This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.

Designation: C634 – 22

Standard Terminology Relating to Building and Environmental Acoustics[1]

This standard is issued under the fixed designation C634; 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.

INTRODUCTION

In some of the entries, those that are measures of physical quantities, the term is followed by several items: an abbreviation or a symbol, or both, the dimensions of quantities, the measurement units, and the part of speech. The abbreviation, where applicable, indicates the term as typically referenced. The symbol stands for the magnitude of the quantity in mathematical expressions. The dimensions of a quantity express its measure in terms of three fundamental quantities: *M* for mass, *L* for length, and *T* for time. Speed, for instance, is the quotient obtained when the distance an object moves is divided by the time involved. The dimensions are $[LT^{-1}]$, the negative exponent indicating division. The measurement units are consistently in SI, Le Système International d'Unités. Those still using the cgs (centimetre-gram-second) or the inchpound system of units are referred for most of the conversion factors to IEEE/ ASTM SI 10. Some conversion factors are listed in Section 6 of this document for convenient reference.

The dimensions of a quantity are the same regardless of the units in which the quantity is measured. Speed has the dimensions $[LT^{-1}]$ whether it is measured in miles per hour, feet per second, or metres per second. Quantities with different dimensions are not the same. Flow resistance and specific flow resistance, for instance, are quantities of different kinds even though the names are similar. On the other hand, quantities with the same dimensions are not necessarily of the same kind. Sound energy density, for instance, has the same dimensions as sound pressure, $[ML^{-1}T^{-2}]$, but it is not a kind of sound pressure. Nor is absorption with the dimensions $[L^2]$ a kind of area.

1. Scope

1.1 This terminology covers terms, related definitions, and descriptions of terms used or likely to be used in building and environmental acoustics standards. Definitions of terms are special-purpose definitions that are consistent with the standard definitions but are written to ensure that a specific building and environmental acoustics standard is properly understood and precisely interpreted. The primary focus of this document is upon terms, definitions and descriptions found within standards under the jurisdiction of ASTM Committee E33; however, terms, definitions and descriptions that are of general interest to the field of acoustics are also included.

1.2 This building and environmental acoustics standard cannot be used to provide quantitative measures.

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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.4 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

C367/C367M Test Methods for Strength Properties of Prefabricated Architectural Acoustical Tile or Lay-In Ceiling Panels

C384 Test Method for Impedance and Absorption of Acoustical Materials by Impedance Tube Method

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

[1] This terminology is under the jurisdiction of ASTM Committee E33 on Building and Environmental Acoustics and is the direct responsibility of Subcommittee E33.07 on Definitions and Editorial.

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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.

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C522 Test Method for Airflow Resistance of Acoustical Materials
C635/C635M Specification for Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings
C636/C636M Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels
E90 Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements
E336 Test Method for Measurement of Airborne Sound Attenuation between Rooms in Buildings
E413 Classification for Rating Sound Insulation
E477 Test Method for Laboratory Measurements of Acoustical and Airflow Performance of Duct Liner Materials and Prefabricated Silencers
E492 Test Method for Laboratory Measurement of Impact Sound Transmission Through Floor-Ceiling Assemblies Using the Tapping Machine
E557 Guide for Architectural Design and Installation Practices for Sound Isolation between Spaces Separated by Operable Partitions
E596 Test Method for Laboratory Measurement of Noise Reduction of Sound-Isolating Enclosures
E756 Test Method for Measuring Vibration-Damping Properties of Materials
E795 Practices for Mounting Test Specimens During Sound Absorption Tests
E966 Guide for Field Measurements of Airborne Sound Attenuation of Building Facades and Facade Elements
E989 Classification for Determination of Single-Number Metrics for Impact Noise
E1007 Test Method for Field Measurement of Tapping Machine Impact Sound Transmission Through Floor-Ceiling Assemblies and Associated Support Structures
E1014 Guide for Measurement of Outdoor A-Weighted Sound Levels
E1042 Classification for Acoustically Absorptive Materials Applied by Trowel or Spray
E1050 Test Method for Impedance and Absorption of Acoustical Materials Using a Tube, Two Microphones and a Digital Frequency Analysis System
E1110 Classification for Determination of Articulation Class
E1111/E1111M Test Method for Measuring the Interzone Attenuation of Open Office Components
E1123 Practices for Mounting Test Specimens for Sound Transmission Loss Testing of Naval and Marine Ship Bulkhead Treatment Materials
E1124 Test Method for Field Measurement of Sound Power Level by the Two-Surface Method
E1130 Test Method for Objective Measurement of Speech Privacy in Open Plan Spaces Using Articulation Index
E1179 Specification for Sound Sources Used for Testing Open Office Components and Systems
E1222 Test Method for Laboratory Measurement of the Insertion Loss of Pipe Lagging Systems
E1264 Classification for Acoustical Ceiling Products
E1265 Test Method for Measuring Insertion Loss of Pneumatic Exhaust Silencers
E1289 Specification for Reference Specimen for Sound Transmission Loss
E1332 Classification for Rating Outdoor-Indoor Sound Attenuation
E1374 Guide for Office Acoustics and Applicable ASTM Standards
E1414/E1414M Test Method for Airborne Sound Attenuation Between Rooms Sharing a Common Ceiling Plenum
E1503 Test Method for Conducting Outdoor Sound Measurements Using a Statistical Sound Analysis System
E1573 Test Method for Measurement and Reporting of Masking Sound Levels Using A-Weighted and One-Third-Octave-Band Sound Pressure Levels
E1574 Test Method for Measurement of Sound in Residential Spaces
E1686 Guide for Applying Environmental Noise Measurement Methods and Criteria
E1704 Guide for Specifying Acoustical Performance of Sound-Isolating Enclosures
E1780 Guide for Measuring Outdoor Sound Received from a Nearby Fixed Source
E2179 Test Method for Laboratory Measurement of the Effectiveness of Floor Coverings in Reducing Impact Sound Transmission Through Concrete Floors
E2202 Practice for Measurement of Equipment-Generated Continuous Noise for Assessment of Health Hazards
E2235 Test Method for Determination of Decay Rates for Use in Sound Insulation Test Methods
E2249 Test Method for Laboratory Measurement of Airborne Transmission Loss of Building Partitions and Elements Using Sound Intensity
E2459 Guide for Measurement of In-Duct Sound Pressure Levels from Large Industrial Gas Turbines and Fans
E2611 Test Method for Normal Incidence Determination of Porous Material Acoustical Properties Based on the Transfer Matrix Method
E2638 Test Method for Objective Measurement of the Speech Privacy Provided by a Closed Room
E2963 Test Method for Laboratory Measurement of Acoustical Effectiveness of Ship Noise Treatments Laboratory Measurement of Acoustical Effectiveness for Marine Bulkhead and Deck Treatments
E2964 Test Method for Measurement of the Normalized Insertion Loss of Doors
E3090/E3090M Test Methods for Strength Properties of Metal Ceiling Suspension Systems
E3091 Specification for Systems to Measure Sound Levels
E3133 Test Method for Laboratory Measurement of Floor Impact Sound Radiation Using the Tapping Machine (Withdrawn 2023)[3]
E3222 Classification for Determination of High-frequency Impact Sound Ratings
IEEE/ ASTM SI 10 Standard for Use of the International

[3] The last approved version of this historical standard is referenced on www.astm.org.