

**G0665.11-113-11-R0**  
**ACOUSTICAL PERFORMANCE TEST REPORT**  
**ASTM E 90, ASTM E 492, ASTM E 2179**

**Rendered to**

**PROTECTO WRAP COMPANY**

**Series/Model: Protecto Wrap Whispermat LVT**

**Specimen Type: Concrete Slab - 152 mm**

**Overall Size: 3023 mm by 3632 mm**

<b>STC</b>	<b>50</b>
<b>IIC</b>	<b>54</b>
<b>ΔIIC</b>	<b>23</b>

**Test Specimen Identification:**

Floor Topping: 12.1 mm KRAUS ALACANTI KPLA10001 Charleston Hickory Laminated Wood

Floor Underlayment: 1.8 mm Protecto Wrap Whispermat LVT

Floor Slab: 152 mm Concrete Slab

Reference should be made to Intertek-ATI Report G0665.11-113-11 for complete test specimen description. This page alone is not a complete report.

## Acoustical Performance Test Report

PROTECTO WRAP COMPANY

1955 South Cherokee Street

Denver, Colorado 80223

<b>Report</b>	G0665.11-113-11
<b>Test Date</b>	07/11/16
<b>Report Date</b>	05/10/18

### Project Scope

This report is a reissue of the original Report No. G0665.03-113-11 and is rendered to Protecto Wrap Company through written authorization. A summary of the results is listed in the Test Results section, and the complete test data is included as attachments to this report. The original client provided the test specimen.

### Test Methods

The acoustical tests were conducted in accordance with the following standards. The equipment listed in the attachments meets the requirements of the following standards.

ASTM E 90-09, Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions

ASTM E 413-10, Classification for Rating Sound Insulation

ASTM E 492-09(2016)e1, Standard Test Method for Laboratory Measurement of Impact Sound Transmission Through Floor-Ceiling Assemblies Using the Tapping Machine

ASTM E 2179-03(2016), Standard Test Method for Laboratory Measurement of the Effectiveness of Floor Coverings in Reducing Impact Sound Transmission Through Concrete Floors

ASTM E 989-06 (2012), Classification for Determination of Impact Insulation Class (IIC)

ASTM E 2235-04 (2012) Standard Test Method for Determination of Decay Rates for Use in Sound Insulation Test Methods

### Test Procedure

All testing was conducted in the VT test chambers at Intertek-ATI located in York, Pennsylvania. The microphones were calibrated before conducting the tests.

The airborne transmission loss test was conducted in accordance with the ASTM E 90 test method using the single direction method. Two background noise sound pressure level and five sound absorption measurements were conducted at each of five microphone positions. Four sound pressure level measurements were made simultaneously in both rooms, at each of five microphone positions.

### Test Procedure (Continued)

The impact sound transmission test was conducted in accordance with the ASTM E 492 test method. Two background noise sound pressure level, two sound pressure level measurements with the tapping machine operating at each position specified by ASTM E 492, and five sound absorption measurements were conducted at each of five microphone positions.

The delta impact insulation test was conducted in accordance with ASTM E 2179 test method. In addition to the impact sound transmission test, two sound pressure level measurements with the tapping machine operating at each position specified by ASTM E 492 with only the concrete slab installed.

The air temperature and relative humidity conditions were monitored and recorded during all measurements.

### Test Conditions

Source Room		Receive Room	
Average Temperature	21.9°C	Average Temperature	22.4°C
Average Relative Humidity	55%	Average Relative Humidity	61%

### Test Calculations

The STC (Sound Transmission Class), IIC (Impact Insulation Class), and  $\Delta$ IIC (Delta Impact Insulation Class) ratings were calculated in accordance with ASTM E 413, ASTM E 989, and ASTM E 2179, respectively.

