Intertek | Architectural Testing

H3066.01-113-11-R0
ACOUSTICAL PERFORMANCE TEST REPORT
ASTM E 90 AND ASTM E 492

Rendered to

APC CORK AND GRANORTE - REVESTIMENTOS DE CORTICA LDA

Series/Model: APC Cork, Inc. Cork Underlayment

Specimen Type: Concrete Slab - 152 mm

Overall Size: 3023 mm by 3632 mm

STC	**52**
IIC	**47**

Test Specimen Identification:
Floor Topping: 8 mm Project Source Ceramic Tile
Floor Underlayment: 6 mm APC Cork, Inc. Cork Underlayment
Floor Slab: 152.4 mm 5000 PSI Concrete Slab

Reference should be made to Intertek-ATI Report H3066.01-113-11 for complete test specimen description. This page alone is not a complete report.

Architectural Testing

Acoustical Performance Test Report

APC CORK AND GRANORTE - REVESTIMENTOS DE CORTICA LDA
2570 North Powerline Road, Suite 501
Pompano Beach, Florida 33069

Report	H3066.01-113-11
Test Date	07/05/17
Report Date	07/11/17

Project Scope

Architectural Testing, Inc., an Intertek company (Intertek-ATI), was contracted to conduct airborne sound transmission loss and impact sound transmission tests. The complete test data is included as attachments to this report. The full test specimen was assembled on the day of testing by Intertek-ATI. All materials provided by the client were installed on an existing Intertek-ATI assembly (Concrete Slab - 152 mm) utilizing Intertek-ATI-supplied materials.

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 (2016), Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions
ASTM E 413-16, 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 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 air temperature and relative humidity conditions were monitored and recorded during all measurements.

Test Conditions

Source Room		Receive Room	
Minimum Temperature	22.9°C	Minimum Temperature	23°C
Maximium Temperature	23.5°C	Maximium Temperature	23.2°C
Minimum Relative Humidity	59%	Minimum Relative Humidity	62%
Maxmimum Relative Humidity	64%	Maxmimum Relative Humidity	63%

Test Calculations

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

Test Specimen Materials and Installation Details

Material	Dimensions (mm)	Thickness (mm)	Manufacturer and Series	Quantity	Average Weight
Ceramic Tile	304.8 by 304.8	8.0	Project Source	10.98 m²	17.11 kg/m²
	Note: Placed with light pressure onto a bed of Laticrete 254 Platinum mortar on the underlayment. The mortar was set using a 6.35 mm by 6.35 mm trowel. Laticrete Permacolor grout was placed into the 6.35 mm joints between the tiles and wiped clean. Both the grout and mortar were allowed to cure to manufacturer's specifications.				
Cork Underlayment	3023 by 914.4	6.0	APC Cork, Inc.	10.98 m²	1.37 kg/m²
	Note: A sheet of 2 mil polyethylene plastic sheeting was adhered to the floor slab with 3M Super 77 spray adhesive. The underlayment was adhered to the sheeting with the manufacturer's adhesive per manufacturer's specifications.				
Concrete Slab	3023 by 3632	152.4	5000 PSI	10.98 m²	366.18 kg/m²
	Note: Installed in a test frame flush to the source room. Mats of #5 reinforcing bars were placed 25.4 mm from both the top and bottom of the slab, with bars spaced on 305 mm centers in both directions.				

Comments

The total weight of the floor/ceiling assembly was 4223.6 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.

Detailed test procedures, data for flanking limit tests, repeatability measurements, and reference specimen tests are available upon request.

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.

This report may not be reproduced, except in full, without the written approval of Intertek-ATI.

FOR INTERTEK-ATI:

Digitally Signed by: Jeremiah Amend

Jeremy L. Amend
Technician II - Acoustical Testing

Digitally Signed by: Jordan Strybos

Jordan Strybos
Project Manager - Acoustical Testing

Attachments (7 pages): This report is complete only when all attachments listed are included.

