

PERFORMANCE TEST REPORT

Rendered to:

CALI BAMBOO

PRODUCT: Luxury Vinyl Flooring

Report No.: G3432.01-106-31

Report Date: 01/24/17

Test Record Retention Date: 12/22/20

DRAFT 01/24/17

PERFORMANCE TEST REPORT

Rendered to:

CALI BAMBOO
6675 Mesa Ridge Rd #100
San Diego, California 92121

Report No.: G3432.01-106-31

Test Dates: 10/31/16

Through: 12/22/16

Report Date: 01/24/17

Test Record Retention Date: 12/22/20

Product: Luxury Vinyl Flooring

Project Summary: Architectural Testing, Inc., an Intertek company ("Intertek-ATI"), was contracted by Cali Bamboo to evaluate the properties of their Luxury Vinyl Flooring. The product description, test procedures, and test results are reported herein.

ANSI/NALFA LF-01-2011 Test Results Summary

Section	Results		Requirement
3.2	Thickness Swell		
	4%		Class 4, Heavy Commercial, ($\leq 12\%$)
3.3	Light Resistance		
	Light Sample	No Effect	Class 4, Heavy Commercial, (No More Than Slight Effect)
	Dark Sample	No Effect	
3.4	Cleanability/Stain Resistance		
	Score 10		Class 4, Heavy Commercial, (Score <20 - No More Than Slight Effect)
3.5	Large Ball Impact Resistance		
	>67.5 in.		Class 4, Heavy Commercial, (>1400 mm (55.1 in.))
3.6	Small Ball Impact Resistance		
	>32 in.		Class 4, Heavy Commercial, (>500 mm (19.7 in.))

Test Summary Results: (Continued)

ANSI/NALFA LF-01-2011 Test Results Summary

Section	Results	Requirement
3.7	Wear Resistance	
	4,400	Class 3, Commercial, IP ≥4,000 cycles
3.8	Dimensional Tolerances	
	Length Range: 0.000 in.	Class 4, Heavy Commercial, (≤0.50 mm (0.020 in.))
	Width Range: 0.007 in.	Class 4, Heavy Commercial, (≤0.20 mm (0.008 in.))
	Thickness Range: 0.007 in.	Class 4, Heavy Commercial, (≤0.50 mm (0.020 in.))
	Straightness Range: 0.007 in.	Class 4, Heavy Commercial, (≤0.30 mm (0.012 in.))
	Squareness Range: 0.000 in.	Class 4, Heavy Commercial, (≤0.20 mm (0.008 in.))
3.9 Refer to report 102754999GRR-001	Castor Chair Resistance	
	25,000 Cycles - No Effect	Class 3, Commercial, (25,000 Cycles - No Effect)
3.10	Surface Bond	
	2.1 N/mm ²	Class 4, Heavy Commercial, (≥1.5 N/mm²)

Test Summary Results: (Continued)

Test Summary Results

Standard	Results	Requirement
ASTM C518 Refer to report 102757999MID-004	Heat Flow Meter	
	Thermal Resistance	
	(Hr-ft²-°F/Btu)	(m²-K/W)
	0.55963	0.0986
ASTM C1028	Coefficient of Friction	
	Dry Coefficient: 0.88	
	Wet Coefficient: 0.97	
ASTM E648 Refer to report 102757999SAT-001	Critical Radiant Flux	
	0.94 W/cm ²	Class I, (>0.45 W/cm ²)
ASTM E662 Refer to report 102757999-mid-003	Smoke Density	
	25 KW/m2 Radiant - Clear Beam Factor Correction Factor	
	12.0	
	25 KW/m2 Radiant with Pilot Flame - Clear Beam Factor Correction Factor	
	21.3	
ASTM F970	Static Load @ 250lbs	
	0.0022 in. indentation	No Pass/Fail Criteria
ASTM F1700, Sec. 6.7	Dimensional Stability	
	Machine Direction	
	0.110 in/lineal foot deviation	
	Across Machine Direction	
	0.010 in/lineal foot deviation	
ASTM F1700, Sec. 6.8	Resistance to Chemicals	
	No Change	No More Than Slight Change
CDPH California Specification 01350 Refer to report 10275799MID-005	Volatile Organic Chemical Emissions	
	Met as Stated	Private Office, Classroom, and Single Family Homes

Test Summary Results: (Continued)

