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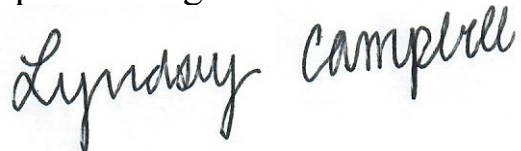
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A Report to
Kastamonu
from
North Carolina State University
Wood Products Laboratory
on
NALFA's Laminate Surface Swell Test –
Assembled Joint

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Project Number: WPL-24-1976

Principal Investigator



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IMPORTANT

- These tests were conducted according to the procedures described in NALFA's Laminate Surface Swell Test – Assembled Joint.
- The test procedures and standards were designed for laminate flooring, and their use with other products may produce misleading or irrelevant results.
- We do not certify a manufacturer's laminate flooring. We report only on the results of a given sample of laminate flooring which has been submitted to our laboratory for testing.
- The name of the University is not to be used in any type of advertising or promotional efforts.
- We have undertaken testing of laminate flooring as an independent testing laboratory largely as a service to the laminate flooring industry. However, our main purpose is that of education and research, which means that we cannot always respond quickly to requests for testing.

Kastamonu submitted one (1) sample for testing according to the test method NALFA Laminate Surface Swell Test – Assembled Joint modified to a duration of 72 hours total.

Sample coded as follows:

Sample	Identification
1	FLOORPAN/ARTFLOOR SUN

Results to follow.

TEST RESULTS

NALFA LAMINATE SURFACE SWELL TEST – ASSEMBLED JOINT (72 HOURS TOTAL)

The NALFA Laminate Surface Swell- Assembled Joint Test is reported quantitatively and qualitatively. The quantitative measurement is reported as the final average thickness swell in both Point 1 and Points 2-4, but the performance criteria is based on Points 2-4. They are expressed as difference in the Recovery Swell measurement and Wet Swell measurement. The qualitative measurement is based on the grading of the Recovered joints enclosed in the PVC ring where the water was located.

Surface Swell - Results Summary				
Sample	Identification	Replicate	+48 hours (72 hours total)	
			Recovered Qualitative Rating	Measured Recovered Average
1	FLOORPAN/ARTFLOOR SUN	1	2	0.1
		2	2	

<p>Grade:</p> <p>1 = No change - No noticeable change in edge swell or panel surface lift</p> <p>2 = Slight swelling – Slight swelling, small ridge along one or more joints, very little if any panel surface lift.</p> <p>3 = Moderate – Noticeable edge swelling and some panel surface lift extending away from joint</p> <p>4 = Objectional – Severely raised edge and swelling extending noticeably under the panel surface.</p> <p>5 = Invalid Test – Water leaked out of the ring, leaving no continuous film of water inside the ring (this grade is given even if there is no swell of the edge joint)</p>

MINIMUM PERFORMANCE VALUES FROM THE STANDARD

NALFA Topical Moisture (summary table)			Results	Minimum Performance
1	Recovered Qualitative Rating	1-5		≤2
	Measured Recovered Average (mm)	mm		≤0.3

*Minimum performance values only based on points 2-4 (P2-4)

TEST RESULTS

+48 HOURS (72 HOURS TOTAL)

Specimen 1A- Quantitative Results					
Position	Time water added:				
	Initial height (mm)	Wet Height	Wet Swell	Recov. Height	Recov. Swell
1	0.16	0.75	0.59	0.40	0.24
2	0.16	0.51	0.4	0.3	0.14
3	0.08	0.44	0.36	0.22	0.14
4	0.11	0.58	0.47	0.26	0.15
Average	0.13	0.57	0.39	0.30	0.14
	Initial Thickness Avg	Wet Height Avg	Wet Swell Avg	Recov. Height Avg	Recov. Swell Avg
Specimen 1A- Qualitative Result					
Wet	2				
Recov.	2				
Specimen 1B- Quantitative Results					
Position	Time water added:				
	Initial height (mm)	Wet Height	Wet Swell	Recov. Height	Recov. Swell
1	0.14	0.68	0.54	0.36	0.22
2	0.11	0.49	0.4	0.25	0.14
3	0.04	0.39	0.35	0.14	0.1
4	0.12	0.6	0.48	0.31	0.19
Average	0.10	0.54	0.40	0.27	0.14
	Initial Thickness Avg	Wet Height Avg	Wet Swell Avg	Recov. Height Avg	Recov. Swell Avg
Specimen 1B- Qualitative Result					
Wet	2				
Recov.	2				