



# REPORT

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FOR THE SCOPE OF  
ACCREDITATION UNDER NVLAP  
LAB CODE 100402-0.

3933 US ROUTE 11 CORTLAND, NEW YORK 13045

Order No. 3184963

Date: July 27, 2009

**REPORT NO. 3184963CRT-002**

**IMPACT SOUND TRANSMISSION TEST AND  
CLASSIFICATION OF CERAMIC TILES OVER SOUND SOLUTION CS  
ON A WOOD JOIST FLOOR/CEILING ASSEMBLY**

**RENDERED TO**

**HEALTHIER CHOICE FLOORING, LLC  
401 JONES STREET  
DALTON, GA 30720**

## **INTRODUCTION**

This report gives the results of an Impact Sound Transmission Test and Classification on ceramic tiles over Sound Solution CS over a wood joist floor/ceiling assembly with a 1½ inch gypsum concrete topping. The underlayment was selected and supplied by the client and received at the laboratories on July 7, 2009. The sample appeared to be in new, unused condition upon arrival.

## **AUTHORIZATION**

Signed Intertek Quotation No. 500157175.

## **TEST METHOD**

The specimen was tested in accordance with the American Society for Testing and Materials designation ASTM E492-04, "Standard Test Method for Laboratory Measurement of Impact Sound Transmission Through Floor-Ceiling Assemblies Using the Tapping Machine". It was classified in accordance with ASTM E989-06, entitled, "Standard Classification for Determination of Impact Insulation Class (IIC)".

## **GENERAL**

The method is designed to measure the impact sound transmission performance of a floor-ceiling assembly, in a controlled laboratory environment. A standard tapping machine (B & K Type 3207) was placed at four positions on a test floor that forms the horizontal separation between two rooms, one directly above the other. The data obtained was normalized to a reference room absorption of 10 square meters in accordance with the test method.

The standard also prescribes a single-figure classification rating called "Impact Insulation Class, IIC" which can be used by architects, builders and code authorities for acoustical design purposes in building construction.

The IIC is obtained by matching a standard reference contour to the plotted normalized one-third octave band sound pressure levels at each test frequency. The greater the IIC rating, the lower the impact sound transmission through the floor-ceiling assembly

## **DESCRIPTION OF THE FLOOR/CEILING ASSEMBLY**

The test floor is a 100 sq. ft. opening that forms the horizontal separation of the two rooms, one directly above the other. The structural members are open webbed wood floor trusses, 16 inches deep installed 24 inches on center. The sub flooring is 5/8 inch thick plywood. The bridging is a continuous 2 x 4 nailed to the bottom chord and the sides of the diagonals with 2 inch long nails. Single leaf RC-1 resilient channels (2½ inch x ½ inch) were spaced 16 inches on center and attached to the bottom chord by screws. The insulation is 5½ inches of fiberglass. The ceiling is gypsum board, 5/8 inches thick, with the long edges located between the joists perpendicular to the resilient channels. Short edges are staggered by 4 ft. Sheets are fastened to the resilient channels by means of 1½ inch screws located ½ inch away from the edge and 3 inches from the long edges; screws are spaced 6 inches on center. Joints are taped and finished with two layers of compound.

The topping over the plywood sub-floor is 1½ inches of gypsum concrete.

## **DESCRIPTION OF TEST SPECIMEN**

The test specimen consisted of 12" by 12" Daltile ceramic tiles which measured 5/16 inches thick and weighed 3.37 lbs/sq. ft. The tile was identified with color number RD02, shape 1212M1P, and shade 56202. The flooring was installed on top of a layer of Sound Solution CS which measured 3/32 inches thick and weighed 0.18 lbs/sq. ft. The Sound Solution CS and the tiles were both installed using thin set.

## **RESULTS OF TEST**

The data obtained in the room below the panel normalized to  $A_o = 10$  square meters, is as follows:

