National Slate Association
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May 3, 2016

This Cover Letter Must Be Included With Any Distribution Of The Five Page ANSI/UL790 (ASTM E108) 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/National Roofing Contractors Association, ANSI/UL790 (ASTM E108) Test Report, Project No: 10CA23622, Poultney, VT, July 8, 2010 (available at www.slateassociation.org).

ANSI/UL790 (ASTM E108) Test Report Project Number 10CA23622 dated July 8, 2010 is distributed by the National Slate Association for reference where the resistance to fire is a consideration in the selection of roof coverings.

The testing was conducted by Underwriters Laboratories of Northbrook, Illinois under contract to the National Roofing Contractors Association and in co-operation with the National Slate Association. Testing was undertaken to independently re-establish the ability of North American produced, S-1 rated roofing slate to meet the requirements of a Class A fire rated roof system under current IBC codes. A test panel was assembled with a representative range of slate colors from National Slate Association quarry members from the United States and Canada. The test panel was constructed to meet the requirements of Section 6 of ASTM E108 Standard Test Methods for Fire Tests of Roof Coverings.

Under the required Intermittent Flame Test and Burning Brand Test conducted by Underwriters Laboratories, ¼" thick, S-1 rated, North American produced roofing slate met the requirements of a Fire Class A roof covering when laid over ASTM D226 underlayment on a combustible roof deck.

For questions related to this test report, please contact the National Slate Association toll free at 866-256-2111 or email mail@slateassociation.org.

BURNING BRAND TEST -ANSI /UL790 (Eighth Edition)

Project:	10CA23622	File:	R20610	TestCode:	07081002
Tested by:	PASTOR	Engineer:	RHODES	Date:	07/08/10
Employee #:	14333		44947		

The test deck was constructed in accordance with paragraph 4.2
The roof covering material was applied in accordance with paragraph 4.4
The test sample was conditioned in accordance with paragraph 4.5

BURNING BRAND TEST -ANSI /UL790 (Eighth Edition)

Client Name:	NRCA			Brand Weight (g):	1950
System No.	1	Test No.:	2	Deck Thickness (in):	1
Class:	A	Slope (in/ft):	5	Ambient Temp (°F):	86

System Description:
30 underlayment
Slate shingles over 1/2 inch plywood decks

Underside Activity

First Smoke (Hr:Min:Sec)	First Asphalt Drip (Hr:Min:Sec)	First Glow (Hr:Min:Sec)	Flames On Underside (Hr:Min:Sec)
00:05:15	00:24:15	NA	None

Test Observations:

00:00:50 Surface flames above top of brand
00:03:07 Surface flames 1/2 foot above top of brand
00:05:15 Smoke on underside at Horizontal Joint
00:05:40 Brand 25% consumed
00:09:27 Brand 50% consumed
00:09:35 smoke stopped
00:13:56 Brand 75% consumed
00:15:09 Surface flames 1/2 foot above top of brand
00:15:10 Surface flames 0 feet above top of brand
00:16:44 Surface flames 0 feet above top of brand
00:17:28 Brand 100% consumed
00:19:42 Discoloration on underside at plywood joint
00:21:49 Smoke continues on underside
00:24:15 Asphalt drip on underside at Horizontal Joint
00:35:36 All action ceased, test terminated.

Char Depth (inches): 1/2 Test Duration (Hr:Min:Sec): 00:35:36

Summary of Results:

No portion of the roof covering material was blown or fell off the test deck in the form of flaming / glowing brands.
The roof deck was not exposed by breaking, sliding, cracking, or warping of the roof covering.
No portions of the roof deck fell away in the form of glowing particles.
There was no sustained flaming of the underside of the deck.

Pass/Fail: PASS

Department 3019FPD Instrument Calibration Tracking

Data current at 10:52:45 on 2010-07-08

Procedure - UL790

File No.: R20610 Assignment No.: 10CA23622
Client : NRCA Test No.: 2

Instrument	Last cal	Next cal	Verification date/time	Verified by

Test apparatus (fire) was calibrated on 2010-07-08
Test apparatus (wind) was calibrated on 2010-07-08
Instruments used during test apparatus calibration:

97F04DAS / 21095	2010-05-04	2011-05-31	2010-07-08 07:06:55	auto
15FE5AVM / 20303	2010-02-19	2011-02-28	2010-07-08 07:04:39	auto
16F01IC / 21096	2010-05-04	2011-05-31	2010-07-08 07:06:55	auto
83F01CLK / 20562	2010-05-04	2011-05-31	2010-07-08 07:04:39	auto
91F04CLK / 31457	2010-05-04	2011-05-31	2010-07-08 07:06:55	auto
0221080001 / 57135	2008-02-25	2010-02-28	<No Value>	<No Value> auto
190F07MD / 45863	2010-07-06	2011-07-31	2010-07-08 07:06:56	auto
199F08MD / 45792	2009-10-08	2010-10-31	2010-07-08 07:06:56	auto
97F04DAS / 21095	2010-05-04	2011-05-31	2010-07-08 07:06:55	auto
91F04CLK / 31457	2010-05-04	2011-05-31	2010-07-08 07:06:55	auto

Test was conducted on 2010-07-08.
Instruments used during test operation:

