Enhanced Acoustic Performance

LEED 2009 – EQc9 for Schools, LEEDv4 – Acoustic Performance

Requirements LEED 2009 (BD+C for Schools)

Sound transmission

Design classrooms and other core learning spaces to meet the Sound Transmission Class (STC) requirements of ANSI Standard S12.60-2002, Acoustical Performance Criteria, Design Requirements and Guidelines for Schools, except windows, which must meet an STC rating of at least 35. Projects outside the U.S. may use a local equivalent to ANSI Standard S12.60-2002.

AND

Background noise

Reduce background noise level to 40 dBA or less from heating, ventilating and air conditioning (HVAC) systems in classrooms and other core learning spaces.

Requirements LEED v4:

HVAC background noise

Achieve a background noise level of 35 dBA or less 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 S12.60-2002, Part 1, Annex B; the 2011 HVAC Applications ASHRAE Handbook, Chapter 48, Sound and Vibration Control, with errata; AHRI Standard 885-2008; or a local.

Sound transmission

Design classrooms and other core learning spaces to meet the sound transmission class (STC) requirements of ANSI S12.60-2010 Part 1, or a local equivalent. Exterior windows must have an STC rating of at least 35, unless outdoor and indoor noise levels can be verified to justify a lower rating.

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Below are two tables from ANSI Standard S12.60-2002 which show the minimum STC ratings required for this credit.

Adjacent Space Type	Minimum STC Rating
Other Classrooms	50
Outdoors	50
Bathrooms	53
Corridor	45
Offices, Conference Rooms	45
Music Rooms	60
Mechanical Equipment Rooms	60
Cafeteria, Gym, Natatorium	60

Table 1. STC Requirements for Core classroom Assemblies from ANSI Standard S12.60-2002

Receiving Ancillary Learning Space	Corridor, Staircase, Common Use and Public Use Toilet and Bathing Room	Music Room	Office or Conference Room	Outdoors Mechanical	Equipment Room, `Cafeteria, or Indoor Swimming Pool
Corridor	45	60	45	45	55
Music room	60	60	60	45	60
Office or Conference Room	45	60	45	45	60

Table 2. Minimum STC ratings recommended for single or composite wall, floor-ceiling and roof-ceiling assemblies separating an ancillary space from an adjacent space. ANSI Standard S12.60-2002

Other requirements:

1. Entry doors into classrooms and other core learning spaces: STC 30

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Definitions:

Sound Transmission Class (STC): is a single number rating for the acoustic attenuation (reduction) of airborne sound passing through a partition or any other building element such as a wall, roof or door as measured in an acoustical testing laboratory following accepted industry practice. A higher STC rating provides more sound attenuation through a partition.

Rw Values: Rw describes the airborne sound insulating power of a building element. It is a laboratory measured value. It can apply to walls, ceilings/floors, ceiling/roofs, doors and windows. The higher the number, the greater the sound insulating power of the building element. For example, an increase in the Rw of a wall by 10 points will reduce the perceived loudness of sound passing through the wall by about half. It generally varies from STC values by less than 1% due to a different frequency range that is used during testing.

Solite System's Product Contribution:

Type of Glazing	STC Values
A1200 Single Glazed 1/2" Glass	30
A1200 Single Glazed 9/16" Glass	36
A1200 Single Glazed 13/16" Glass	40
A2200 Double Glazed 1/2" Glass *(BS)	34
A2200 Double Glazed 9/16" Glass *(BS)	48
A2200 Double Glazed 13/16" Glass *(BS)	50
A2200 Double Glazed 1-1/16" Glass *(BS)	63

Table 3. STC values for Solite System Products *(BS) = Both Sides

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Qualifying Glazing for spaces

The grey highlighted glazing's in Table 3 meet the grey highlighted space types in Table 1 and 2. The glazing's include:

- Double Glazed Laminated finishes
- Twin Glazed finishes

The space types include:

- For spaces adjacent to classrooms (Table 1)
  - Corridors
  - Offices
  - Conference Rooms

- For ancillary classrooms which have adjacent spaces (Table 2)
  - Corridors adjacent to (corridors, conference rooms, outdoors)
  - Music Rooms adjacent to (outdoors)
  - Office or Conference Room adjacent to (corridor, office, or outdoors)

All finishes qualify for entry doors into classrooms. This applies to Solite System's pivot frameless glass swing doors and the sliding glass doors

Conclusion:

For the sound transmission portion of EQc9, in some applications, Solite System products will help a project qualify for this LEED credit. Grey highlighted in Tables 1 and 2 are all the space descriptions that some of Solite System's glazing's qualify for (grey highlighted in Table 3). Solite System's products will help reduce HVAC noise in learning spaces, helping projects qualify for the background noise portion of EQc9. Any HVAC noise located outside a classroom utilizing Solite System's A2200 double or A5200 triple glazed products will be reduced to below the 40dBA requirement. Beyond LEED, Solite System products focus on reducing sound transmission and not sound absorption and thus marketing should be geared towards this aspect. Sound absorption will be difficult for any glass product as it will tend to be a much better reflector than absorber (part of glass properties).