Architectural Testing

TEST REPORT

Rendered to:

HOMELAND VINYL PRODUCTS, INC.

For:

Alternate Product Color (Mocha Walnut) for the
***Gorilla Deck*™ Deck Board, PVC "T" Rail and Rectangular Guardrail System**

Report No: C0270.01-119-19
Report Date: 12/20/12
Revision 1: 01/21/13

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C0270.01-119-19
December 20, 2012
Revision 1: January 21, 2013

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TEST REPORT

Rendered to:

HOMELAND VINYL PRODUCTS, INC.
3300 Pinson Valley Parkway
Birmingham, Alabama 35217

Report No:	C0270.01-119-19
Test Date:	06/22/12
Through:	11/08/12
Report Date:	12/20/12
Revision 1:	01/21/13

1.0 General Information

1.1 Product

Alternate Product Color (Mocha Walnut) for the *Gorilla Deck*™ Deck Board, PVC "T" Rail and Rectangular Guardrail System

1.2 Project Description

Architectural Testing was contracted by Homeland Vinyl Products, Inc. to perform material testing on their alternate product color (Mocha Walnut) for the *Gorilla Deck*™ deck board, PVC "T" Rail and Rectangular guardrail system. This report is in conjunction with Architectural Testing Report No. C0270.02-121-24, which includes flame spread test results. The purpose of the testing is code compliance evaluation in accordance with the following criteria:

> ICC-ES™ AC174 (approved January, 2012), *Acceptance Criteria for Deck Board Span Ratings and Guardrail Systems* (*Guards and Handrails*).

ICC-ES™ AC174-12 was developed by the ICC Evaluation Service, Inc. (ICC-ES™) as acceptance criteria to evaluate compliance with the following building codes:

> 2012 *International Building Code*®, International Code Council
>
> 2012 *International Residential Code*®, International Code Council

1.3 Qualifications

Architectural Testing has demonstrated compliance with ANS/ISO/IEC Standard 17025 and is consequently accredited as a Testing Laboratory (TL-144) by International Accreditation Service, Inc. Architectural Testing is accredited to perform all testing reported herein.

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1.4 Product Description

The *Gorilla Deck* deck board, PVC "T" Rail, and the Rectangular guardrail system in the Mocha Walnut color are comprised of a PVC substrate with an acrylic capstock produced by an extrusion process. Extruded products are co-extruded (capped). Test specimens consisted of one color product identified by the manufacturer as follows: Mocha Walnut. Drawings are included in Appendix A to verify the overall dimensions and other pertinent information of the tested product, its components, and any constructed assemblies.

1.5 Product Sampling

A representiave of RADCO visited the Homeland Vinyl Products, Inc.'s facility on 05/30/12. All materials we marked RADCO 05/30/12 and initialed with a permanent marker as an indication that they were selected by RADCO (independent inspection agency). A second sampling trip was made by a representative of RADCO on 08/15/12 with all material marked using a self-adhesive label that contained the manufacturer's name, RADCO (independent inspection agency), sample date (8/15/12), product information and auditor's initials as an indication that they were selected by RADCO (independent inspection agency). All test specimens were supplied by Homeland Vinyl Products, Inc. and were marked as indicated. See photograph in Appendix B for typical sampling mark.

1.6 Witnessing

There were no witnesses from Homeland Vinyl Products, Inc. present for testing conducted and reported herein.

1.7 Conditions of Testing

Unless otherwise indicated, all testing reported herein was conducted in a laboratory set to maintain temperature in the range of 68 ± 4ºF and humidity in the range of 50 ± 5% RH. All test specimen materials were stored in the laboratory environment for no less than 40 hours prior to testing.

2.0 Reference Standards

ASTM D 790-07, *Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials*

ASTM D 2565-99 (Reapproved 2008), *Practice for Operating Xenon-Arc-Type Light-Exposure Apparatus With and Without Water for Exposure of Plastics*

ASTM D 7032-08, *Standard Specification for Establishing Performance Ratings for Wood-Plastic Composite Deck Boards and Guardrail Systems (Guards or Handrails)*

ASTM E 84-09, *Test Method for Surface Burning Characteristics for Building Materials*

3.0 Project Summary

A brief summary of results is presented in the following table. See specific test report sections for complete details of test procedure and results.

