

ROOF REBOOT TEST REPORT

SCOPE OF WORK

ASTM E96 WATER VAPOR TRANSMISSION (DESICCANT METHOD), ASTM D3462 SECTION 8.1.7 PLIABILITY, AND ASTM D3462 SECTION 8.1.9 WEIGHT OF DISPLACED GRANULES (PER ASTM D4977) EVALUATION OF SHINGLES

REPORT NUMBER

N3762.01-106-31 R0

TEST DATES

03/01/22 - 03/25/22

ISSUE DATE

04/28/22

RECORD RETENTION END DATE

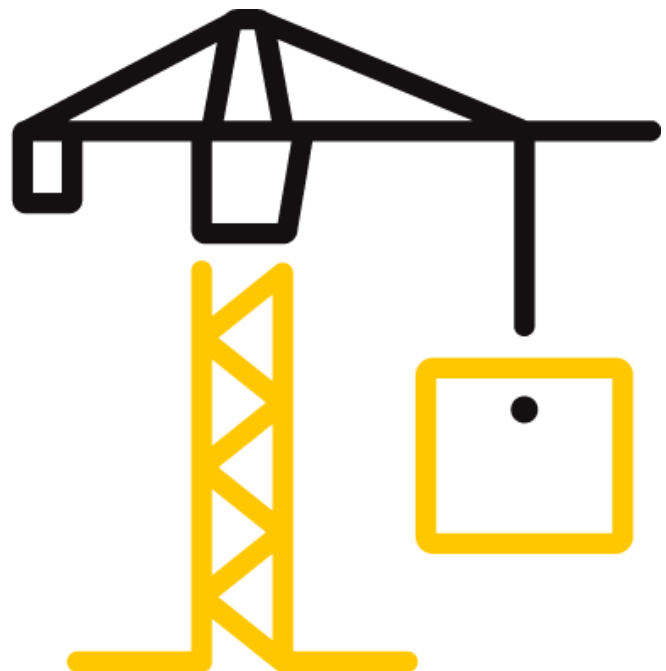
03/25/26

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18

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Date: 04/28/22

REPORT ISSUED TO

ROOF REBOOT

150 Egg Farm Road
Piperton, Tennessee 38017

SECTION 1

SCOPE

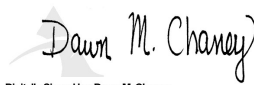
Products: 7 Year Old Shingles Treated with Roof Reboot, New Untreated Shingles, 15 Year Old Shingles Treated with Roof Reboot, and Untreated 15 Year Old Shingles

Architectural Testing, Inc. (an Intertek company) dba Intertek Building & Construction (B&C) was contracted by Roof Reboot to evaluate 7 Year Old Shingles Treated with Roof Reboot, New Untreated Shingles, 15 Year Old Shingles Treated with Roof Reboot, and Untreated 15 Year Old Shingles in accordance with ASTM E96 for Water Vapor Transmission (Desiccant Method), ASTM D3462 Section 8.1.7 for Pliability, and ASTM D3462 Section 8.1.9 for Weight of Displaced Granules (per ASTM D4977). Results obtained are tested values and were secured by using the designated test method(s). Testing was conducted at the Intertek B&C test facility in York, Pennsylvania.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory.

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For INTERTEK B&C:

COMPLETED BY:	Conner D. Kister	REVIEWED BY:	Dawn M. Chaney
TITLE:	Technician I Material Laboratory	TITLE:	Technician Team Lead Materials Laboratory
SIGNATURE:	 Digitally Signed by: Conner Kister	SIGNATURE:	 Digitally Signed by: Dawn M. Chaney
DATE:	04/28/22	DATE:	04/28/22

CDK:dmc/alts

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SECTION 2**TEST METHODS**

The specimens were evaluated in accordance with the following:

ASTM E96/E96M-21, *Standard Test Methods for Gravimetric Determination of Water Vapor Transmission Rate of Materials*, Desiccant Method

ASTM D3462/D3462M-19, *Standard Specification for Asphalt Shingles Made from Glass Felt and Surfaced with Mineral Granules*, Section 8.1.7 Pliability and Section 8.1.9 Weight of Displaced Granules

ASTM D4977/D4977M-20, *Standard Test Method for Granule Adhesion to Mineral-Surfaced Roofing by Abrasion*

SECTION 3**MATERIAL SOURCE**

The materials were provided by Roof Reboot. One box of ready to test asphalt shingle specimens was received in good condition on 02/15/22. Each set of specimens was identified as one of the following: 7 Year Old Shingles Treated with Roof Reboot, New Untreated Shingles, 15 Year Old Shingles Treated with Roof Reboot, and Untreated 15 Year Old Shingles. Refer to the product description photos in Section 9. Representative materials/test specimens will be retained by Intertek B&C for a minimum of four years from the test completion date.

