

TEST REPORT

for

Sound Seal

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Effectiveness of Floor Coverings in Reducing Impact Sound Transmission Through Concrete Floors Test

ASTM E 2179 – 03 (2016)

On

8 Inch Concrete Slab Floor – Ceiling Assembly Overlaid with Luxury Vinyl Plank Flooring on ProBase Vinyl 3mm Underlayment

Report Number: NGC 7020108

Assignment Number: G-1705

Test Date: 07/20/2020

Report Date: 07/24/2020

Submitted by:


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Revision Summary:

| Date | SUMMARY |
|---------------------------|---|
| Approval Date: 07/24/2020 | Original issue date: 07/24/2020 Original NGCTS report: NGC 7020108 |

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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 (2016)

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

Specimen Description: 8 inch concrete slab floor- ceiling assembly, overlaid with according to the client, Luxury Vinyl Plank Flooring over ProBase Vinyl 3mm Underlayment.

The test specimen was a floor-ceiling assembly and was observed to consist of the following:
All weights and dimension are averaged:

- 1 layer of, according to the client, Luxury Vinyl Plank Flooring. The flooring was glued to the ProBase Vinyl 3mm Underlayment using Impacta T-440 acrylic adhesive. The adhesive was applied using a 1.59 mm x 1.59 mm x 1.59 mm (1/16 in. x 1/16 in. x 1/16 in.) Square-Notch trowel. Measured thickness: 3.30 mm (0.08 in.). Measured weight: 4.10 kg/m² (0.84 PSF)
- 1 layer of, according to the client, ProBase Vinyl 3mm Underlayment. The underlayment was glued to the concrete slab using Impacta T-440 acrylic adhesive. The adhesive was applied using a 1.59 mm x 1.59 mm x 1.59 mm (1/16 in. x 1/16 in. x 1/16 in.) Square-Notch trowel. Measured thickness: 1.27 mm (0.13 in.). Measured weight: 2.25 kg/m² (0.46 PSF)
- 203.2 mm (8 in.) thick reinforced concrete slab, weighing: 488.2 kg/m² (100.00 PSF)

The overall weight of the test assembly is: 494.55 kg/m² (101.30 PSF)

The perimeter of the test frame was sealed with a rubber gasket and a sand filled trough.

The test frame was structurally isolated from the receiving room.

Specimen size: 3657.6 mm x 4876.8 mm (12 ft. x 16 ft.)

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

Test Results: The results of the tests are given on pages 4 through 7 of the report.

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| Test: ASTM E 2179 - 03 (2016) | | Bare 8" Concrete Slab | | | | |
|---|----------------|-----------------------|-------------------------------|-------|-------------|-----------------|
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| Specimen Size [m ²]: 17.8 | | | | | | |
| Source room | | | Receiving room | | | |
| Rm Temp [°C]: 24.5 | | | Volume [m ³]: 124 | | | |
| Humidity [%]: 50 | | | Rm Temp [°C]: 23.5 | | | |
| | | | Humidity [%]: 49 | | | |
| Frequency | L _n | L2 | d | Corr. | u.Dev. | ΔL _n |
| [Hz] | [dB] | [dB] | [dB/s] | [dB] | [dB] | |
| 50 | 61 | 65.6 | 20.89 | -4.6 | | 1.4 |
| 63 | 55 | 59.6 | 20.08 | -4.6 | | 3.2 |
| 80 | 57 | 66.5 | 15.39 | -5.5 | | 1.8 |
| 100 | 60 | 64.6 | 15.84 | -5.6 | | 2.6 |
| 125 | 65 | 65.3 | 3.01 | -4.3 | | 2.8 |
| 160 | 67 | 71.5 | 3.90 | -5.5 | | 2.0 |
| 200 | 66 | 70.8 | 3.57 | -5.8 | | 0.7 |
| 250 | 65 | 69.8 | 2.85 | -4.8 | | 0.9 |
| 315 | 69 | 72.1 | 2.85 | -4.1 | | 0.5 |
| 400 | 66 | 70.3 | 2.69 | -4.3 | | 0.5 |
| 500 | 67 | 70.6 | 2.57 | -3.6 | | 0.5 |
| 630 | 67 | 70.0 | 2.42 | -4.0 | | 0.3 |
| 800 | 69 | 71.2 | 2.42 | -4.2 | | 0.3 |
| 1000 | 69 | 70.9 | 2.29 | -3.9 | | 0.3 |
| 1250 | 70 | 72.7 | 2.02 | -2.7 | | 0.2 |
| 1600 | 71 | 72.9 | 1.91 | -2.9 | | 0.2 |
| 2000 | 73 | 73.5 | 1.69 | -2.5 | 1 | 0.2 |
| 2500 | 74 | 73.4 | 1.57 | -2.4 | 4 | 0.1 |
| 3150 | 74 | 73.5 | 1.42 | -1.5 | 8 | 0.2 |
| 4000 | 74 | 75.1 | 1.23 | -1.1 | | 0.2 |
| 5000 | 74 | 73.3 | 1.08 | -0.3 | | 0.3 |
| <p>L_n = Normalized Sound Pressure Level, dB L2 = Receiving Room Level, dB d = Decay Time, dB/second ΔL_n = Uncertainty for 95% Confidence Level</p> | | | | | | |