- Instrumentation (1)
- Airborne Sound Transmission Loss Data (2)
- Impact Sound Transmission Data (2)
- Photographs (1)
- Drawings (1)

** Stated by Client/Manufacturer*

N/A - Non Applicable

Revision Log

Revision	Date	Page(s)	Description
R0	07/11/17	N/A	Original Report Issue

Attachments

Instrumentation

Instrument	Manufacturer	Model	ATI Number	Date of Calibration
Data Acquisition Unit	National Instruments	PXI-4462	65124	06/16 *
Microphone Calibrator	Norsonic	1251	INT00127	03/17
Receive Room Microphone	PCB Piezotronics	378C20	65617	05/17
Receive Room Microphone	PCB Piezotronics	378B20	63744	05/17
Receive Room Microphone	PCB Piezotronics	378B20	63745	05/17
Receive Room Microphone	PCB Piezotronics	378B20	63746	09/16
Receive Room Microphone	PCB Piezotronics	378B20	63747	05/17
Receive Room Environmental Indicator	Comet	T7510	63810	10/16
			63811	10/16
Source Room Microphone	PCB Piezotronics	378B20	63738	04/17
Source Room Microphone	PCB Piezotronics	378B20	63739	04/17
Source Room Microphone	PCB Piezotronics	378B20	63740	04/17
Source Room Microphone	PCB Piezotronics	378B20	63742	04/17
Source Room Microphone	PCB Electronics	378B20	63741	04/17
Source Room Environmental Indicator	Comet	T7510	63812	11/16
Tapping Machine	Look Line s.r.l.	EM50 (TM50)	65351	02/17

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

Test Chambers

VT Receive Room Volume	158.86 m^3
VT Source Room Volume	190 m^3

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AIRBORNE SOUND TRANSMISSION LOSS

ASTM E 90

Test Date	07/05/17
Data File No.	H3066.01
Client	APC Cork and Granorte - Revestimentos de Cortica Lda
Description	8 mm Project Source Ceramic Tile, 6 mm APC Cork, Inc. Cork Underlayment, 152.4 mm 5000 PSI Concrete Slab
Specimen Area	10.98 m²
Technician	Jeremy L. Amend

Freq (Hz)	Background SPL (dB)	Absorption (m²)	Source SPL (dB)	Receive SPL (dB)	Specimen TL (dB)	95% Confidence Limit	Number of Deficiencies
80	44.8	16.3	110	68	40	3.60	-
100	40.9	13.1	107	69	38	1.70	-
125	34.9	10.0	105	69	37	1.90	0
160	31.8	10.7	105	68	37	2.00	2
200	29.9	10.2	104	66	38	1.20	4
250	31.3	11.2	102	62	40	1.50	5
315	28.0	9.7	106	63	44	0.90	4
400	25.0	8.0	103	60	45	0.70	6
500	25.0	8.1	101	55	48	0.60	4
630	25.0	7.7	101	51	52	0.40	1
800	24.2	7.8	101	49	54	0.60	0
1000	20.5	7.6	101	46	56	0.60	0
1250	19.2	7.6	99	40	60	0.40	0
1600	16.6	7.7	100	37	64	0.50	0
2000	14.0	8.4	100	35	66	0.60	0
2500	10.1	9.3	96	31	66	0.60	0
3150	8.7	10.1	98	29	69	0.90	0
4000	6.9	11.4	97	27	70	0.90	0
5000	6.1	12.6	95	21	73	1.20	-
6300	6.2	15.0	93	15	76	1.30	-
8000	6.5	19.6	93	13	78	1.40	-
10000	6.8	23.5	91	8	80	1.00	-

STC Rating **52** *(Sound Transmission Class)*

Deficiencies 26 *(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 are potentially limited by the laboratory flanking limit.
3) Specimen TL levels listed in blue indicate the lower limit of the transmission loss.
4) Specimen TL levels listed in green indicate that there has been a filler wall correction applied

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AIRBORNE SOUND TRANSMISSION LOSS

