



School Facilities Improve Learning

There is a growing body of research demonstrating that clean air, good light, and a small, quiet, comfortable, and safe learning environment are important for students' academic achievement.

Here are a few examples of the research results:

- ▶ Students who receive instruction in buildings with good environmental conditions can earn test scores that are 5–17 percent higher than scores for students in substandard buildings.¹
- ▶ There is a negative relationship between classroom noise higher than 40 decibels and student achievement.²
- ▶ Schools with better building conditions have up to 14 percent lower student suspension rates.³
- ▶ Improving a school's "Overall Compliance Rating" to meet health and safety standards can lead to a 36-point increase in California Academic Performance Index scores.⁴
- ▶ Substandard physical environments are strongly associated with truancy and other behavior problems in students. Lower student attendance led to lower scores on standardized tests in English–language arts and math.^{5, 6}
- ▶ Students' reading speed, comprehension, and mathematics performance are adversely affected by room temperatures above 74 degrees.⁷
- ▶ Student achievement scores tend to decrease as the school building ages—to as high as 9 percent, depending on maintenance factors.⁸
- ▶ Studies indicate that student performance is improved by an even distribution of daylight, an expansive view, and limited glare and thermal heat gain. One study found 20 percent faster student progress on math and 26 percent faster progress in reading compared with students in classrooms with less exposure to daylight.^{9, 10}



Notes

1. Glen I. Earthman, *School Facility Conditions and Student Academic Achievement* (Los Angeles: UCLA Institute for Democracy, Education, and Access, 2002).
2. Ibid.
3. Stephen Boese and John Shaw, *New York State School Facilities and Student Health, Achievement, and Attendance: A Data Analysis Report* (Albany, NY: Healthy Schools Network, Inc., 2005).
4. Jack Buckley, Mark Schneider, and Yi Shang, *Los Angeles Unified School District School Facilities and Academic Performance* (Washington, DC: National Clearinghouse for Educational Facilities, 2004).
5. Revathy Kumar, Patrick M. O'Malley, and Lloyd D. Johnston, "Association Between Physical Environment of Secondary Schools and Student Problem Behavior," *Environment and Behavior* 40, no. 4 (2008): 455–86.
6. Valkiria Durán-Narucki, "School Building Condition, School Attendance, and Academic Achievement in New York City Public Schools: A Mediation Model," *Journal of Environmental Psychology* 28, no. 3 (2008): 278–86.
7. David Harner, "Effects of Thermal Environment on Learning Skills," *The Educational Facility Planner* 12, no. 2 (April 1974): 4–6.
8. James Maurice Blincoe, "The Age and Condition of Texas High Schools as Related to Student Academic Achievement" (doctoral diss., The University of Texas at Austin, 2008).
9. Peter Boyce, *Reviews of Technical Reports on Daylight and Productivity* (Troy, NY: Rensselaer Polytechnic Institute, 2004).
10. Heschong Mahone Group, *Daylighting in Schools: An Investigation into the Relationship Between Daylighting and Human Performance* (Fair Oaks, CA, 1999).