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**DATE:** September 4, 2009

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

**SOUND TRANSMISSION CLASS TESTING  
LEDGE STONE PANEL**

**Prepared for:**  
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**Client Reference Number: 134966**

**Prepared By:**



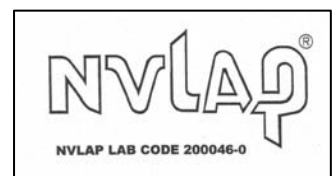
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**The test results contained in this report pertain only to the samples submitted for testing and not necessarily to all similar products.**



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**AIRBORNE SOUND TRANSMISSION LOSS (STC) ASTM E90****INTRODUCTION:**

This report presents the sound transmission results conducted on a Ledge Stone concrete panel. The testing and data analysis were completed on September 2, 2009.

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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.

**SUMMARY OF RESULTS:****Sound Transmission Class (STC)**

<i>Sound Transmission Class (STC) Test</i>				<b>Test Results</b>		
<b>Test #</b>	<b>Sample Identification</b>	<b>Weight (lbs)</b>	<b>Weight (psf)</b>	<b>STC</b>	<b>Def.</b>	<b>OITC</b>
<b>1</b>	<b>Ledge Stone</b> 6" Thick Concrete Panel with Stone Facing	1205	60.3	<b>50</b>	<b>22</b>	<b>45</b>

Refer to **TEST DATA** on page 4 for additional test results.

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

The specimen was identified by the client as Ledge Stone, a Concrete Panel manufactured by Fabcon, Inc. The panel measured 48" x 60" x 6" nominal thickness. The front and rear surfaces had a natural stone appearance.

**Concrete Panel in Test Wall**

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**TEST METHODS:****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.

The panel was tested in Stork's Filler wall that was previously tested to a STC of 66.

**TEST EQUIPMENT:**

<u>Manufacturer</u>	<u>Model</u>	<u>Description</u>	<u>S/N</u>
Norwegian Electronics	NE830	Real Time Analyzer	10722
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 samples will be retained for 14-days then discarded unless notified otherwise by client.

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**Materials Technology**

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**TEST RESULTS:**

Filename

test #1

**ASTM E90 - Laboratory Sound Transmission Class**

Project Folder

08173 Fabcon

Client

Fabcon Inc.

Product

Ledge Stone

Model #

Quantity

1

Comment

Sample Size - Wt.

48.0 in x 60.0 in x 6" - 1205 lbs

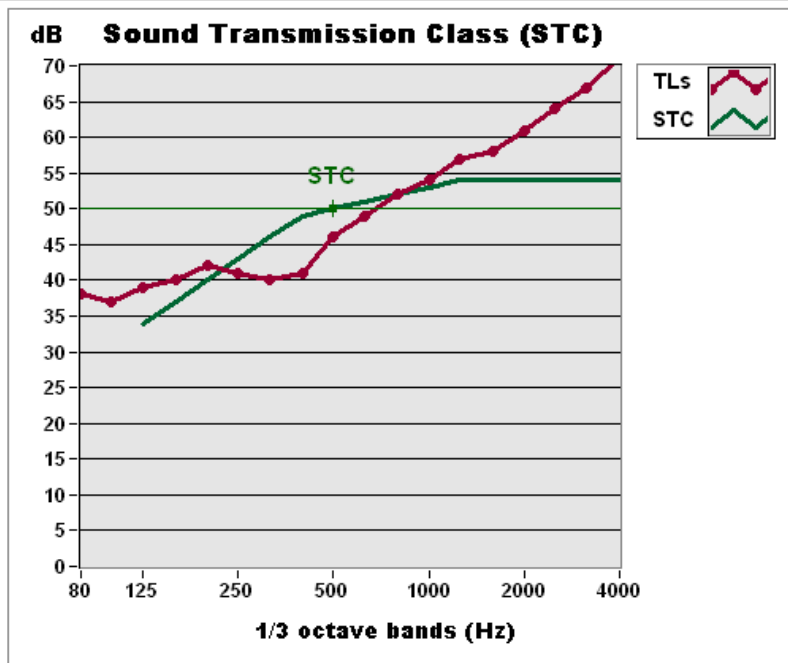
Sample Description

Fabcon Inc. 4' x 5' x 6" Concrete Slab, Stone Pattern on both sides :

Time Stamp

Thu, Sep 03, 2009 - 8:45 AM

F (Hz)	TLs - sample TL values (dB)		
	TLs	95% CI	def
80	38	2.9	-
100	37	1.1	-
125	39	1.3	0
160	40	1.5	0
200	42	0.8	0
250	41	0.5	2
315	40	0.4	6
400	41	0.4	8
500	46	0.4	4
630	49	0.3	2
800	52	0.2	0
1000	54	0.2	0
1250	57	0.2	0
1600	58	0.2	0
2000	61	0.2	0
2500	64	0.1	0
3150	67	0.2	0
4000	71	0.3	0



**STC = 50 def: 22**  
**OITC: 45**

Temp (°C)

22.1

R.H. (%)

52

ATM (mbar)

1005

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