test equipment. The Saffir Simpson Hurricane Wind Scale considers a Category 5 hurricane as having wind speeds in excess of 157 mph. For questions related to this test report, please contact the National Slate Association toll free at 866-256-2111 or email [mail@slateassociation.org](mailto:mail@slateassociation.org).

*\*Isolated "sidelaps" were inadvertently spaced below the recommended 3 inches when assembling the test panels and the minimum of 2 inches was recorded by the laboratory technician in the PRI report. As this dimension would place the test panels at a disadvantage, the National Slate Association maintains the position that the testing is valid for the minimum installation recommendations of the 2010 Design and Installation Manual.*



# CONSTRUCTION MATERIALS

---

## TECHNOLOGIES

### LABORATORY TEST RESULTS

**Report for:** National Slate Association  
P.O. Box 172  
Poultney, VT 05764

**Attention:** Mr. David Large

<b>Product Name(s):</b> Nominal 1/4" Slate Shingles	<b>Manufacturer:</b> Not provided
<b>Date(s) Received:</b> See Sampling Section	<b>Source:</b> See Sampling Section
<b>PRI-CMT Project No.:</b> NSA-002-02-01	<b>Date(s) Tested:</b> December 8, 2015

**Purpose:** Determine wind resistance performance for the specified roof covering in accordance with **ASTM D 3161/D 3161M-15: Standard Test Method for Wind-Resistance of Steep Slope Roofing Products (Fan-Induced Method)** at a wind velocity of 110mph.

At the conclusion of the 110 mph test interval, the client requested the test to be extended by ramping up the air velocity in 10 mph increments to a maximum 160 mph.

**Test Methods:** Testing was completed as described in ASTM D 3161-15 *Standard Test Method for Wind-Resistance of Steep Slope Roofing Products (Fan-Induced Method)*.

Testing was modified at the conclusion of the 2h sustained exposure of 110 mph. These additional air velocities were tested for a duration of 10 minutes each: 120 mph, 130 mph, 140 mph, 150 mph, and 160 mph.

**Sampling:** Nominal 1/4" slate shingles were provided from the National Slate Association. Slates shingles were nominal 1/4" thick x 18" long x various widths. Widths of 9", 10", 11", and 12" were provided.

NSA-002-02-01.1 PRI-CMT Accreditations: IAS TL-189; Miami-Dade 11-0429.05; Florida TST5878; Los Angeles TA24819; CRRC  
The test results, opinions, or interpretations are based on the material supplied by the client. This report is for the exclusive use of stated client. No reproduction or facsimile in any form can be made without the client's permission. This report shall not be reproduced except in full without the written approval of this laboratory. PRI Construction Materials Technologies LLC assumes no responsibility nor makes a performance or warranty statement for this material or products and processes containing this material in connection with this report.

**Specimen Detail:**

**Roof Covering:** The slates were installed using 0.134" x 1-3/4" copper nails placed in the premade holes of the slate. The premade holes 6" from the head of the shingle. The shingles were installed by leaving a 7-1/2" exposure and offsetting the vertical joints between adjacent courses a minimum of 2".

**Underlayment:** Two (2) layers of ASTM D 226 Type II roofing felt were installed with 12ga. 1-1/4" ring shank nails placed to hold the felt down, about 2" from the ends and 10" apart through the lap.

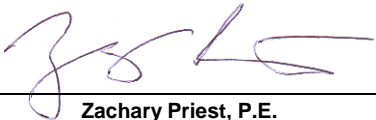
**Deck:** 5/8" APA Plywood nailed 6" o.c. at edges and 12" o.c. in field Joists installed 24" o.c.

**Result:** Testing was performed at 75±5°F and an 8:12 roof slope. Representative Test Photograph(s) are contained in Appendix B.

Property	Test Method	Results	Requirement
Wind Resistance [ <i>Pass/Fail</i> ]; 110±5 mph for 2h; 75±5°F; Slope 8:12	ASTM D 3161		
Specimen 1	110 mph (Class F)	Pass	Restrains full shingle and tab from lifting; No evidence of permanent damage post-testing
Specimen 2	110 mph (Class F)	Pass	
<i>Results of modified tested indicated below – duration for each interval was 10 minutes</i>			
Specimen 1	120 mph	Pass	Restrains full shingle and tab from lifting; No evidence of permanent damage post-testing
Specimen 2	120 mph	Pass	
Specimen 1	130 mph	Pass	Restrains full shingle and tab from lifting; No evidence of permanent damage post-testing
Specimen 2	130 mph	Pass	
Specimen 1	140 mph	Pass	Restrains full shingle and tab from lifting; No evidence of permanent damage post-testing
Specimen 2	140 mph	Pass	
Specimen 1	150 mph	Pass	Restrains full shingle and tab from lifting; No evidence of permanent damage post-testing
Specimen 2	150 mph	Pass	
Specimen 1	160 mph	Pass	Restrains full shingle and tab from lifting; No evidence of permanent damage post-testing
Specimen 2	160 mph	Pass	

