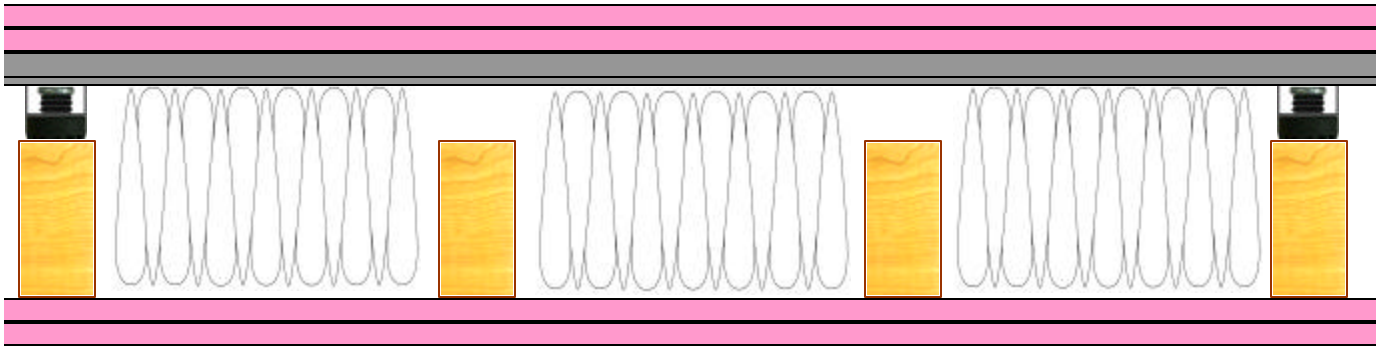
RSIC-1 Acoustic Assembly

WALL SYSTEMS

DIRECT FIX TO TIMBER

RAL 211 ASSEMBLY - 4



Construction

*** 2 layers 5/8" gypsum board.** Source side.

*** 7/8" x 25 gauge furring channel at 24" on center installed horizontally.**

*** RSIC-1 at 48" on center screw attached to framing members.**

*** 2 x 4 wood studs KD DF at 16"oc.**

*** 6" Fiberglass un-faced insulation.**

*** 2 layers 5/8" gypsum board.** Receiving side.

Test:

*** Number: TL01-211 Riverbank Acoustical Laboratory.**

SOUND TRANSMISSION CLASS

STC 62

RIVERBANK ACOUSTICAL LABORATORIES

OF

1512 S. BATAVIA AVENUE
GENEVA, ILLINOIS 60134

IIT RESEARCH INSTITUTE

630/232-0104

FOUNDED 1918 BY
WALLACE CLEMENT SABINE

TEST REPORT

FOR: PAC International, Inc.

Sound Transmission Loss Test
RAL™-TL01-211

ON: Resilient Sound Isolation Clip (RSIC-1) on
2 x 4 Timber Framing 16 Inches On Center
With Double Layer 5/8 Inch Gypsum Board Each Side

CONDUCTED: 14 August 2001

TEST METHOD

Unless otherwise designated, the measurements reported below were made with all facilities and procedures in explicit conformity with the ASTM Designations E90-99 and E413-87, 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. A description of the measuring technique is available separately.

DESCRIPTION OF THE SPECIMEN

The test specimen was designated by the client as Resilient Sound Isolation Clip (RSIC-1) on 2 x 4 timber framing 16 inches on center with double layer 5/8 inch gypsum board each side. The overall dimensions of the specimen as measured were 4.27 m (168 in.) wide by 2.74 m (108 in.) high and 194 mm (7.625 in.) thick. The specimen was installed directly into the laboratory's 2.74 m (9 ft) by 4.27 m (14 ft) wood-lined steel frame and was sealed on the periphery (both sides) with a dense mastic. The description of the specimen was as follows: The test specimen consisted of a two-by-four wood stud wall assembly with 159 mm (6.25 in.) thick R-19 fiberglass and a double layer of 16 mm (0.625 in.) Type X gypsum board on the receive side. RSIC-1 clips and hat track were used on the source side with a double layer of 16 mm (0.625 in.) Type X gypsum board. A more complete description follows.

Floor and Ceiling Plates: The two 89 mm (3.5 in.) wide by 38 mm (1.5 in.) thick and 4.27 m (168 in.) long SPF wood plates were attached to the top and bottom of the test frame with 16d nails on 610 mm (24 in.) centers.

Studs: The twelve 89 mm (3.5 in.) wide by 38 mm (1.5 in.) thick and 2.67 m (105 in.) long SPF wood studs and runners were spaced on 406 mm (16 in.) centers. The studs were attached to the frame with 8d nails.

Insulation: The cavities formed by the studs were friction fit with R-19 unfaced fiberglass insulation batts measuring 159 mm (6.25 in.) thick and 387 mm (15.25 in.) wide.

