

## TEST REPORT

FOR: LATICRETE International, Inc.  
Bethany, CT

Impact Sound Transmission Test  
RAL™-IN08-003

ON: Ceramic Tile, LATICRETE 253 Gold Mortar and  
LATICRETE 170 Sound & Crack Isolation Mat on  
6 Inch Concrete Slabs with Insulated Gypsum Ceiling

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CONDUCTED: 8 May 2008

### TEST METHOD

The measurements reported below were made with all facilities and procedures in explicit conformity with the ASTM Designations E492-04 and E989-06, as well as other pertinent standards. Riverbank Acoustical Laboratories has been accredited by the U.S. Department of Commerce, National Institute of Standards and Technology (NIST) under the National Voluntary Laboratory Accreditation Program (NVLAP) for this test procedure (NVLAP Lab Code: 100227-0). A description of the measuring technique is available separately. An exception to the E492 tapping machine positions was that the tapping machine locations were offset 203 mm (8 in.) from the width midpoint and not at the intersection of the diagonals. For this exception on concrete substrates at RAL it has been demonstrated that there is no measurable significance on the results. Additionally, the floor-surfacing material covered only half of the floor while a similar floor-surfacing covered the other half.

### DESCRIPTION OF THE SPECIMEN

The test specimen was designated as ceramic tile, LATICRETE 253 Gold Mortar and LATICRETE 170 Sound & Crack Isolation Mat on 6 inch concrete slabs with insulated gypsum ceiling. The overall dimensions of the finished floor system were nominally 2.41 m (95 in.) wide by 3.02 m (119 in.) long. The overall dimensions of the 6 inch concrete floor with ceiling were nominally 4.27 m (14 ft) by 6.10 m (20 ft). The thickness of the finished floor system and concrete floor was 432 mm (17 in.) thick. The specimen was constructed directly in the laboratory's 4.27 m (14 ft) by 6.10 m (20 ft) test opening and was sealed on the periphery (both sides) with a dense mastic.

The description of the specimen was as follows: From the top down, the floor consisted of 6 mm (0.25 in.) thick ceramic tile in thin set mortar over 3 mm (0.12 in.) thick flexible underlayment, 152 mm (6 in.) thick wire reinforced concrete, 254 mm (10 in.) insulated plenum, and 16 mm (0.625 in.) gypsum ceiling. A more detailed description of the test assembly appears in the following sections.

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### Ceramic Tile Floor and Underlayment

The floor consisted of glazed ceramic tile. Each tile measured 298 mm (11.75 in.) wide by 298 mm (11.75 in.) long by 6 mm (0.25 in.) thick. The tiles were set using LATICRETE 253 Gold Mortar with a 1/4 x 3/8 x 1/4 square notch trowel and LATICRETE SpectraLOCK® Pro Grout and allowed to age in excess of 16 days. The typical 28 day aging for the ceramic tile installation was waived based on previous testing performed per E492-04 Section 7.2.2, that showed no significant difference in the results after 14 days of aging. Prior to installation of the tiles, a 3 mm (0.76 in.) thick LATICRETE 170 Sound & Crack Isolation Mat was applied over the substrate. The total weight of the ceramic tile floor and underlayment as calculated was 503 kg (228.2 lbs).

### Concrete Floor

The concrete slab sub-floor consisted of ten nominally 610 mm (24 in.) wide by 4.23 m (166.5 in.) long by 152 mm (6 in.) thick wire reinforced concrete slabs. Weight of the concrete slab was 8,599 kg (18,958 lbs).

### Ceiling Assembly

The ceiling assembly consisted of USG DWSS drywall suspension grid hung below the concrete. Split drive pins were inserted into the bottom of the concrete on 1.22 m (48 in.) centers and used to tie 12 gauge hanger wire for the suspended ceiling. The hanger wires were tied to allow for a nominal 254 mm (10 in.) plenum depth from the bottom of the slabs to the top of the ceiling. The main tees (DGLW 26) were installed parallel to the 6.10 m (240 in.) dimension of the room and located at 1.22 m (48 in.) on center and suspended with hanger wires spaced 610 mm (24 in.). The cross channels (DGLW-424) were placed at 406 mm (16 in.) on center. The plenum between the concrete slab and the ceiling contained a single layer of 89 mm (3.5 in.) thick, R-11 unfaced fiberglass insulation. A single layer of 16 mm (0.625 in.) thick Type X gypsum board was screw attached to the DWSS grid using 32 mm (1.25 in.) Type S screws at 305 mm (12 in.) on center. The joints and screw heads were sealed with all purpose joint compound. The weight of the channels, gypsum board, and joint compound was 316 kg (696 lbs). The perimeter of the completed test assembly was sealed with a dense mastic.

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NVLAP Lab Code 100227-0

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The weight of the entire specimen as calculated was 9,143 kg (20,157 lbs.), an average of 352 kg/m<sup>2</sup> (72 lbs/ft<sup>2</sup>). The source and receiving room temperatures at the time of the test were 24±1°C (75±1°F) and 53±1% relative humidity. The source and receive reverberation room volumes were 140 m<sup>3</sup> (4,930 ft<sup>3</sup>) and 80 m<sup>3</sup> (2,815 ft<sup>3</sup>), respectively.

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### TEST RESULTS

Sound pressure levels at 1/3 octave intervals, normalized to 10 square meters, are given in tabular form. The impact insulation class, IIC, was computed in accordance with ASTM E989-89 and ASTM E492-04.