NSA-002-02-01.1 PRI-CMT Accreditations: IAS TL-189; Miami-Dade 11-0429.05; Florida TST5878; Los Angeles TA24819; CRRC  
 The test results, opinions, or interpretations are based on the material supplied by the client. This report is for the exclusive use of stated client. No reproduction or facsimile in any form can be made without the client's permission. This report shall not be reproduced except in full without the written approval of this laboratory. PRI Construction Materials Technologies LLC assumes no responsibility nor makes a performance or warranty statement for this material or products and processes containing this material in connection with this report.

**Statement of Compliance:** The test specimens constructed and tested as described herein met the Class F requirements of ASTM D 3161-15: *Standard Test Method for Wind-Resistance of Steep Slope Roofing Products (Fan-Induced Method)*.

Signed:   
Zachary Priest, P.E.  
Director

**Report Issue History:**

Issue #	Date	Pages	Revision Description (if applicable)
Original	01/12/2016	5	NA
Rev 1	01/13/2016	5	Updated sample information

**APPENDIX FOLLOWS**

NSA-002-02-01.1 PRI-CMT Accreditations: IAS TL-189; Miami-Dade 11-0429.05; Florida TST5878; Los Angeles TA24819; CRRC  
The test results, opinions, or interpretations are based on the material supplied by the client. This report is for the exclusive use of stated client. No reproduction or facsimile in any form can be made without the client's permission. This report shall not be reproduced except in full without the written approval of this laboratory. PRI Construction Materials Technologies LLC assumes no responsibility nor makes a performance or warranty statement for this material or products and processes containing this material in connection with this report.

**Appendix A:** Photographs of slates used in construction of the test specimens



NSA-002-02-01.1 PRI-CMT Accreditations: IAS TL-189; Miami-Dade 11-0429.05; Florida TST5878; Los Angeles TA24819; CRRC  
The test results, opinions, or interpretations are based on the material supplied by the client. This report is for the exclusive use of stated client. No reproduction or facsimile in any form can be made without the client's permission. This report shall not be reproduced except in full without the written approval of this laboratory. PRI Construction Materials Technologies LLC assumes no responsibility nor makes a performance or warranty statement for this material or products and processes containing this material in connection with this report.



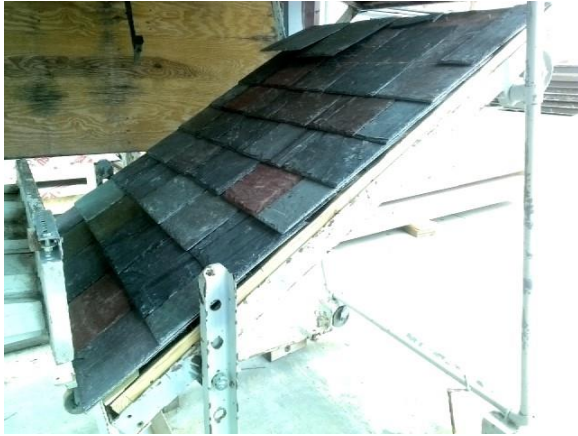
**Appendix B:** Representative Test Photographs (Note – the top row is not a representative course under study)



Deck #1 At Start of 110 mph



Deck #2 Before Start



Deck #1: End of 110 mph



Deck #2: End of 110 mph



Deck #1: At End of Testing (160 mph)



Deck #2: At End of Testing (160 mph)

**END OF REPORT**

NSA-002-02-01.1 PRI-CMT Accreditations: IAS TL-189; Miami-Dade 11-0429.05; Florida TST5878; Los Angeles TA24819; CRRC  
The test results, opinions, or interpretations are based on the material supplied by the client. This report is for the exclusive use of stated client. No reproduction or facsimile in any form can be made without the client's permission. This report shall not be reproduced except in full without the written approval of this laboratory. PRI Construction Materials Technologies LLC assumes no responsibility nor makes a performance or warranty statement for this material or products and processes containing this material in connection with this report.