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| Test: ASTM E 2179 - 03 (2016) | | | 8" Concrete Slab with Specimen | | | |
|--|----------------|------|--------------------------------|-------|-------------|-----------------|
| Test Report: NGC7020108 | | | Date: 7/20/2020 | | Page 5 of 7 | |
| Specimen Size [m ²]: 17.8 | | | | | | |
| Source room | | | Receiving room | | | |
| Rm Temp [°C]: 24.5 | | | Volume [m ³]: 124 | | | |
| Humidity [%]: 50 | | | Rm Temp [°C]: 23.5 | | | |
| | | | Humidity [%]: 49 | | | |
| Frequency | L _n | L2 | d | Corr. | u.Dev. | ΔL _n |
| [Hz] | [dB] | [dB] | [dB/s] | [dB] | [dB] | |
| 50 | 56 | 58.8 | 16.03 | -4.8 | | 4.10 |
| 63 | 57 | 59.6 | 15.24 | -4.4 | | 3.60 |
| 80 | 55 | 56.1 | 23.78 | -1.1 | | 2.12 |
| 100 | 57 | 58.7 | 21.90 | -1.7 | | 3.07 |
| 125 | 63 | 64.7 | 20.40 | -1.7 | 4 | 1.08 |
| 160 | 67 | 69.9 | 15.61 | -2.9 | 8 | 1.11 |
| 200 | 63 | 66.1 | 15.23 | -3.1 | 4 | 1.39 |
| 250 | 61 | 64.1 | 15.47 | -3.1 | 2 | 0.65 |
| 315 | 64 | 67.0 | 16.10 | -3.0 | 5 | 1.01 |
| 400 | 58 | 60.6 | 17.07 | -2.6 | | 0.60 |
| 500 | 56 | 57.5 | 18.83 | -1.5 | | 0.58 |
| 630 | 52 | 53.6 | 20.25 | -1.6 | | 0.50 |
| 800 | 48 | 49.5 | 20.76 | -1.5 | | 0.66 |
| 1000 | 44 | 45.8 | 20.48 | -1.8 | | 0.73 |
| 1250 | 34 | 35.4 | 20.88 | -1.4 | | 0.57 |
| 1600 | 29 | 29.9 | 21.66 | -0.9 | | 0.43 |
| 2000 | 26 | 26.9 | 24.01 | -0.9 | | 0.52 |
| 2500 | 18 | 19.3 | 25.98 | -1.3 | | 0.63 |
| 3150 | 18 | 19.1 | 27.96 | -1.1 | | 0.75 |
| 4000 | 12 | 13.8 | 30.80 | -1.8 | | 0.55 |
| 5000 | 10 | 11.3 | 34.05 | -1.3 | | 0.39 |
| 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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**EFFECTIVENESS OF FLOOR COVERINGS IN REDUCING
 IMPACT SOUND TRANSMISSION THROUGH CONCRETE FLOORS**

Test: ASTM E 2179 - 03 (2016)

