



Designation: E90 – 09 (Reapproved 2016)

Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements¹

This standard is issued under the fixed designation E90; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

This standard has been approved for use by agencies of the U.S. Department of Defense.

INTRODUCTION

This test method is part of a set for evaluating the sound-insulating properties of building elements. It is designed to measure the transmission of sound through a partition or partition element in a laboratory. Others in the set cover the measurement of sound isolation in buildings (Test Method E336), the laboratory measurement of impact sound transmission through floors (Test Method E492), the measurement of impact sound transmission in buildings (Test Method E1007), the measurement of sound transmission through building facades and facade elements (Guide E966), the measurement of sound transmission through a common plenum between two rooms (Test Method E1414), a quick method for the determination of airborne sound isolation in multiunit buildings (Practice E597), and the measurement of sound transmission through door panels and systems (Test Method E1425).

1. Scope

1.1 This test method covers the laboratory measurement of airborne sound transmission loss of building partitions such as walls of all kinds, operable partitions, floor-ceiling assemblies, doors, windows, roofs, panels, and other space-dividing elements.

1.2 Laboratories are designed so the test specimen constitutes the primary sound transmission path between the two test rooms and so approximately diffuse sound fields exist in the rooms.

1.3 *Laboratory Accreditation*—The requirements for accrediting a laboratory for performing this test method are given in Annex A4.

1.4 *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.*

¹ This test method 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.

Current edition approved Dec. 1, 2016. Published January 2017. Originally approved in 1955. Last previous edition approved in 2009 as E90 – 09. DOI: 10.1520/E0090-09R16.

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
- E492 Test Method for Laboratory Measurement of Impact Sound Transmission Through Floor-Ceiling Assemblies Using the Tapping Machine
- E966 Guide for Field Measurements of Airborne Sound Attenuation of Building Facades and Facade Elements
- E1007 Test Method for Field Measurement of Tapping Machine Impact Sound Transmission Through Floor-Ceiling Assemblies and Associated Support Structures
- E1111 Test Method for Measuring the Interzone Attenuation of Open Office Components
- E1289 Specification for Reference Specimen for Sound Transmission Loss
- E1332 Classification for Rating Outdoor-Indoor Sound Attenuation

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.