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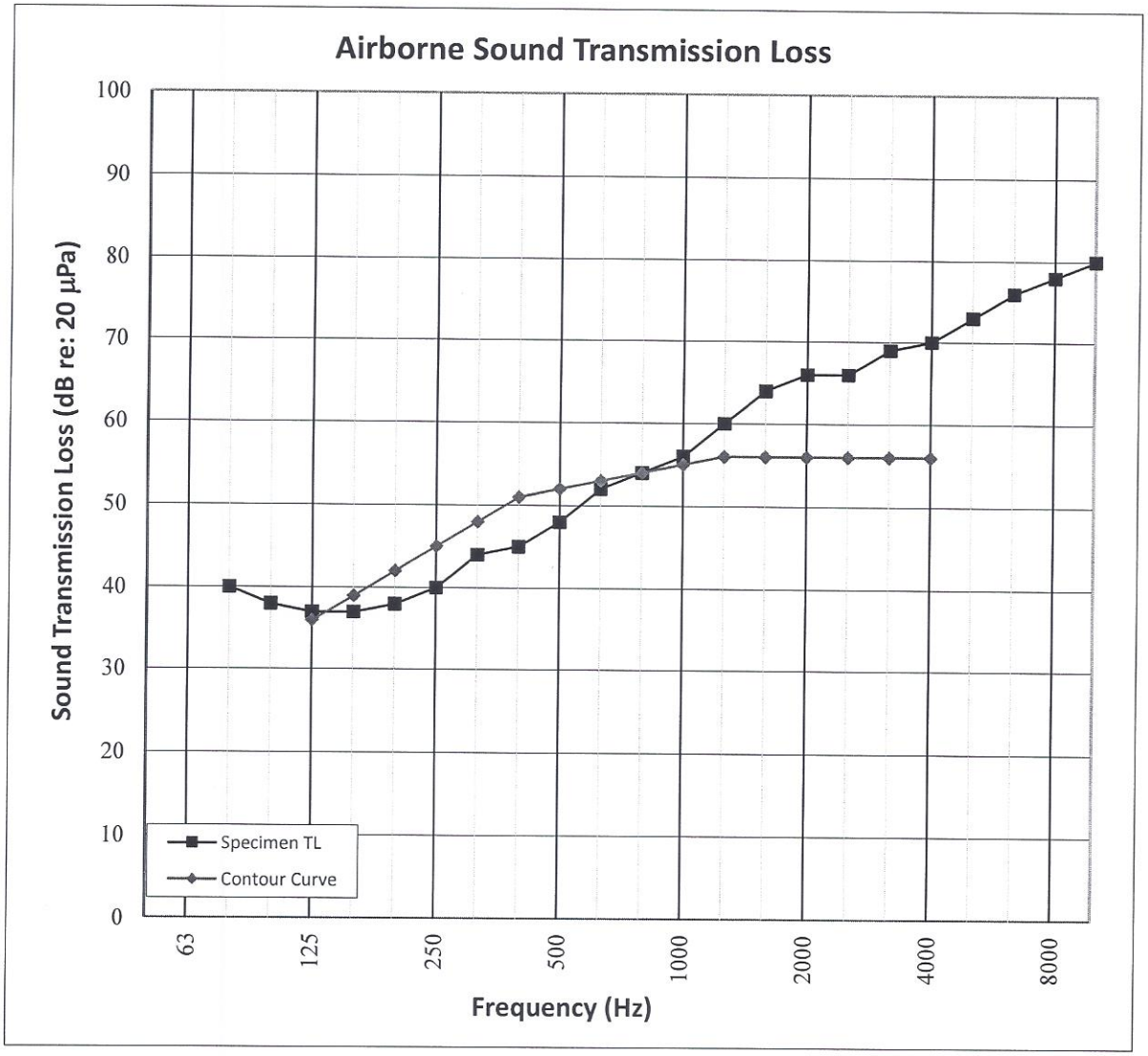

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IMPACT SOUND TRANSMISSION

ASTM E 492

Test Date	07/05/17
Data File No.	H3066.01
Client	APC Cork and Granorte - Revestimentos de Cortica Lda
Description	8 mm Project Source Ceramic Tile, 6 mm APC Cork, Inc. Cork Underlayment, 152.4 mm 5000 PSI Concrete Slab
Specimen Area	10.98 m²
Technician	Jeremy L. Amend