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Increase in Impact Insulation Class Δ IIC = 26.0

| Frequency | L_o | L_c | L_d | L_{ref} | $L_{ref,c}$ |
|-----------|-------|-------|-------|-----------|-------------|
| [Hz] | [dB] | [dB] | [dB] | [dB] | [dB] |
| 100 | 60 | 57 | 3 | 59 | 56.0 |
| 125 | 65 | 63 | 2 | 61 | 59.0 |
| 160 | 67 | 67 | 0 | 66 | 66.0 |
| 200 | 66 | 63 | 3 | 65 | 62.0 |
| 250 | 65 | 61 | 4 | 65 | 61.0 |
| 315 | 69 | 64 | 5 | 68 | 63.0 |
| 400 | 66 | 58 | 8 | 66 | 58.0 |
| 500 | 67 | 56 | 11 | 67 | 56.0 |
| 630 | 67 | 52 | 15 | 66 | 51.0 |
| 800 | 69 | 48 | 21 | 67 | 46.0 |
| 1000 | 69 | 44 | 25 | 67 | 42.0 |
| 1250 | 70 | 34 | 36 | 70 | 34.0 |
| 1600 | 71 | 29 | 42 | 70 | 28.0 |
| 2000 | 73 | 26 | 47 | 71 | 24.0 |
| 2500 | 74 | 18 | 56 | 71 | 15.0 |
| 3150 | 74 | 18 | 56 | 72 | 16.0 |

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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 IMPACT SOUND TRANSMISSION THROUGH CONCRETE FLOORS**

Test: ASTM E 2179 - 03 (2016)

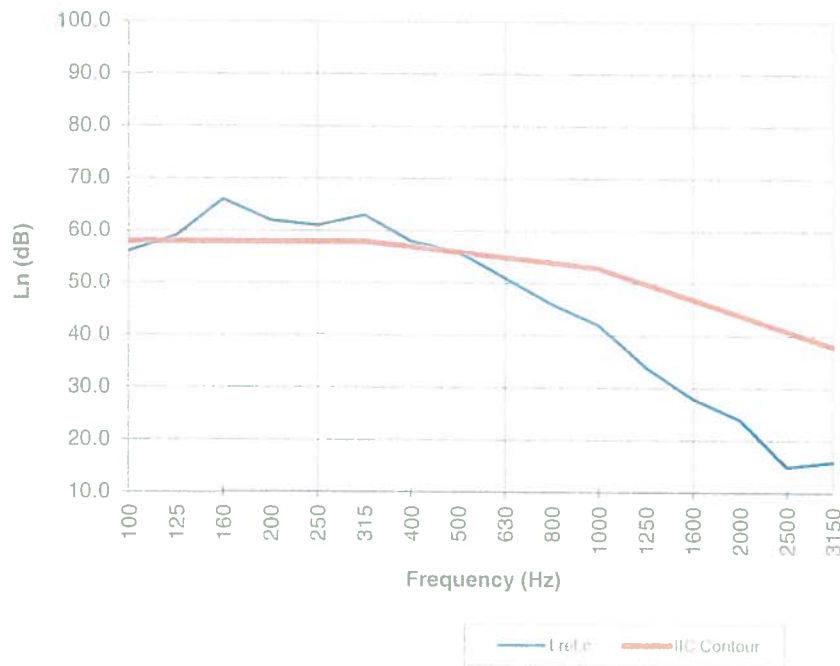
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Increase in Impact Insulation Class $\Delta IIC = 26.0$

| Frequency [Hz] | Lref,c [dB] |
|-------------------|----------------|
| 100 | 56.0 |
| 125 | 59.0 |
| 160 | 66.0 |
| 200 | 62.0 |
| 250 | 61.0 |
| 315 | 63.0 |
| 400 | 58.0 |
| 500 | 56.0 |
| 630 | 51.0 |
| 800 | 46.0 |
| 1000 | 42.0 |
| 1250 | 34.0 |
| 1600 | 28.0 |
| 2000 | 24.0 |
| 2500 | 15.0 |
| 3150 | 16.0 |



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

$L_{ref,c} = L_{ref} - L_d$, dB

L_n = Normalized Sound Pressure Level, dB

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