

KINETICS NOISE CONTROL TEST REPORT #AT001081

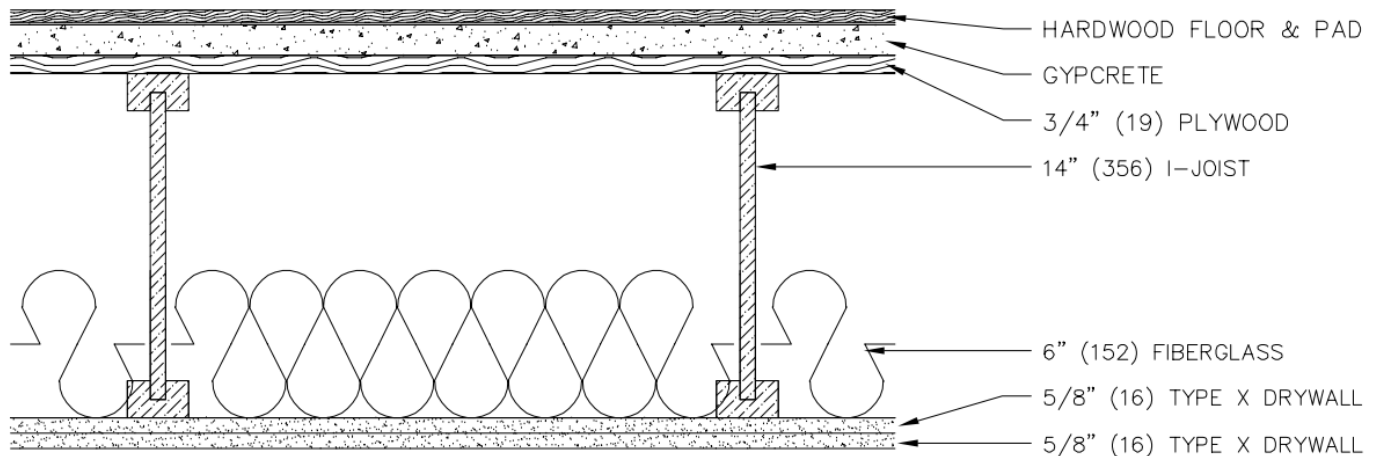
- **KINETICS NOISE CONTROL PRODUCTS:**

- **ACOUSTICAL RATINGS:**

- STC 51
- IIC 39

- **TESTING AGENCY & REPORT NUMBER:**

- INTERTEK ETL SEMKO
- 3103281 CRT-001G
- 3103281 CRT-001H



KINETICS DRAWING NUMBER: AT001081



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SINCE 1896

REPORT



ETL SEMKO

3933 US ROUTE 11 CORTLAND, NEW YORK 13045

Order No. 3103281

Date: November 17, 2006

REPORT NO. 3103281CRT-001g

SOUND TRANSMISSION LOSS TEST AND CLASSIFICATION OF A WOOD JOIST FLOOR/CEILING ASSEMBLY WITH A GYPSUM CONCRETE TOPPING

KINETICS NOISE CONTROL
6300 IRELANE PLACE
DUBLIN, OH 43017

INTRODUCTION

This report gives the results of a Sound Transmission Loss Test and Classification of a wood joist floor/ceiling assembly. The floor/ceiling assembly was supplied and installed by Intertek. The hardwood flooring and foam underlayment were supplied by Intertek.

AUTHORIZATION

Signed Quote No. 20442399.

TEST METHOD

The specimen was tested in general accordance with the American Society for Testing and Materials designation ASTM E90-04, "Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements", and classified in accordance with the American Society for Testing and Materials designation ASTM E413-04, "Classification for Rating Sound Insulation". The size of the source room for the measurements is smaller than the minimum recommended of 125m³. This leads to slightly elevated uncertainties in the measurement data at low frequencies and does not allow microphones to be placed in full accordance with section A.2.

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GENERAL

The sound-insulating property of a partition element is expressed in terms of the sound transmission loss. The procedure for determining this quantity is to mount (and perimeter seal) the test specimen as a partition between two reverberation rooms. Sound is introduced in one of the rooms (the source room) and measurements are made of the noise reduction between source room and receiving room. The rooms are so arranged and constructed that the only significant sound transmission between them is through the test specimen.

The purpose of the Sound Transmission Class (STC) is to provide a single figure rating that can be used for comparing the sound-insulating properties of partition elements used for general building design purposes. The higher the rating (STC) the greater the sound insulating properties of the partition.

