



February 2, 2010

Mr. Phillip Pitts
Bostik, Incorporated
211 Boston St.
Middleton, MA 01949

Assignment G-567

Dear Mr. Pitts,

Please find enclosed one original and one copy each of the test reports for the ASTM E492, and E2179 tests run on the floor-ceiling systems you requested.

Reference: NGC7010006, NGC7010007, and NGC7010008.

If you have any questions or if we can provide any assistance in the future, please feel free to contact us.

Sincerely,

A handwritten signature in black ink, appearing to read 'Craig G. Cooper', is written over a light blue horizontal line.

Craig G. Cooper
Test Engineer

cc: R.J. Menchetti -Director, NGC

Enclosures



Acoustical Testing Laboratory



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under Lab Code 200291

TEST REPORT

For

Bostik Incorporated
211 Boston St.
Middleton MA 01949
Philip Pitts / 978-750-7355

Impact Sound Transmission Test

ASTM E 492 – 09 / ASTM E 989 – 06

On

**6 Inch (152mm) Concrete Slab Overlaid with
Engineered Wood Planks Adhered with
Bostik Ultra-Set Single Step Adhesive**

Page 1 of 4

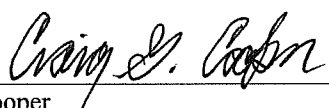
Report Number: NGC 7010007

Assignment Number: G-567


Test Date: 01/26/2010

Report Date: 02/02/2010

Submitted by: _____


Craig G. Cooper
Test Engineer

Reviewed by: _____


Robert J. Menchetti
Director

The results reported above apply to specific samples submitted for measurement.
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Page 2 of 4

Report Number: NGC 7010007

Test Method: This test method is in accordance with American Society for Testing and Materials Standard Test Method for Laboratory Measurement of Sound Transmission Through Floor-Ceiling Assemblies Using the Tapping Machine - Designation: E 492-09 / E 989-06.
The uncertainty limits of each tapping machine location met the precision requirements of section A1.4 of ASTM E 492-09.

Specimen Description: 6 inch (152mm) Concrete Slab overlaid with, according to client, Engineered wood flooring with Bostik Ultra-Set Single Step Adhesive.

The test specimen was a floor-ceiling assembly consisting of the following:

- 1 layer of 9.8mm (0.385 in.) Bruce Engineered Hardwood flooring ID: ER 3555. Samples were 127mm (5 in.) wide, by 1499mm (59 in.) long planks. Sample weight was 8.1 kg/m^2 (1.66 PSF).
- 1 layer of Bostik Ultra-Set Single Step adhesive. Sample was troweled on using client supplied $\frac{1}{4}$ in. x $\frac{1}{4}$ in. (6.4mm x 6.4mm) V notch trowel.
- 6 mil poly sheeting attached to concrete with double sided tape at seams and perimeter.
- 152.4mm (6 in.) thick reinforced concrete slab 366.1 kg/m^2 (75.0 PSF).

The overall weight of the test assembly is 374.3 kg/m^2 (76.66 PSF).

The perimeter of the concrete slab was sealed with rubber gasketing and a sand filled trough. The test assembly is structurally isolated from the receiving room.

Test Floor Size: 3658mm x 4877mm (12 ft. x 16 ft.).

Conditioning: Adhesive cured for minimum of 24 hours.
Concrete cured minimum of 28 days.

Test Results: The results of the tests are given on pages 3 and 4.

The results reported above apply to specific samples submitted for measurement.