ICC-ES™ AC174	Results
3.6 Temperature Effect	17% Reduction / Bending Strength (MOR) 22% Reduction / Bending Stiffness (MOE)
3.7 UV Resistance	26% Increase / Bending Strength (MOR) 20% Increase / Bending Stiffness (MOE)
3.8 Freeze-Thaw Resistance	2% Reduction / Bending Strength (MOR) 3% Reduction / Bending Stiffness (MOE)
3.10 Flame Spread	Flame Spread Index, FSI = 20 ($\leq 200 \therefore ok$) - see ATI Report No. C0270.02-121-24

4.0 Temperature Effect

Re: ICC-ES™ AC174 - Section 3.6

4.1 General

The purpose of this testing was to evaluate the effect of temperature conditions on the performance of the product. Samples of manufactured products were subjected to specified exposures of high temperature and low temperature. Flexural tests were performed on each sample set and compared to identical tests performed on a match-marked set of control specimens.

4.2 Test Specimens

Testing was performed on specimens cut from the rectangular rail profile. Each temperature effect set consisted of ten test specimens.

4.3 Test Procedure

Tests were performed using the methods described by Procedure A of ASTM D 790. Control specimens were conditioned for a minimum of 40 hours at laboratory ambient conditions. One set of test samples was pre-conditioned in a freezer at -20ºF for a minimum period of five hours prior to testing, and another set was pre-conditioned in an oven at 125ºF for a minimum period of five hours prior to testing. All specimens were individually tested in a computer-monitored and -controlled SATEC Unidrive, Model MII 50 UD Universal Testing Machine using a three-point loading setup. An insulated enclosure was used to condition and maintain the air temperature at the specified conditions during the flexural tests. The support span was set at 2.00 in with a loading nose located at midspan. Support and loading noses were 1/8 in radius steel rods. Deflections were continuously recorded during the loading process using the crosshead movement of the test machine. A loading rate of 0.054 in/min was used to control the test speed (crosshead movement). Samples were tested with the exterior surface down (in tension). See photographs in Appendix B for individual test setups.

4.4 Test Results

Stiffness properties were derived from a least square fit of load/deflection data between 10% and 40% of the maximum test load. Peak load and MOR were defined at ultimate bending strength. Reported peak loads were not limited by an outer surface strain of 0.05 in/in as referenced in Section 10.1.7 of ASTM D 790.

Temperature Effect – High Temperature Set (+125ºF)
Test Date: 07/26/12

Sample No.	Sample Color	Width (in)	Depth (in)	Peak Load (lb)	Apparent [1]	
					MOR (psi)	MOE (psi)
1	Mocha Walnut	0.499	0.119	21.75	9236	349200
2		0.501	0.120	21.50	8941	341500
3		0.500	0.118	20.83	8974	344400
4		0.501	0.114	18.21	8389	321200
5		0.498	0.111	16.83	8229	300300
6		0.500	0.109	16.42	8291	320700
7		0.502	0.118	18.89	8109	326500
8		0.502	0.110	15.80	7805	307700
9		0.501	0.110	17.05	8439	343500
10		0.496	0.114	17.76	8265	344800
				Minimum:	7805	300300
				Maximum:	9236	349200
				Average:	8468	330000
				Standard Deviation:	444	17210
				Coefficient of Variation:	5%	5%

[1] *MOR and MOE are apparent values because test specimens were not homogenous*

4.4 Test Results (Continued)

Temperature Effect – Low Temperature Set (-20ºF)
Test Date: 07/26/12

Sample No.	Sample Color	Width (in)	Depth (in)	Peak Load (lb)	Apparent [1]	
					MOR (psi)	MOE (psi)
1	Mocha Walnut	0.501	0.119	35.27	14910	449000
2		0.501	0.119	36.08	15250	464800
3		0.504	0.115	34.69	15610	471200
4		0.500	0.112	33.35	15950	470900
5		0.503	0.112	32.54	15470	458600
6		0.502	0.111	31.92	15480	453300
7		0.501	0.115	35.93	16270	491700
8		0.500	0.109	30.87	15590	455700
9		0.500	0.111	32.90	16020	478400
10		0.503	0.113	35.08	16390	485700
				Minimum:	14910	449000
				Maximum:	16390	491700
				Average:	15700	467900
				Standard Deviation:	461	14260
				Coefficient of Variation:	3%	3%

[1] *MOR and MOE are apparent values because test specimens were not homogenous.*

