

ANSI/ASA S12.60-2009/Part 2

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# AMERICAN NATIONAL STANDARD

## **Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools, Part 2: Relocatable Classroom Factors**

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ANSI/ASA S12.60-2009/Part 2

Accredited Standards Committee S12, Noise

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**ANSI/ASA S12.60-2009/Part 2**

AMERICAN NATIONAL STANDARD

**Acoustical Performance Criteria, Design  
Requirements, and Guidelines for Schools, Part 2:  
Relocatable Classroom Factors**

**Secretariat:**

**Acoustical Society of America**

**Approved September 2, 2009 by:**

**American National Standards Institute, Inc.**

**Abstract**

This document is Part 2 of the ANSI/ASA S12.60 series. This part is applicable to relocatable classrooms and other relocatable modular core learning spaces of small to moderate size. This standard includes siting requirements, acoustical performance criteria, and design requirements for relocatable classrooms. Annex A (informative) provides commentary information on this standard, and Annex B (normative) provides procedures for determining compliance with the background sound requirements. This standard seeks to provide design flexibility without compromising the goal of obtaining adequate speech intelligibility for all students and teachers in classrooms and learning spaces within the scope of this standard.

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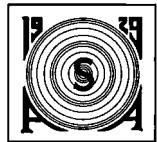
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## Foreword

[This Foreword is for information only and is not a part of the American National Standard ANSI/ASA S12.60-2009/Part 2 American National Standard Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools, Part 2: Relocatable Classroom Factors.]

This standard comprises a part of a group of definitions, standards, and specifications for use in noise. It was developed and approved by Accredited Standards Committee S12, Noise, under its approved operating procedures. Those procedures have been accredited by the American National Standards Institute (ANSI). The Scope of Accredited Standards Committee S12 is as follows:

*Standards, specifications, and terminology in the field of acoustical noise pertaining to methods of measurement, evaluation, and control, including biological safety, tolerance, and comfort, and physical acoustics as related to environmental and occupational noise.*

At the time of publication of this document, the ANSI/ASA S12.60 series of standards includes the following American National Standards:

- ANSI/ASA S12.60-2002 (R 2009) *American National Standard Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools.*
- ANSI/ASA S12.60-2009/Part 2 *American National Standard Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools, Part 2: Relocatable Classroom Factors.*

However, at the time of this publication, ANSI/ASA S12.60-2002 (R 2009) is under revision and is expected to be re-designated as "Part 1." Work is also underway on a new part, ANSI/ASA S12.60/Part 3, *American National Standard Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools, Part 3: Information Technology Equipment in Classrooms.*

This standard is not comparable to any existing ISO Standard.

At the time this standard was submitted to Accredited Standards Committee S12, Noise, for approval, the membership was as follows:

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Suggestions for improvements of this standard will be welcomed. They should be sent to Accredited Standards Committee S12, Noise, in care of the Standards Secretariat of the Acoustical Society of America, 35 Pinelawn Road, Suite 114E, Melville, New York 11747-3177. Telephone: 631-390-0215; FAX: 631-390-0217; E-mail: [asastds@aip.org](mailto:asastds@aip.org).

## **Introduction**

Good acoustical qualities are essential in classrooms and other learning spaces in which speech communication is an important part of the learning process. Excessive background noise or reverberation in such spaces interferes with speech communication and thus presents an acoustical barrier to learning. With good classroom acoustics, learning is easier, deeper, more sustained, and less fatiguing. Teaching should be more effective and less stressful with good acoustical characteristics in a classroom. There can be more verbal interaction and less repetition between teacher and students when spoken words are clearly understood. Although all those in a classroom, including teachers and adult learners, will benefit, special beneficiaries are young children and persons with hearing, language, speech, attention deficit, or learning disabilities. Conformance to this standard will improve the quality of education by eliminating acoustical barriers for all students and teachers, including those with communication disabilities. Good design and attention to detail throughout the construction or renovation process can ensure conformance to the requirements of this standard.

## American National Standard

# Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools, Part 2: Relocatable Classroom Factors

## 1 Scope and purpose

### 1.1 Scope

**1.1.1** This part of ANSI/ASA S12.60 is applicable to relocatable classrooms and other relocatable modular core learning spaces of small to moderate size. This standard includes siting requirements, acoustical performance criteria, and design requirements for relocatable classrooms. Annex A (informative) provides commentary information on this standard, and Annex B (normative) provides procedures for determining compliance with the background sound requirements. This standard seeks to provide design flexibility without compromising the goal of obtaining adequate speech intelligibility for all students and teachers in classrooms and learning spaces within the scope of this standard.

**1.1.2** Acoustical performance criteria are specified in this standard by limits on maximum one-hour A-weighted and C-weighted background noise levels and limits on maximum reverberation times.

**1.1.3** The control of background noise levels in this standard is achieved, in part, by specifying the minimum outdoor-to-indoor level reduction for noise that intrudes into the classroom or learning space from sources outside of the school building envelope, and noise isolation for school building elements for noise that originates within the school building and intrudes into the classroom through classroom walls and partitions, floor-ceiling assemblies, and ventilation systems.

**1.1.4** This standard does not apply to noise generated within a classroom by its occupants. Occupant-generated noise sources include voices and the sounds of classroom activities such as the moving of chairs. Furthermore, this standard does not apply to the noise from portable or permanent built-in equipment used during the course of instruction, such as audiovisual equipment and computers.

**1.1.5** The following annexes are provided to support this standard.

- Annex A: Commentary: Additional information, discussion, and explanation of various provisions of the standard (informative).
- Annex B: Determining compliance with the background sound requirements (normative).

### 1.2 Purpose

This standard, in conjunction with the information provided in the commentary and annexes, is intended to help school planners and designers provide the acoustical qualities necessary for good speech communication between students and teachers in classrooms and other learning spaces without the use of electronic amplification systems. This standard is also intended to provide a minimum set of requirements that can be adopted by reference to this standard and enforced by an authority having jurisdiction.