

TEST REPORT

for

Hubei Xiangyuan New Material Technology Inc.

Economic Development Zone
Hanchuan, Hubei 431600
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Sound Transmission Loss Test

ASTM E 90 – 09 / E 413 – 10

On

**6 Inch Concrete Slab Floor – Ceiling Assembly
With a Suspended Single Layer of 5/8 Inch Type X Wallboard Ceiling
And 3-1/2 Inches of Fiberglass Insulation
Overlaid with 12 mm Laminate Flooring and IXPE Underlayment**

Report Number: NGC 5017076_R1

Assignment Number: G-1410

Test Date: 05/16/2017

Report Reissue Date: 06/08/2017

Submitted by:


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Revision Summary:

Date	SUMMARY
Approval Date: 05/23/2017	Original issue date: 05/23/2017 Original NGCTS report #: NGC 5017076
Reissue Date: 06/08/2017	Report #: NGC 5017076_R1 The report was revised and reissued due to a typographical error.

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Test Method: This test method conforms explicitly with the American Society for Testing and Materials Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements – Designation: E 90 - 09 / E 413 - 10.

Specimen Description: 6 inch concrete slab floor-ceiling assembly, with a single layer of 5/8 inch Type X wallboard Ceiling and 3-1/2 inches of fiberglass insulation, overlaid with according to client, 12 mm Laminate Flooring, over IXPE 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, 12 mm Laminate Flooring. The flooring was floating on the IXPE underlayment. Plank dimensions: 196.9 mm x 1212.9 mm (7-3/4 in. x 47-3/4 in.). Measured thickness: 12.19 mm (0.48 in.). Measured weight: 11.34 kg/m² (2.32 PSF)
- 1 layer of, according to the client, IXPE underlayment. The underlayment was floating on the concrete slab. Measured thickness: 1.93 mm (0.076 in.). Measured weight: 0.098 kg/m² (0.02 PSF)
- 152.4 mm (6 in.) thick reinforced concrete slab, weighing: 366.2 kg/m² (75.0 PSF)
- 1 layer of, 88.9 mm (3.5 in.) unfaced fiberglass batt insulation which was laid over the suspended grid system parallel to the main tees. Sample weight: 0.78 kg/m² (0.16 PSF)
- Gypsum wallboard ceiling grid suspension system. System is comprised of main tees and cross tees. The main tees were placed 1219.2 mm (48 in.) o.c. and the cross tees were placed 609.6 mm (24 in.) o.c. 16 gauge galvanized tie wire was used to attach the main tees to concrete anchors, located 1219.2 mm (48 in.) o.c. along the longitudinal axis, suspending the grid 304.8 mm (12 in.) below the concrete slab.
- 1 layer of, 15.9 mm (5/8 in.) Type X gypsum wallboard. The wallboard was attached parallel to the suspended grid suspension system mains, using 28.6 mm (1-1/8 in.) Type S drywall screws spaced 304.8 mm (12 in.) o.c. The wallboard joints were taped. Suspended gypsum wallboard grid ceiling weighed: 11.23 kg/m² (2.30 PSF).

The overall weight of the test assembly is: 389.58 kg/m² (79.80 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.

Test Results: The results of the tests are given on pages 4 and 5 of the report.

