



**Title: Sound Absorption Test Results**

**Product: Echo Eliminator Composite (8lb pcf)**

Application: Wall and Ceiling

Testing Standard: Standard: ASTM C423 A-Mount

Test Date: 3/20/2008

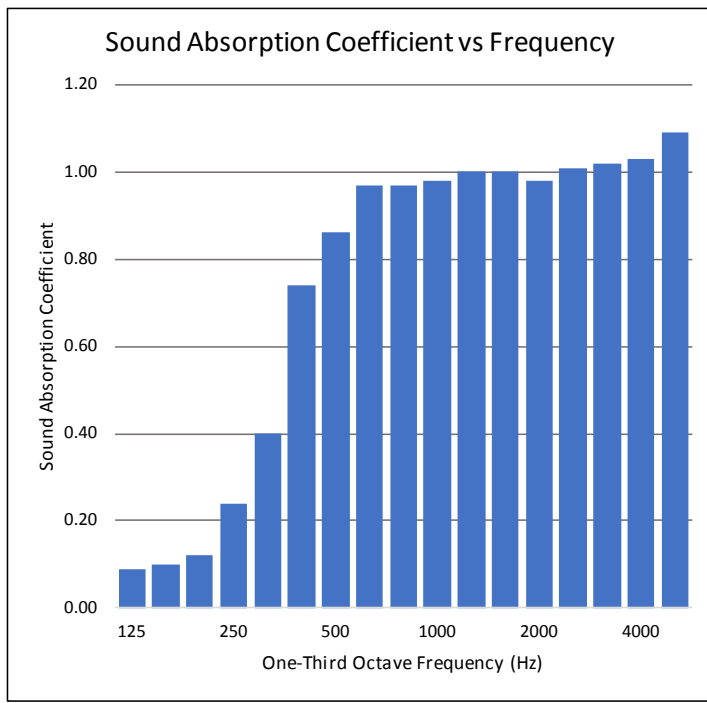
*Why this test: This test evaluates a products efficiency of absorbing sound at multiple frequencies. The test simulates the product's acoustical performance with a direct installation on a wall or ceiling.*

Test Result Summary: NRC - 0.75; SAA - 0.77

NRC	SAA
0.75	0.77

Frequency (Hz)	Absorption Coefficient
100	0.09
125	0.09
160	0.10
200	0.12
250	0.24
315	0.40
400	0.74
500	0.86
630	0.97
800	0.97
1000	0.98
1250	1.00
1600	1.00
2000	0.98
2500	1.01
3150	1.02
4000	1.03
5000	1.09



Test ID: 30160-07-82419

**ASI TEST RESULT DISCLAIMER**

ASI makes every effort to ensure the accuracy and reliability of the information provided. Laboratory testing is conducted by independent testing organizations. ASI does not guarantee that field tests or independent tests will not vary.