<u>FREQ.</u>	<u>Ln</u>	<u>C.L.</u>	<u>DEV</u>	<u>FREQ.</u>	<u>Ln</u>	<u>C.L.</u>	<u>DEV</u>
100	55	1.39	8	800	33	0.40	
125	47	0.87		1000	29	0.34	
160	50	0.66	3	1250	25	0.29	
200	52	0.92	5	1600	26	0.31	
250	51	0.55	4	2000	27	0.21	
315	52	0.66	5	2500	27	0.19	
400	46	0.50		3150	24	0.15	
500	40	0.49		4000	17*	0.24	
630	40	0.42		5000	11*	0.66	

IIC=65

### ABBREVIATION INDEX

FREQ. = FREQUENCY, HERTZ, (cps)

Ln = NORMALIZED IMPACT SOUND PRESSURE LEVEL, dB

C.L. = UNCERTAINTY IN dB, FOR A 95% CONFIDENCE LIMIT

DEV. = DEVIATION, dB > IIC CONTOUR (SUM OF DEV = 25 )

IIC = IMPACT INSULATION CLASS

\* = INDICATES A CORRECTION HAS BEEN APPLIED TO DATA

DUE TO BACKGROUND NOISE LEVELS

Tested by Marc Sciaky

Marc Sciaky  
Experimentalist

Approved by David L. Moyer

David L. Moyer  
Laboratory Manager

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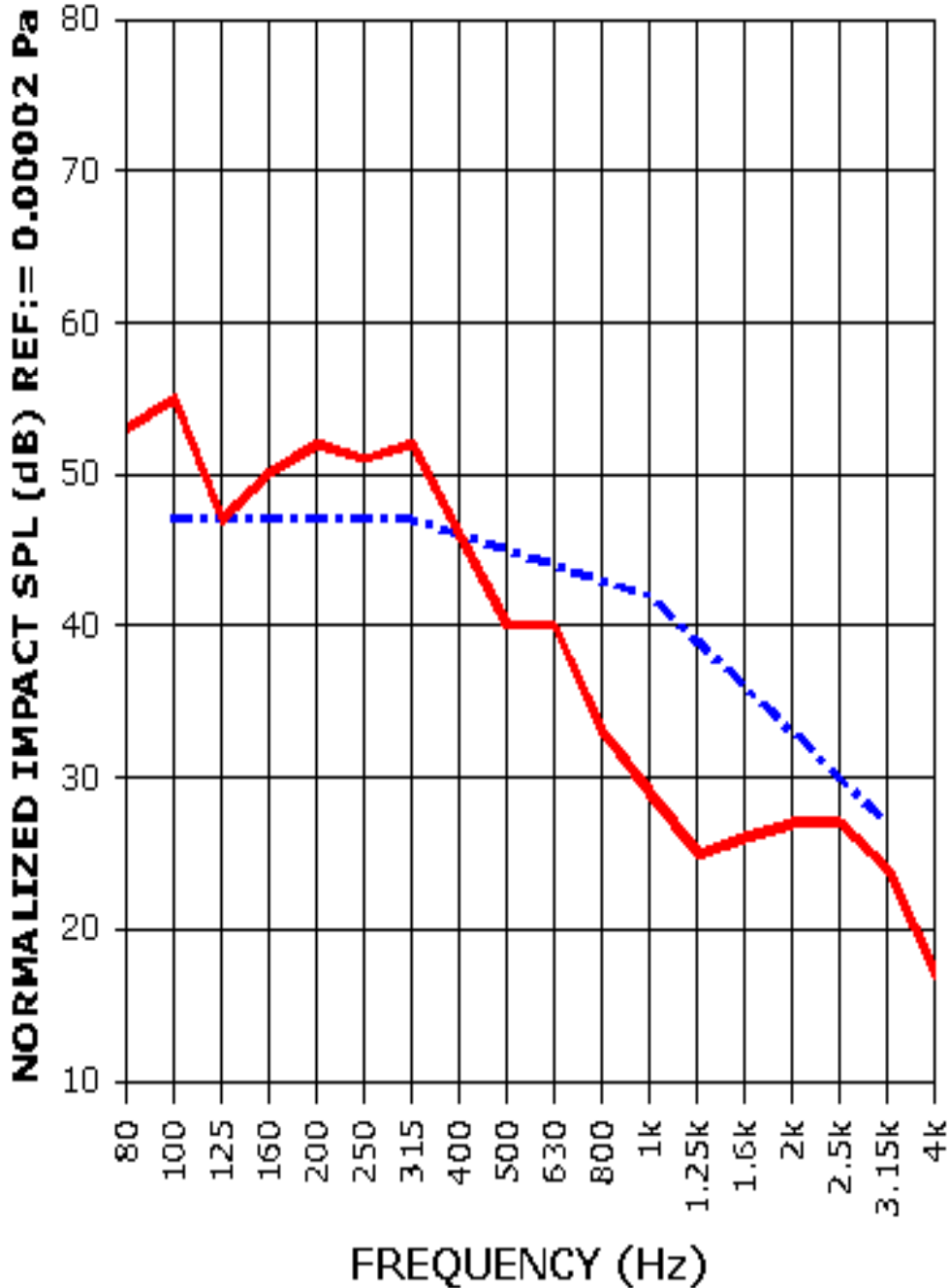


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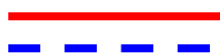
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**TEST REPORT**

IMPACT SOUND TRANSMISSION REPORT  
RAL - IN08-003



IIC= 65



IMPACT SOUND PRESSURE LEVEL  
IMPACT INSULATION CLASS CONTOUR

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