



| v4 - LEED v4

## Minimum acoustic performance

Required

Glossary

### Intent

To provide classrooms that facilitate teacher-to-student and student-to-student communication through effective acoustic design.

### Requirements

#### **HVAC background noise**

Achieve a maximum background noise level of 40 dBA from heating, ventilating, and air-conditioning (HVAC) systems in classrooms and other core learning spaces. Follow the recommended methodologies and best practices for mechanical system noise control in ANSI Standard S12.60-2010, Part 1, Annex A.1; the 2011 HVAC Applications ASHRAE Handbook, Chapter 48, Noise and Vibration Control (with errata); AHRI Standard 885-2008; or a local equivalent for projects outside the U.S.

#### **Exterior noise**

For high-noise sites (peak-hour Leq above 60 dBA during school hours), implement acoustic treatment and other measures to minimize noise intrusion from exterior sources and control sound transmission between classrooms and other core learning spaces. Projects at least one-half mile (800 meters) from any significant noise source (e.g., aircraft overflights, highways, trains, industry) are exempt.

#### **Reverberation time**

Adhere to the following reverberation time requirements.

#### **Classrooms and core learning spaces < 20,000 cubic feet (566 cubic meters)**

Design classrooms and other core learning spaces to include sufficient sound-absorptive finishes for compliance with the reverberation time requirements specified in ANSI Standard S12.60-2010, Part 1, Acoustical Performance Criteria, Design Requirements and Guidelines for Schools, or a local equivalent for projects outside the U.S.

#### **Option 1**

For each room, confirm that the total surface area of acoustic wall panels, ceiling finishes, and other sound-absorbent finishes equals or exceeds the total ceiling area of the room (excluding lights, diffusers, and grilles). Materials must have an NRC of 0.70 or higher to be included in the calculation.

#### **OR**

#### **Option 2**

Confirm through calculations described in ANSI Standard S12.60-2010 that rooms are designed to meet reverberation time requirements as specified in that standard.

#### **Classrooms and core learning spaces $\geq$ 20,000 cubic feet (566 cubic meters)**

Meet the recommended reverberation times for classrooms and core learning spaces described in the NRC-CNRC Construction Technology Update No. 51, Acoustical Design of Rooms for Speech (2002), or a local equivalent for projects outside the U.S.

#### **Exceptions**

Exceptions to the requirements because of a limited scope of work or to observe historic preservation requirements will be considered.