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Sound Transmission Loss Test Data							
Test: ASTM E 90 - 04 / ASTM E 413 - 10							
Test Report: NGC 5017076_R1						Date: 5/16/2017	
Specimen Size [m ²]: 17.8						Page 4 of 5	
Source room				Receiving room			
Volume [m ³]: 86				Volume [m ³]: 124			
Rm Temp [°C]: 20				Rm Temp [°C]: 22			
Humidity [%]: 52				Humidity [%]: 56			
Sound Transmission Class STC [dB]: 61							
Sum of Unfavorable Deviations [dB]: 25							
Max. Unfavorable Deviation [dB]: 6 at 125 Hz							
Frequency	STL	L1	L2	d	Corr.	u.Dev.	ΔSTL
[Hz]	[dB]	[dB]	[dB]	[dB/s]	[dB]	[dB]	
80	39	102.2	66.0	29.8	2.8		3.54
100	44	104.1	63.8	24.4	3.6		3.41
125	39	103.8	69.9	18.5	5.1	6	2.60
160	45	106.3	66.0	16.5	4.7	3	1.36
200	51	107.0	61.7	14.4	5.8		0.66
250	50	103.5	58.7	14.6	5.2	4	0.80
315	52	101.3	55.0	15.1	5.7	5	1.00
400	55	100.2	50.7	15.5	5.5	5	0.84
500	59	101.5	47.2	16.3	4.7	2	1.00
630	62	101.9	44.5	16.9	4.6		0.62
800	65	100.9	40.8	17.6	4.9		0.50
1000	70	98.6	34.1	16.9	5.5		0.38
1250	75	97.3	27.1	17.9	4.9		0.60
1600	76	97.8	25.9	19.5	4.1		0.72
2000	76	99.5	26.8	23.1	3.3		0.95
2500	77	101.3	27.4	24.8	3.1		0.83
3150	78	100.2	24.8	26.3	2.6		1.37
4000	82	98.5	19.4	29.8	2.9		1.61
5000	83	91.8	11.0	33.8	2.3		2.07

STL = Sound Transmission Loss, dB
 L1 = Source Room Level, dB
 L2 = Receiving Room Level, dB
 d = Decay Rate dB/second
 Δ STL = Uncertainty for 95% Confidence Level

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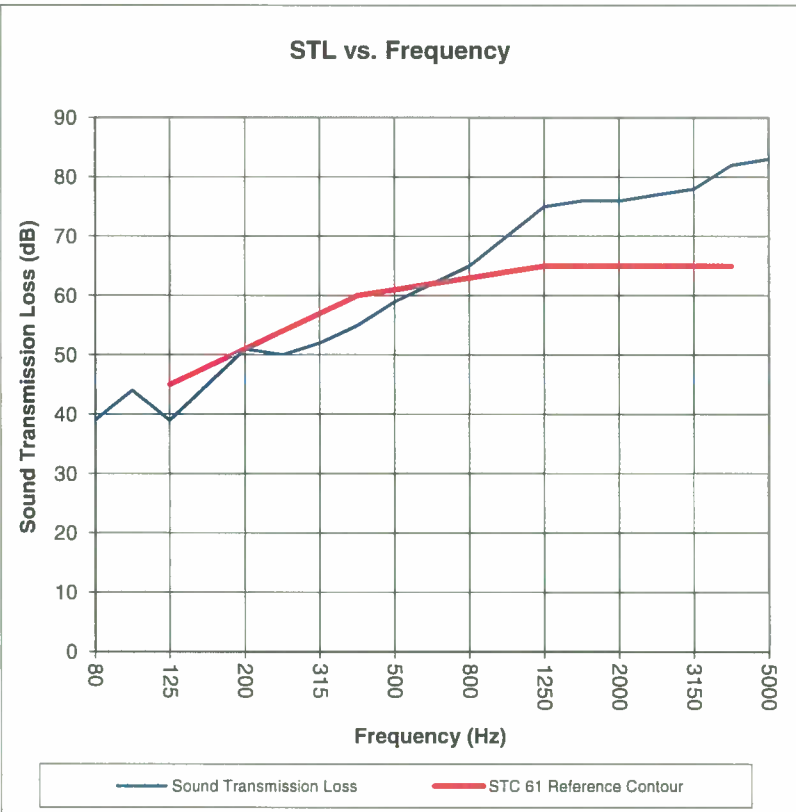
Sound Transmission Loss Test Data

Per: ASTM E 90 - 04 / ASTM E 413 - 10

Test Report: NGC 5017076_R1
 Test Date: 5/16/2017
 Specimen Size [m²]: 17.8

Sound Transmission Class STC = 61 dB

Frequency [Hz]	STL [dB]	ΔSTL
80	39	3.54
100	44	3.41
125	39	2.60
160	45	1.36
200	51	0.66
250	50	0.80
315	52	1.00
400	55	0.84
500	59	1.00
630	62	0.62
800	65	0.50
1000	70	0.38
1250	75	0.60
1600	76	0.72
2000	76	0.95
2500	77	0.83
3150	78	1.37
4000	82	1.61
5000	83	2.07



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

STL = Sound Transmission Loss, dB
 Δ STL = Uncertainty for 95% Confidence Level

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