

# REPORT

3933 US ROUTE 11 CORTLAND, NEW YORK 13045

Order No. 103762610

Date: January 18, 2019

**REPORT NO. 103762610CRT-001b**

**SOUND TRANSMISSION LOSS TEST  
AND CLASSIFICATION ON  
FRP SOUND WALL PANELS WITH SLOTS**

**RENDERED TO**

**FIBERGRATE COMPOSITE STRUCTURES  
900 FM 205  
STEPHENVILLE, TX 76401-4688**

## **INTRODUCTION**

This report gives the results of a Sound Transmission Loss test and the determination of the Sound Transmission Class on FRP Sound Wall Panels with Slots. The test sample was selected and supplied by the client and received at the laboratories on January 2, 2019. The sample appeared to be in new, unused condition upon arrival.

## **AUTHORIZATION**

Signed Intertek Quotation No. Qu-00919120

## **TEST METHOD**

The specimen was tested in accordance with the American Society for Testing and Materials designation ASTM E90-09 (2016), "Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions", and classified in accordance with the American Society for Testing and Materials designation ASTM E413-2016, "Classification for Rating Sound Insulation" and ASTM Standard E1332-16 entitled, "Standard Classification for Rating Outdoor-Indoor Sound Attenuation".

**EQUIPMENT**

Equipment	Calibration Date	Due Date	S/N	Model	Brand	Asset
Microphone Calibrator	3/15/2018	3/15/2019	2130586	4231	Brüel and Kjær	A227
Pulse Analyzer	3/15/2018	3/15/2019	2519258	7539	Brüel and Kjær	E446
Microphone/Pre - DF	10/11/2018	10/11/2019	2381161	4942	Brüel and Kjær	E450
Microphone/Pre - DF	3/9/2018	3/9/2019	2660222	4942	Brüel and Kjær	E451

**GENERAL**

The sound-insulating property of a partition element is expressed in terms of the sound transmission loss. The procedure for determining this quantity is to mount (and perimeter seal) the test specimen as a partition between two reverberation rooms. Sound is introduced in one of the rooms (the source room) and measurements are made of the noise reduction between source room (10,000 cu .ft.) and receiving room (16,640 cu. ft.). The rooms are so arranged and constructed that the only significant sound transmission between them is through the test specimen.

The test opening is constructed such that it is approximately one inch larger in size than the test specimen. The specimen is placed in the test opening an a half-inch bead of "DUX-SEAL", a dense, non-hardening, clay-like material, to isolate it from the supporting base. The space between the test specimen and the wall opening is sealed on both sides employing the same sealing material.

The purpose of the Sound Transmission Class (STC) is to provide a single figure rating that can be used for comparing the sound-insulating properties of partition elements used for general building design purposes. The higher the rating (STC) the greater the sound insulating properties of the partition.

The purpose of the Outdoor-Indoor Transmission Class (OITC) is to provide a single number rating that can be used for comparing building façade designs, including walls, doors, windows and combinations thereof. This rating is designed to correlate with subjective impressions of the ability of building elements to reduce the overall loudness of ground and air transportation noise. It is intended to be used as a rank ordering device.