4.4 Test Results (Continued)

Temperature Effect – Control Set (Standard Lab Conditions)
Test Date: 07/26/12

Sample No.	Sample Color	Width (in)	Depth (in)	Peak Load (lb)	Apparent [1]	
					MOR (psi)	MOE (psi)
1	Mocha Walnut	0.502	0.119	24.63	10390	414700
2		0.497	0.120	24.68	10350	418200
3		0.501	0.117	23.78	10400	413700
4		0.498	0.113	21.16	9983	431700
5		0.503	0.111	21.09	10210	396800
6		0.501	0.109	19.48	9819	400400
7		0.502	0.114	22.82	10490	446400
8		0.504	0.109	19.84	9938	412000
9		0.508	0.111	20.76	9950	429700
10		0.503	0.113	22.24	10390	445300
				Minimum:	9819	396800
				Maximum:	10490	446400
				Average:	10190	420900
				Standard Deviation:	245	17054
				Coefficient of Variation:	2%	4%

[1] *MOR and MOE are apparent values because test specimens were not homogenous.*

4.4 Test Results (Continued)

Match-Marked Sample Comparison Data
Control Set vs. High Temperature Set

Sample Number	Sample Color	Control MOR (psi)	High Temp. (125°F) MOR (psi)	Difference MOR	Control MOE (psi)	High Temp. (125°F) MOE (psi)	Difference MOE
1	Mocha Walnut	10390	9236	-11.1%	414700	349200	-15.8%
2		10350	8941	-13.6%	418200	341500	-18.3%
3		10400	8974	-13.7%	413700	344400	-16.8%
4		9983	8389	-16.0%	431700	321200	-25.6%
5		10210	8229	-19.4%	396800	300300	-24.3%
6		9819	8291	-15.6%	400400	320700	-19.9%
7		10490	8109	-22.7%	446400	326500	-26.9%
8		9938	7805	-21.5%	412000	307700	-25.3%
9		9950	8439	-15.2%	429700	343500	-20.1%
10		10390	8265	-20.5%	445300	344800	-22.6%
	Minimum:	9819	7805	-22.7%	396800	300300	-26.9%
	Maximum:	10490	9236	-11.1%	446400	349200	-15.8%
	Average:	10200	8500	**-16.9%**	421000	330000	**-21.6%**

4.4 Test Results (Continued)

Match-Marked Sample Comparison Data
Control Set vs. Low Temperature Set

Sample Number	Sample Color	Control MOR (psi)	Low Temp. (-20°F) MOR (psi)	Difference MOR	Control MOE (psi)	Low Temp. (-20°F) MOE (psi)	Difference MOE
1	Mocha Walnut	10390	14910	43.5%	414700	449000	8.3%
2		10350	15250	47.3%	418200	464800	11.1%
3		10400	15610	50.1%	413700	471200	13.9%
4		9983	15950	59.8%	431700	470900	9.1%
5		10210	15470	51.5%	396800	458600	15.6%
6		9819	15480	57.7%	400400	453300	13.2%
7		10490	16270	55.1%	446400	491700	10.1%
8		9938	15590	56.9%	412000	455700	10.6%
9		9950	16020	61.0%	429700	478400	11.3%
10		10390	16390	57.7%	445300	485700	9.1%
	Minimum:	9819	14910	43.5%	396800	449000	8.3%
	Maximum:	10490	16390	61.0%	446400	491700	15.6%
	Average:	10200	15700	**54.1%**	421000	468000	**11.2%**

5.0 Moisture Effect

Re: ICC-ES™ AC174 - Section 3.6

5.1 General

The purpose of this testing was to evaluate the effect of moisture conditions on the performance of the product. Specimens were taken from manufactured products and subjected to submersion in water. Data from hygrothermal cycling in conjunction with freeze-thaw resistance testing indicated that the product was not prone to water absorption; therefore, flexural tests for moisture effect were not required according to Section 3.6 of ICC-ES AC174

Maximum apparent water absorption after hygrothermal cycling including three 24-hr submersion periods = 0.01 grams which is equivalent to 0.00001 liters of water. The data indicates that the product was not subject to water absorption. See 7.4 Freeze-Thaw test results for data.

6.0 Ultraviolet (UV) Resistance

Re: ICC-ES™ AC174 - Section 3.7

6.1 General

The purpose of the test was to evaluate the effect of weathering on the performance of the product. Material samples were taken from manufactured products and subjected to specified exposures of artificial weathering. Flexural tests were performed on the artificially weathered sample set and compared to identical tests performed on a match-marked set of control specimens (non-weathered).

6.2 Test Specimens

Test samples were cut from separate rectangular rail profiles and labeled as control (standard conditions) and artificially weathered samples. Each set consisted of five test specimens per color. Test specimens were approximately 1/2 in wide by 2-5/8 in long by product thickness.