Test Summary Results

Standard	Result	
ASTM E90 Refer to reports: G3432.02-113-11-R1, G3432.03-113-11-R0, G3432.04-113-11-R1, and G3432.05-113-11-R1	Series/Model	Transmission Loss (STC)
	Distressed Natural Fossilized® Bamboo Flooring with Cali Complete™	63
	Cali Bamboo 7mm Wide+ Vinyl Flooring	62
	Natural Fossilized® Eucalyptus Wood Flooring with Cali Complete™	62
	Wintermist Cork Flooring with Cali Complete™	62
ASTM E492 Refer to reports: G3432.02-113-11-R1, G3432.03-113-11-R0, G3432.04-113-11-R1, and G3432.05-113-11-R1	Series/Model	Sound Transmission (IIC)
	Distressed Natural Fossilized® Bamboo Flooring with Cali Complete™	67
	Cali Bamboo 7mm Wide+ Vinyl Flooring	68
	Natural Fossilized® Eucalyptus Wood Flooring with Cali Complete™	65
	Wintermist Cork Flooring with Cali Complete™	68

Test Methods: The test specimens were evaluated in accordance with the following methods.

ANSI/NALFA LF-01-2011, *Laminate Flooring Specifications and Test Methods*, Sections 3.2 through 3.10

ASTM C518-15, *Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus*

ASTM C1028-07^{ε1}, *Standard Test Method for Determining the Static Coefficient of Friction of Ceramic Tile and Other Like Surfaces by the Horizontal Dynamometer Pull-Meter Method*

ASTM E648-15, *Standard Test Method for Critical Flux of Floor-Covering Systems Using a Radiant Heat Energy Source*

ASTM E662-15a, *Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials*

ASTM E90-09, *Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements*

ASTM E492-09(2016)^{ε1}, *Standard Test Method for Laboratory Measurement of Impact Sound Transmission Through Floor-Ceiling Assemblies Using the Tapping Machine*

ASTM F970-15, *Standard Test Method for Static Load Limit*

ASTM F1700-13a, *Standard Specification for Solid Vinyl Tile*, Sections 6.7 and 6.8

CDPH California Specification 01350, *Standard Test Method for Testing and Evaluation of Volatile Organic Chemical Emissions From Indoor Sources Using Environmental Chambers Version 1.1*

Product Description: The Luxury Vinyl Flooring was submitted to Intertek-ATI by Cali Bamboo on October 31, 2016 and consisted of various specimen sizes for each ASTM standard specimen size requirement. The material was tested as-received with the exception of machining the smaller test specimens from the pieces.

Test Procedures and Test Results: The testing procedures and results obtained from testing are reported as follows. All conditioning of test specimens and test conditions were at standard laboratory conditions unless otherwise reported. Refer to the test related photos in Appendix B.

ANSI/NALFA LF-01-2011, Section 3.2 Thickness Swell

Two nominally six inch square flooring specimens were tested in accordance with ANSI/NALFA LF-01-2011, Section 3.2. The attached underlayment was removed prior to testing. Each specimen was measured for thickness at the edge of the middle point on all four sides prior to being submersed under 1 in. ± 0.1 in. of deionized water maintained at 68°F ± 2 °F. Specimens remained submerged for 24 hours ± 0.25 hours. Final thickness measurements were taken within 15 minutes of removal from the water. All thickness measurements were taken using a micrometer (ICN: 65687). The results are displayed within the table below.

Section 3.2 Thickness Swell Results

Specimen No.	Location	Initial Thickness (in)	Final Thickness (in)	(%) Thickness Increase	Average Thickness Increase (%)
1	A	0.22585	0.23635	5	4
	B	0.22990	0.23725	3	
	C	0.23195	0.23695	2	
	D	0.23295	0.24165	4	
2	A	0.22570	0.23745	5	
	B	0.22675	0.23700	5	
	C	0.23130	0.23755	3	
	D	0.22640	0.23615	4	

Test Procedures and Test Results: (Continued)

ANSI/NALFA LF-01-2011, Section 3.3 Light Resistance

One half of the each specimen face was covered prior to exposure to be used as the control in evaluating the light resistance. Two specimens of light and dark variations were exposed to accelerated weathering cycle per ANSI/NALFA LF-01-2011, Section 3.3 inside an Atlas Ci5000 Weatherometer (ICN: 63081) at an irradiance level of 1.10 W/m² at 340 nm wavelength. The black panel thermometer was set to 70°C, dry bulb at 50°C, wet bulb at 39°C, continuous water 20°C, total irradiance of 396 kJ/m². The specimens were exposed for 100 hours. Specimens were allowed to recover for a 24 hour ±1 hour period without exposure of light. At the conclusion of the recovery period, specimens were viewed on a horizontal surface illuminated as outlined in Section 3.3.4.3 with the naked eye at a distance of 30 to 36 inches on an angle of approximately 45° to 75° to the horizontal plane. The results are displayed within the table below.