SECTION 4**LIST OF OFFICIAL OBSERVERS**

NAME	COMPANY
Conner D. Kister	Intertek B&C
Dawn M. Chaney	Intertek B&C

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SECTION 5**TEST PROCEDURES****ASTM E96 Water Vapor Transmission (Desiccant Method)**

Three specimens per set were secured with a beeswax/rosin mixture to calcium chloride-filled test dishes, which resulted in a higher water vapor pressure on the outside of the test specimen assembly. One specimen per set was secured to an empty dish to serve as the dummy. Dishes are manufactured from a single piece of aluminum with a nominally 3.0 in. diameter mouth area. The resulting open area of each specimen for testing was 7.1 in².

The specimens were placed in an Espec environmental chamber (ICN: 005615) set at 23°C (73.4°F) and 50 ±2% RH for the duration of the test. The new treated shingles, new untreated shingles, and old treated shingles were removed from the environmental chamber once a day during normal business days for weight measurement. The old untreated shingles were removed from the environmental chamber six times a day during normal business days for weight measurement. The weights of the specimen assemblies were recorded utilizing a Mettler Toledo AX504 Balance (ICN: 003449). The environmental conditions were recorded at the same time. The water vapor permeance and transmission were calculated in accordance with the test method.

ASTM D3462 Section 8.1.7 Pliability

The specimens and a mandrel block with one edge rounded to a radius of 25 mm (1 in.) were conditioned at 23 ±2°C (73 ±4°F) for 2 ±0.1 hours. Testing was performed at 23 ±2°C (73 ±4°F). The specimens were bent at a uniform speed through an angle of 90° in 2 ±1/2 seconds over the rounded edge of the mandrel block, and then observed for cracking of the filled coating asphalt which exposes the reinforcement of the shingle or fracture through the specimen.

ASTM D3462 Section 8.1.9 Weight of Displaced Granules (per ASTM D4977)

The specimens were weighed prior to testing using an analytical balance (ICN: 65216). They were tested on a Granule Adhesion Tester (ICN: 005973) equipped with a brush assembly resting on the specimen with a downward mass of 2,268 ±7 g (5 lb ±1/4 oz). The specimens were abraded for 50 cycles (50 forward and 50 back strokes). After the abrasion, the specimens were weighed again, and the weight of displaced granules was determined.

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TEST SPECIMEN DESCRIPTIONS

TEST PROCEDURE	NUMBER OF SPECIMENS	NOMINAL SPECIMEN DIMENSIONS
ASTM E96 Water Vapor Transmission (Desiccant Method)	3 and 1 Dummy per set	3.6 in. diameter x 0.112 in. thick
ASTM D3462 Section 8.1.7 Pliability	10 Machine and 10 Cross per set	1 in. x 6 in. x 0.112 in. thick
ASTM D3462 Section 8.1.9 Weight of Displaced Granules (per ASTM D4977)	2 per set	2 in. x 9 in. x 0.112 in. thick

SECTION 7

TEST RESULTS

ASTM E96 Water Vapor Transmission (Desiccant Method)

7 Year Old Shingles Treated with Roof Reboot

SPECIMEN ID	AVERAGE TEMP. [°C (°F)]	AVERAGE RELATIVE HUMIDITY (%)	WATER VAPOR PERMEANCE		WATER VAPOR TRANSMISSION	
			ng/(Pa·s·m ²)	US perms	g/(h·m ²)	g/(24hr·m ²)
1	23.0 (73.4)	50.0	1.71	0.030	0.0086	0.2064
2	23.0 (73.4)	50.0	1.59	0.028	0.0080	0.1920
3	23.0 (73.4)	50.0	2.09	0.036	0.0105	0.2520
Average			1.79	0.031	0.0090	0.2168

New Untreated Shingles

SPECIMEN ID	AVERAGE TEMP. [°C (°F)]	AVERAGE RELATIVE HUMIDITY (%)	WATER VAPOR PERMEANCE		WATER VAPOR TRANSMISSION	
			ng/(Pa·s·m ²)	US perms	g/(h·m ²)	g/(24hr·m ²)
1	23.0 (73.4)	50.0	0.777	0.014	0.0039	0.0936
2	23.0 (73.4)	50.0	1.96	0.034	0.0099	0.2376
3	23.0 (73.4)	50.0	3.10	0.054	0.0157	0.3768
Average			1.95	0.034	0.0098	0.2360

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15 Year Old Shingles Treated with Roof Reboot