### Test Specimen Materials and Installation Details

Material	Dimensions (mm)	Thickness (mm)	Manufacturer and Series	Quantity	Average Weight
Laminated Wood	3023 by 3623	12.1	KRAUS ALACANTI KPLA10001 Charleston Hickory	10.98 m <sup>2</sup>	10.09 kg/m <sup>2</sup>
	<i>Note: Loose laid</i>				
Whispermat LVT	914 by 3048	1.8	Protecto Wrap	10.98 m <sup>2</sup>	0.76 kg/m <sup>2</sup>
	<i>Note: Loose laid</i>				
Concrete Slab	3023 by 3632	152.0	N/A	10.98 m <sup>2</sup>	366.18 kg/m <sup>2</sup>
	<i>Note: The concrete slab was installed in a test frame flush to the source room.</i>				

### Comments

The total weight of the floor/ceiling assembly was 4139.8 kg. Intertek-ATI will store samples of the test specimen for four years. Photographs of the test specimen are included in the attachments. A drawing of the test specimen is included in the attachments.

This report is reissued in the name of Protecto Wrap Company through written authorization from the original report holder. The original Report No. is G0665.03-113-11.

Intertek-ATI will service this report for the entire test record retention period. Test records, such as detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation, will be retained by Intertek-ATI for the entire test record retention period. The test record retention period ends four years after the test date.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. It is the exclusive property of the client so named herein and relates only to the specimen tested. This report is intended to help in the client's quality assurance program, but it does not represent a continuous or exhaustive evaluation of the specimen tested or of other products or materials that were not evaluated. The statements and data provided herein do not constitute approval, disapproval, certification, or acceptance of performance or materials.

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FOR INTERTEK-ATI:

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Cody R. Snyder  
Technician I - Acoustical Testing

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Jordan Strybos  
Project Manager - Acoustical Testing

Attachments (9 Pages): This report is complete only when all attachments are included.

*\* Stated by Client/Manufacturer*

*N/A - Non Applicable*

**Revision Log**

<b><u>Revision</u></b>	<b><u>Date</u></b>	<b><u>Page(s)</u></b>	<b><u>Description</u></b>
R0	05/10/18	N/A	Original Report Issue - Reissue of Report No. G0665.03-113-11 in the name of Protecto Wrap Company.

## Attachments

### Instrumentation

Instrument	Manufacturer	Model	ATI Number	Date of Calibration
Data Acquisition Unit	National Instruments	PXI-1033	65124	06/16 *
Microphone Calibrator	Norsonic	1251	INT00127	01/16
Receive Room Microphone	PCB Piezotronics	378B20	63748	06/16
Receive Room Microphone	PCB Piezotronics	378B20	63744	06/16
Receive Room Microphone	PCB Piezotronics	378B20	63745	06/16
Receive Room Microphone	PCB Piezotronics	378C20	65617	06/16
Receive Room Microphone	PCB Piezotronics	378B20	63747	06/16
Receive Room Environmental Indicator	Comet	T7510	63810	10/15
			63811	10/15
Source Room Microphone	PCB Piezotronics	378B20	63738	05/16
Source Room Microphone	PCB Piezotronics	378B20	63739	05/16
Source Room Microphone	PCB Piezotronics	378B20	63740	05/16
Source Room Microphone	PCB Piezotronics	378B20	63742	05/16
Source Room Microphone	Scantek	378B20	63741	05/16
Source Room Environmental Indicator	Comet	T7510	63812	11/15
Tapping Machine	Look Line s.r.l.	EM50 (TM50)	65351	02/16

\* The calibration frequency for this equipment is every two years per the manufacturer's recommendation.