83F01CLK / 20562	2010-05-04	2011-05-31	2010-07-08 10:09:54	auto
51F99SCL / 21857	2010-03-17	2011-03-31	2010-07-08 10:09:54	auto
190F07MD / 45863	2010-07-06	2011-07-31	2010-07-08 10:09:54	auto
199F08MD / 45792	2009-10-08	2010-10-31	2010-07-08 10:09:54	auto

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INTERMITTENT FLAME TEST -ANSI /UL790 (Eighth Edition)

Project:	10CA23622	File:	R20610	TestCode:	07081001
Tested by:	PASTOR	Engineer:	RHODES	Date:	07/08/10
Employee #:	14333		44947		Page 1 of 2

The test deck was constructed in accordance with paragraph 4.2
The roof covering material was applied in accordance with paragraph 4.4
The test sample was conditioned in accordance with paragraph 4.5

Client Name:	NRCA				
System No.	1	Test No.:	1	Deck Thickness (in):	1
Class:	A	Slope (in/ft):	5	Ambient Temp (°F):	82

System Description:
30 underlayment
Slate shingles over 1/2 inch plywood decks

Underside Activity

First Smoke (Hr:Min:Sec)	First Asphalt Drip (Hr:Min:Sec)	First Glow (Hr:Min:Sec)	Flames On Underside (Hr:Min:Sec)
NA	NA	NA	NA

Surface Flames

Cycle	Test Time (Minutes)	Ignition (Min:Sec)	Flames Out (Min:Sec)	Max. flame Travel (feet)
1	0 - 4	N/A	None	
2	4 - 8	N/A	None	
3	8 - 12	N/A	None	
4	12 - 16	N/A	None	
5	16 - 20	N/A	None	
6	20 - 24	N/A	None	
7	24 - 28	N/A	None	
8	28 - 32	N/A	None	
9	32 - 36	N/A	None	
10	36 - 40	N/A	None	
11	40 - 44	N/A	None	
12	44 - 48	N/A	None	
13	48 - 52	N/A	None	
14	52 - 56	N/A	None	
15	56 - 60	None	N/A	None

INTERMITTENT FLAME TEST -ANSI /UL790 (Eighth Edition)

Project:	10CA23622	File:	R20610	TestCode:	07081001
Tested by:	PASTOR	Engineer:	RHODES	Date:	07/08/10
Employee #:	14333		44947		Page 2 of 2

Client Name:	NRCA				
System No.	1	Test No.:	1	Deck Thickness (in):	1
Class:	A	Slope (in/ft):	5	Ambient Temp (°F):	82

System Description:
30 underlayment
Slate shingles over 1/2 inch plywood decks

Test Observations:

Char Depth (inches): 1/2
Test Duration (Hr:Min:Sec): 00:58:28

Summary of Results:

No portion of the roof covering material was blown or fell off the test deck in the form of flaming / glowing brands.

The roof deck was not exposed by breaking, sliding, cracking, or warping of the roof covering.

No portions of the roof deck fell away in the form of glowing particles.

There was no sustained flaming of the underside of the deck.

Pass/Fail: PASS

Only those products bearing the UL Mark should be considered as being covered by UL.

Department 3019FPD Instrument Calibration Tracking

Data current at 09:52:23 on 2010-07-08

Procedure - UL790

File No.: R20610 Assignment No.: 10CA23622
Client : NRCA Test No.: 1

Instrument	Last cal	Next cal	Verification date/time	Verified by
Test apparatus (fire) was calibrated on 2010-07-08				
Test apparatus (wind) was calibrated on 2010-07-08				
Instruments used during test apparatus calibration:				
97F04DAS / 21095	2010-05-04	2011-05-31	2010-07-08 07:06:55	auto
15FE5AVM / 20303	2010-02-19	2011-02-28	2010-07-08 07:04:39	auto
16F01IC / 21096	2010-05-04	2011-05-31	2010-07-08 07:06:55	auto
83F01CLK / 20562	2010-05-04	2011-05-31	2010-07-08 07:04:39	auto
91F04CLK / 31457	2010-05-04	2011-05-31	2010-07-08 07:06:55	auto
0221080001 / 57135	2008-02-25	2010-02-28	<No Value>	<No Value> auto
190F07MD / 45863	2010-07-06	2011-07-31	2010-07-08 07:06:56	auto
199F08MD / 45792	2009-10-08	2010-10-31	2010-07-08 07:06:56	auto
97F04DAS / 21095	2010-05-04	2011-05-31	2010-07-08 07:06:55	auto
16F01IC / 21096	2010-05-04	2011-05-31	2010-07-08 07:06:55	auto
91F04CLK / 31457	2010-05-04	2011-05-31	2010-07-08 07:06:55	auto
0221080001 / 57135	2008-02-25	2010-02-28	<No Value>	<No Value> auto
190F07MD / 45863	2010-07-06	2011-07-31	2010-07-08 07:06:56	auto
199F08MD / 45792	2009-10-08	2010-10-31	2010-07-08 07:06:56	auto
Test was conducted on 2010-07-08.				
Instruments used during test operation:				
83F01CLK / 20562	2010-05-04	2011-05-31	2010-07-08 08:53:32	auto
91F04CLK / 31457	2010-05-04	2011-05-31	2010-07-08 08:53:32	auto
190F07MD / 45863	2010-07-06	2011-07-31	2010-07-08 08:53:32	auto
199F08MD / 45792	2009-10-08	2010-10-31	2010-07-08 08:53:32	auto

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