6.3 Artificial Weathering Procedure

Artificially weathered specimens were subjected to 2000 hours (06/22/12 through 09/17/12) of Xenon-Arc exposure in an Atlas Ci5000 Xenon Weather-Ometer® in accordance with ASTM D 2565 using Test Cycle 1. Exposure conditions were as follows:

Cycle: 102 minutes light only followed by 18 minutes of light with water spray
Black Panel Temp: 63 ± 2ºC
Irradiance: 0.35 ± 0.02 W/m^2 at 340 nm

6.4 Test Procedure

Tests were performed using the methods described by Procedure A of ASTM D 790. Control specimens were conditioned for a minimum of 40 hours at laboratory ambient conditions. Artificially weathered specimens were conditioned at standard laboratory conditions for a minimum of 24 hours prior to flexural testing. All specimens were individually tested in a computer-monitored and -controlled SATEC Unidrive, Model MII 50 UD Universal Test Machine using a three-point loading setup. The support span was set at 2.00 in with a loading nose located at midspan. Support and loading noses were 1/8 in radius steel rods. Deflections were continuously recorded during the loading process using the crosshead movement of the test machine. A loading rate of 0.054 in/min was used to control the test speed (crosshead movement).

Artificially weathered samples were tested with the exposed, exterior surface down (in tension). See photographs in Appendix B for individual test setups.

Stiffness properties were derived from a least square fit of load/deflection data between 10% and 40% of the maximum test load. Peak load and MOR were defined at ultimate bending strength. Reported peak loads were not limited by an outer surface strain of 0.05 in/in as referenced in Section 10.1.7 of ASTM D 790.

UV Resistance – Artificially Weathered Set
Test Date: 10/15/12

Sample No.	Sample Color	Width (in)	Depth (in)	Peak Load (lb)	Apparent [1]	
					MOR (psi)	MOE (psi)
1	Mocha Walnut	0.500	0.117	29.51	12940	541500
2		0.501	0.122	31.56	12700	491400
3		0.502	0.116	30.02	13330	498200
4		0.498	0.113	26.92	12700	479900
5		0.497	0.110	25.56	12750	468100
				Minimum:	12700	468100
				Maximum:	13330	541500
				Average:	12900	496000
				Standard Deviation:	268	27990
				Coefficient of Variation:	2%	6%

[1] *MOR and MOE are apparent values because test specimens were not homogenous.*

6.5 Test Results (Continued)

UV Resistance - Control Set (Non-Weathered)
Test Date: 07/26/12

Sample No.	Sample Color	Width (in)	Depth (in)	Peak Load (lb)	Apparent [1]	
					MOR (psi)	MOE (psi)
1	Mocha Walnut	0.502	0.119	24.63	10390	414700
2		0.497	0.120	24.68	10350	418200
3		0.501	0.117	23.78	10400	413700
4		0.498	0.113	21.16	9983	431700
5		0.503	0.111	21.09	10210	396800
				Minimum:	9983	396800
				Maximum:	10400	431700
				Average:	10300	415000
				Standard Deviation:	176	12470
				Coefficient of Variation:	2%	3%

[1] *MOR and MOE are apparent values because test specimens were not homogenous.*

6.6 Test Summary

Match-Marked Sample Comparison Data
Control Set vs. Artificially Weathered Set

Sample Number	Sample Color	Control MOR (psi)	Artificially Weathered MOR (psi)	Percent Difference MOR (psi)	Control MOE (psi)	Artificially Weathered MOE (psi)	Percent Difference MOE (psi)
1	Mocha Walnut	10390	12940	24.5%	414700	541500	30.6%
2	Mocha Walnut	10350	12700	22.7%	418200	491400	17.5%
3	Mocha Walnut	10400	13330	28.2%	413700	498200	20.4%
4	Mocha Walnut	9983	12700	27.2%	431700	479900	11.2%
5	Mocha Walnut	10210	12750	24.9%	396800	468100	18.0%
Minimum:		9983	12700	22.7%	396800	468100	11.2%
Maximum:		10400	13330	28.2%	431700	541500	30.6%
Average:		10300	12900	**25.5%**	415000	496000	**19.5%**

7.0 Freeze-Thaw Resistance

Re: ICC-ES™ AC174 - Section 3.8

7.1 General

The purpose of this test was to evaluate the effect of freeze-thaw cycles on the performance of the product. Material samples were subjected to Hygrothermal Cycling in accordance with Section 4.7 of ASTM D 7032. Flexural tests were then performed on each sample, and results were compared to identical tests performed on a match-marked set of control specimens.

