

Acoustics In the Classroom



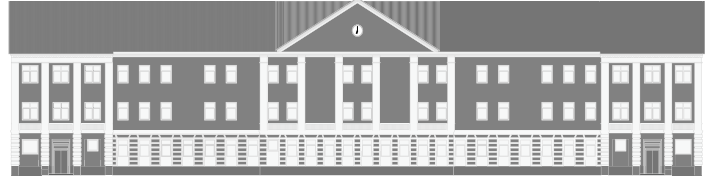
Developing Young Minds Deserve
the Best Possible Learning Environment



School-age children spend up to **75%** of their day performing listening processes.¹



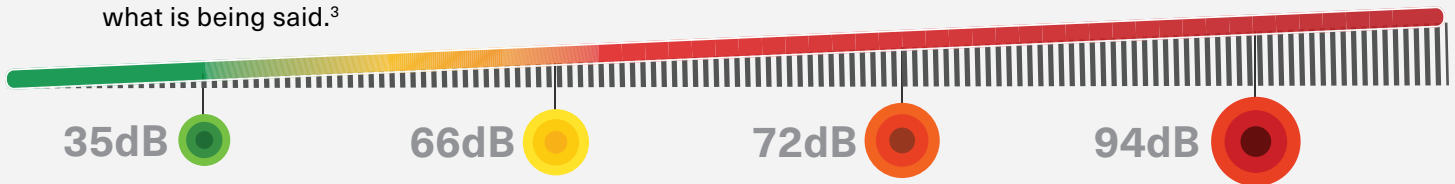
School acoustical performance has a direct effect on speech intelligibility and therefore on student learning outcomes.²



It is not so much a question of being able to hear as it is a matter of being able to distinguish clearly and correctly what is being said.³

33%

As many as one-third of all K-12 students are missing up to 33 percent of verbal communications in class.



According to an ANSI Standard for classroom acoustics, noise levels for an unoccupied classroom should not exceed **35dB**.

"Research has found that the average noise levels in many classrooms can be as high as **66 to 94dB**. In one particular study, the average classroom noise levels were **72 dB** which is comparable to standing next to a busy intersection."¹

TEACHERS USE THEIR VOICES
FOR APPROXIMATELY **60%**
OF THEIR WORKDAY

Because they have to talk louder to overcome poor classroom acoustics, teachers are **32x** more likely to have voice problems compared to similar occupations.⁴

HVAC noise is a common culprit in noisy classrooms



"And according to United States Access Board teachers often report turning off the HVAC during important lessons."⁵

Selecting the right HVAC system should be a key consideration when designing environment conducive to learning!

Trane has the expertise, technology and strategies to create the right learning environment where students can learn and teachers can educate most effectively.

Learn more at trane.com/k12schools

1. Bohler, A. Influence of Classroom Acoustics on Learning, [newsletter] Pediatric Ear, Nose & Throat of Atlanta, P.C. [http://www.childrensent.com/images/audiology_summer_2012.pdf] (2012)
2. Baker L. & Bernstein, H. The Impact of School Buildings on Student Health and Performance: A Call for Research McGraw-Hill Research Foundation (2012)
3. Gertel, S., McCarty, P. and Schoff, L. High Performance Schools Equals High Performing Students, Educational Facility Planner, Volume 39, Issue 3 (2004)
4. American Speech-Language-Hearing Association (n.d.). Classroom Acoustics Retrieved 4-4-2017, from http://www.asha.org/public/hearing/Classroom-Acoustics/
5. U.S. Access Board (n.d.). "Listening for Learning 5: Retrofitting a Noisy Classroom" Retrieved 4-14-2017, from http://www.quietclassrooms.org/ada/adahandout5.htm



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