PRE-K EDUCATION
The Good News and the Bad News

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Seattle school certified as world’s fourth living building

>> Bertschi School, an independent elementary school in Seattle, Wash., is now home to the first Living Building on the West Coast and the world’s fourth fully certified Living Building. Completed in February 2011, Bertschi’s Living Building Science Wing is a 3,380-square-foot interactive learning environment for students ages 5 through 11. It is the first built project to meet the standards of version 2.0 of the Living Building Challenge, a green building certification program that integrates urban agriculture, social justice and universal access issues, and the use of healthy building materials. For more information, visit living-future.org/case-study/bertschiscience.

CEFPI releases safe schools guide

The Council of Educational Facility Planners International (CEFPI) announced the release of a new publication, Safe Schools: A Best Practices Guide. This document is a result of the collaborative effort of the many professionals who participated in a security summit in Washington, D.C., that CEFPI orchestrated to explore this topic. Its primary scope addresses educators and school boards charged with safeguarding students and staff but, it is also useful to parent groups, security officials, elected officials and other such publics given to this task. To learn more, visit www.cefpi.org.

EPA’s Energy Star National Building challenge

The U.S. Environmental Protection Agency announced the winner of the third-annual Energy Star National Building Competition; a competition in which over 3,000 schools, businesses and government buildings across the country competed to see which could reduce its energy use the most in one year. The winner is Demarest Elementary School, located in Bloomfield, N.J., which was able to cut its energy use by 52.1 percent. For information on the 2012 Energy Star National Building Competition, including top overall finishers and top finishers by building category, an interactive map of

A VERY COMMON PROBLEM in many older schools is lack of natural light in classrooms. Many schools were designed decades ago when windows were thought to be a distraction to students. Consequently, there are millions of students in classrooms devoid of any natural light. Several validated studies have been done over the years showing that natural light in classrooms can have a positive impact on student test scores, reducing absenteeism for both students and teachers, as well as higher teacher retention rates.

An ideal solution for retrofitting classrooms with natural light is to use Tubular Daylighting Devices (TDDs). These devices capture sunlight using roof-mounted domes that can offer advanced optics to maximize collection of sunlight at low angles and control sunlight and heat at high angles, minimizing geographic and seasonal variations. A highly reflective tubing material transfers light down into the space with minimal light loss and heat gain. Depending on the reflectivity of the tubing, 90 degree turns and horizontal runs are possible. Many schools are even running the tubing through wall chases in upper floors to daylight lower floor classrooms in multistory buildings. A transition box at the ceiling level can take the round tubing into a square diffuser to fit right into an acoustical grid ceiling. A Fresnel lens design is often preferred to maximize light spread. There are also options for “daylight dimmers” controlled by a wall switch that allow total control of the light levels in the space.

Thousands of schools have found TDDs to be a perfect solution for bringing reliable and consistent daylight into classrooms, making both students and teachers happier, healthier and more productive. The energy savings gained by reducing the need for electrical light is an added bonus.

>> Michael Sather is a Daylighting consultant at Solatube International, Inc. He can be reached at 760/597-4425 or msather@solatube.com.
ON THE COVER

17 PRE-K EDUCATION: THE GOOD NEWS AND THE BAD NEWS
Pre-kindergarten education yields benefits for children and communities. Here’s a look at the evidence and what is being done to provide high-quality programs.

BY ELLEN KOLLIE

COLUMNS
6 EDITOR’S NOTE
10 TRENDS IN GREEN
12 BUSINESS PRACTICES
14 FIRE & SAFETY
16 FACILITY PLANNING
69 EMERGING TECHNOLOGY
78 A FINAL THOUGHT

DEPARTMENTS
3 NEWS & VIEWS
3 ASK AN EXPERT
8 HOT TIPS
72 BUILDING BLUEPRINTS
— Libraries and Media Centers

PRODUCTS
74 CASE HISTORIES
75 PRODUCT SHOWCASE
76 ADVERTISER INDEX

TECHNOLOGY PLANNING & MANAGEMENT
69 EMERGING TECHNOLOGY
70 TECH WATCH
72 TECH UPGRADE

SPECIAL SECTION
35 EDUCATION INTERIORS — FIXTURES, FURNISHINGS, FINISHES AND DESIGN
Studies are showing that students who are comfortable and relaxed in their learning spaces are more likely to earn better grades. In this special section, you will learn how colors, lighting, fixtures, furnishings, finishing, design and other components are being chosen to help students get more out of their classroom time.

FEATURES

27 NATURE’S CLASSROOMS
The world outside has a lot to teach pre-K-12 students and educators are finally learning to take advantage of that world.

