

RIVERBANK ACOUSTICAL LABORATORIES

1512 S BATAVIA AVENUE
GENEVA, IL 60134

An ALION Technical Center

RIVERBANK.ALIONSCIENCE.COM

630-232-0104

Test Report

FOUNDED 1918 BY
WALLACE CLEMENT SABINE

FOR: **PROFLEX® PRODUCTS, INC**
Haines City, FL

Sound Transmission Loss
RAL-TL17-003

CONDUCTED: 2017-01-05

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ON: Quarry Tile, MSC-90 underlayment, 8.0 inch slabs, no ceiling

TEST METHOD

Riverbank Acoustical Laboratories™ is accredited by the U.S. Department of Commerce, National Institute of Standards and Technology (NIST) under the National Voluntary Laboratory Accreditation Program (NVLAP) as an ISO 17025:2005 Laboratory (NVLAP Lab Code: 100227-0) and for this test procedure. The test reported in this document conformed explicitly with ASTM E90-09: "Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements." The single number rating of the specimen was calculated according to ASTM E413-16: "Classification for Rating Sound Insulation." A description of the measuring procedure and room qualifications is available upon request.

DESCRIPTION OF THE SPECIMEN

The test specimen was designated by the manufacturer as Quarry Tile, MSC-90 underlayment, 8.0 inch slabs, no ceiling.

The building contractor and RAL staff compiled a detailed construction specification as follows:

Flooring

Underlayment:	MSC-90 applied with peel & stick adhesive
Underlayment Thickness:	2.3 mm (0.09 in.)
Underlayment Weight:	54.09 kg (119.25 lbs.)
Mortar:	Thinset Mortar installed between tile and underlayment
Trowel:	1/4" 3/8" 1/4"
Mortar Weight:	92.31 kg (203.5 lbs.)
Tile:	Quarry Tile
Tile Manufacturer:	Metropolitan Ceramics
Tile Dimensions:	152.4 mm (6 in.) x 152.4 mm (6 in.)
Tile Thickness:	11 mm (0.433 in.)
Tile Spacing:	6.35 mm (0.25 in.)
Tile Weight:	321.8 kg (709.5 lbs.)
Grout:	Sanded Grout
Grout Weight:	44.45 kg (98 lbs.)



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Concrete Slab

Dimensions: Ten at 609.60 mm (24.0 in.) wide by 4.23 m (166.50 in.) long

Thickness: 203.2 mm (8 in.)

Material: Wire-reinforced concrete

Weight: 12,462 kg (27,474 lbs.)

Joints: Sealed with caulk (underside)

Filled with general purpose sand, sealed with ready mix compound.

Note: The slab surface was protected with a single layer of loose laid red rosin paper.

Physical Measures

Overall Dimensions: 4.27 m (168.00 in.) wide by 6.10 m (240.00 in.) long

Overall Thickness: 226.57 mm (8.92 in.)

Overall Weight: 13302.16 kg (29,325.75 lbs.)

Transmission Area: 26.01 m² (280.00 ft²)

Mass per Unit Area: 511.34 kg/m² (104.73 lbs./ft²)

Test Aperture

Size: 4.27 m (14.0 ft.) by 6.10 m (20.0 ft.)

Filler Wall: None

Sealed: Entire periphery (both sides) with dense mastic

Test Environment

Source Room

Volume: 137.5 m³ (4856.3 ft³)

Temperature: 21±0°C (70±0°F)

Humidity: 57±1%

Receive Room

Volume: 87.1 m³ (3075.7 ft³)

Temperature: 22±0°C (71±0°F)

Humidity: 56±1%

Requirements

Temperature: 22° C +/- 2° C, not more than 3° C change over all tests.

Humidity: ≥ 30% RH, not more than +/- 3% change over all tests.



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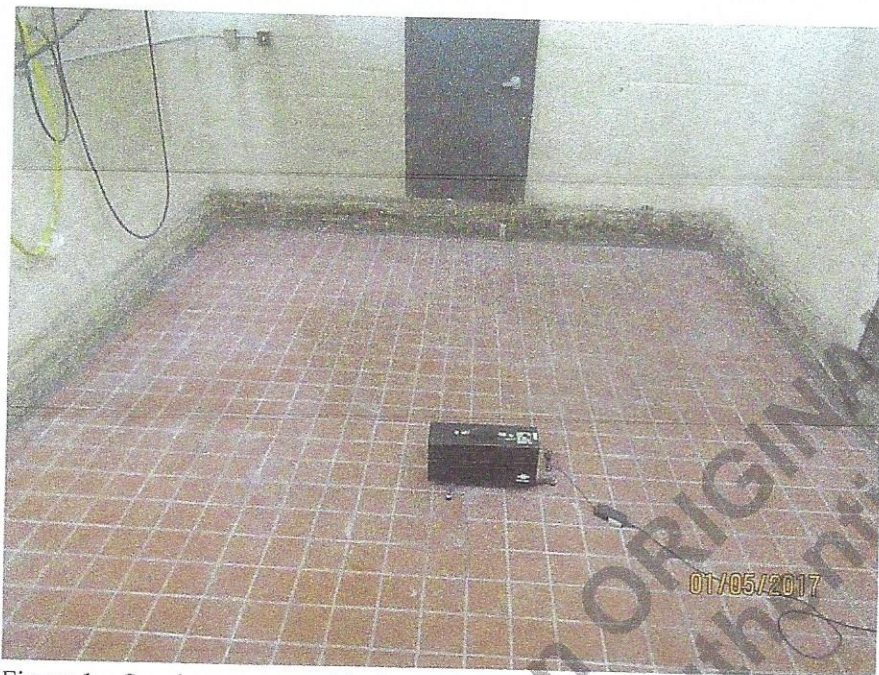