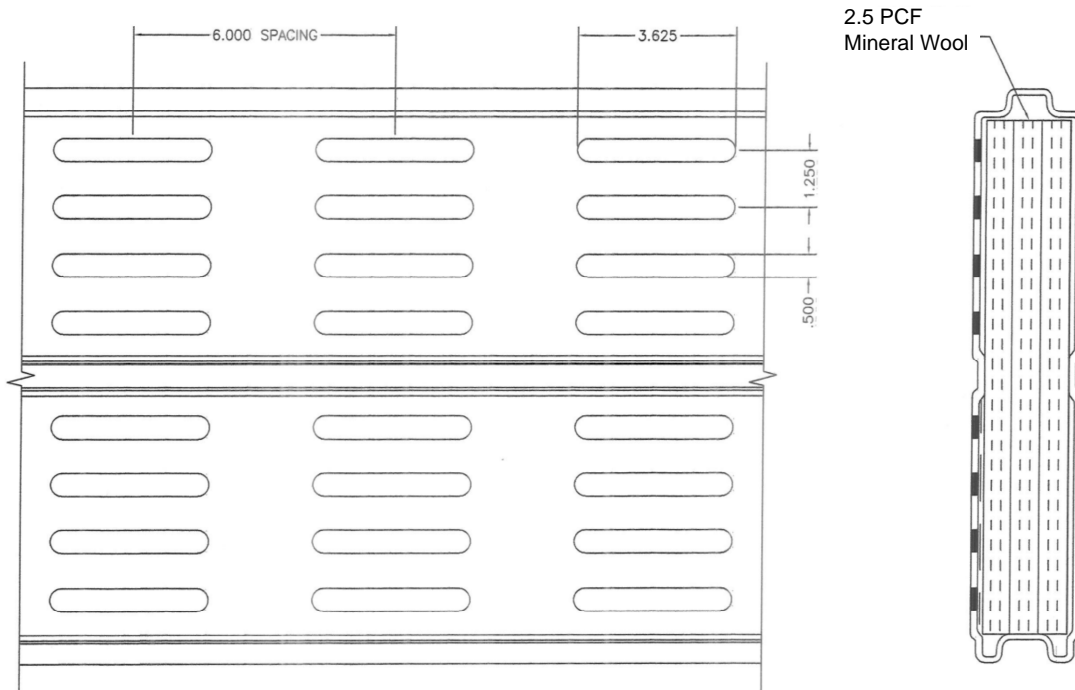
**DESCRIPTION OF TEST SPECIMEN**

The test specimen consisted of a 97 inch wide by 96 inch high fiberglass panel assembly consisting of eight 12 inch wide by 96 inch high panels. The mineral wool filled panels were 2 ½ inch thick and weighed 235 pounds. The panels were slotted on the source room side and slotted on the receiving room side. During testing, the seams between the panels did not have any sealant.

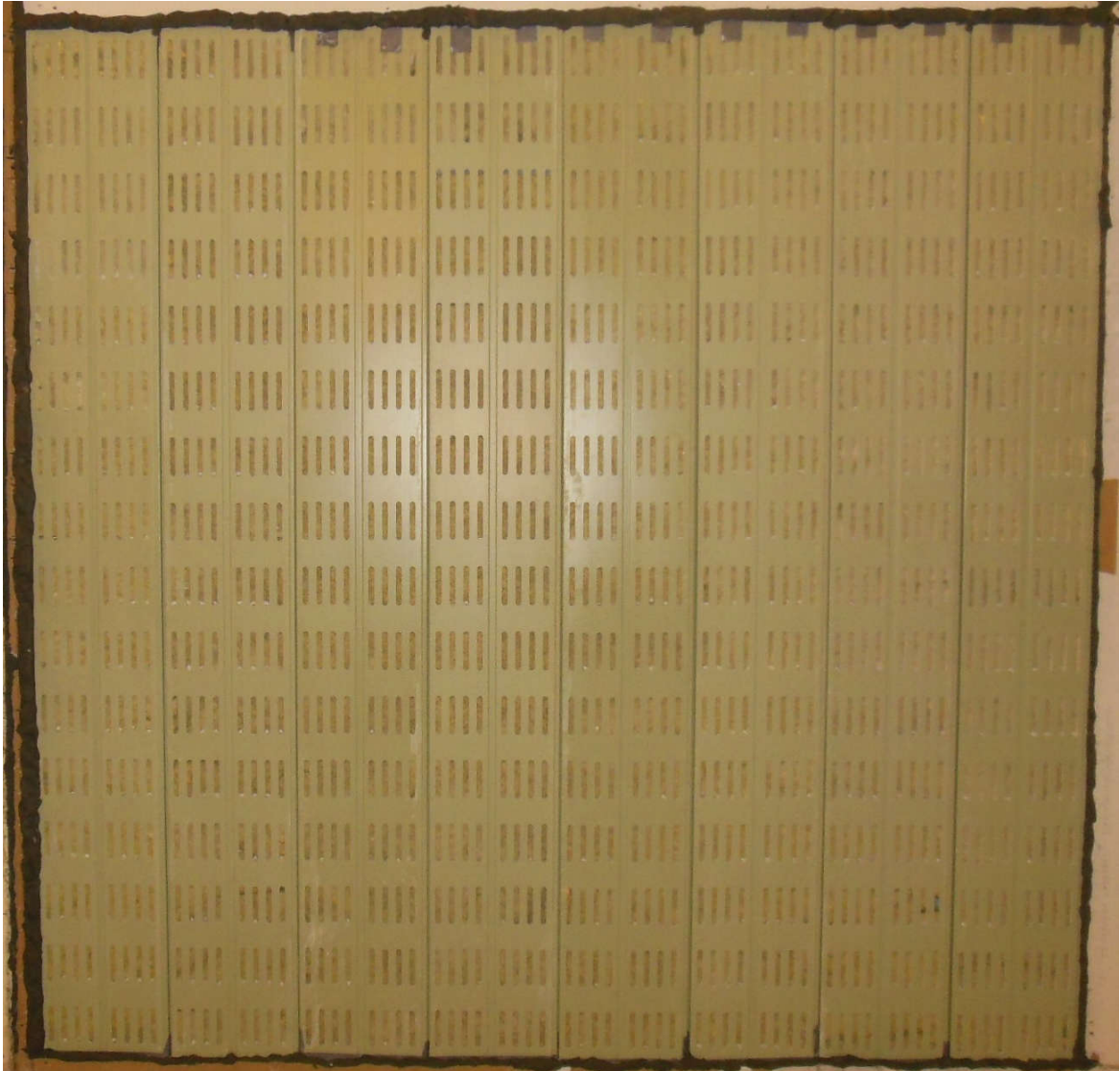
**DRAWING OF TEST SAMPLE**

Intertek Test Specimens  
Slot Detail

EM 11-16-18 (3/4)