7.2 Hygrothermal Cycling Procedure (Freeze-Thaw)

Cycling was performed using the methods described in ASTM D 7032. The sample set consisted of five specimens cut from the rectangular rails profiles and were weighed to the nearest 0.1 gram. Specimens were submerged in water for a period of 24 hours. After removing the specimens from the water, each specimen's outer surface was wiped down with a dry cloth and weighed within 20 minutes upon removal from the water. The specimens were then placed in a freezer at -20ºF for 24 hours. After removal from the freezer, the specimens were returned to lab conditions for 24 hours. This process was repeated two more times for a total of three cycles of water submersion, freezing, and thawing.

7.3 Flexural Test Procedure

Tests were performed using the methods described by Procedure A of ASTM D 790. All specimens were conditioned for a minimum of 40 hours at laboratory ambient conditions. All specimens were individually tested in a computer-monitored and -controlled SATEC Unidrive, Model MII 50 UD Universal Test Machine using a three-point loading setup. The support span was set at 2.00 in with a loading nose located at midspan. Support and loading noses were 1/8 in radius steel rods. Deflections were continuously recorded during the loading process using the crosshead movement of the test machine. A loading rate of 0.054 in/min was used to control the test speed (crosshead movement). See photographs in Appendix B for test setup.

7.4 Test Results

Stiffness properties were derived from a least square fit of load / deflection data between 10% and 40% of the maximum test load. Peak load and Mu were defined at ultimate bending strength. Reported peak loads were not limited by an outer surface strain of 0.05 in/in as referenced in Section 10.1.7 of ASTM D 790.

7.4 Test Results (Continued)

Water Absorption / Hygrothermal Cycles
Test Dates: 06/25/12 – 07/11/12

Sample No.	Cycle 1 Weight (g)		Cycle 2 Weight (g)		Cycle 3 Weight (g)		Max. Gain	
	Initial	24-hr Soak	Initial	24-hr Soak	Initial	24-hr Soak	Weight (g)	%
1	3.87	3.87	3.87	3.87	3.87	3.87	0.01	0.1%
2	3.94	3.94	3.94	3.94	3.94	3.94	0.00	0.1%
3	3.75	3.76	3.75	3.76	3.75	3.76	0.00	0.1%
4	3.64	3.64	3.64	3.64	3.64	3.64	0.00	0.1%
5	3.52	3.52	3.52	3.52	3.52	3.52	0.00	0.1%

Freeze-Thaw Resistance – Flexural Testing
Test Date: 07/26/12

Sample No.	Sample Color	Width (in)	Depth (in)	Peak Load (lb)	Apparent [1]	
					MOR (psi)	MOE (psi)
1	Mocha Walnut	0.507	0.122	24.18	9613	373700
2		0.500	0.120	24.85	10350	417000
3		0.502	0.118	23.49	10080	400300
4		0.503	0.111	20.72	10030	430400
5		0.503	0.110	20.54	10120	383900
				Minimum:	9613	373700
				Maximum:	10350	430400
				Average:	10000	401000
				Standard Deviation:	268	23230
				Coefficient of Variation:	3%	6%

[1] *MOR and MOE are apparent values because test specimens were not homogenous.*

7.4 Test Results (Continued)

Freeze-Thaw Resistance – Control Set (Standard Lab Conditions)
Test Date: 07/26/12

Sample No.	Sample Color	Width (in)	Depth (in)	Peak Load (lb)	Apparent [1]	
					MOR (psi)	MOE (psi)
1	Mocha Walnut	0.502	0.119	24.63	10390	414700
2		0.497	0.120	24.68	10350	418200
3		0.501	0.117	23.78	10400	413700
4		0.498	0.113	21.16	9983	431700
5		0.503	0.111	21.09	10210	396800
				Minimum:	9983	396800
				Maximum:	10400	431700
				Average:	10300	415000
				Standard Deviation:	176	12470
				Coefficient of Variation:	2%	3%

[1] *MOR and MOE are apparent values because test specimens were not homogenous.*

7.5 Test Summary

Match-Marked Sample Comparison Data
Control Set vs. Freeze-Thaw Resistance Set

Sample Number	Sample Color	Control MOR (psi)	Freeze-Thaw MOR (psi)	Percent Difference MOR (psi)	Control MOE (psi)	Freeze-Thaw MOE (psi)	Percent Difference MOE (psi)
1	Mocha Walnut	10390	9613	-7.5%	414700	373700	-9.9%
2		10350	10350	0.0%	418200	417000	-0.3%
3		10400	10080	-3.1%	413700	400300	-3.2%
4		9983	10030	0.5%	431700	430400	-0.3%
5		10210	10120	-0.9%	396800	383900	-3.3%
	Minimum:	9983	9613	-7.5%	396800	373700	-9.9%
	Maximum:	10400	10350	0.5%	431700	430400	-0.3%
	Average:	10300	10000	**-2.2%**	415000	401100	**-3.4%**

8.0 Flame Spread

Re: ICC-ES™ AC174 - Section 3.10

8.1 General

The flame spread evaluation was performed by Architectural Testing Inc. and is accredited to perform testing per ASTM E 84.