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Normalized impact sound pressure level						
Test: ASTM E 492 - 09 / ASTM E 989 - 06						
Test Report: NGC7010007					Date: 1/26/2010	
Specimen Size [m ²]: 17.8					Page 3 of 4	
Source room			Receiving room			
Rm Temp [°C]: 16			Volume [m ³]: 63.9			
Humidity [%]: 38			Rm Temp [°C]: 16.5			
			Humidity [%]: 67			
Impact Insulation Class IIC [dB]:			52			
Sum of Unfavorable Deviations [dB]:			30			
Max. Unfavorable Deviation [dB]:			8 at 250 Hz			
Frequency	L _n	L2	d	Corr.	u.Dev.	ΔL _n
[Hz]	[dB]	[dB]	[dB/s]	[dB]	[dB]	
50	58	64.9	13.13	-6.9		2.24
63	53	58.2	19.36	-5.2		1.79
80	58	64.2	13.53	-6.2		1.78
100	61	67.5	14.64	-6.5	1	2.88
125	60	65.6	3.46	-5.6		2.13
160	64	70.2	4.01	-6.2	4	2.14
200	64	69.6	3.66	-5.6	4	1.15
250	68	72.8	3.06	-4.8	8	0.60
315	64	68.4	3.12	-4.4	4	0.43
400	62	66.7	2.89	-4.7	3	0.49
500	61	65.3	2.81	-4.3	3	0.41
630	60	64.4	2.70	-4.4	3	0.37
800	55	59.4	2.61	-4.4		0.39
1000	49	52.6	2.41	-3.6		0.20
1250	44	47.4	2.14	-3.4		0.20
1600	38	41.3	2.00	-3.3		0.15
2000	33	35.6	1.86	-2.6		0.36
2500	29	30.9	1.71	-1.9		0.17
3150	27	29.2	1.54	-2.2		0.15
4000	26	27.3	1.38	-1.3		0.16
5000	23	24.1	1.21	-1.1		0.20

L_n = Normalized Sound Pressure Level, dB
 L2 = Receiving Room Level, dB
 d = Decay Time, dB/second
 ΔL_n = Uncertainty for 95% Confidence Level

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Normalized impact sound pressure level

Test: ASTM E 492 - 09 / ASTM E 989 - 06

Page 4 of 4

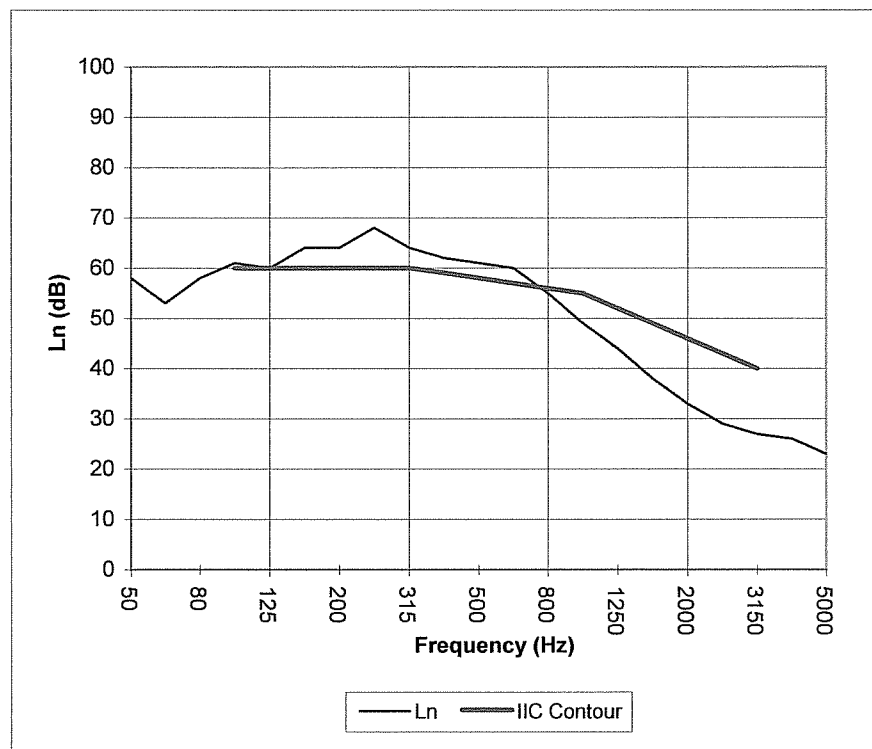
Test Report: NGC7010007

Test Date: 1/26/2010

Specimen Size [m²]: 17.8

Impact Insulation Class IIC [dB]: 52

Frequency [Hz]	L _n [dB]
50	58
63	53
80	58
100	61
125	60
160	64
200	64
250	68
315	64
400	62
500	61
630	60
800	55
1000	49
1250	44
1600	38
2000	33
2500	29
3150	27
4000	26
5000	23



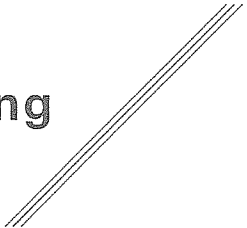
* Due to high insulating value of specimen, background levels limit results at these frequencies.

