Acoustical Surfaces, Inc.
We identify and S.T.O.P Your Noise Problems
Sound Transmission Obscuring Products
Soundproofing, Acoustics, Noise & Vibration Control Specialists ™

# Acoustical Surfaces, Inc.

SOUNDPROOFING, ACOUSTICS, NOISE & VIBRATION CONTROL SPECIALISTS

123 Columbia Court North • Suite 201 • Chaska, MN 55318
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Email: sales@acousticalsurfaces.com
Visit our Website: www.acousticalsurfaces.com

## We Identify and S.T.O.P. Your Noise Problems

twin city testing corporation

662 CROMWELL AVENUE
ST. PAUL, MN 55114
PHONE: 651/645-3601

TO: Rendered by Manufacturer and Released to:
Architectural Surfaces, Inc./Acoustical Surfaces Inc.

DATE: August 14, 1990
PROJECT NO: 4143 90-0411B

PROJECT: 3" Dual Wave Pattern Foam Panels

NOISE REDUCTION COEFFICIENT TEST

**INTRODUCTION:**

This report presents the results of an NRC test conducted on acoustical foam panels.

Twin City Testing Corporation has been accredited by the U.S. Department of Commerce, National Institute of Standards and Technology (NIST, formally NBS) under their National Voluntary Laboratory Accreditation Program (NVLAP) for conducting this test procedure.

**TEST RESULTS SUMMARY:**

The NRC of the sample described herein is 0.90 (see individual frequency values below under TEST RESULTS).

**SPECIMEN IDENTIFICATION:**

Manufacturer: Rendered by Manufacturer and Released to Architectural Surfaces, Inc./Acoustical Surfaces Inc.
Type: 3" DW Urethane Foam Panels
Size: 3" x 72" x 96"
Weight: 13.14 lbs. or 0.27 psf

**TEST PROCEDURE:**

The test was conducted in accordance with ASTM:C423 (84a), “Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.” The sample was placed near, but not at the center of a 5300 cubic foot reverberation chamber. The specimen was placed on 14" furring strips laid flat on the floor (mounting type “D”). Reverberation times of the empty chamber are compared to the reverberation times of the chamber with the specimen inside to obtain absorption coefficients at the six octave band test frequencies. Absorption coefficients are the fraction of diffused incident sound absorbed by the specimen. The fraction of absorbed sound is measured in Sabins per square foot of Specimen.

The Noise Reduction Coefficient (NRC) is the average of the absorption coefficients for 250, 500, 1000, and 2000 Hertz. The average is expressed to the nearest integral of 0.05.

The sound absorption coefficient for each frequency was calculated by the following equation:

$$A = [(A2 - A1)/S]$$

Where

A = Absorption coefficient of test specimen, Sabins/ft$^2$
A1 = Absorption of empty room, Sabins
A2 = Absorption of room with specimen, Sabins
S = Surface area, ft$^2$

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**TEST EQUIPMENT:**

| Manufacturer | Model | Description | S/N |
|---|---|---|---|
| Norwegian Electronics | NE830 | Real Time Spectrum Analyzer | 11511 |
| Bruel & Kjaer | 4132 | Rotating Condenser Microphone | 239016 |
| Bruel & Kjaer | 3923 | Rotating Condenser Microphone | 263439 |
| Larson-Davis | 2560 | Pressure Condenser Microphone | 1032 |

**TEST RESULTS:**

| FREQ HZ | COEFFICIENT (SABINS/FT2) | C.L. | FREQ HZ | COEFFICIENT (SABINS/FT2) | C.L. |
|---|---|---|---|---|---|
| 125 | 0.15 | 0.06 | 1000 | 1.08 | 0.01 |
| 250 | 0.31 | 0.03 | 2000 | 1.04 | 0.01 |
| 500 | 0.73 | 0.03 | 4000 | 1.12 | 0.01 |

Noise Reduction Coefficient (NRC) = 0.09

FREQ = Frequency – Octave Band (Hz)
COEFFICIENT = Sound Absorption Coefficient Sabins/ft²
C.L. = Uncertainty, Sabins / ft² (95% Confidence Limit)

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