



## Test Report

For: Shielding Resources Group  
Tulsa, Oklahoma

**Noise Isolation Class (NIC)**  
SRG Mockup with Overly Door Slab

Conducted: February 2<sup>nd</sup>, 2015

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### Test Method:

The measurements reported below were taken in tests conducted in accordance with ASTM E336: *Standard Test Method for Measurement of Airborne Sound Attenuation Between Rooms in Buildings*. The scanning method was used to record the average sound pressure levels on each side of the door. The Noise Reduction (NR) at each frequency from 125 to 4000 Hz was used to determine the Noise Isolation Class, as determined by the method outlined in ASTM E413.

The test does not conform fully to the requirements of ASTM E336 for the following reason(s):

1. The loudspeaker was 2.21 m (7.25 ft) from the door. The Standard requires a minimum of 5 m (16.4 ft) between the loudspeaker and door.

### Description of Test Environment:

The test was conducted within the SRG work shop using a built-up room as the source room, and the shop itself as the receiving room. Approximate layout can be seen in Sketch 1.

The volumes of the source and receiving rooms are as follows:

Source Room: 17.44 m<sup>3</sup> (616 ft<sup>3</sup>)

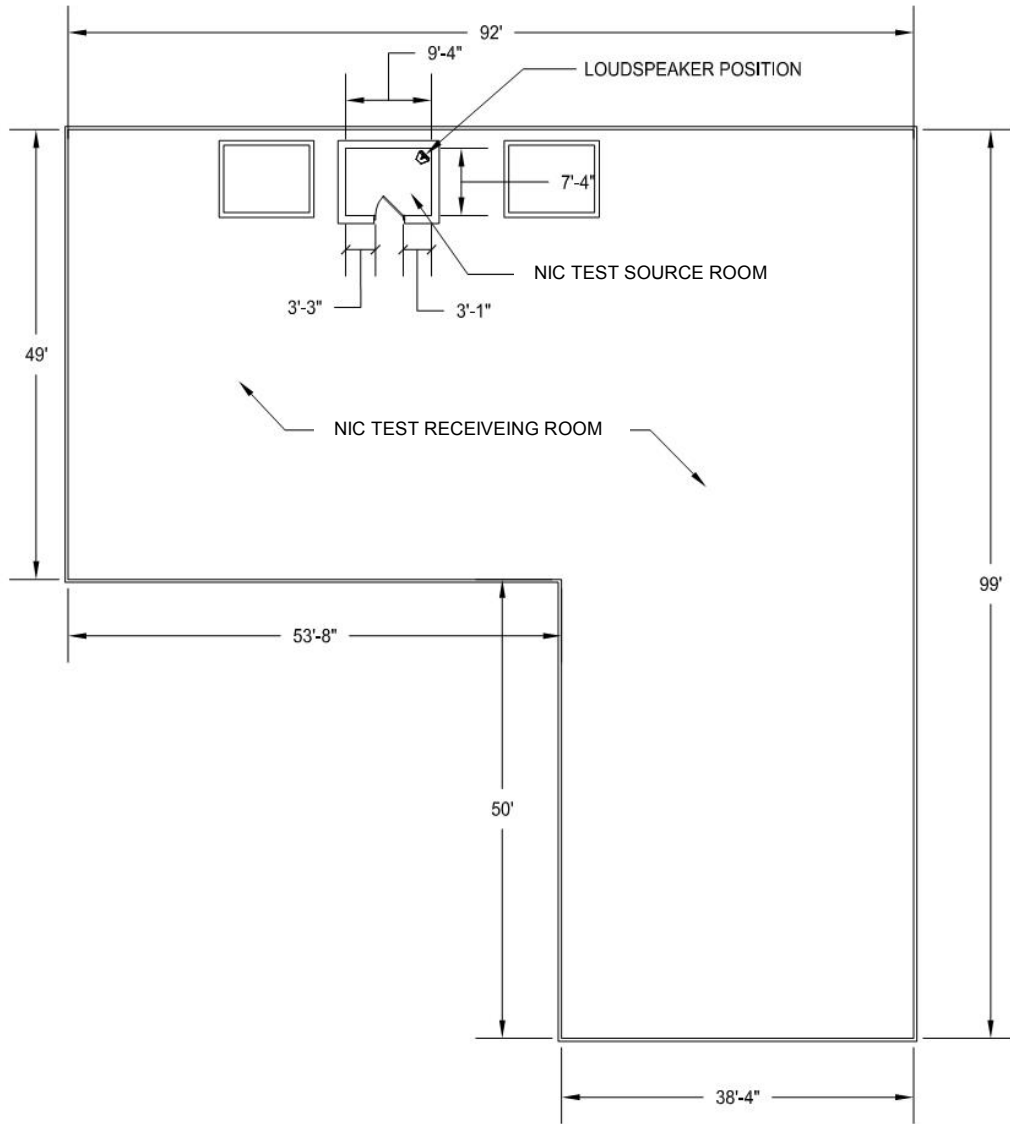
Receiving Room: 3,081 m<sup>3</sup> (108,800 ft<sup>3</sup>)