© 2018 ASI



**Title: Sound Absorption Test Results**

**Product: Echo Eliminator Composite (8lb pcf)**

Application: Wall and Ceiling

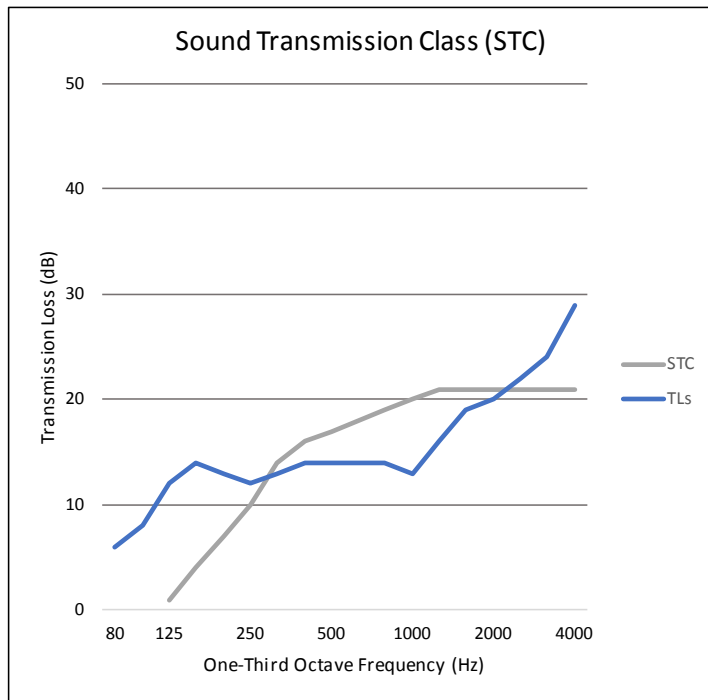
Testing Standard: ASTM E90

Test Date: 01/12/2007

*Why this test: This test evaluates a products efficiency of reducing transmission of sound at multiple frequencies. The test simulates the product's acoustical performance with a direct installation on a wall or ceiling.*

Test Result Summary: STC - 17; OITC - 14

STC	OITC
17	14
Frequency (Hz)	Transmission Loss (dB)
80	6
100	8
125	12
160	14
200	13
250	12
315	13
400	14
500	14
630	14
800	14
1000	13
1250	16
1600	19
2000	20
2500	22
3150	24
4000	29



Test ID: 30160-07-82419

**ASI TEST RESULT DISCLAIMER**

ASI makes every effort to ensure the accuracy and reliability of the information provided. Laboratory testing is conducted by independent testing organizations. ASI does not guarantee that field tests or independent tests will not vary.

© 2018 ASI

**PROJECT NUMBER:** 30160-08-92064-2  
**PAGE:** 1 of 6  
**DATE:** January 29, 2008

662 Cromwell Avenue Telephone : (651) 645-3601  
Saint Paul, MN 55114 Toll Free : (888) 645-TEST  
USA Telefax : (651) 659-7348  
Website : www.storksmt.com

Investigative Chemistry Geotechnical Construction Materials  
Non Destructive Testing Failure Analysis Product Evaluation  
Metallurgical Analysis Materials Testing Welder Qualification

**SOUND ABSORPTION AND SOUND TRANSMISSION  
TESTING CONDUCTED ON  
NEW 8# ECHO ELIMINATOR**

**Prepared for:**  
**Acoustical Surfaces, Inc**  
**Attn: Mr. Mike Mohs**  
**123 Columbia Court North, Suite 201**  
**Chaska, MN 55318**

**Client Purchase Order Number: Contract**

**Prepared By:**



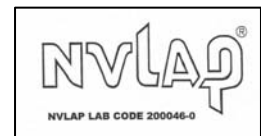
**Mathew N. Botz**  
**Project Manager**  
**Product Testing Department**  
**(651) 659-7353**

**Reviewed By:**



**Kyle T. Hall**  
**Sr. Engineering Technician**  
**Product Testing Department**

**The test results contained in this report pertain only to the samples submitted for testing and not necessarily to all similar products.**



**Sound Transmission Class Testing (ASTM E90-04)**  
**Noise Reduction Coefficient (ASTM C423-07)**

**INTRODUCTION:**

This report presents the results of the sound transmission and sound absorption testing conducted on New 8# Echo Eliminator panels. The test sample was submitted by Mr. Mike Mohs of Acoustical Surfaces, Inc (ASI). This work was completed on January 21, 2008.

This report must not be reproduced except in full with the approval of Stork Twin City Testing Corporation. The data in this report relates only to the items tested.

Stork Twin City Testing Corporation has been accredited by the U.S. Department of Commerce and the National Institute of Standards and Technology (NIST, formerly NBS) under their National Voluntary Laboratory Accreditation Program (NVLAP) for conducting ASTM C423 test procedures. This report may not be used to claim product endorsement by NVLAP, NIST or any agency of the U.S. Government.