### Test Chambers

VT Receive Room Volume	158.86 m <sup>3</sup>
VT Source Room Volume	190 m <sup>3</sup>



## AIRBORNE SOUND TRANSMISSION LOSS

ASTM E 90

<b>Test Date</b>	07/11/16
<b>Data File No.</b>	G0665.03
<b>Client</b>	Protecto Wrap Company
<b>Description</b>	12.1 mm KRAUS ALACANTI KPLA10001 Charleston Hickory Laminated Wood, 1.8 mm Protecto Wrap Whispermat LVT, 152 mm Concrete Slab
<b>Specimen Area</b>	10.98 m <sup>2</sup>
<b>Technician</b>	Cody R. Snyder

Freq (Hz)	Background SPL (dB)	Absorption (m <sup>2</sup> )	Source SPL (dB)	Receive SPL (dB)	Specimen TL (dB)	95% Confidence Limit	Number of Deficiencies
80	35.8	15.0	109	67	42	3.60	-
100	33.5	13.1	106	67	40	1.80	-
125	37.3	9.3	105	69	38	1.10	0
160	30.1	8.7	108	73	36	2.00	1
200	26.1	11.1	105	72	32	1.80	8
250	27.8	10.4	103	65	38	0.90	5
315	25.3	9.1	105	65	41	0.50	5
400	19.3	8.0	104	61	45	0.60	4
500	24.5	7.3	104	54	52	0.50	0
630	20.1	7.3	105	52	56	0.30	0
800	18.6	7.0	105	48	60	0.50	0
1000	15.9	6.8	104	44	64	0.40	0
1250	21.3	6.9	105	42	66	0.30	0
1600	12.5	7.0	105	40	67	0.40	0
2000	7.5	7.7	104	39	68	0.40	0
2500	8.0	8.8	103	36	68	0.30	0
3150	10.1	10.0	103	34	70	0.50	0
4000	9.7	11.5	104	33	72	0.50	0
5000	9.1	13.8	104	32	71	0.70	-
6300	9.4	18.0	98	27	69	0.70	-
8000	11.3	24.1	97	19	75	0.90	-
10000	11.6	30.1	92	10	79	0.80	-

**STC Rating**      **50**      (*Sound Transmission Class*)

**Deficiencies**      **23**      (*Sum of Deficiencies*)

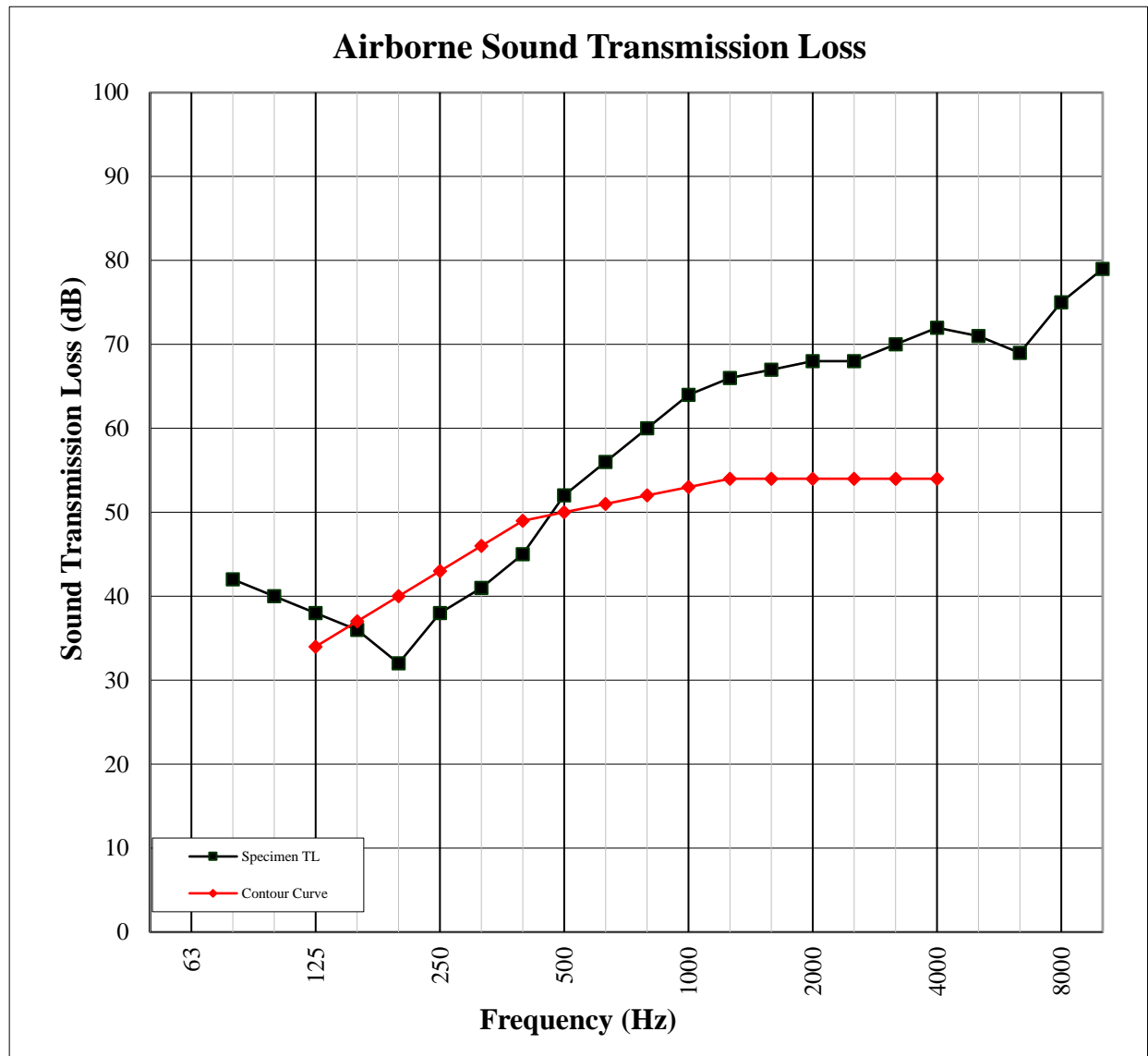
- Notes:**
- 1) Receive Room levels less than 5 dB above the Background levels are highlighted in yellow.
  - 2) Specimen TL levels listed in red indicate the lower limit of the transmission loss.
  - 3) Specimen TL levels listed in green indicate that there has been a filler wall correction applied



