



# REPORT

3933 US ROUTE 11 CORTLAND, NEW YORK 13045

Order No. 100865441

Date: September 24, 2012

REPORT NO. 100865441CRT-001

**IMPACT SOUND TRANSMISSION TEST ON  
½ INCH THICK ENGINEERED HARDWOOD PLANK FLOORING  
OVER GREENBERO SILENT PANEL OVER A  
SIX INCH CONCRETE SLAB WITH A DROP CEILING**

**RENDERED TO**

**GREENBERO  
KIRSCHPLANTAGE 47  
22926 AHRENSBURG  
GERMANY**

## **INTRODUCTION**

This report gives the result of an Impact Sound Transmission test on ½ inch engineered hardwood flooring over Greenbero Silent Panel. The sample was selected and supplied by the client and received at the laboratories on September 3, 2012. The sample appeared to be in new, unused condition upon arrival.

## **AUTHORIZATION**

Intertek Quote No. 500400509.

## **TEST METHOD**

The floor system was tested in general accordance with the American Society for Testing and Materials designation ASTM E492-09, "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 test method is designed to measure the impact sound transmission performance of a floor-ceiling assembly, in a controlled laboratory environment. A standard tapping machine (Bruel & Kjaer Type 3207) was placed at four positions on the 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 floor/ceiling assembly system consisted of a 6 inch thick concrete floor with a drop ceiling below forming the horizontal separation between two rooms, one directly above the other. The drop ceiling consisted of 14 inch deep steel bar joists spaced 38 inches on center. The ceiling construction consisted of 2 x 4 inch wood bolted to the bar joists. The 2 x 4 inch wood was spaced 24 inches on center. Resilient channels (1/2 inch single leaf) were positioned on 16 inch centers between the furring strips and the 1/2 inch gypsum board. Sound attenuation batts (U.S.G. Thermofiber), four (4) inches in thickness were placed between the joists in the formed cavity. The receiving room below measured 1440 cubic feet.

## **DESCRIPTION OF TEST SPECIMEN**

The test specimen consisted of ½ inch thick engineered hardwood plank flooring over Greenbero Silent Panel underlayment. Each underlayment shiplap board covered a 24 inch by 48 inch area and consisted of sand sandwiched between corrugated cardboard panels. The underlayment measured 0.55 inches thick and weighed 3.38 lbs per sq. ft.



## **RESULTS OF TEST**

The data obtained in the room below the panel normalized to  $A_0 = 10$  square meters, is as follows:

<u>1/3 Octave Band Center Frequency Hertz</u>	<u>1/3 Octave Band Sound Pressure Level dB re 0.0002 Microbar</u>
100	53
125	56
160	56
200	59
250	60
315	58
400	57
500	54
630	47
800	43
1000	37
1250	33
1600	26
2000	24
2500	22
3150	20
Impact Insulation Class (IIC)	59

## **PRECISION**

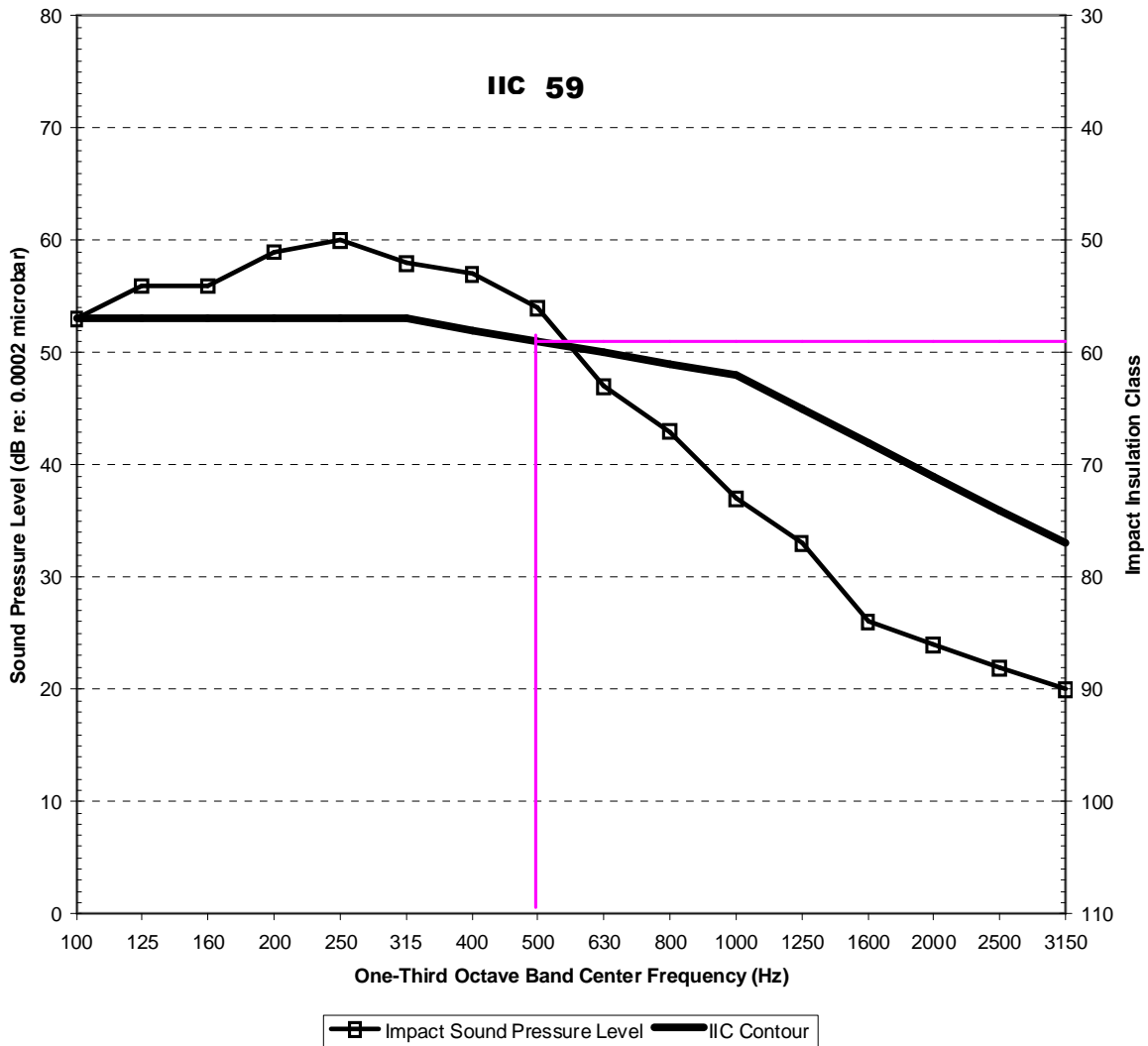
The 95% uncertainty level for each tapping machine location is less than 3 dB for the 1/3 octave bands centered in the range from 100 to 400 Hz and less than 2.5 dB for the bands centered in the range from 500 to 3150 Hz.

For the floor/ceiling construction, the 95% uncertainty limits ( $\Delta L_n$ ) 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 3150 Hz.



**1/2 INCH THICK ENGINEERED HARDWOOD PLANK FLOORING  
OVER GREENBERO SILENT PANEL**

Impact Insulation Class



**GREENBERO**



**REMARKS**

1. Ambient Temperature: 73 °F
2. Relative Humidity: 46%

**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: September 12, 2012

Report Approved by:

A handwritten signature in cursive script that reads "Brian Cyr".

Brian Cyr  
Engineer  
Acoustical Testing

Report Reviewed By:

A handwritten signature in cursive script that reads "James R. Kline".

James R. Kline  
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Attachments: None