

# Architectural Surfaces, Inc.

**DISTINCTIVE WOOD & SPECIALTY ACOUSTICAL CEILING & WALL SYSTEMS**

123 Columbia Court North • Suite 201 • Chaska, MN 55318  
952-448-5300 • Fax: 952-448-2613 • Toll Free: 1-800-710-8791  
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**Materials Technology**

**Stork Twin City Testing Corporation**

**PROJECT NUMBER:** 30160-08-92064-5  
**PAGE:** 1 of 5  
**DATE:** January 29, 2008

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

**SOUND ABSORPTION TESTING CONDUCTED ON THE  
LINWOOD™ LINEAR WOOD CEILING  
WITH ECHO ELIMINATOR BACKER PANELS**

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

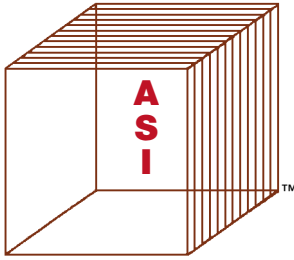
**The test results contained in this report pertain only to the samples submitted for testing and not necessarily to all similar products.**



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**PROJECT NUMBER:** 30160-07-82419-5

**PAGE:** 2 of 5

**DATE:** January 29, 2007

## Noise Reduction Coefficient (ASTM C423-07)

### **INTRODUCTION:**

This report presents the results of the sound absorption testing conducted on the Linwood™ Linear Wood Ceiling with Echo Eliminator backer panels. The test sample was submitted by Mr. Mike Mohs of Acoustical Surfaces, Inc (ASI). This work was completed on January 22, 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 E400 NRC TEST</i>			Test Results		
Test #	SAMPLE DESCRIPTION	ADDITIONAL INFORMATION	NRC	SAA	--
5	Linwood™ Linear Wood Ceiling	Tested with 2" Echo Eliminator backer panels	<b>0.80</b>	<b>0.78</b>	--
6	Linwood™ Linear Wood Ceiling	Tested with 1" Echo Eliminator backer panels	<b>0.65</b>	<b>0.66</b>	--

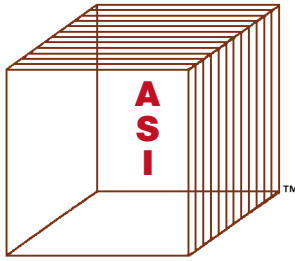
See 'TEST DATA' section for detailed results.

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

The test specimens were identified by ASI as the Linwood™ Linear Wood Ceiling tested with Echo Eliminator backer panels. The Linwood™ wood ceiling consisted of wood profiles measuring 3-1/2" wide x 8' long x 1/2" thick. The profiles were attached to standard t-bar gridwork with a custom attachment clip. The clip mounted between each profile, and created a 3/4" spacing between each profile. The samples were tested with Echo Eliminator backer panels (1" or 2" thick).

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**PROJECT NUMBER:** 30160-07-82419-5

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**DATE:** January 29, 2007

**TEST PROCEDURE**

**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 E400 Mounting style. The material was tested on gridwork to simulate a ceiling tile installation. The overall sample had a 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.

**TEST EQUIPMENT:**

<u>Manufacturer</u>	<u>Model</u>	<u>Description</u>	<u>S/N</u>
Norwegian Electronics	NF830	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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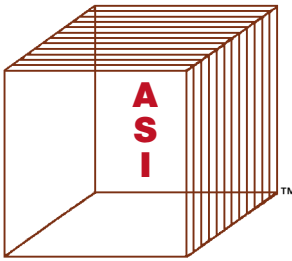
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**TEST RESULTS:**