Freq (Hz)	Background SPL (dB)	Absorption (m²)	Normalized Impact SPL (dB)	95% Confidence Limit	Number of Deficiencies
80	43.9	16.4	55	2.0	-
100	30.8	13.8	58	2.0	0
125	33.8	10.3	59	2.1	0
160	29.5	10.6	65	1.0	0
200	25.4	11.4	67	0.9	2
250	30.8	11.4	68	0.6	3
315	25.1	9.5	69	0.6	4
400	24.0	7.9	69	0.6	5
500	23.8	7.9	69	0.4	6
630	23.6	7.4	68	0.5	6
800	23.4	7.7	64	0.6	3
1000	19.2	7.6	57	0.3	0
1250	17.8	7.5	55	0.4	0
1600	15.2	7.8	51	0.4	0
2000	12.8	8.3	45	0.5	0
2500	9.3	9.4	42	0.6	0
3150	8.2	10.0	38	0.8	0
4000	6.7	11.4	34	0.8	-
5000	6.1	12.7	31	0.7	-
6300	6.2	15.0	27	1.1	-
8000	6.5	19.6	25	1.2	-
10000	6.8	24.2	21	1.9	-

IIC Rating **47** *(Impact Insulation Class)*

Deficiencies 29 *(Sum of Deficiencies)*

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

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IMPACT SOUND TRANSMISSION

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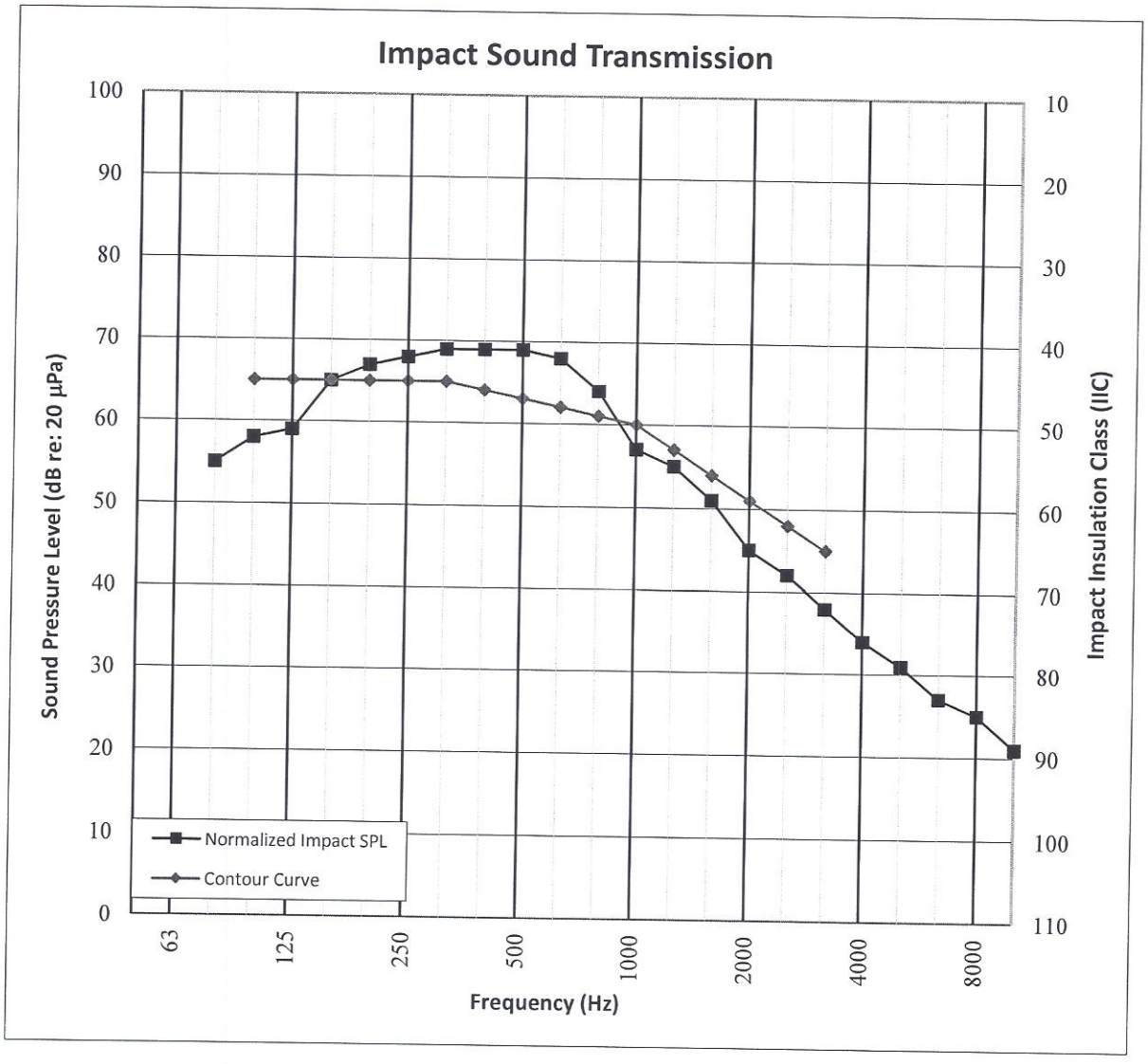
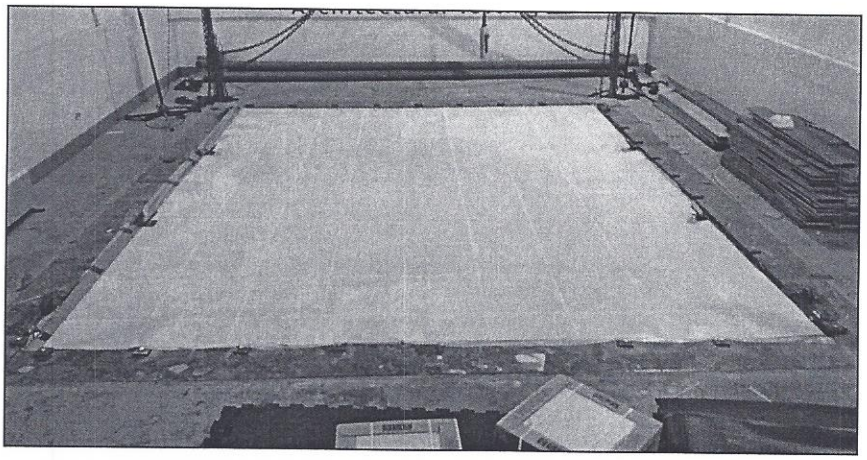
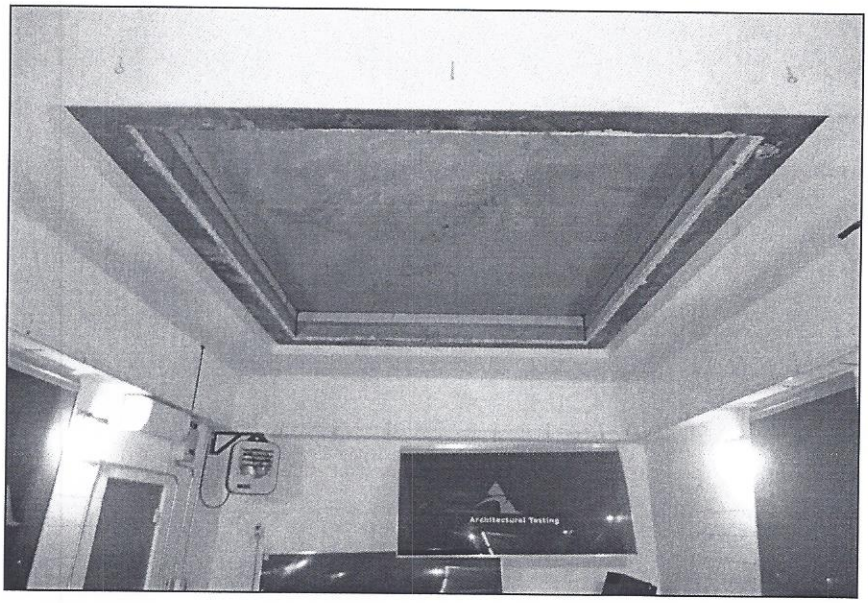


Photographs

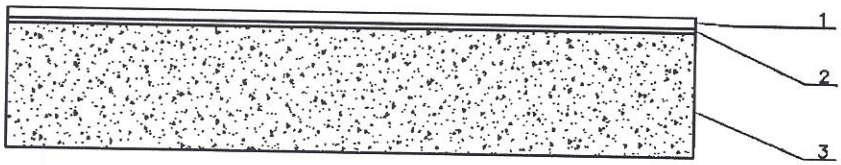


Source Room View of Test Specimen Installation



Receive Room View of Test Specimen Installation

Drawing



1-Floor Topping
2-Underlayment
3-Concrete Slab