TEST REPORT

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14 August 2001

Perimeter Caulking: Acoustical sealant was applied to test frame perimeter prior to installation of the face layer of gypsum board.

RSIC-1 Clips and Hat Track: On the source side of the wall, PAC International RSIC-1 clips were attached to studs on 610 mm (24 in.) centers vertically and on 1.22 m (48 in.) centers horizontally. The bottom row of clips was installed 76 mm (3 in.) from the bottom of the test frame. Clips in subsequent rows were staggered 406 mm (16 in.) horizontally from adjacent rows. All RSIC-1 clips were attached to studs with a single #8, 64 mm (2.5 in.) long coarse thread drywall screw. A total of thirty clips were used. The hat track was 25 gauge roll-formed furring channel which measured 22 mm (0.875 in.) deep by 65 mm (2.56 in.) wide. Six rows of track were mounted to the RSIC clips and were overlapped 152 mm (6 in.) and double wire tied with 18 gauge tie wire as necessary.

Gypsum Wallboard. A double layer of 16 mm (0.625 in.) Type X gypsum board was applied vertically to the studs on the receive side of the wall. Horizontal joints were offset 305 mm (12 in.). They were attached to the studs with 32 mm (1.25 in.) and 57 mm (2.25 in.) long, respectively, Type W bugle head drywall screws on 305 mm (12 in.) centers. A layer of 16 mm (0.625 in.) Type X gypsum board was applied horizontally to the hat track on the source side of the wall with 25 mm (1 in.) Type S bugle head drywall screws on 305 mm (12 in.) centers. A second layer of 16 mm (0.625 in.) Type X gypsum board was applied vertically to the hat track on the source side of the wall with 41 mm (1.625 in.) long Type S bugle head drywall screws on 406 mm (16 in.) centers.

Finishing: All first layer joints were treated with paper tape embedded in all purpose joint compound and screw heads covered with compound. Joints and screws of additional layers were covered with duct tape. The perimeter of the completed test assembly was sealed with a dense mastic.

The weight of the specimen as measured was 617.7 kg (1,361.75 lbs.), an average of 52.7 kg/m^2 (10.8 lbs/ft^2). The transmission area used in the calculations was 11.7 m^2 (126 ft^2). The source and receiving room temperatures at the time of the test were 26±2°C (78±2°F) and 55±2% relative humidity. The source and receive reverberation room volumes were 179m^3 (6,298 ft^3) and 177 m^3 (6,255 ft^3), respectively.

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TEST REPORT

PAC International, Inc. RAL™-TL01-211

14 August 2001

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 TL test data is within the limits set by the ASTM Standard E90-99.

FREQ.	T.L.	C.L.	DEF.	FREQ.	T.L.	C.L.	DEF.
100	39	5.22	0	800	62	0.11	2
125	46	1.10	0	1000	64	0.07	1
160	44	1.03	5	1250	65	0.06	1
200	51	0.43	1	1600	67	0.08	0
250	55	0.28	0	2000	64	0.04	2
315	59	0.13	0	2500	63	0.05	3
400	59	0.15	2	3150	67	0.08	0
500	59	0.11	3	4000	69	0.13	0
630	60	0.12	3	5000	73	0.12	0

STC=62

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
STC = SOUND TRANSMISSION CLASS

