

Order No. 3058029

May 11, 2004

**REPORT NO. 3058029-003****IMPACT SOUND TRANSMISSION TEST  
AND CLASSIFICATION OF BRUCE ENGINEERED HARDWOOD FLOORING  
OVER REDUPAX+ UNDERLAYMENT  
ON A SIX INCH THICK CONCRETE SLAB****RENDERED TO****SOUND SEAL  
PO BOX 545  
AGAWAM, MA 01001****INTRODUCTION**

This report gives the results of an Impact Sound Transmission test on Bruce Engineered Hardwood Flooring over Redupax+ underlayment. The underlayment was selected and supplied by the client and received at the laboratories on April 9, 2004. The sample appeared to be in new, unused condition upon arrival.

**AUTHORIZATION**

Purchase Order No. 8611 from Sound Seal.

**TEST METHOD**

The specimen was tested in general accordance with the American Society for Testing and Materials designation ASTM E2179-01 (Revised 2003), "Standard Test Method for Laboratory Measurement of the Effectiveness of Floor Coverings in Reducing Impact Sound Transmission Through Concrete Floors".

An Independent organization testing for safety, performance, and certification.

**TEST METHOD** – Cont'd

Two vertically adjacent rooms are used: the upper one being designated the source room and the lower one the receiving room (10,000 ft<sup>3</sup>). A standard concrete floor is installed in an opening between them. The rooms and the floor installation are designed so the only significant sound radiation into the receiving room is from the standard concrete floor.

A standard tapping machine is placed and activated on the standard concrete floor and the impact sound pressure levels are measured in the room below. The floor covering to be evaluated is then placed on the standard concrete floor and the impact sound pressure levels measured again.

The differences in impact sound pressure level are used to calculate two single number ratings. The first is an IIC rating calculated for the covering installed on the reference concrete floor. The second rating,  $\Delta$ IIC, represents the calculated reduction in IIC when the covering is placed on the reference concrete floor, that is the improvement in IIC due to the covering.

**DESCRIPTION OF THE FLOOR/CEILING ASSEMBLY**

The floor system consisted of a six inch thick concrete slab that forms the horizontal separation between two rooms.

**DESCRIPTION OF TEST SPECIMEN****Redupax+ over concrete**

Specimen Description: Floating Engineered Hardwood floor covering over Impacta Redupax+ underlayment installed over 6' concrete slab.

The test specimen was a floor-ceiling assembly consisting of the following:

1 layer of Bruce engineered hardwood T & G flooring

1 layer of 8mm (.31") thick Redupax+ pressed fibrous underlayment panels.

1 layer of 4 mil plastic sheeting

6" thick reinforced concrete slab

Specimen Size: 6' x 8'

The description of the test specimen was supplied by the client.

**RESULTS OF TESTS**

1/3 Octave Band Center Frequency Hertz	1/3 Octave Band Sound Pressure Level dB re 0.0002 Microbar				
	<u>Bare Concrete</u>	<u>Test Specimen on Concrete</u>	<u>Difference in dB</u>	<u>Reference Floor</u>	<u>Calculated Levels</u>
100	69	66	3	67.0	64.0
125	68	65	3	67.5	64.5
160	70	70	0	68.0	68.0
200	71	72	1	68.5	69.5
250	72	71	1	69.0	68.0
315	73	69	4	69.5	65.5
400	74	64	10	70.0	60.0
500	75	62	13	70.5	57.5
630	75	57	18	71.0	53.0
800	76	53	23	71.5	48.5
1000	77	49	28	72.0	44.0
1250	79	45	34	72.0	38.0
1600	81	43	38	72.0	34.0
2000	83	41	42	72.0	30.0
2500	82	38	44	72.0	28.0
3150	81	37	44	72.0	28.0
Impact Insulation Class (IIC)*				28	50

**Calculated improvement in Impact Insulation Class: IIC 50 – IIC 28 = ΔIIC 22**

**\*Classified in accordance with ASTM E989-89 (Re-approved 1999), entitled, “Standard Classification for Determination of Impact Insulation Class (IIC)”.**

The data obtained in the room below the panel was normalized to  $A_0 = 10$  square meters.

The uncertainty limit of the impact noise test data is less than 3 dB for the 1/3 octave bands centered in the range from 100 to 400 Hz and less than 2.5 dB for the bands centered on the range from 500 to 3150 Hz.

**REMARKS**

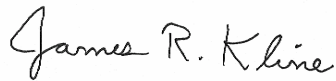
1. Aging Period: None
2. Ambient Temperature: 71°F
3. Relative Humidity: 35%

**CONCLUSION**

The test method employed for this test has no pass-fail criteria, therefore, the evaluation of the test results is left to the discretion of the client.

Date of Test: April 13, 2004

Report Approved by:



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