8.1 Test Specimens

Twelve full cross-section by 8 ft long *Gorilla Deck* deck boards, of the Mocha Walnut product color, were tested.

8.2 Summary of Test Results

Test Date: 11/08/12

Flame Spread Index (FSI) = 20

Reference ATI Test Report No.: C0270.02-121-24, Dated: 11/19/12

9.0 End-Use Adjustments

Re: ICC-ES™ AC174 – Sections 3.6 – 3.8

9.1 General

Data from material testing reported herein was used for determination of applicable adjustment factors for the PVC material.

9.2 End-Use Adjustment Factors

Guardrail Product
PVC Substrate Material with Acrylic Cap

End-Use Factors	Comparison (% Change) with Standard (Control) Conditions		ASTM D 7032 Criteria (as referenced by AC174)	Adjustment Factors	
	Strength [1]	Stiffness [2]		Strength	Stiffness
UV	+25.5%	+19.5%	Loss within 10%	1.00	1.00
Freeze-Thaw	-2.2%	-3.4%	Loss within 10%	1.00	1.00
Greatest of:			Loss within 25%	1.00	1.00
+125ºF	-16.9%	-21.6%			
-20ºF	+54.1%	+11.2%			
Moisture [3]	N/A	N/A			
Overall End-Use Adjustment Factor:				1.00	1.00

[1] *Moment or MOR (Modulus of Rupture)*
[2] *EI (the product of MOE and the Moment of Inertia) or MOE (Modulus of Elasticity)*
[3] *Product does not absorb moisture.*

9.2 End-Use Adjustment Factors (Continued)

Deckboard Product
PVC Substrate Material with Acrylic Cap

End-Use Factors	Comparison (% Change) with Standard (Control) Conditions		ASTM D 7032 Criteria (as referenced by AC174)	Adjustment Factors	
	Strength [1]	Stiffness [2]		Strength	Stiffness
UV	+25.5%	+19.5%	Loss ≤10%	1.00	1.00
Freeze-Thaw	-2.2%	-3.4%	Loss ≤ 10%	1.00	1.00
Greatest of: +125ºF -20ºF Moisture [3]	 -16.9% +54.1% N/A	 -21.6% +11.2% N/A	100% of Worst Effect	0.83	0.78
Overall End-Use Adjustment Factors:				0.83	0.78
Creep Recovery and Duration of Load End-Use Adjustment Factors [4]:				1.00	1.00

[1] *Moment or MOR (Modulus of Rupture)*
[2] *EI (the product of MOE and the Moment of Inertia) or MOE (Modulus of Elasticity)*
[3] *Product does not absorb moisture. See Section 5.0 Moisture Effect*
[4] *Based on UV and Freeze-Thaw results*

10.0 Closing Statement

Detailed drawings, data sheets, representative samples of test specimens, a copy of this test report, and all other supporting evidence will be retained by Architectural Testing for a period of four years from the original test date. At the end of this retention period, said materials shall be discarded without notice, and the service life of this report by Architectural Testing shall expire. Results obtained are tested values and were secured using the designated test methods. This report neither constitutes certification of this product nor expresses an opinion or endorsement by this laboratory; it is the exclusive property of the client so named herein and relates only to the tested specimens. This report may not be reproduced, except in full, without the written approval of Architectural Testing.

For ARCHITECTURAL TESTING:

Digitally Signed by: John D. Miller

John D. Miller III
Project Engineer
Structural Systems Testing

Digitally Signed by: Virgal Thomas Mickley, Jr.

Virgal T. Mickley, Jr., P.E.
Program Manager
Structural Systems Testing

JDM:vtm/tah

Attachments (pages): This report is complete only when all attachments listed are included.
Appendix A - Drawings (2)
Appendix B - Photographs (2)

Revision Log

Rev. #	Date	Page(s)	Revision(s)
0	12/20/12	N/A	Original report issue
1	01/21/13	16, 17	Revised Section 9.2, End-Use Adjustments, to include tables for both guardrail and deck board products.