L_n = Normalized Sound Pressure Level, dB

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TEST REPORT

For

Bostik Incorporated
211 Boston St.
Middleton MA 01949
Philip Pitts / 978-750-7355

Effectiveness of Floor Coverings in Reducing Impact Sound Transmission Through Concrete Floors Test ASTM E 2179 – 03 On

**6 Inch (152mm) Concrete Slab Overlaid with
Engineered Wood Planks Adhered with
Bostik Ultra-Set Single Step Adhesive**

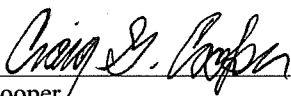
Page 1 of 6

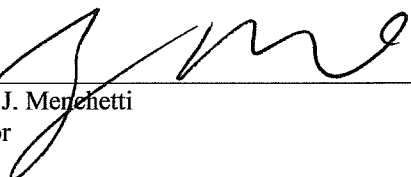
Report Number: NGC 7010008

Assignment Number: G-567

Test Date: 01/26/2010

Report Date: 02/02/2010

Submitted by: 
Craig G. Cooper
Test Engineer

Reviewed by: 
Robert J. Menichetti
Director

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Page 2 of 6

Report Number: NGC 7010008

Test Method: This test method is in accordance with American Society for Testing and Materials Standard Test Method for Laboratory Measurement of Effectiveness of Floor Coverings in Reducing Impact Sound Transmission Through Concrete Floors – Designation: E 2179 – 03

A 30 second averaging time was used for measurement of sound pressure levels.

Specimen Description: 6 inch (152mm) Concrete Slab overlaid with, according to client, Engineered wood flooring with Bostik Ultra-Set Single Step Adhesive.

The test specimen was a floor-ceiling assembly consisting of the following:

- 1 layer of 9.8mm (0.385 in.) Bruce Engineered Hardwood flooring ID: ER 3555. Samples were 127mm (5 in.) wide, by 1499mm (59 in.) long planks. Sample weight was 8.1 kg/m^2 (1.66 PSF).
- 1 layer of Bostik Ultra-Set Single Step adhesive. Sample was troweled on using client supplied $\frac{1}{4}$ in. x $\frac{1}{4}$ in. (6.4mm x 6.4mm) V notch trowel.
- 6 mil poly sheeting attached to concrete with double sided tape at seams and perimeter.
- 152.4mm (6 in.) thick reinforced concrete slab 366.1 kg/m^2 (75.0 PSF).

The overall weight of the test assembly is 374.3 kg/m^2 (76.66 PSF).

The perimeter of the concrete slab was sealed with rubber gasketing and a sand filled trough. The test assembly is structurally isolated from the receiving room.

Specimen size: 3658mm x 4877mm (12 ft x 16 ft.)

Category II

Specimen size: 3658mm x 4877mm (12 ft x 16 ft.)

Conditioning: Adhesive cured for minimum of 24 hours.

Concrete cured minimum of 28 days.

Test Results: The results of the tests are given on pages 3 through 6.

The results reported above apply to specific samples submitted for measurement.

No responsibility is assumed for performance of any other specimen.