Figure 1 – Specimen mounted in the test opening. (Tapping machine was not present for test)

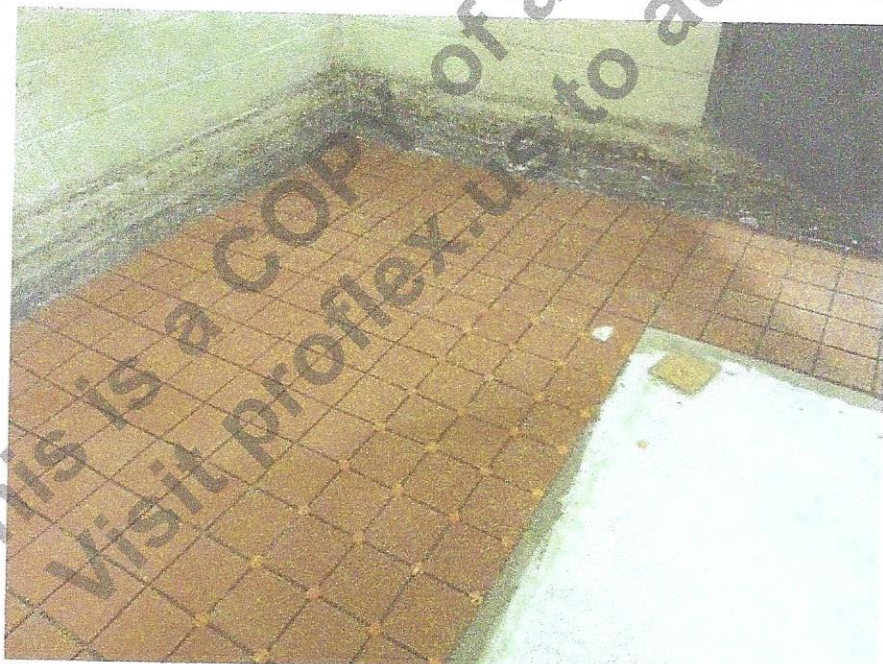


Figure 2 - Detail of the test specimen partially installed over mortar and underlayment.



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Figure 3 - Detail of the underlayment.



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TEST RESULTS

Sound transmission loss values are tabulated at the eighteen standard frequencies. A graphic presentation of the data and additional information appear on the following pages. The precision of the transmission loss test data is within the limits set by the ASTM Standard E90-09.

FREQ.	T.L.	C.L.	DEF.	FREQ.	T.L.	C.L.	DEF.
100	39	0.80		800	60	0.25	
125	38	0.89	3	1000	64	0.24	
160	44	0.87		1250	68	0.27	
200	45	0.89	2	1600	71	0.19	
250	44	0.60	6	2000	74	0.17	
315	47	0.43	6	2500	79	0.17	
400	48	0.47	8	3150	83	0.10	
500	52	0.29	5	4000	84	0.10	
630	56	0.30	2	5000	86	0.10	

STC=57

ABBREVIATION INDEX

FREQ. = FREQUENCY, HERTZ, (cps)
T.L. = TRANSMISSION LOSS, dB
C.L. = UNCERTAINTY IN dB, FOR A 95% CONFIDENCE LIMIT
DEF. = DEFICIENCIES, dB < STC CONTOUR (SUM OF DEF = 32)
STC = SOUND TRANSMISSION CLASS