Section 3.3 Light Resistance Results

Specimen Type	Specimen No.	Light Resistance Grade
Light	1	No Effect
	2	No Effect
Dark	1	No Effect
	2	No Effect

ANSI/NALFA LF-01-2011, Section 3.4 Cleanability and Stain Resistance

Fifteen specimens were tested in accordance with ANSI/NALFA LF-01-2011, Section 3.4. Each specimen surface was cleaned and allowed to thoroughly dry prior to chemical exposure. A 6 mm (1/4 in.) spot of each reagent was applied to the surface of each specimen, covered with a watch glass. Watch glass was moved around to spread a uniform coat of the reagent across the specimen surface. Watch glass was positioned so reagent was partially covered for a period of 16 to 24 hours. At the end of test period, each test specimen was cleaned and graded in accordance with Section 3.4.4.9. Each specimen was given a cleanability score and evaluated for stain resistance. The results are displayed within the table below.

Test Procedures and Test Results: (Continued)

ANSI/NALFA LF-01-2011, Section 3.4 Cleanability and Stain Resistance (Continued)

Section 3.4 Cleanability and Stain Resistance Results

Reagent	Stain Grade Score	Stain Resistance
Distilled Water	0	No Effect
Ethanol Solution	0	No Effect
Acetone	0	No Effect
Household Ammonia	0	No Effect
10% Citric Acid	0	No Effect
Vegetable Oil	0	No Effect
Coffee	0	No Effect
Tea	0	No Effect
Ketchup	0	No Effect
Mustard	1	No Effect
10% Povidone Iodine	0	No Effect
Black Permanent Marker	3	No Effect
#2 Pencil	1	No Effect
Wax Crayon	2	No Effect
Black Paste Shoe Polish	3	No Effect
Total Stain Grade Score	10	

ANSI/NALFA LF-01-2011, Section 3.5 Large Ball Impact Resistance

Testing was performed in accordance with ANSI/NALFA LF-01-2011, Section 3.5. The test specimen was clamped to an Impactor (ICN: 006000) equipped with a 225 gram 1-1/2 in. diameter steel ball. Impacts were made from several drop heights, including 67.5 inches, which is the maximum height of the impactor. Test results are displayed within the table below.

Section 3.5 Large Ball Impact Resistance Results

Impact Level (in)	Impact No.								
	1	2	3	4	5	6	7	8	9
31.5	P								
39.5		P							
47.5			P						
55.5				P	P	P			
67.5							P	P	P

Note: *There were no signs of cracking at the impact point on the specimen for each of the impacts.*

DRAFT 01/24/17

Test Procedures and Test Results: (Continued)

ANSI/NALFA LF-01-2011, Section 3.6 Small Ball Impact Resistance

Testing was performed in accordance with ANSI/NALFA LF-01-2011, Section 3.6. The test specimen was placed on the small ball Impactor (ICN: INT00528) equipped with a 25 gram steel dart tipped with a 5mm diameter steel ball. Impacts began at the starting height of 5 inches. If failure was not observed, the impact height was raised 1 inch. No failures were observed up to the height of 21 inches so three impacts were made from a drop height of 32 inches the maximum height of the impactor. Test results are displayed within the table below.

Section 3.6 Small Ball Impact Resistance

Impact Level (in)	Impact No.																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
5	P																			
6		P																		
7			P																	
8				P																
9					P															
10						P														
11							P													
12								P												
13									P											
14										P										
15											P									
16												P								
17													P							
18														P						
19															P					
20																P				
21																	P			
32																		P	P	P

Note: There were no signs of cracking at the impact point on the specimen for each of the impacts.

Test Procedures and Test Results: (Continued)

ANSI/NALFA LF-01-2011, Section 3.7 Wear Resistance

Testing was performed in accordance with ANSI/NALFA LF-01-2011, Section 3.7 on two nominally four inch square specimens. Test specimens were secured to the Taber 5130 Abraser (ICN: Y001522). Standardization of the abrasive was performed as detailed in Section 3.7.4 with S-34 zinc plates and a correction factor calculated. The specimen surface was cleaned and abraded in 200 revolution cycles in accordance with Section 3.7.5 until an initial wear point greater than or equal to 0.60 mm² was observed and documented utilizing a TAPPI Size Estimation Chart. Specimens were then abraded in 25 revolution cycles and inspected until a third wear point was observed and documented. Test results are displayed within the tables below.

