Demands for improved student performance, concerns about student health and a continuing need for cost-effective facilities have focused our attention on an integrated design approach known as green building. Sometimes referred to as sustainable design, high performance design, or healthy design, green building is an acknowledgement of the substantial impact of buildings on human health, the learning environment, and on the search for building solutions that contribute to maintaining our ecosystem.

With over 750 LEED® Accredited Professionals (Leadership in Energy and Environmental Design) firm-wide, Perkins+Will is at the forefront of sustainable design, continuing our commitment to improving learning environments through our initiative to incorporate green building techniques into every project we undertake. Integrating green building techniques into school design can result in a demonstrated improvement in student performance, increased teacher satisfaction, reduced operating costs, and a healthier indoor environment.

It is important to understand that green buildings do not necessarily cost any more to design or build than conventional buildings. Green building involves a range of choices that can be evaluated against project criteria. Some strategies, like the use of recycled materials or native plant landscaping, cost the same or less than conventional choices. Other strategies, like improved mechanical system efficiency, may involve higher capital costs but will have significant long-term strategic or operational paybacks.

Specific elements of sustainable design, along with their accompanying benefits are described on the following pages.
Reduced Energy Cost
An early focus on facility performance and the use of sophisticated energy analysis software enables Perkins+Will to optimize anticipated energy utilization while maintaining a high degree of comfort and control.

For the Newport Coast Elementary School in Costa Mesa, California, Perkins+Will used computational fluid dynamics analysis to increase ventilation effectiveness while reducing overall energy consumption by 43%.

Blythewood High School in Blythewood, South Carolina realizes the benefits of building orientation by taking advantage of natural site topography to enhance student connection with the outdoors through thoughtful integration of a natural pond and trees.

Benefits of Daylighting
Careful site analysis and solar orientation offer opportunities to use natural light for illumination, reducing energy costs, and taking advantage of the direct link between daylighting and school performance.

Daylighting analysis for the Newport Coast Elementary School determined how to best introduce even, glare-free daylighting as the primary source of illumination.

Hector Garcia Middle School’s planning responds naturally to the site’s climate. North facing classrooms offer stunning views to the skyline, take advantage of indirect north light for optimal daylighting, and minimize cooling demand by facing classrooms away from Texas’ harsh sun exposure. Grouping general sciences and classrooms along one exposure also allows a similar temperature demand for similar academic spaces.

Conserving Natural Resources
Careful selection of materials helps reduce the draw down of finite resources and reduces construction waste. This also encourages the development of alternative material industries.

Designed within a very tight budget, the headquarters for the Los Angeles Chapter of the American Institute of Architects serves as a showcase for environmentally friendly materials including ceramic tile made from recycled glass, and linoleum, cork tile, and hardwoods from sustainably harvested sources. The project also made extensive use of reused and remanufactured materials in its choice of furnishings and light fixtures.
Maximizing Landscape and Site Design

Using native plant materials and absorption drainage to increase biodiversity and improve surface water quality minimizes maintenance costs.

Designed as an integral part of the natural environment, the **Peggy Notebaert Nature Museum** in Chicago links environmental science with building technology through hands-on exhibits and direct interface with nature. In addition to daylit spaces and careful orientation, the building is designed to incorporate vegetated roof technology as part of its stormwater management system.

A series of rain gardens were created for **Alpharetta High School** resulting in an attractive setting for a suburban high school that requires little ongoing maintenance and helps absorb stormwater before it becomes runoff.

Improving Indoor Environmental Quality

Substantial improvements to the air quality of indoor environments are beneficial to human health.

After closing a school because of indoor air quality problems, the **Mounds View Public School District** in Mounds View, Minnesota engaged a team led by Perkins+Will to make air quality improvements system wide while reducing overall energy consumption.

Sustainability as a Teaching Tool

In addition to preserving natural resources, green buildings also educate students on the impact of their actions on the environment.

**Central Middle School** in Columbus, Indiana will incorporate technology into the building structure that will enable students to access information about how much energy the school is using, the amount of energy captured by photovoltaic cells in the windows, and the path of rainwater through the native landscape.

**Carolina International School** in Harrisburg, North Carolina centers their curriculum around four core values: Respect, Responsibility, Solutions and Service. These values have been incorporated into the design of the new 520 student K-12 charter school facility. Carolina International School, which truly follows the concept of “Think Globally, Act Locally”, will feature a shared outdoor learning environment called a “green street”, and a “World Awareness Pavilion” which will house educational spaces shared by all grade levels. The facilities will utilize sustainable design principals including day lighting, green roofs, storm water recovery, and use of materials found on-site for construction.