Tested by _____ Approved by _____

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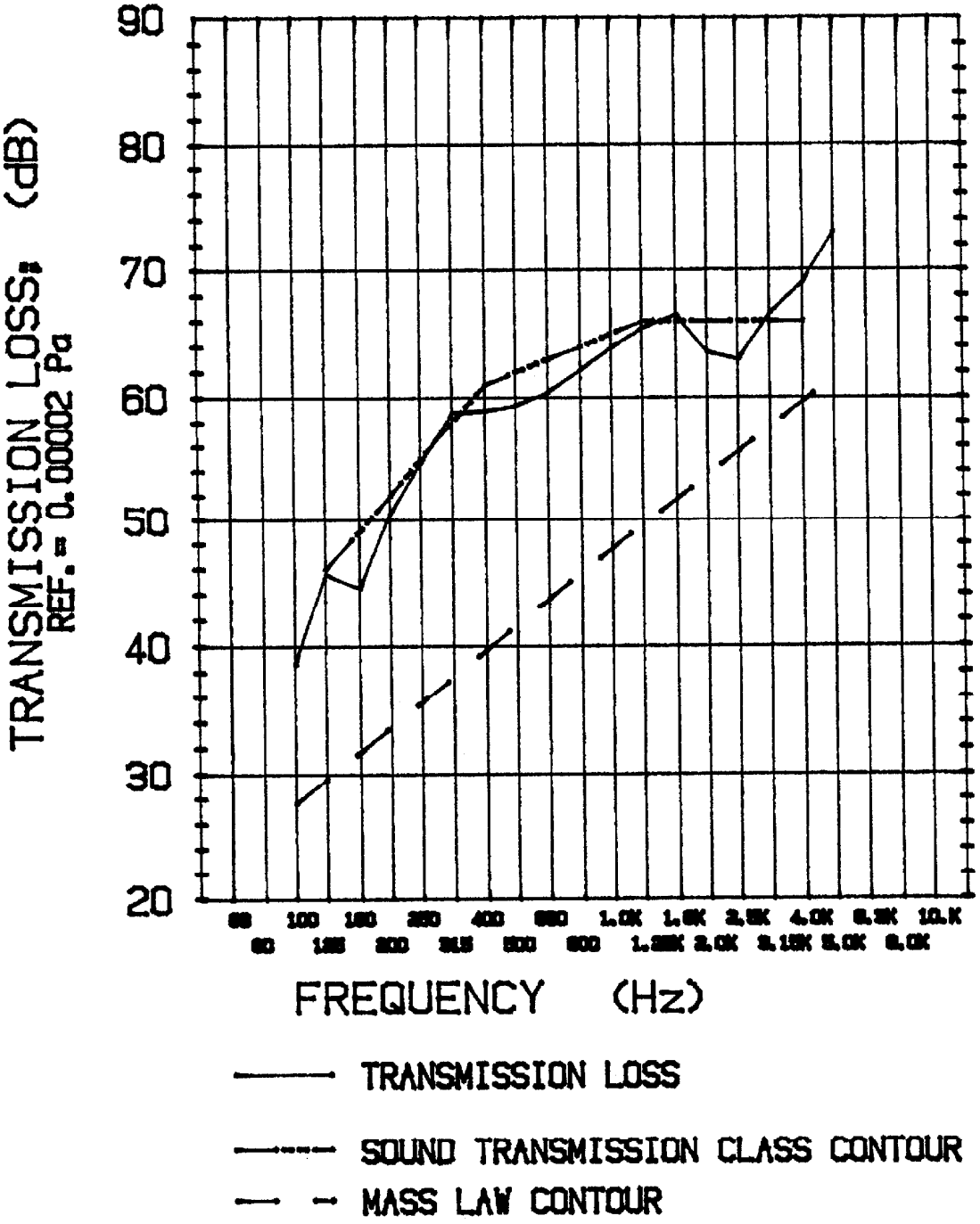
TEST REPORT

TRANSMISSION LOSS REPORT
RAL-TL01-211



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FOR: PAC International, Inc.

ON: RAL™TL01-211: Resilient Sound Isolation Clip (RSIC-1) on
2 x 4 Timber Framing 16 Inches On Center
With Double Layer 5/8 Inch Gypsum Board Each Side

CONDUCTED: 14 August 2001

SUBJECT: Outdoor Indoor Transmission Class Determination (OITC)

CLASSIFICATION

Unless otherwise designated, the Outdoor Indoor Transmission Class (OITC) determination as reported below was made with explicit conformity to the procedures described in the ASTM E1332-90 test standard. Test Method ASTM E90 was used to obtain the sound transmission loss data. This rating is based on an average transportation noise source spectrum and an A-weighted sound level reduction, either of which may be inappropriate for some applications.

One-third Octave Band Center Frequency, Hz	Reference Sound Spectrum, dB	Test Specimen Transmission Loss, dB
80	103	36
100	102	39
125	101	46
160	98	44
200	97	51
250	95	55
315	94	59
400	93	59
500	93	59
630	91	60
800	90	62
1000	89	64
1250	89	65
1600	88	67
2000	88	64
2500	87	63
3150	85	67
4000	84	69

OITC= 51

Calculated and Submitted by

David L. Moyer
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FOR: PAC International, Inc.

ON: Resilient Sound Isolation Clip (RSIC-1) Test Walls #1-4

CONDUCTED: 13-14 August 2001

SUBJECT: Additional Frequency Data for Transmission Loss Testing

As requested by the client, transmission loss (TL) values were calculated at additional test frequencies. Although the measurements were made in accordance with the procedures described in ASTM E90-99, they do not qualify as part of the standard. Since the results are representative of the test environment only, they are unofficial and intended for research and development guidelines rather than for commercial purposes. The transmission loss values at the additional frequencies were as follows:

Sound Transmission Loss (dB)

Reference Test Number	Frequency (Hz) 31.5	40	50	63	80
RAL™-TL01-208	19	23	11	10	21
RAL™-TL01-209	16	23	17	16	24
RAL™-TL01-210	15	23	17	18	30
RAL™-TL01-211	16	23	22	28	36
RAL™-TL01-212	14	23	26	32	38

Calculated and Submitted by _____

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