APPENDIX A

Drawings

REV	DESCRIPTION	DATE	APPROVED
A	ORIGINAL	12/11/09	PDH

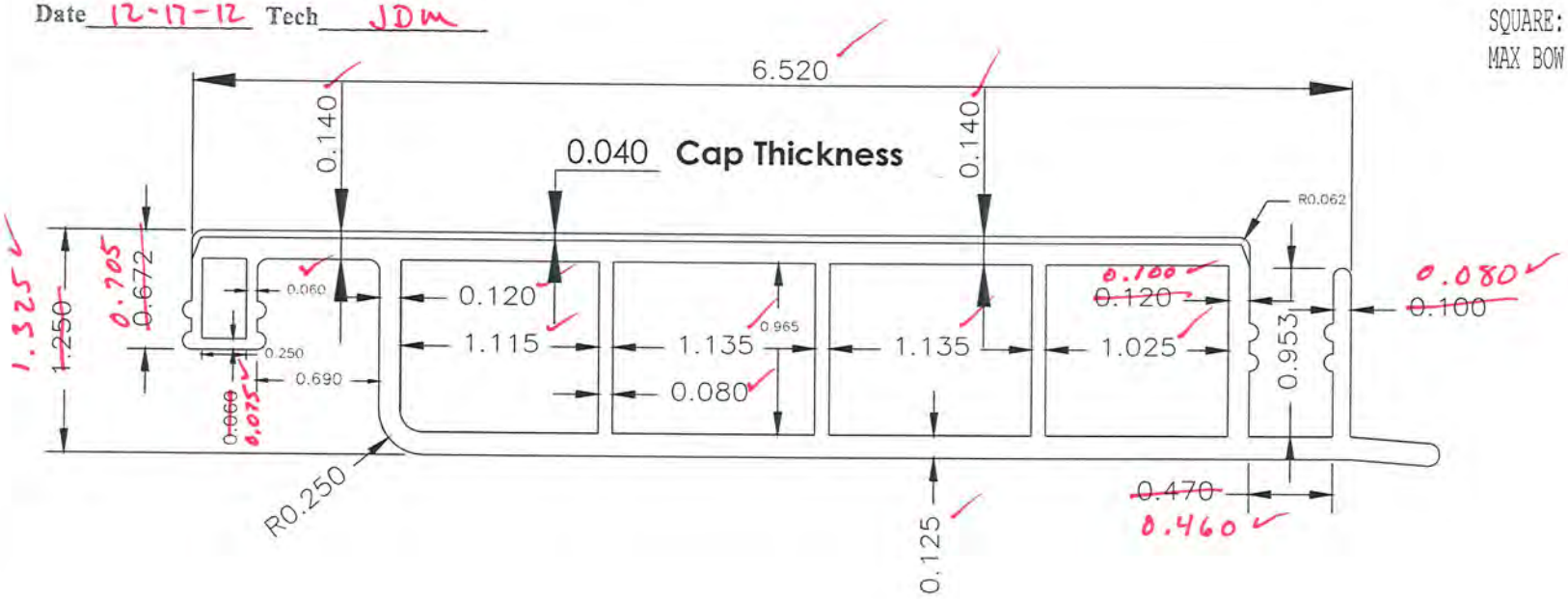
Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report # C0270.01-119-19

Date 12-17-12 Tech JDM

TOLERANCES
LENGTH: ± 1/4"
SQUARE: 1/8"
MAX BOW PER SIDE: 1/8" per 4'



PALLET CONGIGURATION

STANDARD: 49 PIECES: 7 WIDE by 7 HIGH

	ITEM #	LENGTH	PIECES (WxH)	LBS / PIECE	PALLET WEIGHT	WOOD WRAPS	SIDES	TOP & BOTTOM	Plastic BAND
WHITE	F70EW144132	12'	49 (7x7)	16.98	850	4	9½"	48½"	13' 6"
	F70EW192132	16'	49 (7x7)	22.64	1150	5	9½"	48½"	13' 6"

TITLE
Embossed Gorilla Deck

HOMELAND® Vinyl Products, Inc.

All dimensions are subject to change without notice.

DWG NO.