**TEST RESULTS SUMMARY:**

<i>TYPE A NRC TEST</i>			Test Results		
Test #	SAMPLE DESCRIPTION	ADDITIONAL INFORMATION	NRC	SAA	--
2	New 8# Echo Eliminator	24" x 48" x 1" Panels (Wool Surface Exposed)	<b>0.75</b>	<b>0.77</b>	--

<i>SOUND TRANSMISSION CLASS (STC) TEST</i>			Test Results		
Test #	SAMPLE DESCRIPTION	ADDITIONAL INFORMATION	STC	def.	OITC
14	New 8# Echo Eliminator	24" x 48" x 1" Panels (Reflective Surface toward Source Room)	<b>17</b>	<b>29</b>	<b>14</b>

See 'TEST DATA' section for detailed results.

**SPECIMEN DESCRIPTION:** (Also see "Test Results")

The test specimens were identified by ASI as New 8# Echo Eliminator panels. Each panel measured 24" x 48" x 1" and weighed 5-lbs each (0.6-psf).

Information and statements in this report are derived from material, information and/or specifications furnished by the client and exclude any expressed or implied warranties as to the fitness of the material tested or analyzed for any particular purpose or use. This report is the confidential property of our client and may not be used for advertising purposes. This report shall not be reproduced except in full, without written approval of this laboratory. The recording of false, fictitious or fraudulent statements or entries on this document may be punished as a felony under Federal Statutes including Federal Law Title 18, Chapter 47

PROJECT NUMBER: 30160-07-82419

PAGE: 3 of 6

DATE: January 12, 2007

**TEST PROCEDURE****Sound Transmission Test**

ASTM:E90(04), "Laboratory Measurement of Airborne Sound Transmission of Building Partitions," was followed in every respect. The STC value was obtained by applying the Transmission Loss (TL) values to the STC reference contour of ASTM: E413(04), "Determination of Sound Transmission Class." The actual transmission loss at each frequency was calculated by the following equations:

$$TL = NR + 10 \log S - 10 \log A_2$$

where: TL = Transmission Loss (dB)  
NR = Noise Reduction (dB)  
S = Surface area common to both sides (sq. ft.)  
A<sub>2</sub> = Sound absorption of the receiving room with the sample in place (sabins)

**OITC Procedure**

ASTM:E1332(03), "Determination of Outdoor-Indoor Transmission Class", was followed in every respect. Basically, the OITC was calculated by using the sound transmission loss values in the 80 to 4000 Hz range as measured in accordance with ASTM E-90(04). These transmission loss data are then used to determine the A-weighted sound level reduction of the specimen for the reference source spectrum specified in Table 1 of ASTM E1332(03). The appropriate calculations were made to determine the OITC value. The source room has a volume of 2948-ft<sup>3</sup> (83-m<sup>3</sup>) and the termination room has a volume of 5825-ft<sup>3</sup> (165-m<sup>3</sup>).

The temperatures and relative humidity of the termination room met the requirements of the standard during and after the test. All frequencies met the requirements for 95% confidence established by the standard.

**Sound Absorption Test**

ASTM C 423-07," Sound Absorption and Sound Absorption Coefficient by the Reverberation Room Method", was followed in every respect. The test sample was tested in a Type A Mounting style. The material was tested on the test chamber surface with an overall sample dimension of 8' x 9' (72-ft<sup>2</sup>).

NRC was calculated by rounding the sound absorption coefficients for 250, 500, 1000 and 2000 Hz to the nearest 0.05. SAA was calculated by rounding the sound absorption coefficients for the twelve frequencies from 200 Hz to 2500 Hz to the nearest 0.01.

**PROJECT NUMBER:** 30160-07-82419**PAGE:** 4 of 6**DATE:** January 12, 2007**TEST EQUIPMENT:**

<u>Manufacturer</u>	<u>Model</u>	<u>Description</u>	<u>S/N</u>
Norwegian Electronics	NE830	Real Time Analyzer	11511
Brüel & Kjær	3923	Rotating Microphone Boom	815424
Norsonic (Source Rm)	1230	Pressure Condenser Microphone	26361
Brüel & Kjær (Term Rm)	4192	Pressure Condenser Microphone	2360314

**REMARKS:**

The test sample will be retained for a period of **15-days** and then discarded unless notified by the client.