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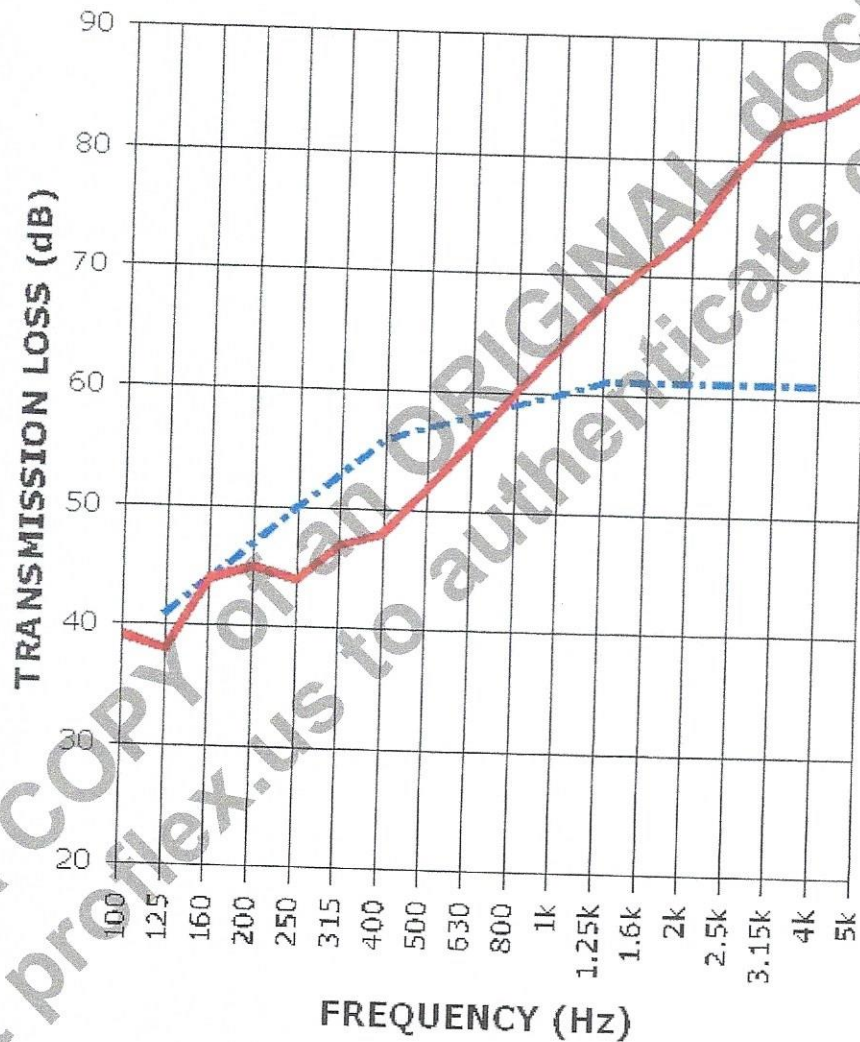
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SOUND TRANSMISSION REPORT

Quarry Tile, MSC-90 underlayment, 8.0 inch slabs, no ceiling



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TRANSMISSION LOSS
SOUND TRANSMISSION LOSS CONTOUR



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APPENDIX A: Extended Frequency Range Data

Specimen: Quarry Tile, MSC-90 underlayment, 8.0 inch slabs, no ceiling (See Full Report)

The following non-accredited data were obtained in accordance with ASTM E90-09, but extend beyond the defined frequency range of 100Hz to 5,000Hz. These unofficial results are representative of the RAL test environment only and intended for research & comparison purposes.

1/3 Octave Band Center Frequency (Hz)	Sound Transmission Loss (dB)	Uncertainty (95% ±)
31.5	27	2.00
40	48	1.37
50	45	0.58
63	41	0.59
80	41	0.99
100	39	0.80
125	38	0.89
160	44	0.87
200	45	0.89
250	44	0.60
315	47	0.43
400	48	0.47
500	52	0.29
630	56	0.30
800	60	0.25
1000	64	0.24
1250	68	0.27
1600	71	0.19
2000	74	0.17
2500	79	0.17
3150	83	0.10
4000	84	0.10
5000	86	0.10
6300	85	0.11
8000	81	0.10
10000	72	0.11
12500	60	0.14



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APPENDIX B: Instruments of Traceability

Specimen: Quarry Tile, MSC-90 underlayment, 8.0 inch slabs, no ceiling (See Full Report)

<u>Description</u>	<u>Model</u>	<u>Serial Number</u>	<u>Date of Certification</u>	<u>Calibration Due</u>
Bruel & Kjaer Pulse Analyzer - System4	Type 3560-C	2639093	2016-07-26	2017-07-26
Bruel & Kjaer Mic And Preamp E	Type 4943-B-001	2311441	2016-03-17	2017-03-17
Bruel & Kjaer Pistonphone	Type 4228	2781248	2016-07-25	2017-07-25
Omega Digital Thermo-Hygrometer A	Model # RH411	H0102487	2016-08-12	2017-08-12
Omega Digital Thermo-Hygrometer D	Model # RH411	H0102210	2016-07-13	2017-07-13

APPENDIX C: Revisions to Original Test Report

Specimen: Quarry Tile, MSC-90 underlayment, 8 in. slabs, no ceiling (See Full Report)

<u>Date</u>	<u>Revision</u>
2018-08-31	Page 1: The underlayment thickness was revised to the correct 2.3mm based on a re-measurement of the lab sample.
2019-08-30	Page 1: added installation narrative for underlayment and thinset. -EPW
2019-08-30	Page 1-8: The original manufacturer/sponsor identification and specimen designation was changed to facilitate a private label sales agreement. The original sponsor has provided a letter to RAL on their company letterhead certifying that the product identified has not changed in materials, composition, or manufacturing methods since the original test date and the product sold under the private label agreement is exactly identical to the original specimen described in the test report and sourced from the same manufacturing process. -EPW

END



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