DESCRIPTION OF THE FLOOR/CEILING ASSEMBLY

The test floor is a 100 sq. ft. opening that forms the horizontal separation of the two rooms, one directly above the other. The materials used in the assembly from top to bottom are:

- 1 ¼ inch thick Gypcrete 2000 gypsum concrete (poured November 10, 2006)
- ¾ inch thick plywood
- 14 inch high WI-60 Wood-I-Joists® spaced 24 inches on center
- 6 inch thick batt fiberglass insulation installed directly below the plywood
- Two layers of 5/8 inch thick Type X gypsum board (taped and finished with compound) directly fastened to the I-Joists

DESCRIPTION OF FINISHED FLOOR

Engineered Hardwood flooring (15/32 inch thick) over 1/8 inch thick foam underlayment

Checked by: f/c



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RESULTS OF MEASUREMENTS

1/3 Octave Band Center Frequency Hz	<u>Sound Transmission Loss in dB</u>
80	28
100	31
125	35
160	38
200	38
250	41
315	39
400	44
500	50
630	57
800	61
1000	64
1250	66
1600	70
2000	70
2500	71
3150	70
4000	70
5000	66
Sound Transmission Class	51

PRECISION

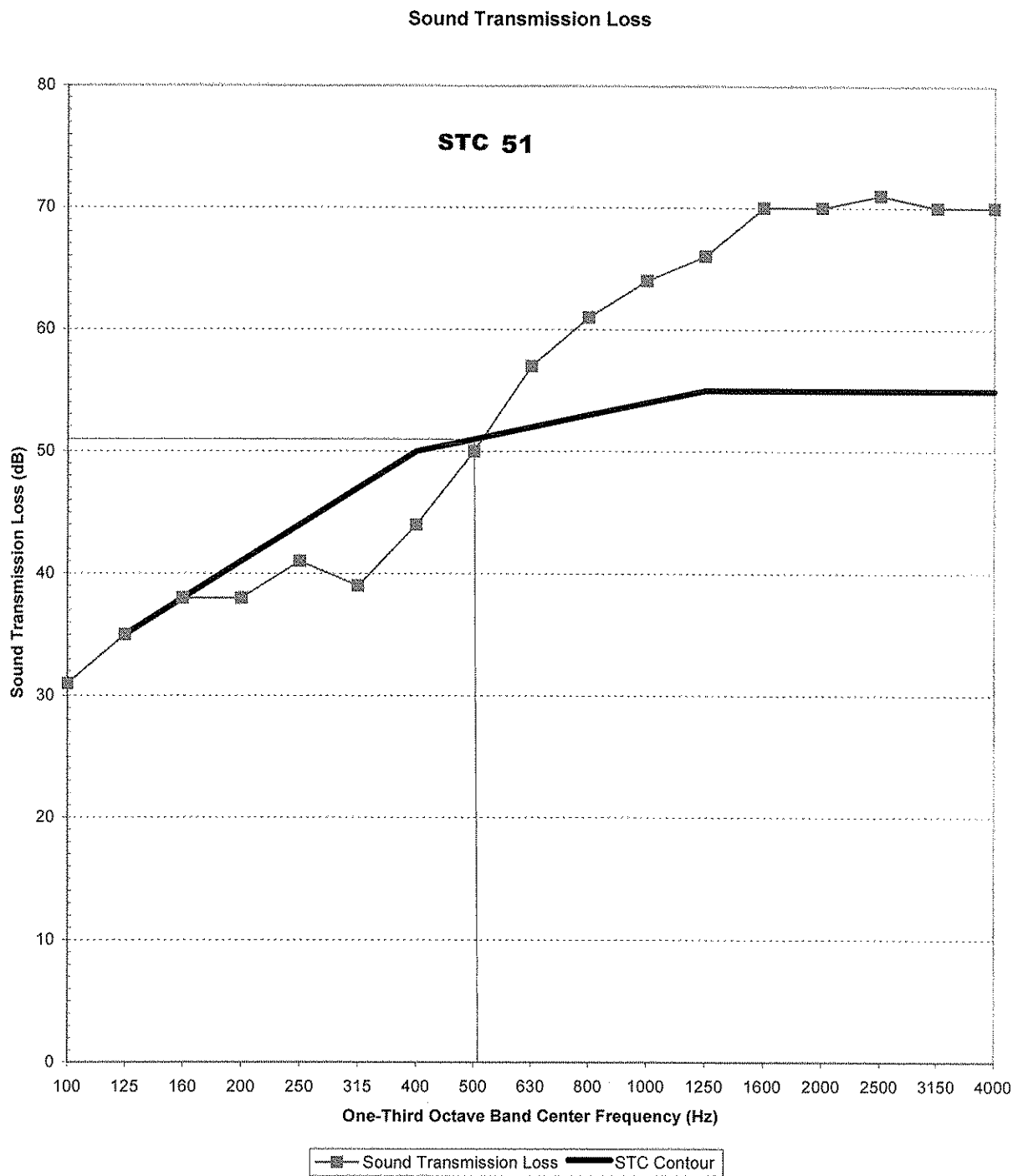
For the Intertek flooring test facility, the 95% confidence interval ΔTL , is as follows:

<u>Range of One-Third Octave Bands</u>	<u>Transmission Loss 95% Confidence Uncertainty, dB</u>
125 and 200	<4
250 and 315	<2
400 - 4000	<1.5

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REMARKS

1. Aging Period: Gypsum Concrete – 7 days
2. Ambient Temperature: 71°F
3. Relative Humidity: 47%

CONCLUSION

The test method employed for this test has no pass-fail criteria; therefore, the evaluation of the test results is left to the discretion of the client.

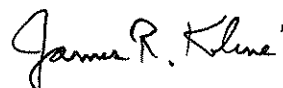
Date of Test: November 17, 2006

Report Approved by:



James H. Nickelsen
Senior Project Engineer
Acoustical Testing

Report Reviewed By:



James R. Kline
Engineer/Quality Supervisor
Acoustical Testing

Attachments: None



REPORT



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Order No. 3103281

November 17, 2006

REPORT NO. 3103281CRT-001h

IMPACT SOUND TRANSMISSION TEST AND CLASSIFICATION OF A WOOD JOIST FLOOR/CEILING ASSEMBLY

RENDERED TO

KINETICS NOISE CONTROL
6300 IRELANE PLACE
DUBLIN, OH 43017

INTRODUCTION

This report gives the results of an Impact Sound Transmission test and the determination of the Impact Insulation Class of a wood joist floor/ceiling assembly. The floor/ceiling assembly was supplied and installed by Intertek. The hardwood flooring and foam underlayment were supplied by Intertek.

AUTHORIZATION

Signed Quote No. 20442399.

TEST METHOD

The specimen was tested in accordance with the American Society for Testing and Materials designation ASTM E492-04, "Standard Test Method for Laboratory Measurement of Impact Sound Transmission through Floor-Ceiling Assemblies Using the Tapping Machine". It was classified in accordance with ASTM E989-89 (Re-approved 1999), entitled, "Standard Classification for Determination of Impact Insulation Class (IIC)".

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GENERAL

The method is designed to measure the impact sound transmission performance of a floor-ceiling assembly, in a controlled laboratory environment. A standard tapping machine (Bruel & Kjaer Type 3207) was placed at four positions on the test floor that forms the horizontal separation between two rooms, one directly above the other. The data obtained in the room below was normalized to a reference room absorption of 10 square meters in accordance with the test method.

The standard also prescribes a single-figure classification rating called "Impact Insulation Class, IIC" which can be used by architects, builders and code authorities for acoustical design purposes in building construction.

The IIC is obtained by matching a standard reference contour to the plotted normalized one-third octave band sound pressure levels at each test frequency. The greater the IIC rating, the lower the impact sound transmission through the floor-ceiling assembly

DESCRIPTION OF THE FLOOR/CEILING ASSEMBLY

The test floor is a 100 sq. ft. opening that forms the horizontal separation of the two rooms, one directly above the other. The materials used in the assembly from top to bottom are:

- 1 ¼ inch thick Gypcrete 2000 gypsum concrete (poured November 10, 2006)
- ¾ inch thick plywood
- 14 inch high WI-60 Wood-I-Joists® spaced 24 inches on center
- 6 inch thick batt fiberglass insulation installed directly below the plywood
- Two layers of 5/8 inch thick Type X gypsum board (taped and finished with compound) directly fastened to the I-Joists

DESCRIPTION OF FINISHED FLOOR

Test #1 – Engineered Hardwood flooring (15/32 inch thick) over 1/8 inch thick foam underlayment

Checked by:

91K



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Code 100402-0.

RESULTS OF TEST

The data obtained in the room below the panel normalized to $A_0 = 10$ square meters, is as follows:

<u>1/3 Octave Band Center Frequency Hz</u>	<u>1/3 Octave Band Sound Pressure Level dB re 0.0002 Microbar</u>
100	81
125	68
160	68
200	72
250	70
315	69
400	63
500	57
630	53
800	45
1000	39
1250	36
1600	34
2000	31
2500	28
3150	24
Impact Insulation Class (IIC)	39