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Test: ASTM E 2179 - 03		Bare 6" Concrete Slab					Page 3 of 6
Test Report: NGC7010008		Date: 1/26/2010					
Specimen Size [m ²]: 17.8							
Source room			Receiving room				
Rm Temp [°C]: 16			Volume [m ³]: 63.9				
Humidity [%]: 38			Rm Temp [°C]: 16.5				
			Humidity [%]: 67				
Frequency	Ln	L2	d	Corr.	u.Dev.	ΔLv	
[Hz]	[dB]	[dB]	[dB/s]	[dB]	[dB]		
50	60	32.9	12.10	27.1	--	2.3	
63	57	32.8	18.59	24.2	--	2.5	
80	57	31.7	14.65	25.3	--	2.4	
100	64	33.2	16.05	30.8	--	3.3	
125	66	39.4	15.19	26.6	--	2.3	
160	67	33.1	14.78	33.9	--	2.3	
200	70	29.2	16.94	40.8	--	0.8	
250	71	27.8	18.81	43.2	--	1.0	
315	67	25.8	19.14	41.2	--	0.7	
400	70	37.3	20.75	32.7	--	0.3	
500	68	35.3	20.98	32.7	--	0.4	
630	70	35.7	22.15	34.3	--	0.3	
800	70	27.7	21.92	42.3	--	0.2	
1000	71	21.1	23.86	49.9	--	0.2	
1250	72	18.8	27.15	53.2	--	0.3	
1600	72	18.1	28.66	53.9	--	0.2	
2000	72	17.4	30.85	54.6	--	0.1	
2500	74	18.1	33.71	55.9	4	0.2	
3150	75	16.6	37.83	58.4	8	0.4	
4000	77	13.8	44.09	63.2	--	0.6	
5000	76	11.5	50.03	64.5	--	0.8	

Ln = Normalized Sound Pressure Level, dB
 L2 = Receiving Room Level, dB
 d = Decay Time, dB/second
 DLn = Uncertainty for 95% Confidence Level

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Test: ASTM E 2179 - 03				6" Concrete Slab with Specimen		
Test Report: NGC7010008				Date: 1/26/2010		
Specimen Size [m ²]: 17.8				Page 4 of 6		
Source room				Receiving room		
Rm Temp [°C]: 16				Volume [m ³]: 63.9		
Humidity [%]: 38				Rm Temp [°C]: 16.5		
				Humidity [%]: 67		
Frequency	Ln	L2	d	Corr.	u.Dev.	ΔL _n
[Hz]	[dB]	[dB]	[dB/s]	[dB]	[dB]	
50	58	64.9	13.13	-6.9		2.24
63	53	58.2	19.36	-5.2		1.79
80	58	64.2	13.53	-6.2		1.78
100	61	67.5	14.64	-6.5	1	2.88
125	60	65.6	3.46	-5.6		2.13
160	64	70.2	4.01	-6.2	4	2.14
200	64	69.6	3.66	-5.6	4	1.15
250	68	72.8	3.06	-4.8	8	0.60
315	64	68.4	3.12	-4.4	4	0.43
400	62	66.7	2.89	-4.7	3	0.49
500	61	65.3	2.81	-4.3	3	0.41
630	60	64.4	2.70	-4.4	3	0.37
800	55	59.4	2.61	-4.4		0.39
1000	49	52.6	2.41	-3.6		0.20
1250	44	47.4	2.14	-3.4		0.20
1600	38	41.3	2.00	-3.3		0.15
2000	33	35.6	1.86	-2.6		0.36
2500	29	30.9	1.71	-1.9		0.17
3150	27	29.2	1.54	-2.2		0.15
4000	26	27.3	1.38	-1.3		0.16
5000	23	24.1	1.21	-1.1		0.20
Ln = Normalized Sound Pressure Level, dB L2 = Receiving Room Level, dB d = Decay Time, dB/second ΔL _n = Uncertainty for 95% Confidence Level						

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EFFECTIVENESS OF FLOOR COVERINGS IN REDUCING IMPACT SOUND TRANSMISSION THROUGH CONCRETE FLOORS

Test: ASTM E 2179 - 03

Test Report: NGC7010008

Page 5 of 6
Date: 1/26/2010

Increase in Impact Insulation Class $\Delta IIC = 23.0$

Frequency	L_o	L_c	L_d	L_{ref}	$L_{ref,c}$
[Hz]	[dB]	[dB]	[dB]	[dB]	[dB]
100	64	61	3	67.0	64.0
125	66	60	6	67.5	61.5
160	67	64	3	68.0	65.0
200	70	64	6	68.5	62.5
250	71	68	3	69.0	66.0
315	67	64	3	69.5	66.5
400	70	62	8	70.0	62.0
500	68	61	7	70.5	63.5
630	70	60	10	71.0	61.0
800	70	55	15	71.5	56.5
1000	71	49	22	72.0	50.0
1250	72	44	28	72.0	44.0
1600	72	38	34	72.0	38.0
2000	72	33	39	72.0	33.0
2500	74	29	45	72.0	27.0
3150	75	27	48	72.0	24.0

