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Job No. 3016557 January 29, 2002

REPORT NO. 3016557-008

IMPACT SOUND TRANSMISSION TEST
AND CLASSIFICATION OF A FLOOR/CEILING ASSEMBLY
WITH CERAMIC TILES
OVER INSULAMENT UNDERLAYMENT

RENDERED BY MANUFACTURER TO AND RELEASED TO:

ACOUSTICAL SURFACES INC.
123 COLUMBIA COURT NORTH • SUITE 201
CHASKA, MN 55318

INTRODUCTION

This report gives the results of the laboratory measurement of an Impact Sound Transmission test and the determination of Impact Insulation Class on a floor/ceiling assembly with Ceramic Tiles over cotton fiber underlayment. The underlayment was selected and supplied by the client and received at the laboratiories on December 18, 2001. The sample appeared to be in new, unused condtion upon arrival.

AUTHORIZATION

Purchase Order No. 9218.

TEST METHOD

The specimen was tested in accordance with the American Society for Testing and Materials designation ASTM E90-90 (Reapproved 1996), “Standard Test Method for Laboratory Measurement of Impact Sound Transmission through Floor-Ceiling Assemblies using the Tapping Machine”, and classified in accordance with ASTM ASTM E989-89 (Reapproved 1999), “Standard Classification for Determination of Impact Insulation Class (IIC)”.

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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 3204) 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 ICC 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 TEST 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 an Open Joist 2000 system, 16 inches deep installed 24 inches on center. The sub-flooring is 5/8 inch thick tongue and groove plywood. The bridging is continuous 2 x 4 nailed to the bottom chord and the sides of the diagonals with 2 inch long nails. Resilient channels, 24 gauge galvanized steel were spaced 16 inches on center and attached to the bottom chord by screws. The insulation is 5-1/2 inches cellulose with a density of 1.6 pcf. 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 1-1/2 inch screws located 1/2 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 tongue and groove plywood sub-floor was 1-1/2 of GypCrete.

DESCRIPTION OF TEST SPECIMEN

The test flooring was Ceramicraft 12 x 12 inch glazed ceramic tiles, 1/4 inch thick. The underlayment was Quiet Floor™ Underlayment, 1/8" thick. The tiles were grouted, adhered to the underlayment and the underlayment adhered to the Gypcrete in accordance with the manufacturer’s instructions.

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RESULTS OF TEST

1/3 Octave Band Center Frequency Hz	Impact Sound 1/3 Octave Band Sound Pressure Level dB re 0.0002 Microbar
100	62
125	64
160	63
200	64
250	65
315	64
400	65
500	60
630	55
800	53
1000	49
1250	47
1600	47
2000	47
2500	44
3150	37
Impact Insulation Class (IIC)	52

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REMARKS

Ambient Temperature: 69°.

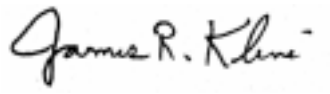
Relative Humidity: 21%

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: December 31, 2001

Report Approved By:



James R. Kline, Technician
Acoustical Testing