Section 3.7 Standardization

Calibration Standard	Mass (g)			Weight Loss (mg)		Correction Factor
	W1	W2	W3	W1-W2	W2-W3	
S-34 Zinc Plate	57.068	56.971	56.861	97	110	0.9409

Section 3.7 Wear Resistance

Specimen No.	Wear Point		Wear Resistance Correction Factor
	1st Quadrant No. of Cycles	3rd Quadrant No. of Cycles	
1	4,600	4,725	4,446
2	4,400	4,675	4,399
Average	4,500	4,700	4,422
Wear Resistance			4,400

Test Procedures and Test Results: (Continued)

ANSI/NALFA LF-01-2011, Section 3.8 Dimensional Tolerances

Testing was performed in accordance with ANSI/NALFA LF-01-2011, Section 3.8 on five full sheet specimens. All visual inspections and measurements were conducted according to all applicable criteria found in Section 3.8 utilizing calipers (ICN: 65102) for all measurements. The dimensional tolerances, the difference between the minimum and maximum measurements, are displayed within the table below.

Section 3.8 Dimensional Tolerances Results

Parameter	Tolerance (in)
Length	0.000
Width	0.007
Thickness	0.007
Straightness	0.007
Squareness	0.000

ANSI/NALFA LF-01-2011, Section 3.9 Castor Chair Resistance

Testing was performed at Intertek Kentwood, located in Kentwood, Michigan. Refer to comprehensive report 102754999GRR-001.

Test Procedures and Test Results: (Continued)

ANSI/NALFA LF-01-2011, Section 3.10 Surface Bonding

Testing was performed in accordance with ANSI/NALFA LF-01-2011, Section 3.10 on five specimen panels with nominal dimensions 175 mm x 125 mm x 7mm. Each specimen surface was prepared with a circular groove into the decorative face and extending 0.0 - 0.3 mm into the core creating a test area of 35.7 ±2 mm. The surface of each specimen was lightly cleaned with isopropyl alcohol, and a 35.6 mm diameter aluminum pull-off tab was firmly secured with Loctite E-40HT Hysol® Epoxy Adhesive. The adhesive was allowed to cure for a minimum of 48 hours prior to each specimen being individually secured to the test stage of an Instron 3369 Universal Test Machine (ICN: 005740) utilizing 10kN Load Cell (ICN: 005965). Tensile load was uniformly applied to the pull-off tab at a rate of 41.4 N/mm²/min until failure was observed. Test results are displayed within the table below.

Section 3.10 Surface Bonding Results

Specimen ID	Test Area Diameter (mm)	Peak Load (N)	Tensile Strength (N/mm ²)	Failure Mode Location
1	35.611	1,850	1.86	10% Core - Adhesive Failure
2		1,690	1.70	100% Core Failure
3		2,210	2.22	100% Core Failure
4		2,420	2.43	100% Core Failure
5		2,150	2.16	100% Core Failure
Mean		2,070	2.07	
Standard Deviation		293	0.29	

ASTM C518 - Heat Flow Meter Testing

Testing for ASTM C518-15 was performed at Intertek Middleton, located in Middleton, Wisconsin. Refer to comprehensive report 102757999MID-004.

Test Procedures and Test Results: (Continued)

ASTM C1028 - Coefficient of Friction

Testing was performed in accordance with ASTM C1028-07^{e1}. Three specimens were used in this evaluation. Testing was conducted using a three inch square Neolite pad (Shore A 96) and a digital force gage (ICN: 63711). A sled with a weight of 51.6 lbs was pulled along the surface of the vinyl flooring with increasing force until a noticeable slip occurred. For the wet method, the Neolite pad was saturated for five minutes before fully saturating the surface of the vinyl flooring and the testing was repeated. Test results are displayed within the tables below.