REV A

SCALE 1" = 1"

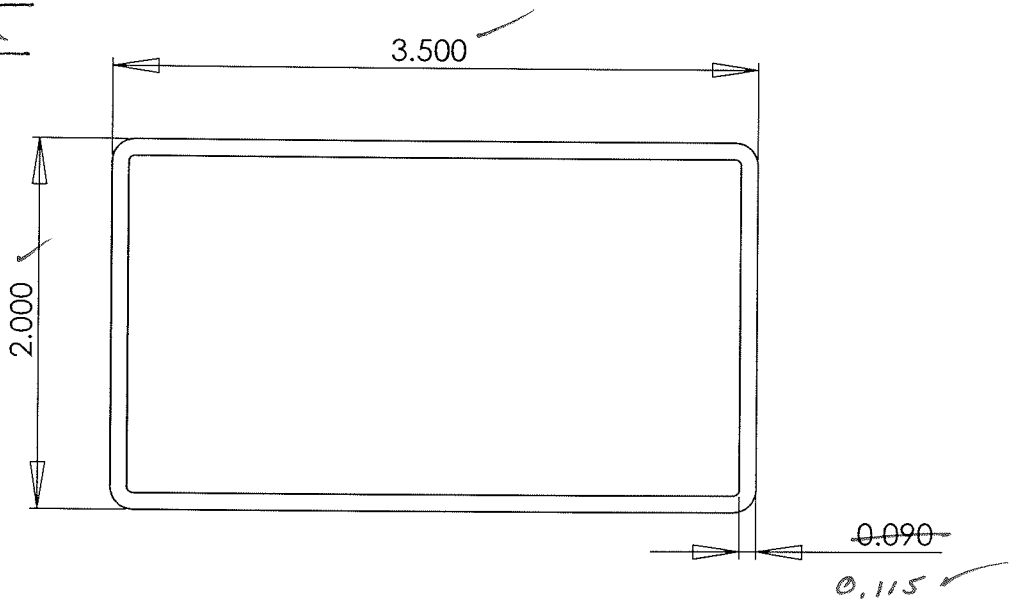
SHEET 1 of 1

Architectural Testing

Test sample complies with these details.
Deviations are noted.

Report # C0270.01-119-19

Date 12-17-12 Tech JDM



HOMELAND VINYL PRODUCTS, INC.

Homeland Vinyl Products, Inc.
3300 Pinson Valley Pkwy
Birmingham, AL 35217

phone: 205-854-4330
fax: 205-854-3677
www.homelandvinyl.com

PART NUMBER	2x3.5 12"
DRAWN BY	shathorn
DRAWN DATE	2/23/09
ENG. APPR.	
MATERIAL	
WEIGHT	

DESCRIPTION: 2x3.5 .090 wall profile

FILE NAME: 2x3.5 a

C:\Users\Public\Documents\Homeland\Profiles\Rash\

REV

APPENDIX B

Photographs

Photo No. 1
Typical Sample Markings

Photo No. 2
Typical Sample Markings

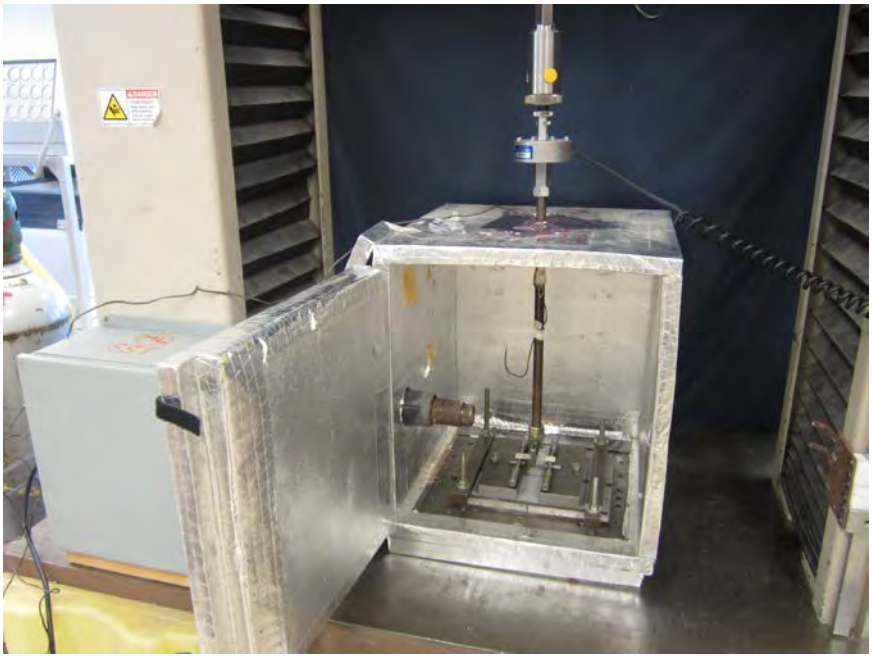


Photo No. 3
ASTM D 790 Temperature Effect Test Setup (+125ºF and -20ºF)

Photo No. 4
ASTM D 790 Flexural Test Setup (Ultraviolet Resistance)