

**ASTM C 423 SOUND ABSORPTION  
TEST REPORT**

**Rendered to:**

**DUPONT – TYVEK**

**SERIES/MODEL: DuPont™ AudioComfort™**

**TYPE: Acoustical Panels**

Summary of Test Results								
Sample ID Number & Sample Description	1/3 Octave Sound Absorption at the Octave Band Frequencies (Sabines per ft <sup>2</sup> )						NRC	SAA
	125	250	500	1000	2000	4000		
91780.01 Series/Model DuPont™ AudioComfort™, acoustical panels	0.20	0.81	1.16	1.05	0.89	0.69	1.00	0.96

Reference should be made to Architectural Testing, Inc. Report No. 91780.01-113-11 for complete test specimen description. The complete test results are listed in Appendix B.

## ACOUSTICAL PERFORMANCE TEST REPORT

Rendered to:

DUPONT - TYVEK  
Spruance Plant  
5401 Jefferson Davis Highway  
Richmond, Virginia 23234

Report No: 91780.01-113-11  
Test Date: 06/12/09  
Report Date: 06/16/09  
Expiration Date: 06/12/13

### **Test Sample Identification:**

**Series/Model A:** DuPont™ AudioComfort™

**Type:** Acoustical Panels

**Overall Size:** 96-3/4" by 96-3/4"

**Project Summary:** Architectural Testing, Inc. was contracted by DuPont - Tyvek to conduct a sound absorption test on Series/Model DuPont™ AudioComfort™, acoustical panels. A summary of the results is listed in the Test Results section and the complete test data is included as Appendix B of this report. The sample was provided by the client.

**Test Methods:** The acoustical test was conducted in accordance with the following:

*ASTM C 423-08a, Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.*

*ASTM E 795-05, Standard Practices for Mounting Test Specimens During Sound Absorption Tests.*

**Test Equipment:** The equipment used to conduct these tests meets the requirements of ASTM C 423. The microphone was calibrated before conducting the sound absorption test. The test equipment and test chamber descriptions are listed in Appendix A.

**Test Procedure:** The sound absorption of the reverberation chamber was measured before the test specimen was installed. This measurement shall be referred to as the empty room test. For the Type A mounting, the test specimen was placed directly against the test surface (floor) of the reverberation room with the absorptive side exposed to the sound field. The perimeter of the sample was sealed to the floor with aluminum angles and tape. The sound absorption test was then re-run. The absorption measurement with the specimen inside the chamber shall be referred to as the full room test.

For the empty and full room tests, ten decay measurements were conducted at each of the five microphone positions. The sound absorption test was conducted at 1/3 octave band frequencies ranging from 80 to 5000 hertz. The air temperature and relative humidity conditions were monitored and recorded during the empty and full room measurements.

**Sample Description:** The test sample consisted of sixteen, 24-3/16" by 24-3/16" panels, which were arranged to produce a 96-3/4" by 96-3/4" sample. The total weight of the sample was 35.84 lbs. The sample test setup was photographed with a digital camera, and the picture is included in Appendix C.

Sample ID#	Sample Description	Average Thickness (inches)	Average Weight (psf)
91780.01	DuPont™ AudioComfort™, acoustical panels	2.00	0.55

**Comments:** Each panel consisted of one piece of 3 pcf fiberglass insulation, wrapped with 0.010" thick sheathing which was fully adhered to the panels, on all sides. The client did not supply drawings on the acoustical panels. The test specimen was returned per the client's request.

**Test Results:** A summary of the sound absorption tests is listed below:

Summary of Test Results								
Sample ID Number & Sample Description	1/3 Octave Sound Absorption at the Octave Band Frequencies (Sabines per ft <sup>2</sup> )						NRC	SAA
	125	250	500	1000	2000	4000		
91780.01 Series/Model DuPont™ AudioComfort™, acoustical panels	0.20	0.81	1.16	1.05	0.89	0.69	1.00	0.96

The complete test results are listed in Appendix B. The acoustical chamber is qualified down to 80 hertz. Data provided below this frequency is for reference only.

Detailed drawings, data sheets, representative samples of test specimens, a copy of this report, or other pertinent project documentation will be retained by Architectural Testing for a period of four years from the original test date. At the end of this retention period, such materials shall be discarded without notice and the service life of this report will expire. Results obtained are tested values and were secured by using the designated test methods. 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 specimens tested. This report may not be reproduced, except in full, without the written approval of Architectural Testing.