**PICTURE OF TEST SAMPLE**



**RESULTS OF TEST**

**FRP SOUND WALL PANELS WITH SLOTS**

1/3 Octave Band Center Frequency <u>Hz</u>	<u>Sound Transmission Loss in dB</u>
80	11
100	9
125	12
160	13
200	16
250	18
315	20
400	24
500	28
630	31
800	34
1000	35
1250	37
1600	39
2000	40
2500	42
3150	41
4000	40
5000	38
STC – Sound Transmission Class	30
OITC - Outdoor-Indoor Transmission Class	20

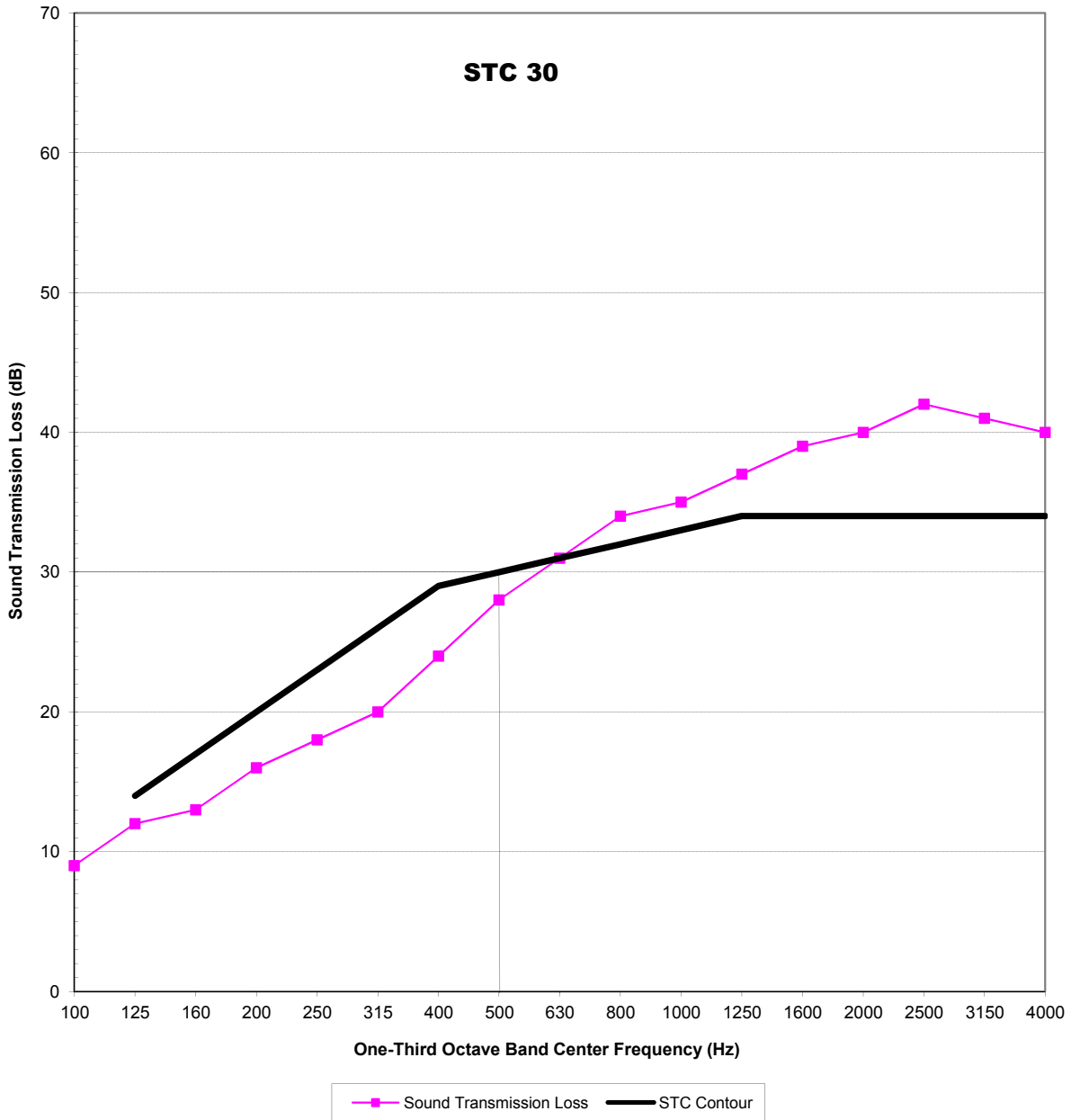
**PRECISION**

For any pair of rooms and microphone system, the 95% confidence interval  $\Delta$ TL, for transmission loss must be less than the following.

<u>Range of One-Third Octave Bands</u>	<u>Transmission Loss Uncertainty, dB</u>	
	<u>Required</u>	<u>Actual</u>
125 and 160	3	<1.5
200 and 250	2	<1.5
315 - 4000	1	<1

## FRP SOUND WALL PANELS WITH SLOTS

Sound Transmission Loss



## FIBERGRATE COMPOSITE STRUCTURES

**REMARKS**

1. Ambient Temperature: 69°F
2. Relative Humidity: 31%

**CONCLUSION**

Date of Test: January 18, 2019

Report Approved by:



Brian Cyr  
Engineer  
Acoustical Testing

Report Reviewed By:



James R. Kline  
Engineer/Quality Supervisor  
Acoustical Testing

Attachments: None