Calibration Data
Sled Assembly Weight (W) = 51.6 lbs
(3" Neolite pad)

Dry Calibration		Wet Calibration	
Pull No.	Result (lbs)	Pull No.	Result (lbs)
1	37.3	1	14.0
2	36.0	2	14.2
3	35.9	3	14.8
4	37.4	4	14.0
Total (R_D)	146.6	Total (R_W)	57
X_D	0.128	X_W	0.225

Calibration calculation (Dry): $X_D = 0.86 - \frac{R_D}{NW}$

Calibration calculation (Wet): $X_W = 0.51 - \frac{R_D}{NW}$

Where R is the total value of the pulls conducted, N equals the total number of pulls (i.e. four) and W is the weight of the sled assembly (See Sections 7 and 9 in ASTM C1028-07^{e1} for further detail).

The calculation for the Coefficient of Friction: $F_D = \left(\frac{R_D}{NW} \right) + X_D$

Where R is the total value of the pulls conducted, N equals the total number of pulls (i.e. 12), W is the weight of the sled assembly and X is the calibration adjustment factor. (See Sections 8 and 10 in ASTM C1028-07^{e1} for further detail).

Test Procedure and Test Results: (Continued)

ASTM C1028 Results (Continued)

Dry Static Coefficient of Friction

Specimen No.	Pull Orientation	Result (lbs)
1	0°	39.0
	90°	39.2
	180°	37.6
	270°	39.8
	Total (R _D)	155.6
	Coefficient of Friction (F_D)	0.90
2	0°	36.2
	90°	36.2
	180°	38.7
	270°	37.8
	Total (R _D)	148.9
	Coefficient of Friction (F_D)	0.87
3	0°	35.8
	90°	37.6
	180°	34.9
	270°	38.7
	Total (R _D)	147
	Coefficient of Friction (F_D)	0.86
Average Coefficient of Friction (F_D)		0.88

Test Procedure and Test Results: (Continued)

ASTM C1028 Results (Continued)

Wet Static Coefficient of Friction

Specimen No.	Pull Orientation	Result (lbs)
1	0°	33.1
	90°	35.9
	180°	35.9
	270°	36.7
	Total (R _D)	141.6
	Coefficient of Friction (F_w)	0.93
2	0°	35.8
	90°	37.1
	180°	37.2
	270°	39.7
	Total (R _D)	149.8
	Coefficient of Friction (F_w)	0.97
3	0°	38.6
	90°	39.0
	180°	38.9
	270°	41.1
	Total (R _D)	157.6
	Coefficient of Friction (F_w)	1.01
Average Coefficient of Friction (F_w)		0.97

ASTM E648 - Critical Radiant Flux of Floor-Covering Systems

Testing for ASTM E648-15 was performed at Intertek Elmendorf, located in Elmendorf, Texas. Refer to comprehensive report 102757999SAT-001.

ASTM E662 - Optical Density of Smoke

Testing for ASTM E662-15a was performed at Intertek Middleton, located in Middleton, Wisconsin. Refer to comprehensive report 102757999MID-003.

Test Procedures and Test Results: (Continued)

ASTM E90 - Airborne Sound Transmission Loss

Testing for ASTM E90-09 was performed at Intertek York, located in York, Pennsylvania. Refer to comprehensive reports G3432.02-113-11-R1, G3432.03-113-11-R0, G3432.04-113-11-R1, and G3432.05-113-11-R1.

ASTM E492 - Impact Sound Transmission

Testing for ASTM E492-09(2016) ^{ε1} was performed to Intertek York, located in York, Pennsylvania. Refer to comprehensive reports G3432.02-113-11-R1, G3432.03-113-11-R0, G3432.04-113-11-R1, and G3432.05-113-11-R1.

ASTM F970 - Static Load

Testing was performed in accordance with ASTM F970-15. Three specimens were used for this evaluation. Prior to testing the center of each sample was measured for thickness using a Digital Indicator (ICN: Y000118). The samples were then alternately stacked under steel indenter plates having a one square inch circular loading area. A load of 250 pounds was applied to the combined stack of samples and loading plates for a period of 24 hours. After the removal of the weight, the samples were allowed to recover for a period of 24 hours. The indentation depth was then measured using the same Digital Indicator and averaged for the three samples. Test results are displayed within the table below.

