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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:
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Client Purchase Order Number: Contract

Prepared By:



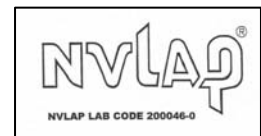
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The test results contained in this report pertain only to the samples submitted for testing and not necessarily to all similar products.



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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.

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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)	0.75	0.77	--

<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)	17	29	14

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).

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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.)
A₂ = 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-ft³ (83-m³) and the termination room has a volume of 5825-ft³ (165-m³).

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-ft²).

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.

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<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.

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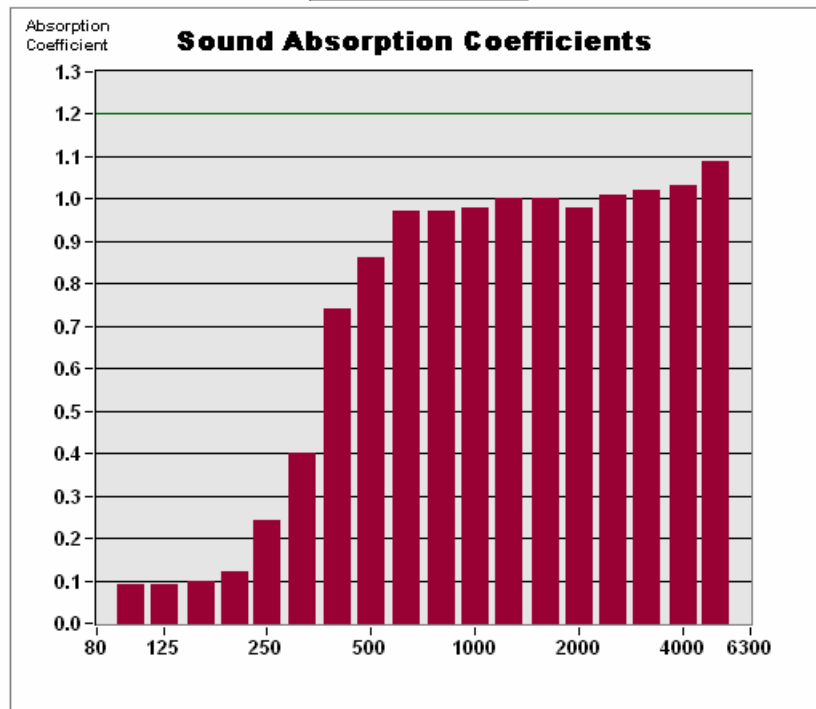
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TEST RESULTS:

Filename test #2		<i>ASTM C423 - Sound Absorption</i>			
Client Acoustical	Product NEW #8 Echo	Model #	Quantity 1	Comment	
Sample Size - Wt. 108.0 in x 96.0 in x 1" - 45 lbs	Sample Description Acoustical Surfaces: 8' x 9' x 1" Pure Blue, Wool Face & Silver Backing: NEW 8# Echo Eliminator: :				
Time Stamp Mon, Jan 21, 2008 - 2:37 PM	Total Sample Area 72.0 ft²				

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

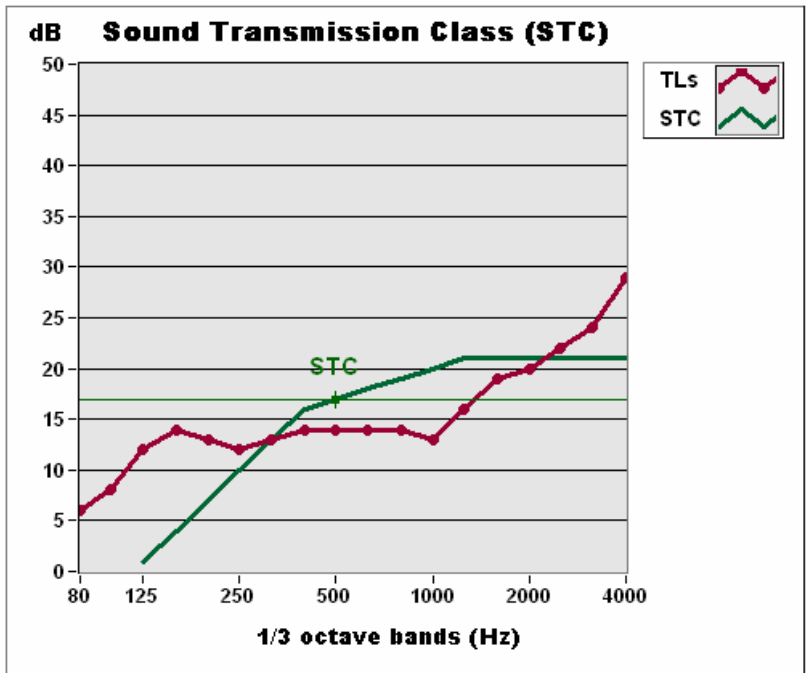
* total absorption based on 72.0 ft²

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TEST RESULTS:

Filename					
test #14		ASTM E90 - Laboratory Sound Transmission Class			
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

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