## AIRBORNE SOUND TRANSMISSION LOSS

ASTM E 90

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<b>Description</b>	12.1 mm KRAUS ALACANTI KPLA10001 Charleston Hickory Laminated Wood, 1.8 mm Protecto Wrap Whispermat LVT, 152 mm Concrete Slab
<b>Specimen Area</b>	10.98 m <sup>2</sup>
<b>Technician</b>	Cody R. Snyder







## IMPACT SOUND TRANSMISSION

ASTM E 492

<b>Test Date</b>	07/11/16
<b>Data File No.</b>	G0665.03
<b>Client</b>	Protecto Wrap Company
<b>Description</b>	12.1 mm KRAUS ALACANTI KPLA10001 Charleston Hickory Laminated Wood, 1.8 mm Protecto Wrap Whispermat LVT, 152 mm Concrete Slab
<b>Specimen Area</b>	10.98 m <sup>2</sup>
<b>Technician</b>	Cody R. Snyder

<b>Freq</b> (Hz)	<b>Background SPL</b> (dB)	<b>Absorption</b> (m <sup>2</sup> )	<b>Normalized Impact SPL</b> (dB)	<b>95% Confidence Limit</b>	<b>Number of Deficiencies</b>
80	37.4	15.2	52	4.7	-
100	36.8	11.4	54	1.9	0
125	37.5	9.8	56	2.0	0
160	30.8	9.1	61	1.2	3
200	25.8	10.9	66	1.5	8
250	27.3	10.8	65	0.6	7
315	23.9	9.0	63	1.1	5
400	19.8	7.8	61	0.6	4
500	25.6	7.3	55	0.7	0
630	20.8	7.1	52	0.5	0
800	18.4	6.8	48	0.8	0
1000	15.2	6.8	44	0.5	0
1250	15.6	6.9	40	0.4	0
1600	9.4	7.1	36	0.6	0
2000	4.8	7.8	33	0.7	0
2500	4.5	8.8	27	0.5	0
3150	4.1	10.0	22	0.9	0
4000	4.7	11.3	17	1.2	-
5000	5.2	13.7	11	1.3	-
6300	5.8	17.9	9	0.9	-
8000	6.2	24.5	9	0.7	-
10000	6.4	30.2	10	0.8	-