Static Load Results

Sample	Original Thickness (in)	Post-test Thickness (in)	Residual Indentation (in)
1	0.2840	0.2820	0.0020
2	0.2845	0.2825	0.0020
3	0.2845	0.2820	0.0025
Average			0.0022

Test Procedures and Test Results: (Continued)

ASTM F2199 Dimensional Stability

The dimensional stability evaluation specified in ASTM F1700, Section 6.7 was conducted in accordance with the procedures detailed in ASTM F2199 for both machine and crosswise directions for the provided product. In accordance with ASTM F2199, Section 6.1, a 9.0 in. square specimen was prepared from a full-size tile specimen and allowed to condition for a period of 24 hours at standard laboratory conditions (23 ±1°C, 50 ±5% relative humidity) prior to initial measurement of both specimen edges in both length (machine direction) and width (crosswise direction) with 12.0 in. digital calipers (ICN: 65102). The specimen was then oven exposed at 180 ±3.6°F (82 ±2°C) for six hours prior to removal and re-acclimation to standard laboratory conditions for a minimum of 24 hours. Post-exposure measurements were taken and initial measurements were subtracted as specified in Section 9.1 to determine dimensional stability. Product performance was evaluated against the criteria presented in ASTM F1700, Section 6.7. Test results are displayed within the tables below.

ASTM F2199 Dimensional Stability

Measurement		Exposure Conditions		Measured Length (in)		Deviation From Initial Length	
Production Direction	No.	Temp (°C)	Duration (hrs)	Initial	Post Exposure	(in)	(in/lineal foot)
Machine	1	82	6	11.725	11.619	-0.106	-0.104
	2			11.729	11.620	-0.109	-0.107
	3			11.730	11.614	-0.116	-0.113
	4			11.728	11.608	-0.120	-0.117
Series Mean						-0.110	

Measurement		Exposure Conditions		Measured Length (in)		Deviation From Initial Length	
Production Direction	No.	Temp (°C)	Duration (hrs)	Initial	Post Exposure	(in)	(in/lineal foot)
Crosswise	1	82	6	7.414	7.430	0.016	0.010
	2			7.414	7.431	0.017	0.011
	3			7.415	7.432	0.017	0.011
	4			7.415	7.432	0.017	0.011
Series Mean						0.010	

Test Procedures and Test Results: (Continued)

ASTM F925 Resistance to Chemicals

The chemical resistance exposure specified in ASTM F1700, Section 6.8 was conducted in accordance with the procedures detailed in ASTM F925-13, on a total of twelve 6.0 in. x 6.0 in. specimens prepared from full-size tile specimens. Pre and post color readings were taken using a Spectrometer Color i5 (ICN: 004725). The specimens were exposed to the reagents specified in ASTM F1700, Sections 6.8.1-6.8.12 under a watch glass for a period of 60 ±1 minutes prior to removal of the reagent and blotting dry of the surface as detailed in ASTM F925, Section 8.10 and visual examination of the exposed area against an adjacent, unexposed area as specified in Section 9.1. Post-exposure performance was rated on the scale presented in Section 9.2. Post-exposure performance was further evaluated against the criteria presented in ASTM F1700, Section 6.8. Test results are displayed within the table below.

ASTM F925 Resistance to Chemicals

F1700 Sub-Section	Exposure Details	Observations ¹			
	Chemical	Surface Dulling	Color Change (Staining)	Surface Attack	Color Change ΔE
6.8.1	White vinegar (5% acetic acid)	0	0	0	0.11
6.8.2	Rubbing alcohol (70% Isopropanol)	0	0	0	0.07
6.8.3	White mineral oil (medicinal grade)	0	0	0	0.20
6.8.4	Sodium hydroxide solution (5% NaOH)	0	0	0	0.22
6.8.5	Hydrochloric acid solution (5% HCl)	0	0	0	0.11
6.8.6	Sulfuric Acid Solution (5% H ₂ SO ₄)	0	0	0	0.08
6.8.7	Household ammonia solution (5% NH ₄ OH)	0	0	0	0.14
6.8.8	Household bleach (5.25% NaOCl)	0	0	0	0.06
6.8.9	Olive oil (light)	0	0	0	0.31
6.8.10	Kerosene (K1)	0	0	0	0.06
6.8.11	Unleaded gasoline (Regular Grade)	0	0	0	0.06
6.8.12	Phenol (5% active phenol)	0	0	0	0.11

¹ ASTM F925, Section 9.2 visual evaluation ratings are as follows:
0 = No change, 1 = Slight Change, 2 = Moderate Change, 3 = Severe Change

Intertek-ATI will service this report for the entire test record retention period. Test records that are retained such as detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation will be retained by Intertek-ATI for the entire test record retention period.

Results obtained are tested values and were secured using the designated test methods. This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. It is the exclusive property of the client so named herein and relates only to the specimen(s) tested. This report may not be reproduced, except in full, without the written approval of Intertek-ATI.

