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DATE: January 12, 2005

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

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

**SOUND TRANSMISSION TESTING CONDUCTED ON
A VINYL FENCE SECTION**

Prepared for:
NORTH AMERICAN PROFILES GROUP
Attn: Mr. Amin Lakhdhir
7504L – 30th Street South East
Calgary, Alberta, Canada T2C 1M8

Prepared By:



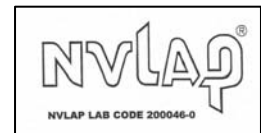
Darren Laesch
Engineering Technician
Product Testing Department
(651) 659-7344

Reviewed By:



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

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



PROJECT NUMBER: 30160-04-64227**PAGE:** 2 of 4**DATE:** January 12, 2005**Sound Transmission Class Testing (ASTM E90-04)****INTRODUCTION:**

This report presents the results of sound transmission testing conducted on a Vinyl Fence section. The sample was submitted by Mr. Amin Lakhdir of North American Profiles Group. This work was completed on January 12, 2005.

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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 E90 test procedure. This report may not be used to claim product endorsement by NVLAP, NIST or any agency of the U.S. Government.

TEST RESULTS SUMMARY:

The Vinyl Fence Section achieved an **STC of 22** with 28 deficiencies and an OITC (Outdoor/Indoor Transmission Class) value of 19.

SPECIMEN DESCRIPTION: (Also see "Test Results")

The specimen was described as being a Vinyl Fence section. The fence measured 102" x 74" x 1" and weighed 71 lbs. The fence contained two end posts, upper rail, lower rail and 8 interior panels. The interior panels were tongue & groove interlocking members. The fence assembly was mounted in the test wall with the perimeter sealed.



**Photograph of Vinyl Fence
in test wall – Perimeter Sealed**

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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.

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 30-days and then discarded unless notified by the client.

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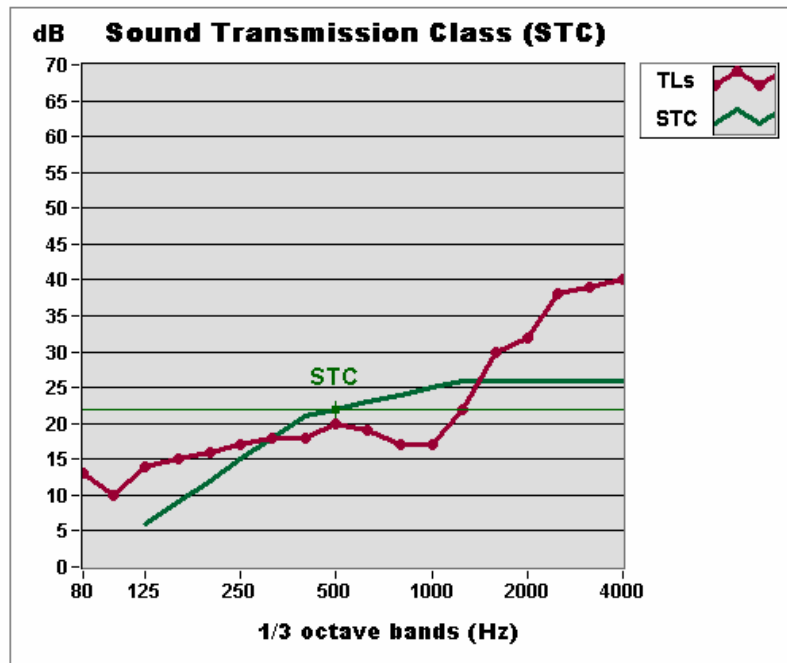
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TEST RESULTS:

Filename						
Test #1		ASTM E90 - Laboratory Sound Transmission Class				
Project Folder		Client	Product	Model #	Quantity	Comment
64227-NAPG		NAPG	Vinyl Fence		1	
Sample Size - Wt.			Sample Description			
102.0 in x 74.0 in x 1 - 71 lbs			North American Profiles Group : Vinyl Fence : Sealed perimeter of fence with mortite (see picture) :			
Time Stamp						
Wed, Jan 12, 2005 - 2:03 PM						

F (Hz)	TLs - sample TL values (dB)		
	TLs	95% CI	def
80	13	3.4	-
100	10	1.4	-
125	14	1.7	0
160	15	1.2	0
200	16	1.0	0
250	17	0.6	0
315	18	0.3	0
400	18	0.3	3
500	20	0.2	2
630	19	0.2	4
800	17	0.2	7
1000	17	0.2	8
1250	22	0.2	4
1600	30	0.3	0
2000	32	0.2	0
2500	38	0.1	0
3150	39	0.2	0
4000	40	0.3	0



STC = 22 def: 28
OITC: 19

Temp (°C) R.H. (%) ATM (mbar)
20.8 54 971

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