



## Standard Test Method for Measurement of Airborne Sound Insulation in Buildings<sup>1</sup>

This standard is issued under the fixed designation E 336; 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 Department of Defense.*

<sup>ε1</sup> NOTE—Equation 3 was editorially revised in August 2003.

### INTRODUCTION

This test method is part of a set of standards for evaluating the sound-insulating properties of building elements. It is designed to measure the sound isolation between two rooms or the performance of a partition element installed as an interior part of a building. Others in the set cover the airborne sound transmission loss of an isolated partition element in a controlled laboratory environment (Test Method E 90), the laboratory measurement of impact sound transmission through floors (Test Method E 492), the measurement of impact sound transmission in buildings (Test Method E 1007), the measurement of sound transmission through building facades and facade elements (Guide E 966), the measurement of sound transmission through a common plenum between two rooms (Test Method E 1414), a quick method for the determination of airborne sound isolation in multiunit buildings (Practice E 597), and the measurement of sound transmission through door panels and systems (Test Method E 1408).

### 1. Scope

1.1 *Measures of Acoustical Insulation*—This test method covers procedures for determining the sound insulation between two rooms in a building. The evaluation may be made including all paths by which sound is transmitted or attention may be focused only on the dividing partition. The word “partition” in this test method includes all types of walls, floors, or any other boundaries separating two spaces. The boundaries may be permanent, operable, or movable.

#### 1.2 *Application to Building Specifications:*

1.2.1 *Sound Transmission Class or Transmission Loss Specifications*—Building specifications may require that partitions have a certain minimum sound transmission class (STC) or transmission losses (TL). When it is required to demonstrate that a specific partition in a finished building complies with such specifications, a test satisfying the requirements of Annex A1 will be required.

1.2.1.1 Measurements may be made in accordance with the main body of this test method and with the requirements in Annex A1 without taking any steps to eliminate flanking transmission along paths other than that through the common partition. Transmission loss values can then be calculated as

though the partition in question were the only transmission path. These apparent transmission loss values give a lower limit for the performance of the partition. Clearly when these values exceed the specifications, no further investigation is needed. If the partition is apparently not in compliance, then the procedures described in Annex A2 to reduce flanking transmission should be followed and the partition retested.

1.2.2 *Sound Isolation Specifications*—Where a building code specifies minimum values of noise isolation class (NIC) or normalized noise isolation class (NNIC), then only the procedures in the main body of the test method are necessary. Of the available single number ratings, NNIC relates best to occupant satisfaction in an occupied building.

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:*

C 634 Terminology Relating to Environmental Acoustics<sup>2</sup>  
E 90 Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions<sup>2</sup>  
E 413 Classification for Rating Sound Insulation<sup>2</sup>

<sup>1</sup> This test method is under the jurisdiction of ASTM Committee E-33 on Environmental Acoustics and is the direct responsibility of Subcommittee E33.03 on Sound Transmission.

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<sup>2</sup> *Annual Book of ASTM Standards*, Vol 04.06.