F:\Product\MMFILES\MNB\2008 REPORTS MNB\92064-ASI-2.doc

**PROJECT NUMBER:** 30160-07-82419

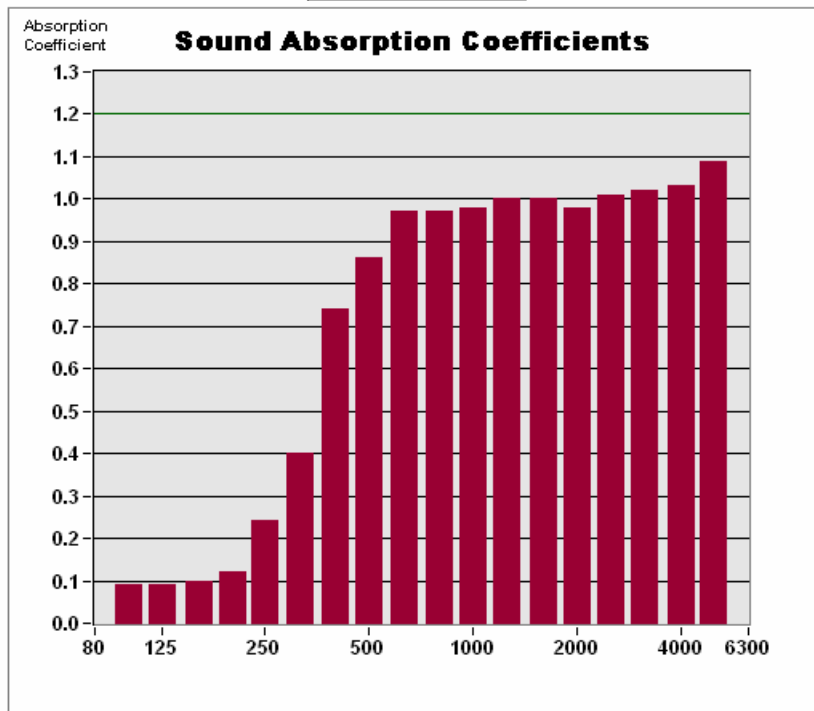
**PAGE:** 5 of 6

**DATE:** January 12, 2007

**TEST RESULTS:**

Filename <b>test #2</b>		<b><i>ASTM C423 - Sound Absorption</i></b>			
Client <b>Acoustical</b>	Product <b>NEW #8 Echo</b>	Model #	Quantity <b>1</b>	Comment	
Sample Size - Wt. <b>108.0 in x 96.0 in x 1" - 45 lbs</b>	Sample Description <b>Acoustical Surfaces: 8' x 9' x 1" Pure Blue, Wool Face &amp; Silver Backing: : NEW 8# Echo Eliminator: :</b>				
Time Stamp <b>Mon, Jan 21, 2008 - 2:37 PM</b>	Total Sample Area <b>72.0 ft<sup>2</sup></b>				

F (Hz)	Absorption Coefficient	Absorption (Sabins)*
100	0.09	6.48
125	0.09	6.19
160	0.10	7.55
200	0.12	8.90
250	0.24	17.46
315	0.40	28.75
400	0.74	53.21
500	0.86	62.21
630	0.97	70.10
800	0.97	70.09
1000	0.98	70.73
1250	1.00	72.19
1600	1.00	71.69
2000	0.98	70.45
2500	1.01	72.58
3150	1.02	73.10
4000	1.03	74.35
5000	1.09	78.47



Temp (°C) **20.9**    R.H. (%) **56**    ATM (mbar) **998**

**SAA = 0.77    NRC = 0.75**

\* total absorption based on 72.0 ft<sup>2</sup>

Information and statements in this report are derived from material, information and/or specifications furnished by the client and exclude any expressed or implied warranties as to the fitness of the material tested or analyzed for any particular purpose or use. This report is the confidential property of our client and may not be used for advertising purposes. This report shall not be reproduced except in full, without written approval of this laboratory. The recording of false, fictitious or fraudulent statements or entries on this document may be punished as a felony under Federal Statutes including Federal Law Title 18, Chapter 47.