The door assembly was mounted in a partition consisting of the following construction (from source room to receiving room):

- (1) layer of 26 gauge galvanized sheet metal
- (1) layer of ½" Oriented Strand Board
- 3-5/8" steel studs, 16" O.C., with 6" of fiberglass batt insulation in cavity
- (2) layers of 5/8" type X gypsum board
- 1" airspace
- 2"x4" wood stud, 24" O.C., with 6" of fiberglass batt insulation in cavity
- (1) layer of 5/8" type X gypsum board

The door assembly was less than 1 meter away from both perpendicular walls, and could be opened approximately 170 degrees.

There were no obvious sources of flanking sound in the partition.



**Sketch 1: Source and Receiving Room Layout and Dimensions**



### **Description of Test Specimen:**

The test specimen consisted of the following components:

- Door Panel:
  - The overall dimensions of the door panel were nominally 914 mm (36 in.) wide by 2.13 m (84 in.) high and 44 mm (1.75 in.) thick.
  - The weight of the door panel was 76.2 kg (168 lbs), for an average of 39.1 kg/m<sup>2</sup> (8 lbs/ft<sup>2</sup>).
  - The door panel is manufactured by Overly, and identified as a STC-50 panel, with 14 gauge metal face on one side, and 16 gauge metal face on the other, with Overly's proprietary sound core in between.
  - The door was hung on (3) full mortise heavy weight level swing hinges and was equipped with a functional heavy duty cylindrical lockset.
  - A brass channel was installed around the perimeter of the door panel for RF shielding purposes.
- Door Frame:
  - The 12 gauge galvanized steel frame was mounted in the partition, and sealed on both sides. The frame was packed with fiberglass batt insulation. The frame was equipped with (2) sets of seals on the head and jamb.
  - The primary acoustical seal, mounted as the door stop on the jamb and head, was a Zero model 770AA.
  - The secondary acoustical seal, mounted on the door side rabbet of the jamb and head, was a Zero model 119W.
  - The automatic door bottom seal mounted on to the door was a Zero 367.
  - Brass fingers were installed on the door side rabbet for RF shielding purposes.
  - An ADA compliant, smooth threshold was used under the door.

The door assembly was adjusted properly so as to limit the amount of leaks through the door seals. The specimen was opened and closed at least five times, and the test was conducted with no further adjustments.

### **Description of Test Equipment:**

Sound Source Equipment:

- JBL EON515
- NTI Minirator MR1

Measurement Equipment:

- Ivie IE-35 Audio Analysis System

*The results stated in this report represent only the specific door and acoustical conditions present at the time of the test. While the test method attempts to minimize the influence of flanking and non-ideal test conditions, such can still influence results such that results in the field will likely be less than they would be under laboratory conditions. Details of seal adjustments and installation quality can vary from door to door, and even for the same door, pressure on seals may vary from test to test. Thus, the expected performance for an untested door cannot be derived from the test result of a single door (or a sample thereof) of the same door design.*

Noise Isolation Class Test						
Test #1: SRG Custom Assembly with Overly Slab						
Frequency Band (Hz)	Source Level, L <sub>P</sub> (dB)	Receiver Level, L <sub>P</sub> (dB)	NR (dB)	Ambient Level, L <sub>P</sub> (dB)	Ambient Flags	
125	100	67	33	36		
160	103	68	35	34		
200	103	62	41	34		
250	99	55	44	36		
315	93	47	47	29		
400	86	38	47	26		<b>NIC 50</b>
500	85	36	49	28		
630	90	41	49	23		
800	87	37	50	21		
1000	85	37	48	23		
1250	82	34	47	22		
1600	83	33	49	21		
2000	83	31	52	19		
2500	85	32	53	19		
3150	85	33	53	22		
4000	85	32	53	21		
Source Level at one meter from tested surface (dB, flat, 125 - 4k)						109
Receiver Level at one meter from tested surface (dB, flat, 125 - 4k)						77

