ABIC TESTING LABORATORIES, INC.

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To: Kahrs International Inc. March 15, 2004
Mr. Tim Colgan

From: Leonard Mackowiak

Subject : Static Coefficient Of Friction (SCOF) Testing and Static Load Limit Testing
Project No 5194-06

Introduction

ABIC Testing Laboratories, Inc. was authorized to test the following submitted wood floor samples

- 7 mm Kahrs
- 11 mm Kahrs
- 14 mm Kahrs
- 15 mm Kahrs

The floorings was tested for the shown values by the test methods listed

- Static Coefficient of Friction (SCOF)
    1. ASTM D-2047
    2. ASTM C-1028
    3. ASTM D-2394
- Static Load Limit
    1. ASTM F-970

Results

Our results are shown below. A brief description of each test is detailed in Appendix I attached

Static Coefficient of Friction Tests

1. ASTM D-2047

Sample Identification	SCOF Values	Average
7 mm Kahrs	.54, .52, .50, .54 .54, .52, .52, .47 .52, .55, .53, .53	.5

1. ASTM D-2047

Sample Identification	SCOF Values	Average
14 mm Kahrs	.32, .30, .31, .25 .32, .32, .30, .25 .25, .30, .30, .28	.3
15 mm Kahrs	.62, .60, .54, .56 .55, .60, .61, .57 .58, .60, .57, .57	.6

2. ASTM C-1028

Sample Identification	SCOF Values		Average	
	Dry	Wet	Dry	Wet
7 mm Kahrs				
As Received	.80, .80, .82, .80 .75, .85, .84, .80 .78, .78, .82, .82	.77, .90, .90, .86 .86, .90, .80, .85 .75, .78, .80, .82	.8	.8
Cleaned*	.82, .82, .81, .80 .81, .86, .82, .81 .82, .81, .85, .84	.79, .79, .79, .79 .77, .80, .79, .79 .79, .79, .81, .77	.8	.8
14 mm Kahrs				
As Received	.92, .90, .91, .91 .92, .90, .92, .88 .88, .92, .90, .92	.80, .82, .81, .78 .87, .80, .82, .82 .83, .83, .81, .80	.9	.8

2. ASTM C-1028

Sample Identification	SCOF Values		Average	
	Dry	Wet	Dry	Wet
14 mm Kahrs				
Cleaned*	.93, .92, .90, .88 .88, .90, .93, .92 .93, .91, .91, .92	.82, .81, .80, .86 .84, .84, .80, .83 .83, .81, .80, .82	.9	.8
15 mm Kahrs				
As Received	.96, .95, .95, .96 .95, .90, .93, .94 .96, .95, .95, .93	.86, .87, .83, .84 .82, .86, .86, .88 .85, .86, .86, .87	.9	.9
Cleaned *	.96, .98, .93, .95 .94, .94, .95, .94 .94, .94, .91, .94	.87, .87, .84, .87 .83, .85, .86, .87 .83, .85, .83, .88	.9	.9

* Cleaned with Renovator Cleaner as per testing procedure

3. ASTM D-2394

Sample Identification	SCOF Values	Average
7 mm Kahrs	.58, .55, .54, .53 .52, .56, .56, .55 .58, .53, .54, .55	.6
14 mm Kahrs	.47, .47, .45, .43 .48, .48, .47, .47 .45, .46, .46, .46	.5
15 mm Kahrs	.50, .48, .46, .49 .49, .50, .52, .50 .50, .50, .49, .52	.5

Static Load Limit

4. ASTM F-970

Sample Identification	Sample #	Static Load	Results
7 mm. Kahrs	1	250 psi	No indentation
	2	250 psi	No indentation
	3	250 psi	No indentation
11 mm. Kahrs	1	250 psi	No indentation
	2	250 psi	No indentation
	3	250 psi	No indentation
14 mm. Kahrs	1	250 psi	No indentation
	2	250 psi	No indentation
	3	250 psi	No indentation
15 mm. Kahrs	1	250 psi	No indentation
	2	250 psi	No indentation
	3	250 psi	No indentation

Discussion

It is generally recognized that a walking surface must have a static coefficient of friction value of .5 or greater to be considered slip resistant. In our evaluation all the wood samples meet this standard except the 11mm and 14 mm Kahrs samples in the ASTM D-2047 test method. All the other samples meet this minimum static coefficient of friction standard by the test methods shown.

An indentation of less then .005 inches is required to meet the requirements for static load @250 psi according to the ASTM F-970 standard. The 7mm., 11mm., 14mm. and 15mm. Kahrs wood floor samples meet the requirements for static load at 250 psi.

Respectfully submitted
Leonard Mackowiak

Leonard Mackowiak
Vice President

Appendix I
Brief Test Method Description

1. American Society for Testing and Materials (ASTM) D-2047: Standard Test Method for Static Coefficient of Fiction of Polish-Coated Floor Surfaces as Measured by the James Machine

The static coefficient of friction is determined by use of the James Machine described in the testing standard. Static coefficient of friction values were determined with standard leather. The determination is made dry on the test surface as received.

2. American Society for Testing and Materials (ASTM) C-1028: Standard Test Method for Determining the Static Coefficient of Friction of Ceramic Tile and other Like Surfaces by the Horizontal Dynometer Pull-Meter Method

The static coefficient of friction is determined by use of the test fixtures described in the testing standard. Static coefficient of friction values were determined with standard neolite. The determination is made dry and wet on the test surface as received.

3. American Society for Testing and Materials (ASTM) D-2394: Standard Methods for Simulated Service Testing of Wood and Wood-Base Finish Flooring

The static coefficient of friction is determined by use of the test fixtures described in the testing standard. Static coefficient of friction values are determined with standard leather. The determination is made dry on the test surface as received.

4. American Society for Testing and Materials (ASTM) F-970: Standard Test Method for Static Load Limit

A static load of 250 psi was applied to the wood surface for twenty- four hours. The load was removed after twenty- four hours and the sample allowed to recover for an additional twenty-four hours. Indentation of the wood sample was measured after the recovery period.