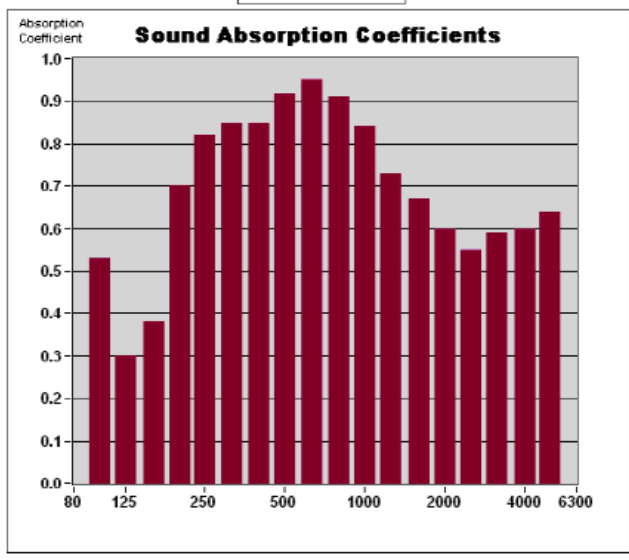
Filename:  **ASTM C423 - Sound Absorption**

Client:  Product:  Model #:  Quantity:  Comment:

Sample Size - Wt.:  Sample Description:  Time Stamp:

Total Sample Area:

F (Hz)	Absorption Coefficient	Absorption (Sabins)*
100	0.53	38.14
125	0.30	21.81
160	0.38	27.68
200	0.70	50.76
250	0.82	59.29
315	0.85	61.34
400	0.85	61.47
500	0.92	66.15
630	0.95	68.67
800	0.91	65.76
1000	0.84	60.38
1250	0.73	52.35
1600	0.67	48.16
2000	0.60	43.29
2500	0.55	39.79
3150	0.59	42.13
4000	0.60	42.88
5000	0.64	46.16



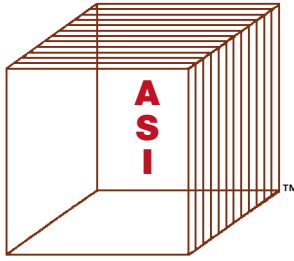
Temp (°C)  R.H. (%)  ATM (mbar)   
 \* total absorption based on 72.0 ft²

**SAA = 0.78    NRC = 0.80**

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**TEST RESULTS:**

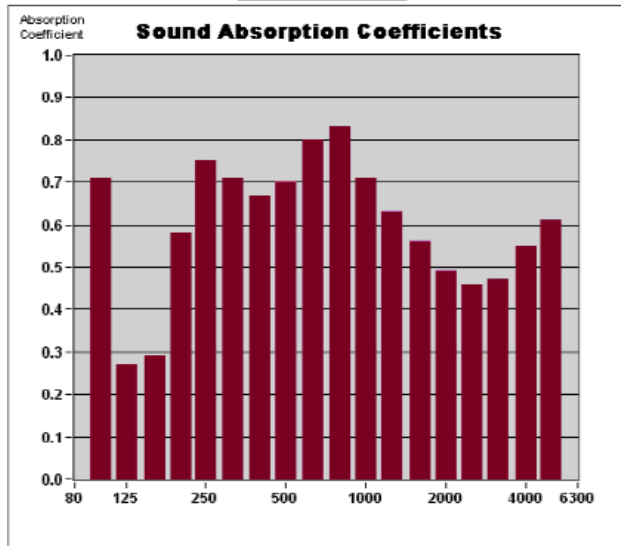
Filename:  **ASTM C423 - Sound Absorption**

Client	Product	Model #	Quantity	Comment
Acoustical	1/2" Linwood Panels	W/ 1" Echo	1	

Sample Size - Wt.  Sample Description

Time Stamp  Total Sample Area

F (Hz)	Absorption Coefficient	Absorption (Sabins)*
100	0.71	50.90
125	0.27	19.71
160	0.29	20.85
200	0.58	42.03
250	0.75	53.72
315	0.71	51.44
400	0.67	47.90
500	0.70	50.07
630	0.80	57.53
800	0.83	59.70
1000	0.71	51.08
1250	0.63	45.68
1600	0.56	40.35
2000	0.49	35.09
2500	0.46	32.98
3150	0.47	33.98
4000	0.55	39.68
5000	0.61	44.09



Temp (°C)  R.H. (%)  ATM (mbar)

\* total absorption based on 72.0 ft²

**SAA = 0.66    NRC = 0.65**

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