L_o = Normalized Sound Pressure Level for Bare Standard Concrete Floor, dB
 L_c = Normalized Sound Pressure Level for Covering over Concrete Floor, dB
 L_d = $L_o - L_c$, dB
 L_{ref} = Reference Floor Average Normalized Impact Sound Pressure Level, dB
 $L_{ref,c}$ = $L_{ref} - L_d$, dB

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EFFECTIVENESS OF FLOOR COVERINGS IN REDUCING IMPACT SOUND TRANSMISSION THROUGH CONCRETE FLOORS

Test: ASTM E 2179 - 03

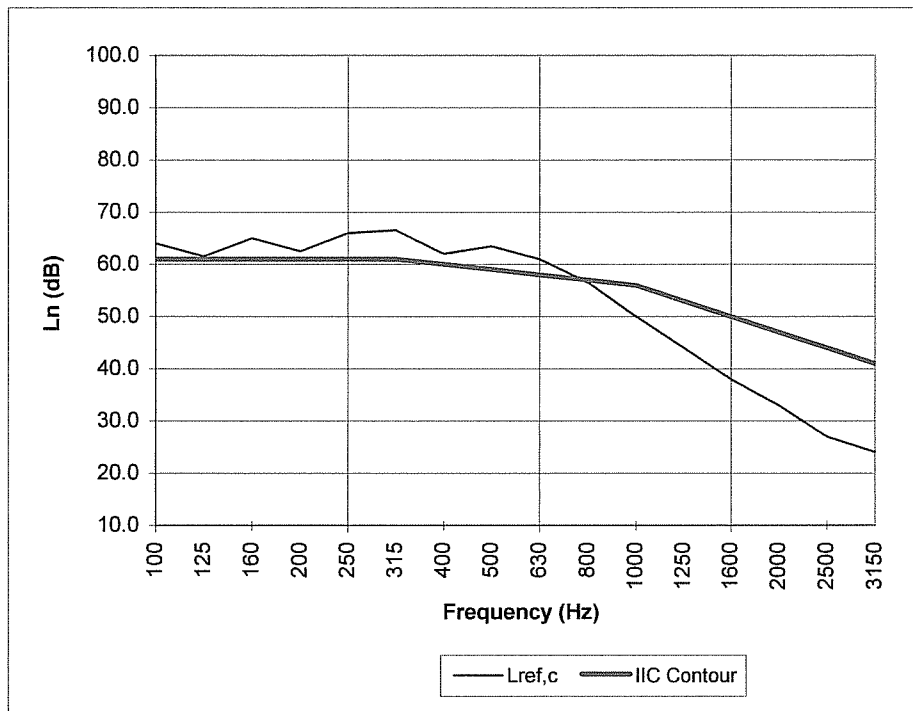
Page 6 of 6

Test Report: NGC7010008

Date: 1/26/2010

Increase in Impact Insulation Class Δ IIC = 23.0

Frequency [Hz]	Lref,c [dB]
100	64.0
125	61.5
160	65.0
200	62.5
250	66.0
315	66.5
400	62.0
500	63.5
630	61.0
800	56.5
1000	50.0
1250	44.0
1600	38.0
2000	33.0
2500	27.0
3150	24.0



* Due to high insulating value of specimen, background levels limit results at these frequencies.

Lref,c = Lref - Ld, dB

L_n = Normalized Sound Pressure Level, dB

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TEST REPORT

For

Bostik Incorporated
211 Boston St.
Middleton MA 01949
Philip Pitts / 978-750-7355

Impact Sound Transmission Test

ASTM E 492 – 09 / ASTM E 989 – 06

On

**6 Inch (152mm) Concrete Slab Overlaid with
Engineered Wood Planks Adhered with
Bostik Ultra-Set Single Step Adhesive
Including Suspended Gypsum Board Ceiling**

