

Guidelines for
**Acoustical Performance
of Standard Steel Doors
and Frames**

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1 General

1.1 Scope

This document shall provide guidelines for the specifying, installing, and adjusting of standard steel doors and frames in applications where sound control is a consideration.

1.2 Definitions

1.2.1 Sound Transmission Class

A single number rating that indicates the sound transmission loss over a defined range of frequencies of a door assembly between adjacent closed rooms, abbreviated STC. Higher values equate to better sound reduction performance.

1.2.2 Outdoor-Indoor Transmission Class

A single number rating used to compare door assemblies when subjected to exterior sounds, such as ground or air transportation noise, is abbreviated OITC.

1.2.3 Sound transmission loss – TL

The reduction in sound level at specific frequency levels when sound passes through a door assembly.

1.2.4 Frequency

The number of cycles per second of a sound wave, measured in units of Hertz and abbreviated Hz.

1.2.5 Decibel – dB

A unit used to express the intensity of a sound wave, equal to 20 times the common logarithm of the ratio of the pressure produced by the sound wave to a reference pressure, usually 0.0002 microbar.

1.2.6 Sound Control Door Assembly

An assembly consisting of a door, frame, hardware, threshold, and gasketing, capable of reducing the transmission of sound.

2 Gauge vs. Thickness

While the term 'gauge' is no longer common for defining material thickness it is still used to specify doors and frames for ordering purposes. The term 'thickness' is used when defining the actual dimension of an item, and the term 'gauge' is used in the context of specifying a particular door or frame.

3 Testing

3.1 Test Specimen

Unless otherwise specified, the test specimen shall be a nominal 36" (914 mm) wide, by 84" (2133 mm) high for single doors and 72" (1,829 mm wide, by 84" (2133 mm) high for pairs of doors. All doors shall be 1 3/4" (44 mm) in thickness. All doors shall be fully operable. A detailed description of the test assembly shall be included in the test report.

Ratings derived from non-operable assemblies shall only be used for experimental purposes and are not part of this document.

3.2 Test Method

The door assemblies shall be tested in accordance with ASTM E 90. The STC and OITC ratings shall be calculated in accordance with ASTM E 413 and E 1332, respectively. The latest editions of the standards shall be used in determining the STC and OITC ratings. Testing shall be performed at laboratories that are accredited under the National Voluntary Laboratory Accreditation Program (NVLAP)

3.3 Test Results and Report

The test report shall be prepared by the test laboratory and shall contain the information identified in Section 13 of ASTM E 90 or Section 8 of ASTM E 1425.