**PROJECT NUMBER:** 30160-07-82419

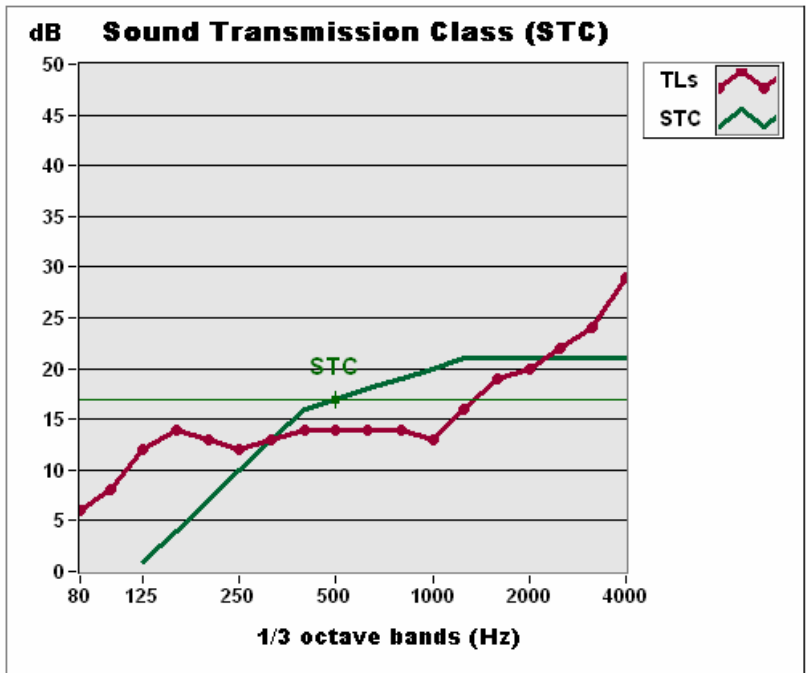
**PAGE:** 6 of 6

**DATE:** January 12, 2007

**TEST RESULTS:**

Filename					
test #14		<b>ASTM E90 - Laboratory Sound Transmission Class</b>			
Project Folder	Client	Product	Model #	Quantity	Comment
92064 Acoustical	Acoustical	NEW 8# Echo		1	
Sample Size - Wt.			Sample Description		
48.0 in x 72.0 in x 1" - 15 lbs			Acoustical Surfaces: NEW 8# Echo Eliminator: : 24" x 48" x 1" per panels, 3 panels tested Reflective surface towards source room :		
Time Stamp					
Fri, Feb 08, 2008 - 9:14 AM					

F (Hz)	TLs	95% CI	def
80	6	3.6	-
100	8	1.9	-
125	12	1.7	0
160	14	1.9	0
200	13	0.7	0
250	12	0.6	0
315	13	0.5	0
400	14	0.5	2
500	14	0.4	3
630	14	0.3	4
800	14	0.3	5
1000	13	0.3	7
1250	16	0.3	5
1600	19	0.3	2
2000	20	0.3	1
2500	22	0.3	0
3150	24	0.3	0
4000	29	0.4	0



**STC = 17 def: 29**  
**OITC: 14**

Temp (°C) R.H. (%) ATM (mbar)  
 20.9 56 998

Information and statements in this report are derived from material, information and/or specifications furnished by the client and exclude any expressed or implied warranties as to the fitness of the material tested or analyzed for any particular purpose or use. This report is the confidential property of our client and may not be used for advertising purposes. This report shall not be reproduced except in full, without written approval of this laboratory. The recording of false, fictitious or fraudulent statements or entries on this document may be punished as a felony under Federal Statutes including Federal Law Title 18, Chapter 47.