For ARCHITECTURAL TESTING, INC:

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Brandon C. Ward  
Senior Technician - Acoustical Testing


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Todd D. Kister  
Laboratory Supervisor - Acoustical Testing

BCW:jmc

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

- Appendix-A: Equipment description (1)
- Appendix-B: Complete test results (2)
- Appendix-C: Photograph (1)

	<p>Architectural Testing, Inc., is accredited by the International Accreditation Service, Inc. (IAS) under the specific test methods listed under lab code TL-144, in accordance with the recognized International Standard ISO/IEC 17025:2005. The laboratory's accreditation or test report in no way constitutes or implies product certification, approval, or endorsement by IAS. This test report applies only to the specimen that was tested.</p>
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### Revision Log

<u>Rev. #</u>	<u>Date</u>	<u>Page(s)</u>	<u>Revision(s)</u>
0	06/16/09	N/A	Original Report Issue

## Appendix A

### Instrumentation:

Instrument	Manufacturer	Model	Description	ATI Number
Analyzer	Agilent Technologies	35670A	Dynamic signal analyzer	Y002929
Receive Room Microphone	G.R.A.S.	40AR	1/2", pressure type, condenser microphone	Y003246
Receive Room Preamp	G.R.A.S.	26AK	1/2" preamplifier	Y003249
Microphone Calibrator	Bruel & Kjaer	4228	Pistonphone calibrator	Y002816
Noise Source	Delta Electronics	SNG-1	Two, uncorrelated "Pink" noise signals	Y002181
Equalizer	Rane	RPE228	Programmable EQ	Y002180
Power Amplifiers	Renkus-Heinz	P2000	Two Amplifiers	Y002179 N002884
Receive Room Loudspeakers	Renkus-Heinz	Trap Jr/9"	Two Loudspeakers	Y001784 Y001785

### Test Chamber:

	Volume	Description
Receiving Room	8291.3 ft <sup>3</sup> (234 m <sup>3</sup> )	Rotating vane and stationary diffusers Temperature and humidity controlled Isolation pads under the floor

**Appendix B**  
**Complete Test Results**



## SOUND ABSORPTION

ASTM C 423-08a

### Architectural Testing

<b>ATI No.</b>	91780.01					
<b>Client</b>	Dupont - Tyvek					
<b>Specimen</b>	Series/Model: Dupont™ AudioComfort™, acoustical panels					
<b>Specimen Area</b>	65.00 Sq Ft			<b>Mounting</b> Type A		
<b>Operator</b>	Brandon C. Ward					
<b>Date</b>	<b>Empty Room</b> 6/12/09		<b>Full Room</b> 6/12/09		<b>Barometric Pressure</b> 1010 mb	
<b>Temp F</b>	75.2		76.0			
<b>RH %</b>	43.0		43.2			
Freq (Hz)	Empty Room Absorption (Sabines)	Uncert	Full Room Absorption (Sabines)	Uncert	Absorption Coefficient (Sabines/Sq.Ft.)	Uncertainty
50	42.21	0.264	40.44	0.180	-0.03	0.005
63	42.93	0.269	49.74	0.614	0.10	0.010
80	49.72	0.475	56.18	0.125	0.10	0.008
100	53.42	0.601	59.08	0.507	0.09	0.012
125	47.13	0.561	59.91	0.419	0.20	0.011
160	44.80	0.233	63.23	0.070	0.28	0.004
200	49.82	0.224	80.26	0.062	0.47	0.004
250	47.68	0.136	100.48	1.108	0.81	0.017
315	49.93	0.079	115.91	0.037	1.02	0.001
400	51.44	0.056	119.19	0.242	1.04	0.004
500	50.27	0.026	125.40	0.342	1.16	0.005
630	48.50	0.088	126.04	0.440	1.19	0.007
800	48.11	0.091	119.69	0.245	1.10	0.004
1000	49.63	0.179	118.05	0.173	1.05	0.004
1250	51.44	0.033	116.34	0.193	1.00	0.003
1600	50.48	0.102	113.24	0.032	0.97	0.002
2000	49.38	0.043	107.53	0.041	0.89	0.001
2500	53.01	0.045	106.95	0.280	0.83	0.004
3150	56.69	0.135	106.97	0.051	0.77	0.002
4000	57.21	0.042	101.89	0.093	0.69	0.002
5000	63.05	0.168	100.83	0.019	0.58	0.003
6300	63.28	0.084	93.92	0.348	0.47	0.006
8000	58.16	0.027	82.21	0.786	0.37	0.012
<b>Exact NRC Rating =</b>	0.979					
<b>Exact SAA Rating =</b>	0.961					
<b>NRC Rating =</b>	1.00					
<b>SAA Rating =</b>	0.96					

**Note:** The acoustical chambers are qualified for measurements down to 80 hertz.  
Data reported below 80 hertz is for reference only.