**IIC Rating**      **54**      (*Impact Insulation Class*)

**Deficiencies**      **27**      (*Sum of Deficiencies*)

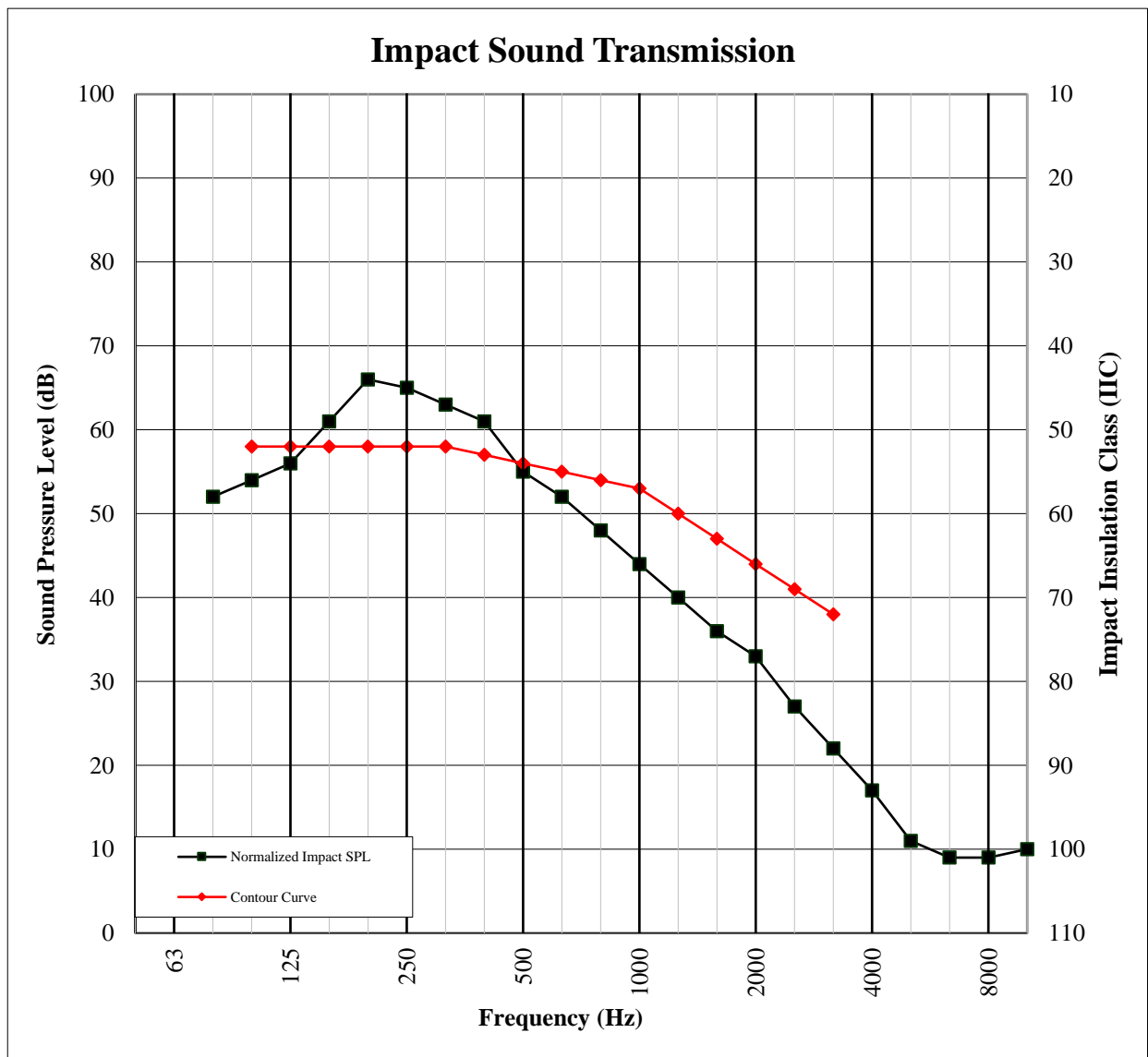
*Note:*      Receive Room levels less than 5 dB above the Background levels are highlighted in yellow.