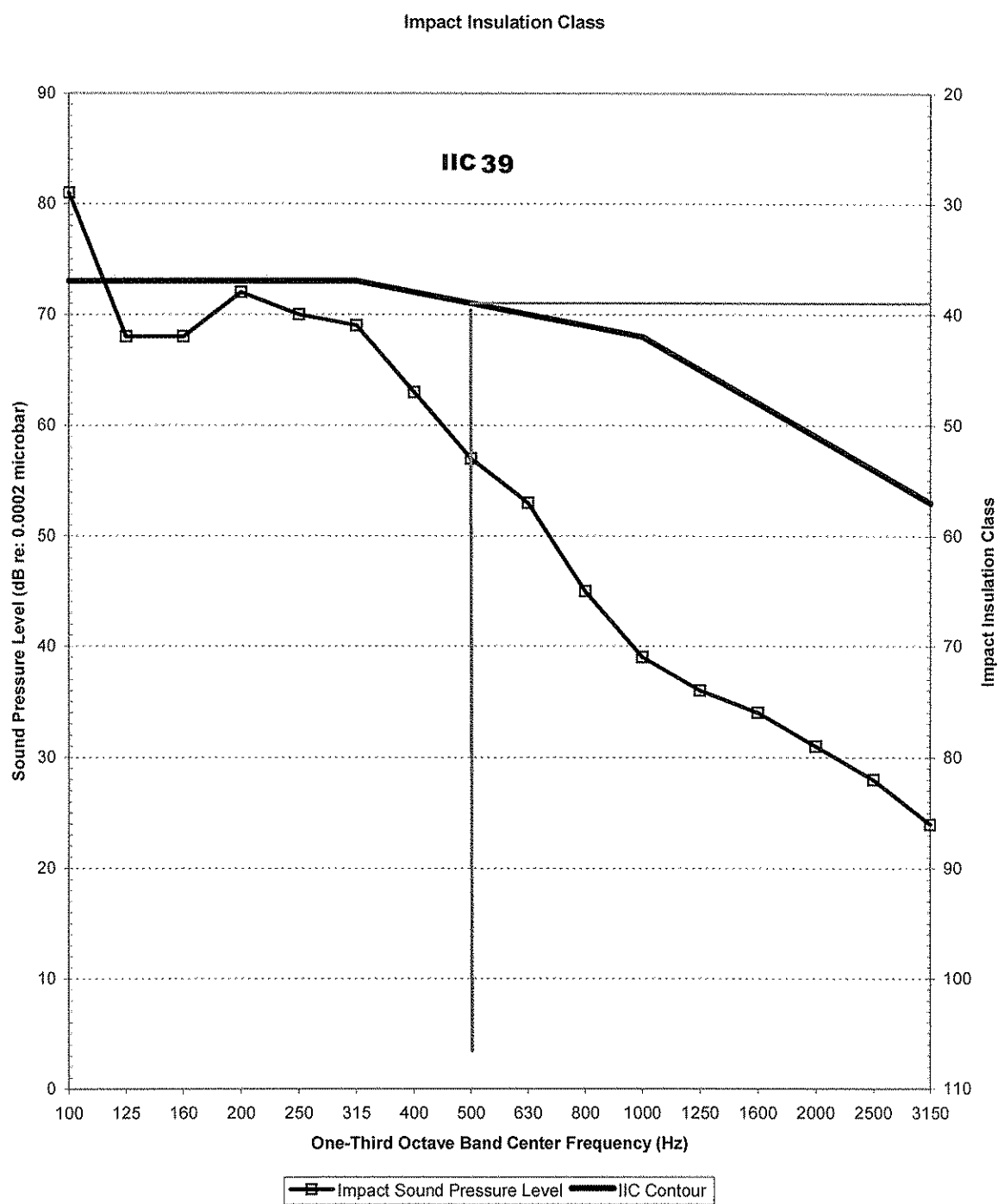
The 95% uncertainty level for each tapping machine location is less than 3 dB for the 1/3 octave bands centered in the range from 100 to 400 Hz and less than 2.5 dB for the bands centered in the range from 500 to 3150 Hz.

For the floor/ceiling construction, the 95% uncertainty limits (ΔL_n) for the normalized sound pressure levels were determined to be less than 2 dB for the 1/3 octave bands centered in the range from 100 to 3500.

Checked by: 9/16

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Checked by: *g. K.*

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REMARKS

1. Aging Period: Gypsum Concrete – 7 days
2. Ambient Temperature: 71°F
3. Relative Humidity: 47%

CONCLUSION

The test method employed for this test has no pass-fail criteria; therefore, the evaluation of the test results is left to the discretion of the client.

This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

Date of Test: November 17, 2006

Report Approved by:



James H. Nickelsen
Senior Project Engineer
Acoustical Testing

Report Reviewed By:



James R. Kline
Engineer/Quality Supervisor
Acoustical Testing

Attachments: None