For INTERTEK-ATI:

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Components / Materials Testing

JRH:dmc/kf

Attachments (pages) This report is complete only when all attachments listed are included.
Appendix A - Photographs (6)

Revision Log

<u>Rev. #</u>	<u>Date</u>	<u>Page(s)</u>	<u>Revision(s)</u>
0	01/24/17	N/A	Original report issue

DRAFT 01/24/17

APPENDIX A

Photographs

DRAFT 01/24/17



Photo No. 1
3.2 - Thickness Swell Measurement Detail (Typical)



Photo No. 2
3.3 - Light Resistance Specimens Post-Test Results



Photo No. 3
3.4 - Cleanability Stain Resistance Post-Test Results



Photo No. 4
3.5 - Large Ball Impact Test Setup

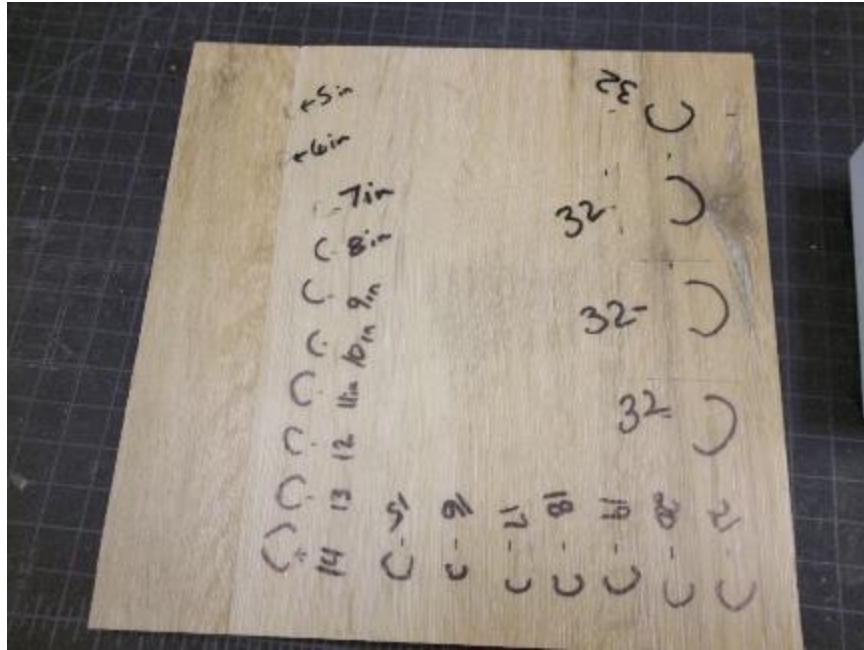


Photo No. 5
3.6 - Small Ball Impact Test Post-Test Result

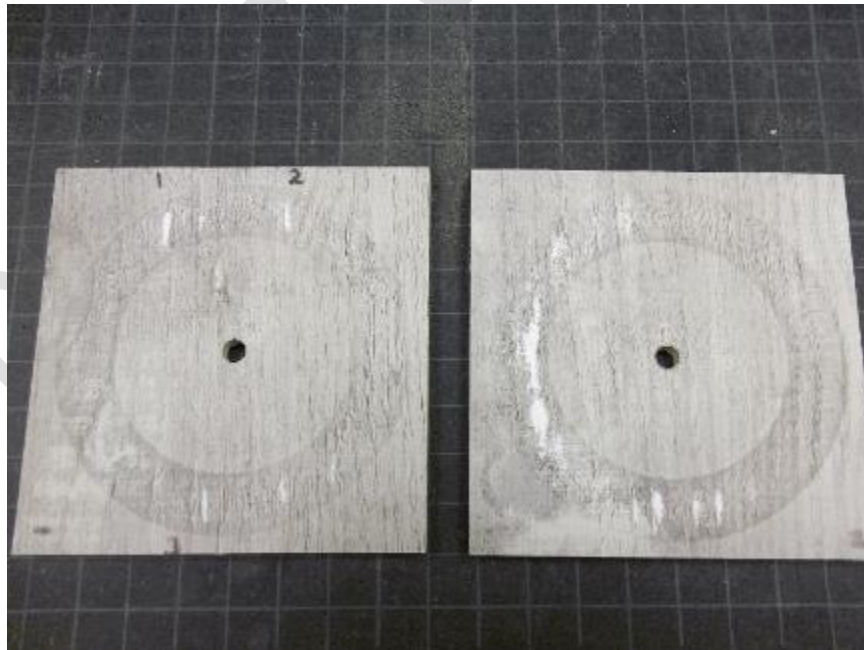


Photo No. 6
3.7 - Wear Resistance Post-Test Specimens



Photo No. 7
3.8 - Dimensional Tolerance Test In-Progress



Photo No. 8
3.10 - Surface Bond Post-Test Specimen



Photo No. 9
ASTM C1028 - Coefficient of Friction Testing Setup

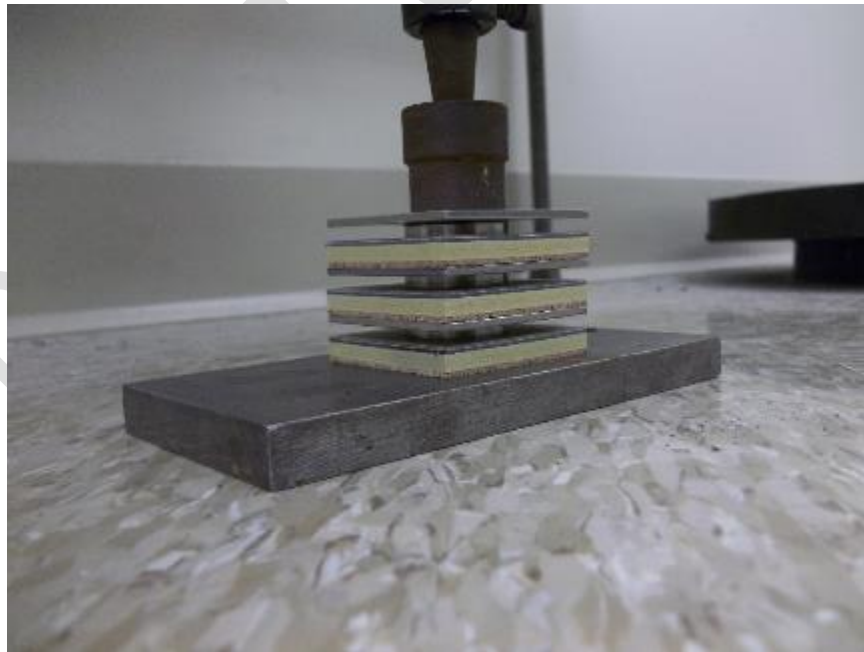


Photo No. 10
ASTM F970 - Static Load Test Setup Detail

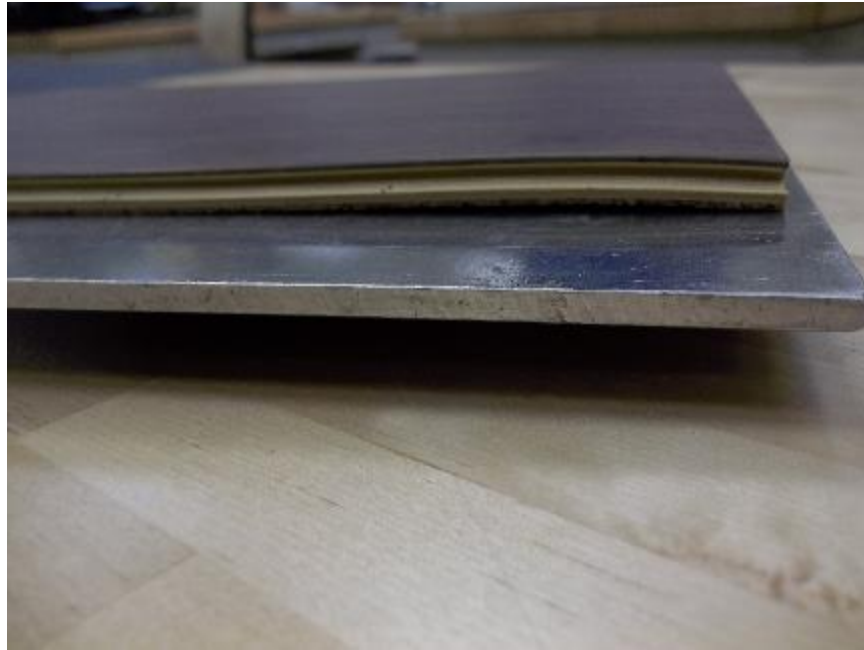


Photo No. 11
ASTM F1700 Sec. 6.7 - Dimensional Stability Post-Test Result Detail



Photo No. 12
ASTM F1700 Sec. 6.8 - Resistance to Chemicals Test In-Progress