



# Vision for California Public School Facilities

The California Department of Education envisions school facilities that enhance the achievement of all students and are learner-centered, safe, sustainable, and centers of the community.

## Guiding Principles for Implementing the Vision

The siting and design of educational facilities will:

1. Reflect the local educational agency's board-adopted facilities master plan and educational specifications.
2. Result from an open, community-based, and comprehensive planning process including all stakeholders and early dialogue with all involved planning agencies.
3. Accommodate a complete facility supporting the delivery of the adopted educational program, be accessible to all, and be adaptable to future demographic, educational, and community needs.
4. Support students, parents, teachers, and staff in closing achievement gaps and preparing students for the workforce, post-secondary education, and lifelong learning.
5. Consider the full spectrum of community facilities and support opportunities for joint use and educational partnerships.
6. Ensure safety from existing and potential hazards and incompatible land uses.
7. Provide a secure environment with a focus on supervision.
8. Create comfortable, attractive, and stimulating environments that support collaboration and diverse learning styles and opportunities.
9. Promote sustainable practices that conserve natural resources, limit greenhouse gas emissions, optimize construction and life cycle costs, and encourage walking and bicycling.
10. Incorporate superior acoustics, indoor air quality, and natural lighting.
11. Respond to current and future information, communication, and technology needs.
12. Support student health, nutrition, and physical fitness.





# 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.<sup>1</sup>
- ▶ There is a negative relationship between classroom noise higher than 40 decibels and student achievement.<sup>2</sup>
- ▶ Schools with better building conditions have up to 14 percent lower student suspension rates.<sup>3</sup>
- ▶ 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.<sup>4</sup>
- ▶ 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.<sup>5,6</sup>
- ▶ Students' reading speed, comprehension, and mathematics performance are adversely affected by room temperatures above 74 degrees.<sup>7</sup>
- ▶ Student achievement scores tend to decrease as the school building ages—to as high as 9 percent, depending on maintenance factors.<sup>8</sup>
- ▶ 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.<sup>9,10</sup>



## 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).



# Safe Schools Foster Improved Student Learning

Everyone wants safe schools for their children. Current research shows that the definition of “safe” involves three areas that school facilities planning groups should consider:

- Potential physical hazards
- Environmental conditions of the site and of the building
- Crime/violence prevention

Some research findings and resources are provided below:

- The California Department of Education provides a guide to help districts review certain health and safety requirements. The guide identifies potential physical hazards and environmental safety conditions, such as proximity to airports, transmission lines, railroads, underground pipelines, and propane tanks.<sup>1</sup>
- Potable water, fire safety, adequate lavatories, security systems, and good communication systems for use in emergencies are important priorities for schools as they plan for the health and safety of students.<sup>2</sup>
- Concern about traffic and street crossings is among the most commonly cited reasons parents do not let their children walk to school or engage in free play on the streets.<sup>3</sup>
- Several studies have determined that children suffer significant health consequences from excessive heat; inadequate heating, ventilation, and air conditioning systems; mold and other biological hazards; pest infestations; lead and other toxic hazards; and overcrowding beyond the stated capacity of the school structure.<sup>4</sup>
- Research repeatedly shows the detrimental impact of high levels of lead and poor indoor air quality in classrooms.<sup>5</sup>



- One study of the Los Angeles Unified School District showed that a school's compliance with health and safety regulations can lead, on average, to a 36-point increase in California Academic Performance Index scores.<sup>6</sup>
- Students who attend small schools have a stronger sense of identity and belonging, of being connected to a community, than students who attend large schools. Additionally, the full range of negative social behavior—from classroom disruption to assault—is far less common in small schools, traditional and new, than it is in large schools.<sup>7,8</sup>
- The practice of “crime prevention through environmental design” embraces three proven concepts to make school sites safer: natural surveillance, natural access control, and territoriality. Simple, low-cost measures—for example, those involving furniture layouts, campus lighting, landscaping, reconfiguration of access points, and establishment of clear borders—are basic first steps to reducing crime on campus.<sup>9</sup>
- Schools with better building conditions have up to 14 percent lower student suspension rates.<sup>10</sup>

## Notes

1. California Department of Education, School Facilities Planning Division, *School Site Selection and Approval Guide* (Sacramento: CDE Press, 2000).
2. Glen I. Earthman, *Prioritization of 31 Criteria for School Building Adequacy* (Baltimore, MD: American Civil Liberties Union Foundation of Maryland, 2004).
3. Committee on Environmental Health, “The Built Environment: Designing Communities to Promote Physical Activity in Children,” *Pediatrics* 123, no. 6 (2009): 1591–98.
4. Megan Sandel, “The Impact of the Physical Condition of School Facilities on Students’ Short Term and Long Term Health,” in *Expert Report: Williams v. State of California, 2002* (San Francisco: Superior Court of California, 2005).
5. Robert Corley, “The Condition of California School Facilities and Policies Related to Those Conditions,” in *Expert Report: Williams v. State of California, 2002* (San Francisco: Superior Court of California, 2005).
6. 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).
7. Kathleen Cotton, *New Small Learning Communities: Findings from Recent Literature* (Portland, OR: Northwest Regional Educational Laboratory, 2001).
8. Joe Nathan and Karen Febey, *Smaller, Safer, Saner Successful Schools* (Washington, DC: National Clearinghouse for Educational Facilities, 2001).
9. Tod Schneider, “CPTED 101: Crime Prevention through Environmental Design—the Fundamentals for Schools” (Washington, DC: National Clearinghouse for Educational Facilities, 2010).
10. 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).

For more information, contact the California Department of Education, School Facilities Services Division, at 916-322-2470.