## IMPACT SOUND TRANSMISSION

ASTM E 492

<b>Test Date</b>	07/11/16
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<b>Specimen Area</b>	10.98 m <sup>2</sup>
<b>Technician</b>	Cody R. Snyder





**DELTA IMPACT INSULATION**  
ASTM E 2179

<b>Test Date</b>	07/11/16
<b>Data File No.</b>	G0665.03
<b>Client</b>	Protecto Wrap Company
<b>Description</b>	12.1 mm KRAUS ALACANTI KPLA10001 Charleston Hickory Laminated Wood, 1.8 mm Protecto Wrap Whispermat LVT, 152 mm Concrete Slab
<b>Specimen Area</b>	10.98 m <sup>2</sup>
<b>Technician</b>	Cody R. Snyder

Freq (Hz)	Bkgrd SPL (dB)	Absorption (Square Meters)	Normalized Impact SPL BARE (dB)	95% Conf Limit	Normalized Impact SPL SPEC (dB)	95% Conf Limit	Resulting Array L <sub>ref,c</sub>	No. of Defici- encies
100	36.8	11.4	56.4	1.5	54.5	1.0	65	4
125	37.5	9.8	57.7	1.4	56.4	0.3	66	5
160	30.8	9.1	62.2	1.9	60.9	1.9	67	6
200	25.8	10.9	70.3	2.1	66.4	2.0	65	4
250	27.3	10.8	68.2	1.4	64.6	2.2	65	4
315	23.9	9.0	68.0	1.5	63.1	1.9	65	4
400	19.8	7.8	69.0	0.9	61.0	0.8	62	2
500	25.6	7.3	67.5	1.6	55.2	1.6	58	0
630	20.8	7.1	69.6	1.1	51.6	2.2	53	0
800	18.4	6.8	71.2	2.9	47.8	0.8	48	0
1000	15.2	6.8	71.5	4.5	43.8	0.3	44	0
1250	15.6	6.9	71.8	5.5	40.5	0.8	41	0
1600	9.4	7.1	72.6	6.9	35.8	1.0	35	0
2000	4.8	7.8	73.3	4.7	33.1	0.6	32	0
2500	4.5	8.8	73.1	2.8	27.0	1.0	26	0
3150	4.1	10.0	72.7	2.8	22.3	0.3	22	0