Page 1 of 4

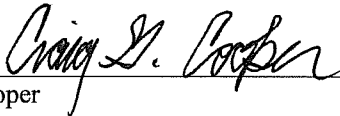
Report Number: NGC 7010006

Assignment Number: G-567

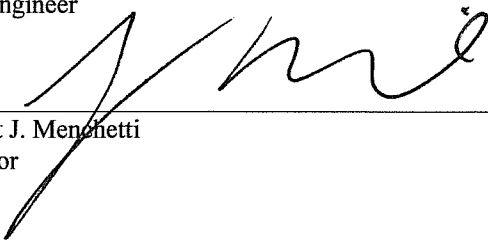
Test Date: 01/22/2010

Report Date: 02/02/2010

Submitted by: _____


Craig G. Cooper
Test Engineer

Reviewed by: _____


Robert J. Menchetti
Director

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Page 2 of 4

Report Number: NGC 7010006

Test Method: This test method is in accordance with American Society for Testing and Materials Standard Test Method for Laboratory Measurement of Sound Transmission Through Floor-Ceiling Assemblies Using the Tapping Machine - Designation: E 492-09 / E 989-06.
The uncertainty limits of each tapping machine location met the precision requirements of section A1.4 of ASTM E 492-09.

Specimen Description: 6 inch (152mm) Concrete Slab including suspended gypsum board ceiling, overlaid with, according to client, Engineered wood flooring with Bostik Ultra-Set Single Step Adhesive.

The test specimen was a floor-ceiling assembly consisting of the following:

- 1 layer of 9.8mm (0.385 in.) Bruce Engineered Hardwood flooring ID: ER 3555. Samples were 127mm (5 in.) wide, by 1499mm (59 in.) long planks. Sample weight was 8.1 kg/m² (1.66 PSF).
- 1 layer of Bostik Ultra-Set Single Step adhesive. Sample was troweled on using client supplied ¼ in. x ¼ in. (6.4mm x 6.4mm) V notch trowel.
- 6 mil poly sheeting attached to concrete with double sided tape at seams and perimeter.
- 152.4mm (6 in.) thick reinforced concrete slab 366.1 kg/m² (75.0 PSF).
- Gypsum board ceiling grid suspension system manufactured by Armstrong®. System is comprised of Main Tee's (part number HD8906E) and Cross Tee's (part number XL8945P). The main tees were placed 1219mm (48 in.) on center and the cross tees were placed 609.6mm (24 in.) on center. 16 gauge galvanized tie wire was used to attach the main tees to concrete anchors, located 1219mm (48 in.) o.c. along the longitudinal axis, suspending the grid 304.8mm (12 in.) below the concrete slab.
- 1 layer of 15.9mm (5/8 in.) Type X gypsum board. Sample was observed to be 15.9mm (0.628 in.) thick and weighed 11.2 kg/m² (2.3 PSF). The board was attached 304.8mm (12 in.) o.c. parallel to suspended grid suspension system mains, using 25.4mm (1 in.) fine thread bugle head drywall screws. The board joints were taped.

The overall weight of the test assembly is 385.5 kg/m² (78.96 PSF).

The perimeter of the concrete slab was sealed with rubber gasketing and a sand filled trough. The test assembly is structurally isolated from the receiving room.

Test Floor Size: 3658mm x 4877mm (12 ft. x 16 ft.).

Conditioning: Adhesive cured for minimum of 24 hours.
Concrete cured minimum of 28 days.

Test Results: The results of the tests are given on pages 3 and 4.

The results reported above apply to specific samples submitted for measurement.

No responsibility is assumed for performance of any other specimen.