# Sustainable Schools Improve Learning and the Environment

The recent *National Action Plan for Greening America's Schools* concludes that a sustainable school creates a healthy environment that is conducive to learning and saves energy, resources, and money. Additional benefits of sustainable schools include improved student health, attendance, and academic achievement.<sup>1</sup>

Here are a few more reasons to consider sustainable features:

- > A 2006 study showed that sustainable schools use 33 percent less energy and 32 percent less water than conventionally constructed schools, significantly reducing utility costs over the average 42-year life cycle of a school.<sup>2</sup>
- > Additional studies show the continuing high cost of energy and utilities. According to national data from 2008, the median annual cost for energy and utilities per student in kindergarten through grade twelve was \$295.13.<sup>3</sup>
- > Improving a school's health and safety standards can lead to a 36-point increase in California Academic Performance Index scores.<sup>4</sup>
- > Because green schools emphasize a healthy indoor environment, a district that builds green schools will benefit from reduced exposure to liability for students' and staff's health-related problems, fewer lawsuits, and less risk of damage to its reputation.<sup>5</sup>
- > A school site that uses effective construction techniques can reduce, reuse, and recycle between 50 percent and 75 percent of building materials (e.g., brick, asphalt, wood, plastic, glass, gypsum



board, and carpet), thereby reducing environmental impacts.<sup>6</sup>

- > Attention to school siting practices can improve solar access; take advantage of natural air flows; maximize daylighting; and increase easy and safe pedestrian, bicycle, and mass transit options.<sup>7,8</sup>
- > 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 and to less funding.<sup>9,10</sup>
- > 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.<sup>11,12</sup>

## Notes

1. Brooks Rainwater and Jason Hartke, *A National Action Plan for Greening America's Schools: Local Leaders in Sustainability, Special Report from Sundance* (Washington, DC: U.S. Green Building Council, 2010).
2. Gregory Kats, *Greening America's Schools: Costs and Benefits* (n.p.: Capital E, 2006).
3. Joe Agron, "38th Annual Maintenance & Operations Cost Study," *American School & University* 81, no. 9 (2009): 20–23.
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. Collaborative for High Performance Schools, *Best Practices Manual, Volume I: Planning* (San Francisco, 2006).
6. U.S. Environmental Protection Agency, *Travel and Environmental Implications of School Siting* (Washington, DC, 2003).
7. See note 5.
8. See note 6.
9. Valkiria Durán-Narucki, "School Building Condition, School Attendance, and Academic Achievement in New York City Public Schools: A Mediation Model," *Journal of Environmental Psychology*, no. 3 (2008): 278–86.
10. 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.
11. Peter Boyce, *Reviews of Technical Reports on Daylight and Productivity* (Troy, NY: Rensselaer Polytechnic Institute, 2004).
12. Heschong Mahone Group, *Daylighting in Schools: An Investigation into the Relationship Between Daylighting and Human Performance* (Fair Oaks, CA, 1999).



# Schools as Centers of Community Improve Learning

Many recent documents support the concept that schools are centers of community. Research shows that this concept boosts student achievement and focuses community life. Some reports also advocate the fiscal soundness of the concept and others point to the environmental advantages of land use. A 2003 evaluation of 20 community school initiatives across the United States yielded the following findings about schools that function as centers of community:

- Improved student academic performance
- Improved attendance
- Improved graduation rates
- Reduced dropout rates
- Reduced behavioral/discipline problems
- Increased access to physical and mental health services<sup>1,2</sup>

Here are reasons to consider building schools that function as centers of community:

- The U.S. Environmental Protection Agency (EPA) views schools as the key to promoting economic development, strengthening neighborhoods, and improving human and environmental health.<sup>3</sup>
- According to the EPA, a centrally located school with sidewalks and safe walking and biking routes can reduce air pollution and promote other healthy community benefits, such as joint-use arrangements.<sup>4,5</sup>



- Schools that function as centers of community may be open late or longer for community use—or they may have been designed to provide the community with other services, such as a public library, performing arts center, fine arts center, senior center, health clinic, community college branch, sports stadium, public park, or museum.<sup>6,7</sup>
- Co-location is a concept according to which public services are placed together in one location. The benefits are cost savings and community support for the tax increases required to repay school construction bonds.<sup>8,9</sup>
- Many perceived obstacles to joint use can be overcome with agreements between agency groups that typically function in “silos.” The cost benefits to communities can be substantial.<sup>10,11</sup>

## Notes

- Martin Blank, Atelia Melaville, and Bela P. Shah, *Making the Difference: Research and Practice in Community Schools* (Washington, DC: Coalition for Community Schools, Institute for Educational Leadership, 2003).
- Joy G. Dryfoos, *Evaluation of Community Schools: Findings to Date* (Washington, DC: Coalition for Community Schools, 2000).
- Council of Educational Facility Planners International, *Schools for Successful Communities: An Element of Smart Growth* (Scottsdale, AZ, 2004).
- Ibid.
- U.S. Environmental Protection Agency, *Travel and Environmental Implications of School Siting* (Washington, DC, 2003).
- See note 3.
- Maryland Department of Planning, “Managing Maryland’s Growth: Smart Growth, Community Planning and Public School Construction,” *Models & Guidelines* 27 (July 2008).
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- Mary Filardo and others, *Joint Use of Public Schools: A Framework for a New Social Contract* (Washington, DC: 21st Century School Fund, 2010).
- National Policy & Legal Analysis Network to Prevent Childhood Obesity, *Opening School Property After Hours: A Primer on Liability* (Oakland, CA, 2010).
- Jeffrey M. Vincent, *Partnerships for Joint Use: Expanding the Use of Public School Infrastructure to Benefit Students and Communities* (Berkeley, CA: Center for Cities and Schools, 2010).