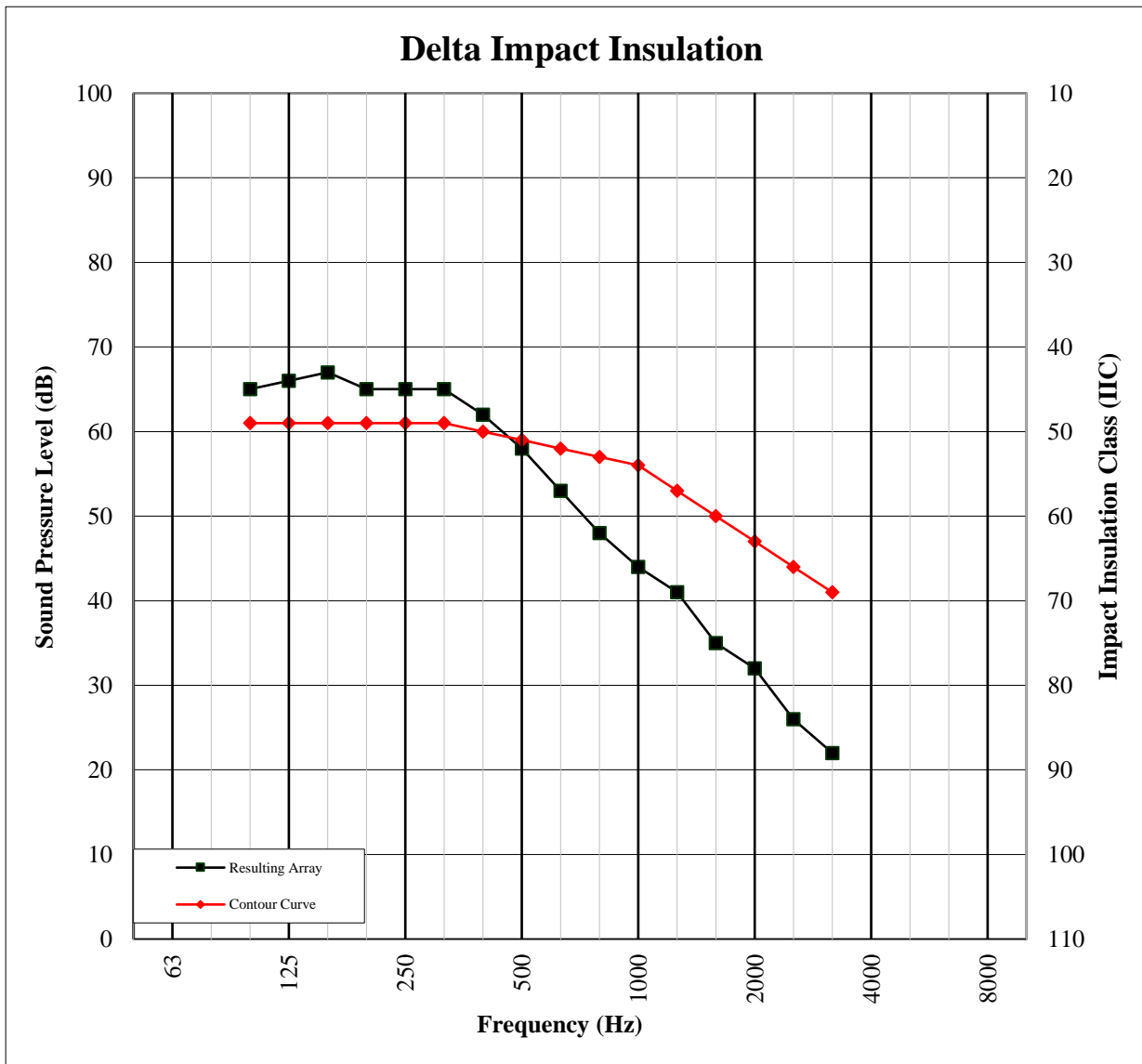
**ΔIIC Rating**     **23**     *(Delta Impact Insulation Class)*  
**Deficiencies**     **29**     *(Sum of Deficiencies)*

**Note:**     *Receive Room levels less than 5 dB above the Background levels are highlighted in yellow.*



**DELTA IMPACT INSULATION**  
ASTM E 2179

<b>Test Date</b>	07/11/16
<b>Data File No.</b>	G0665.03
<b>Client</b>	Protecto Wrap Company
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<b>Specimen Area</b>	10.98 m <sup>2</sup>
<b>Technician</b>	Cody R. Snyder



## Photographs

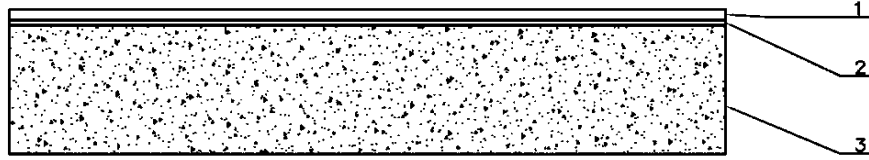


**Source Room View of Test Specimen Installation**



**Receive Room View of Test Specimen Installation**

**Drawing**



- 1-Floor Topping
- 2-Underlayment
- 3-Concrete Slab