SPECIMEN ID	AVERAGE TEMP. [°C (°F)]	AVERAGE RELATIVE HUMIDITY (%)	WATER VAPOR PERMEANCE		WATER VAPOR TRANSMISSION	
			ng/(Pa·s·m ²)	US perms	g/(h·m ²)	g/(24hr·m ²)
1	23.0 (73.4)	50.0	1.94	0.034	0.0098	0.2352
2	23.0 (73.4)	50.0	1.68	0.029	0.0085	0.2040
3	23.0 (73.4)	50.0	1.39	0.024	0.0070	0.1680
Average			1.67	0.029	0.0084	0.2024

Untreated 15 Year Old Shingles

SPECIMEN ID	AVERAGE TEMP. [°C (°F)]	AVERAGE RELATIVE HUMIDITY (%)	WATER VAPOR PERMEANCE		WATER VAPOR TRANSMISSION	
			ng/(Pa·s·m ²)	US perms	g/(h·m ²)	g/(24hr·m ²)
1	23.0 (73.4)	50.0	1,570	27.422	7.9361	190.4664
2	23.0 (73.4)	50.0	1,650	28.825	8.3409	200.1816
3	23.0 (73.4)	50.0	1,850	32.305	9.3444	224.2656
Average			1,690	29.517	8.5405	204.9712

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ASTM D3462 Section 8.1.7 Pliability

7 Year Old Shingles Treated with Roof Reboot

SPECIMEN ID			CRACKING OF FILLED COATING ASPHALT WHICH EXPOSES REINFORCEMENT OR FRACTURE THROUGH THE SPECIMEN	COMMENTS
Weather Side Up	Machine Direction (long direction parallel to length)	1	No	Pass - No cracking of the filled coating asphalt that exposed the reinforcement; no fractures through the specimens Specimens were flexible and appeared to be coated evenly with granules
		2	No	
		3	No	
		4	No	
		5	No	
	Cross Direction (long direction perpendicular to length)	1	No	
		2	No	
		3	No	
		4	No	
		5	No	
Weather Side Down	Machine Direction (long direction parallel to length)	1	No	
		2	No	
		3	No	
		4	No	
		5	No	
	Cross Direction (long direction perpendicular to length)	1	No	
		2	No	
		3	No	
		4	No	
		5	No	

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New Untreated Shingles

SPECIMEN ID			CRACKING OF FILLED COATING ASPHALT WHICH EXPOSES REINFORCEMENT OR FRACTURE THROUGH THE SPECIMEN	COMMENTS
Weather Side Up	Machine Direction (long direction parallel to length)	1	No	Pass - No cracking of the filled coating asphalt that exposed the reinforcement; no fractures through the specimens Specimens were flexible and appeared to be coated evenly with granules
		2	No	
		3	No	
		4	No	
		5	No	
	Cross Direction (long direction perpendicular to length)	1	No	
		2	No	
		3	No	
		4	No	
		5	No	
Weather Side Down	Machine Direction (long direction parallel to length)	1	No	
		2	No	
		3	No	
		4	No	
		5	No	
	Cross Direction (long direction perpendicular to length)	1	No	
		2	No	
		3	No	
		4	No	
		5	No	

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15 Year Old Shingles Treated with Roof Reboot

SPECIMEN ID			CRACKING OF FILLED COATING ASPHALT WHICH EXPOSES REINFORCEMENT OR FRACTURE THROUGH THE SPECIMEN	COMMENTS
Weather Side Up	Machine Direction (long direction parallel to length)	1	No	Pass - No cracking of the filled coating asphalt that exposed the reinforcement; no fractures through the specimens Specimens were flexible and appeared to be coated evenly with granules
		2	No	
		3	No	
		4	No	
		5	No	
	Cross Direction (long direction perpendicular to length)	1	No	
		2	No	
		3	No	
		4	No	
		5	No	
Weather Side Down	Machine Direction (long direction parallel to length)	1	No	
		2	No	
		3	No	
		4	No	
		5	No	
	Cross Direction (long direction perpendicular to length)	1	No	
		2	No	
		3	No	
		4	No	
		5	No	

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Untreated 15 Year Old Shingles

SPECIMEN ID			CRACKING OF FILLED COATING ASPHALT WHICH EXPOSES REINFORCEMENT OR FRACTURE THROUGH THE SPECIMEN	COMMENTS
Weather Side Up	Machine Direction (long direction parallel to length)	1	No	Pass - No cracking of the filled coating asphalt that exposed the reinforcement; no fractures through the specimens Specimens were flexible and appeared to be coated evenly with granules
		2	No	
		3	No	
		4	No	
		5	No	
	Cross Direction (long direction perpendicular to length)	1	No	
		2	No	
		3	No	
		4	No	
		5	No	
Weather Side Down	Machine Direction (long direction parallel to length)	1	No	
		2	No	
		3	No	
		4	No	
		5	No	
	Cross Direction (long direction perpendicular to length)	1	No	
		2	No	
		3	No	
		4	No	
		5	No	