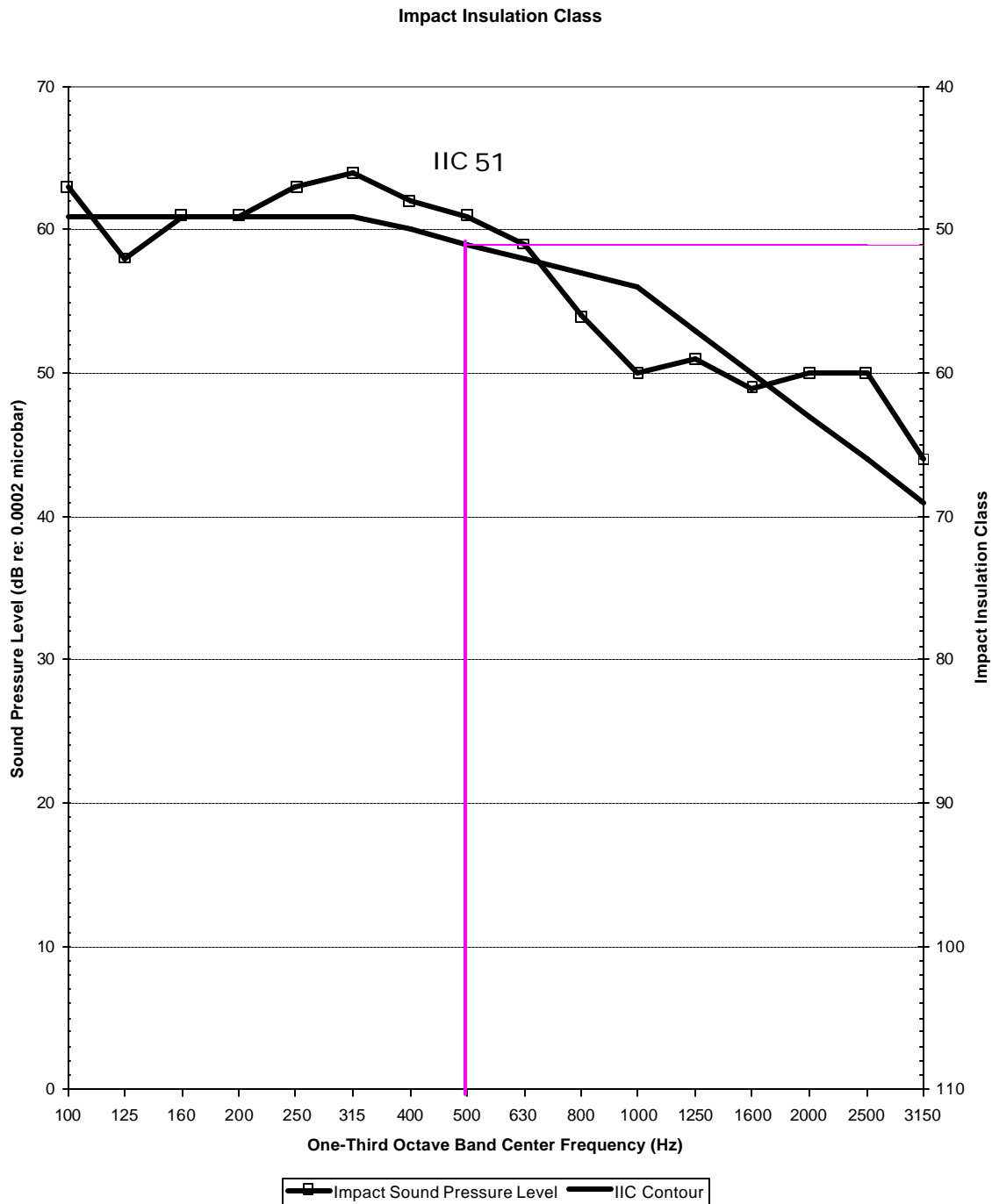
1/3 Octave Band Center Frequency <u>Hz</u>	1/3 Octave Band Sound Pressure Level dB re 0.0002 Microbar
100	63
125	58
160	61
200	61
250	63
315	64
400	62
500	61
630	59
800	54
1000	50
1250	51
1600	49
2000	50
2500	50
3150	44
Impact Insulation Class (IIC)	51

The 95% uncertainty level for each tapping machine location 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 in the range from 500 to 3150 Hz.

For the floor/ceiling construction, the 95% uncertainty limits ( $\pm L_n$ ) for the normalized sound pressure levels were determined to be less than 2 dB for the 1/3 octave bands centered in the range from 100 to 3500.

## RESULTS OF TEST (cont'd)

### CERAMIC TILES OVER SOUND SOLUTION CS



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## **REMARKS**

1. Aging Period: 12 Days, Gypsum Concrete.
2. Ambient Temperature: 73°F
3. Relative Humidity: 49%

## **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.

This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

Date of Test: July 24, 2009

Report Approved by:

Brian Cyr  
Engineer  
Acoustical Testing

Report Reviewed By:

James R. Kline  
Engineer/Quality Supervisor  
Acoustical Testing

Attachments: None