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Normalized impact sound pressure level						
Test: ASTM E 492 - 09 / ASTM E 989 - 06						
Test Report: NGC7010006						Page 3 of 4
Specimen Size [m ²]: 17.8						Date: 1/22/2010
Source room			Receiving room			
Rm Temp [°C]: 16.5			Volume [m ³]: 60			
Humidity [%]: 33			Rm Temp [°C]: 18			
			Humidity [%]: 65			
Impact Insulation Class IIC [dB]: 71						
Sum of Unfavorable Deviations [dB]: 28						
Max. Unfavorable Deviation [dB]: 8			at 100 Hz			
Frequency [Hz]	L _n [dB]	L ₂ [dB]	d [dB/s]	Corr. [dB]	u.Dev. [dB]	ΔL _n
100	49	52.0	29.3	-3.0	8	1.48
125	48	54.5	21.7	-6.5	7	3.27
160	46	51.5	18.0	-5.5	5	2.20
200	44	49.4	18.4	-5.4	3	0.77
250	43	48.2	18.2	-5.2	2	0.76
315	40	44.8	18.8	-4.8		0.82
400	38	45.3	18.6	-7.3		0.40
500	36	42.6	19.5	-6.6		0.24
630	37	43.1	21.8	-6.1		0.43
800	32	37.3	21.6	-5.3		0.44
1000	30	34.7	23.4	-4.7		0.27
1250	30	34.0	25.7	-4.0		0.33
1600	28	31.9	27.0	-3.9		0.31
2000	26	29.1	30.6	-3.1		0.38
2500	24	27.0	33.7	-3.0		0.31
3150	24	26.8	35.8	-2.8	3	0.20
4000	24	25.6	40.2	-1.6		0.29
5000	21	22.2	45.2	-1.2		0.30
L _n = Normalized Sound Pressure Level, dB L ₂ = Receiving Room Level, dB d = Decay Time, dB/second ΔL _n = Uncertainty for 95% Confidence Level						

The results reported above apply to specific samples submitted for measurement. No responsibility is assumed for performance of any other specimen. This report may not be reproduced except in full, without the written approval of the laboratory. The laboratory's accreditation or any of its test reports in no way constitutes or implies product certification, approval, or endorsement by NVLAP or any agency of the U.S. Government.



Acoustical Testing Laboratory



Accredited by the National Voluntary Laboratory Accreditation Program for the specific scope of accreditation under Lab Code 200291

Normalized impact sound pressure level

Test: ASTM E 492 - 09 / ASTM E 989 - 06

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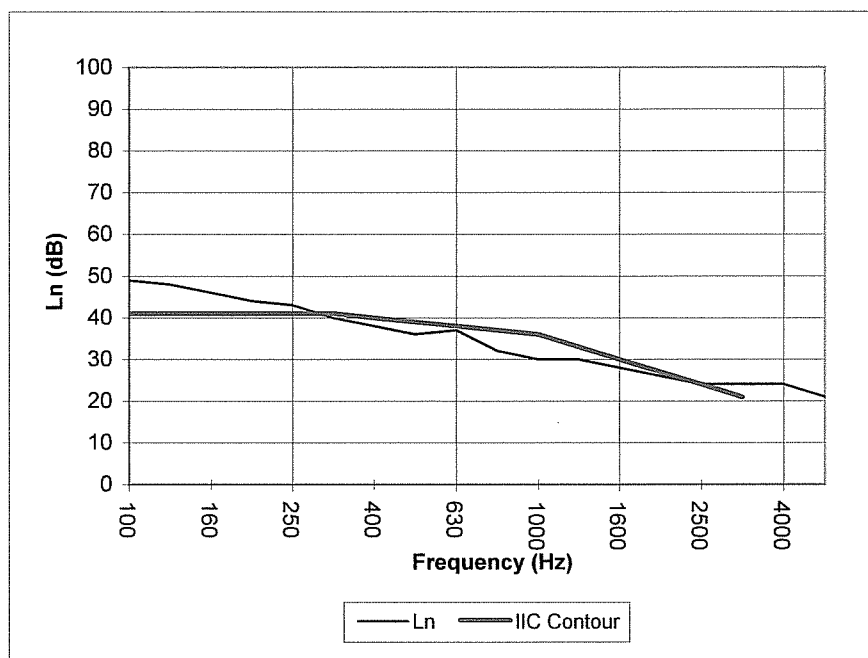
Test Report: NGC7010006

Test Date: 1/22/2010

Specimen Size [m²]: 17.8

Impact Insulation Class IIC [dB]: 71

Frequency [Hz]	L _n [dB]
100	49
125	48
160	46
200	44
250	43
315	40
400	38
500	36
630	37
800	32
1000	30
1250	30
1600	28
2000	26
2500	24
3150	24
4000	24
5000	21



* Due to high insulating value of specimen, background levels limit results at these frequencies.

L_n = Normalized Sound Pressure Level, dB

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