



Standard Guide for Specifying Acoustical Performance of Sound-Isolating Enclosures¹

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1. Scope

1.1 The guide covers the development of criteria for the acoustical performance of a broad variety of acoustical enclosures by identifying information necessary to unambiguously describe acoustical performance. This guide is not a standard ASTM specification for a sound-isolating enclosure.

1.2 Excluded from the scope of this guide are technical considerations for enclosure design that do not pertain directly to acoustical performance.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:²

C423 Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method

C634 Terminology Relating to Building and Environmental Acoustics

E336 Test Method for Measurement of Airborne Sound Attenuation between Rooms in Buildings

E413 Classification for Rating Sound Insulation

E596 Test Method for Laboratory Measurement of Noise Reduction of Sound-Isolating Enclosures

2.2 ANSI Standards:

ANSI S1.4 Specification for Sound Level Meters³

ANSI S3.1 Maximum Permissible Ambient Noise Levels for Audiometric Test Rooms³

ANSI S3.6 Specification for Audiometers³

ANSI S12.31–S12.35 Methods for Determining the Sound Power Levels of Machines and Equipment³

2.3 ISO Standard:

ISO 3741–3745 Acoustics—Methods for Determining the Sound Power Levels of Machines and Equipment⁴

2.4 Government Standard:

29 CFR 1910.95 Occupational Noise Exposure [Occupational Safety and Health Administration]⁵

2.5 Other Standard:

VDI 2711 Schallschutz durch Kapselung [Verein Deutscher Ingenieure, Beuth Verlag GmbH, Berlin] [German] [Noise Control by the Use of Enclosures]⁶

3. Terminology

3.1 Definitions:

3.1.1 Standard definitions of acoustical terms may be found in Terminology **C634**.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *A-weighted sound pressure level*—sound pressure level measurements made with the A-weighting filter applied as defined in ANSI S1.4, denoted L_{PA} in this guide.

3.2.2 *C-weighted sound pressure level*—sound pressure level measurements made with the C-weighting filter applied as defined in ANSI S1.4, denoted L_{PC} in this guide.

3.2.3 *enclosure*—a structure, usually free-standing, which substantially or completely encloses a given space or object. This does not include barrier walls, partitions within a building, or other partial structures.

3.2.4 *enclosure-generated noise*—sound created by the operation of the enclosure systems, such as lighting and ventilation.

3.2.5 *level reduction*—for the purposes of this guide, the arithmetic difference between sound pressure levels at a specific location before and after the installation of the enclosure, expressed in decibels.

¹ This guide is under the jurisdiction of ASTM Committee E33 on Building and Environmental Acoustics and is the direct responsibility of Subcommittee E33.03 on Sound Transmission.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

³ Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, <http://www.ansi.org>.

⁴ Available from International Organization for Standardization (ISO), 1, ch. de la Voie-Creuse, Case postale 56, CH-1211, Geneva 20, Switzerland, <http://www.iso.ch>.

⁵ Available from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

⁶ Available from Beuth Verlag GmbH, Burggrafenstrasse 4-7, 1000 Berlin 30.