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ASTM D3462 Section 8.1.9 Weight of Displaced Granules (per ASTM D4977)

7 Year Old Shingles Treated with Roof Reboot

SPECIMEN ID	PRE-TEST WEIGHT (g)	POST TEST WEIGHT (g)	WEIGHT OF DISPLACED GRANULES (g)
1	43.27	43.15	0.1
2	40.01	39.74	0.3
Average			0.2
Weight of Displaced Granules - max. 1.0 gram			Pass

New Untreated Shingles

SPECIMEN ID	PRE-TEST WEIGHT (g)	POST TEST WEIGHT (g)	WEIGHT OF DISPLACED GRANULES (g)
1	48.82	48.66	0.2
2	41.94	41.67	0.3
Average			0.2
Weight of Displaced Granules - max. 1.0 gram			Pass

15 Year Old Shingles Treated with Roof Reboot

SPECIMEN ID	PRE-TEST WEIGHT (g)	POST TEST WEIGHT (g)	WEIGHT OF DISPLACED GRANULES (g)
1	34.14	33.75	0.4
2	37.19	36.93	0.3
Average			0.3
Weight of Displaced Granules - max. 1.0 gram			Pass

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Untreated 15 Year Old Shingles

SPECIMEN ID	PRE-TEST WEIGHT (g)	POST TEST WEIGHT (g)	WEIGHT OF DISPLACED GRANULES (g)
1	27.65	21.93	5.7
2	32.04	29.63	2.4
Average			4.1
Weight of Displaced Granules - max. 1.0 gram			Fail

SECTION 8

CONCLUSION

ASTM E96 Water Vapor Transmission (Desiccant Method) does not contain specific performance requirements. Results are reported as obtained.

The 7 Year Old Shingles Treated with Roof Reboot, New Untreated Shingles, 15 Year Old Shingles Treated with Roof Reboot, and Untreated 15 Year Old Shingles met the specified performance requirements for ASTM D3462 Section 8.1.7 for Pliability.

7 Year Old Shingles Treated with Roof Reboot, New Untreated Shingles, and 15 Year Old Shingles Treated with Roof Reboot met the specified performance requirements for ASTM D3462 Section 8.1.9 Weight of Displaced Granules (per ASTM D4977). The Untreated 15 Year Old Shingles did not meet the specified performance requirements for ASTM D3462 Section 8.1.9 Weight of Displaced Granules (per ASTM D4977).

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SECTION 9

PHOTOGRAPHS



Photo No. 1
Materials, As Received



Photo No. 2
Materials, As Received

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Photo No. 3
Materials, As Received



Photo No. 4
ASTM E96 Water Vapor Transmission - Specimen Assemblies

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**Photo No. 5****ASTM E96 Water Vapor Transmission - Specimen Assemblies****Photo No. 6****ASTM D3462 8.1.7 Pliability - Test in Progress**

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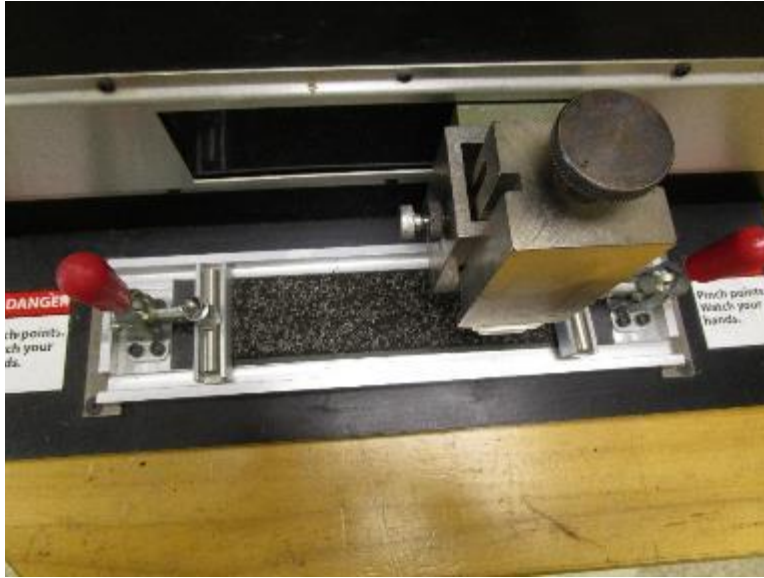
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**Photo No. 7****ASTM D3462 8.1.7 Pliability - Test in Progress****Photo No. 8****ASTM D3462 Section 8.1.9 Weight of Displaced Granules - Test Set Up**

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**Photo No. 9****ASTM D3462 Section 8.1.9 Weight of Displaced Granules - Specimen Placement**



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SECTION 10

REVISION LOG

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