



**ETL SEMKO**

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Order No. 3058029

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**REPORT NO. 3058029-005**

**IMPACT SOUND TRANSMISSION TEST  
AND CLASSIFICATION OF CERAMIC TILES  
OVER CERA SILENCE 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 Ceramic Tiles over Cera Silence 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".

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**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****Cera Silence over concrete**

Specimen Description: Ceramic tile floor covering over Impacta "Cera Silence" underlayment installed over a 6" Concrete slab.

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

- 1 layer of 12" x 12" x ¼" thick ceramic tiles
- 1 layer of Latex Modified Thin Set mortar
- 1 layer of 25mm (0.99") thick Cera Silence pressed fibrous board wood fiber cement top board underlayment panels
- 1 layer of 4 mil plastic sheeting
- 6" thick reinforced concrete slab.

Specimen Size: 8' x 8'

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

**RESULTS OF TESTS**

1/3 Octave Band Sound Pressure  
Level dB re 0.0002 Microbar

1/3 Octave Band  
Center Frequency

Test

<u>Hertz</u>	<u>Bare Concrete</u>	<u>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	66	2	67.5	65.5
160	70	68	2	68.0	66.0
200	71	69	2	68.5	66.5
250	72	66	6	69.0	63.0
315	73	65	8	69.5	61.5
400	74	64	10	70.0	60.0
500	75	61	14	70.5	56.5
630	75	58	17	71.0	54.0
800	76	56	20	71.5	51.5
1000	77	54	23	72.0	49.0
1250	79	52	27	72.0	45.0
1600	81	51	30	72.0	42.0
2000	83	51	32	72.0	40.0
2500	82	50	32	72.0	40.0
3150	81	45	36	72.0	36.0

Impact Insulation Class (IIC)\*

28

52

**Calculated improvement in Impact Insulation Class: IIC 52 – IIC 28 = ΔIIC 24**

**\*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<sub>0</sub> = 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: 24 hours
2. Ambient Temperature: 70°F
3. Relative Humidity: 33%

**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.

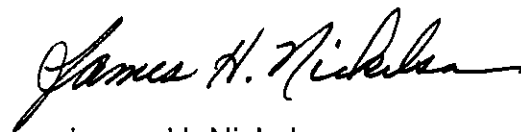
Date of Test: April 15, 2004

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