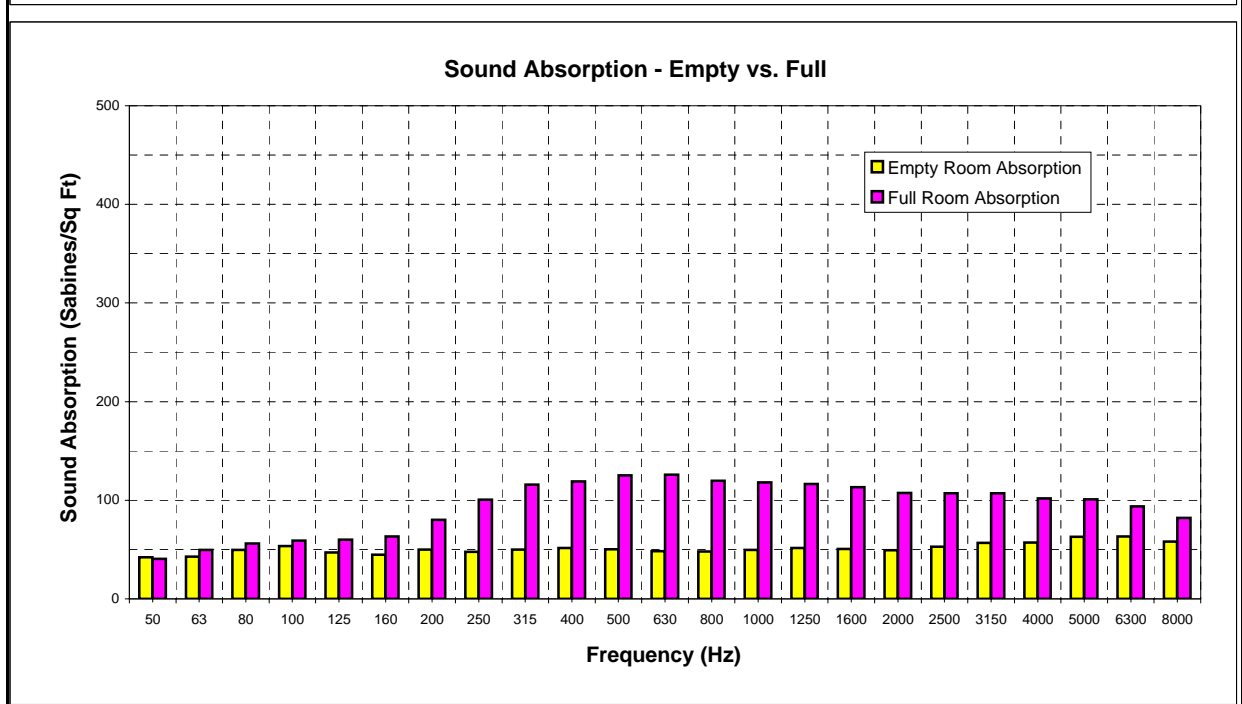
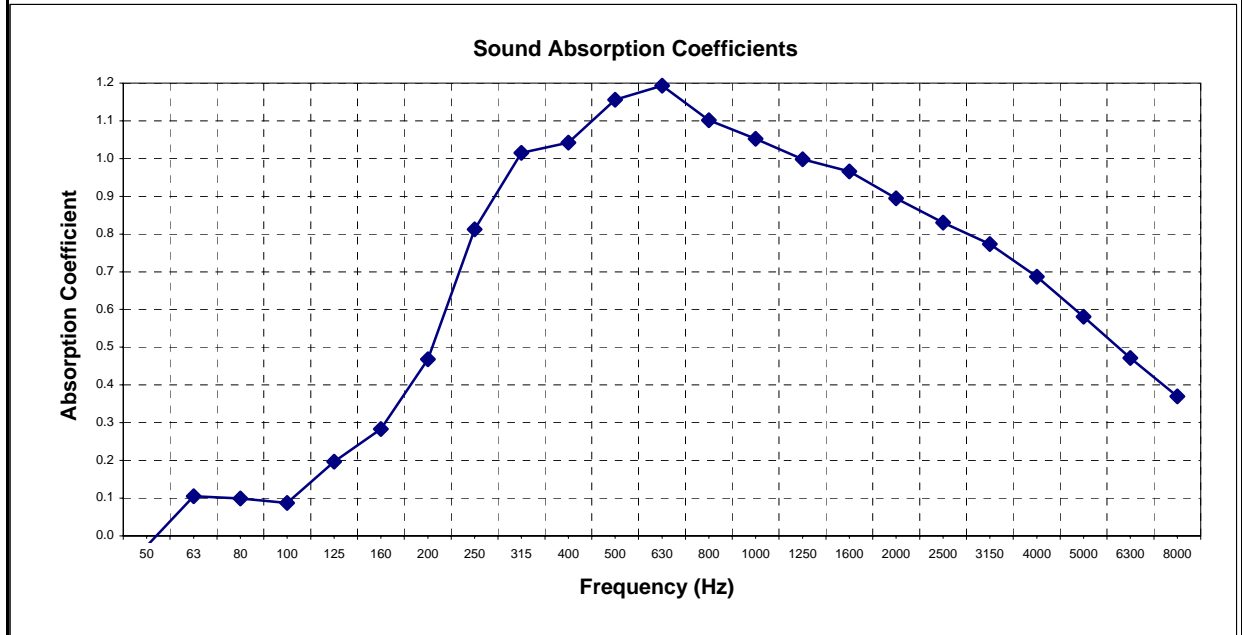


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### Architectural Testing

ATI No.	91780.01	Date	06/12/09
Client	Dupont - Tyvek		
Specimen	Series/Model: Dupont™ AudioComfort™, acoustical panels		
Specimen Area	65.00 Sq Ft	Mounting	Type A
Operator	Brandon C. Ward		



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**Appendix C**

**Photograph**



**Panels Installed in Test Chamber**