

Learning Gate Community School
Lutz, Florida

Fostering Learning in Healthy Indoor Environments



According to Patti Girard, the principal at Learning Gate Community School, when the school's new facilities were designed, "the first objective was health: ensuring that the buildings offered a healthy environment. Sustainability and leaving a gentle footprint on the earth, which is something that's part of our curriculum, were also important. We really needed to be able to constantly give our students an opportunity to live in what we're doing."

The resulting LEED Platinum certified school exemplified the primary goal and continues to pave the way for other schools striving to create a better, healthier indoor environment for their students, teachers and staff. However, should solely earning such recognition for an exemplary building project be the end goal? LGCS represents a program that sought to excel past simply building a green school: their buildings also act as tools to teach students about green concepts and sustainability principles.

Prior to the arrival of students and teachers, the buildings tested negative for the presence of volatile air contaminants (VOCs). With a healthy indoor environment as a priority goal for the project, the design team knew that efforts needed to be made to reduce the use of products and materials that could potentially off gas harmful VOCs.

In order to address the presence of VOCs, increased ventilation, low-

emitting materials, and humidity controls were among the options implemented in the new buildings. Additionally, LGCS installed a program to monitor and control VOC levels, temperature, humidity and CO2 levels, allowing facilities management to ensure proper indoor air quality. After occupancy, the program showed a sharp peak in harmful VOC levels, followed by a sharp drop, everyday around 10:30am-12:30pm. When management investigated the situation, they discovered that students and teachers prepped for lunch by using hand sanitizer and cleaning desks with bleach clothes. This knowledge influenced the students and teachers to change their routine: occupants now sanitize their hands outdoors and use natural solutions, like vinegar and water, to clean the desks. The building taught the students more about the indoor environment, as well as led them to make changes to improve the indoor air of the classrooms. Without the air monitoring system, air quality spikes would have gone unnoticed and sickness, loss of focus, and other ill effects could have occurred for years.

In addressing the indoor environment and air quality, the school quickly began to notice significant difference amongst teachers, students and administrators alike: attendance rates rose, test scores improved, sick days decreased and moods improved.

After occupancy, the new buildings continued to influence the education of the LGCS students. Almost as soon as classes began, students noticed that their water bottles were not sweating as they had in their previous classrooms. The installation of a desiccant air conditioning system allowed for humidity levels to reside below 50%, creating a dryer, more comfortable indoor environment. Teachers took advantage of the

\$25 Million spent on workers compensation for chemical injuries to school workers

14 Million Number of days per year American students miss due to asthma

65% Number of preventable asthma cases caused by poor indoor air quality in elementary students

20% Number of public schools reported having unsatisfactory indoor air quality

2 number of days teachers miss due to vocal strain

#1 leading cause of disease-related absenteeism is asthma

Source: USGBC Center for Green Schools

Author

Becky Moriarty
Master's Student
Construction Management
Colorado State University



Photo by Michelle Northrup

children's inquisitiveness and created science lessons around the water bottle incident. Adam Woodford, a science teacher at LGCS, noted that "kids are curious about what they see: what's right around them." The resulting experiments and lessons used the classroom environment to teach textbook concepts through a hands-on, real world project.

Aside from the learning opportunities that arose surrounding the indoor environment of the new buildings, the comfort and health of the building occupants made a change for the better. In addressing the indoor environment and air quality, the school quickly began to notice significant difference amongst teachers, students and administrators alike: attendance rates rose, test scores improved, sick days decreased and moods improved. In the end, the original objective to positively influence the health of the classrooms proved an effective and a worthwhile venture.



Photo by Michelle Northrup

Additional Resources

- [HealthySEAT, The Healthy School Environments Assessment Tool](#)
- [EPA's IAQ Tools for Schools](#)
- [The Lawrence Berkeley National Laboratory IAQ Scientific Findings Resource Bank](#)

Teachers Toolbox

- [Green Education Foundation Lesson Plans](#)
- [NEA Health Information Network](#)

Educational Materials Related to this Case Study