BY MICHAEL FICKES

21 SECURITY CODES AND SPECIFICATIONS
Proper planning and compliance includes consideration of those with disabilities and special needs.

BY SCOTT BERMAN

31 SOUNDS BAD
Acoustics inside of our buildings are worse now than ever before.

BY STEVE THORBURN

66 FLIPPED CLASSROOM, FORWARD THINKING
New Braunfels ISD employs multimedia tools for student-centered learning.

BY CHRISTINE BEITENHAUS

35 EDUCATION INTERIORS — FIXTURES, FURNISHINGS, FINISHES AND DESIGN

37 STUDIES ARE SHOWING THAT STUDENTS WHO ARE COMFORTABLE AND RELAXED IN THEIR LEARNING SPACES ARE MORE LIKELY TO EARN BETTER GRADES. IN THIS SPECIAL SECTION, YOU WILL LEARN HOW COLORS, LIGHTING, FIXTURES, FURNISHINGS, FINISHING, DESIGN AND OTHER COMPONENTS ARE BEING CHOSEN TO HELP STUDENTS GET MORE OUT OF THEIR CLASSROOM TIME.
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Maintaining Schools
IT’S ABOUT WHAT IS BEST FOR OUR STUDENTS.

THIS PAST MONTH, I WAS fortunate enough to be asked to speak at the National School Plant Managers Association (NSPMA) annual conference. The members of this association are the maintenance, custodial and physical plant professionals — and every single one of them take their job very seriously. But in tough economic times, they are the ones that find themselves at the bottom of the list — maintenance budgets being the first to be cut and the importance of proper maintenance overlooked.

As fewer new schools are being built and more schools are reaching the end of their useful life, adequate funding for the maintenance department becomes even more important. Here are a few facts everyone needs to remember.

• The majority of our schools are 40-plus years old, were built in an era of cheap, energy-inefficient construction and were not built to be durable or to last more than 30 years.

• Our current school buildings scored a “D” on the American Society of Civil Engineers 2013 Report Card for America’s Infrastructure.

• The Council of Great City Schools report, “Facility Needs and Costs in America’s Great City Schools,” estimates that $19 billion is needed for deferred maintenance by its 65-member urban school systems.

• The Center for Green Schools’ researchers reviewed spending and estimates schools spent $211 billion on upkeep between 1995 and 2008. During that same time, the group calculated schools should have spent some $482 billion.

• Schools without a major maintenance backlog and adequate custodial workers have a higher average daily attendance.

• High student achievement has been shown to be associated with newer buildings, updated and properly maintained buildings, improved lighting, thermal comfort and indoor air quality.

And the list goes on! It may have been stated best by Rose, in “Buildings: The Gifts That Keep on Taking:” “Facilities decisions must be cast in light of their value as an investment, with students in mind. Many school districts neglect proper maintenance of school buildings due to perceived costs and financial requirements, thereby overlooking the needs of students.”

Executive Editor/Publisher
dmoore@peterli.com
The fine art of SMART DESIGN

A building design as creative as the students inside.

Snap-Clad provides an inventive one-piece design that gets a standing ovation for Austin’s McCallum Fine Arts Academy.

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SCIENCE OF LAB PLANNING

A WELL-DESIGNED SCIENCE LAB INSPIRES student creativity and innovation. State-of-the-art science labs encourage teachers to maximize both classroom space and time. Yet many science labs consist of outdated equipment and awkward classroom setups that create chaos instead of inspiring imagination. With a variety of inventive and affordable products now available, quality science labs are feasible.

The basics of lab design include laboratory safety, student supervision, student/teacher sight lines, instructor preparation time, ADA requirements and proper utilization of floor space. Science labs should be places where students can safely enjoy learning.

Traditionally designed labs often are equipped with bulky pier tables along the sides of the room. This arrangement does not effectively use classroom space or stimulate creative thinking. And, as students work on lab projects, only some are able to observe instructor demonstrations. Counter space is wasted as students must reach across the counter to access services. Aisles are obstructed, and students must adjust body positions to work in pairs. The typical lectern that faces student desks creates a stiff and formal arrangement that hinders participation and collaboration from students.

Fortunately, a select few science lab manufacturers have now designed lab equipment ideal for biology, chemistry, physics, multipurpose labs and STEM classrooms.

Updated science and multidiscipline labs provide sleekly designed tables that allow students better sight lines and mobility within lab spaces. Well-planned labs ensure unobstructed aisles, well-defined work areas, larger sinks, convenient access to services, teacher assistance without encroachment and easy access to storage. Modern lab equipment is durable for today’s classroom and comes in a variety of finishes.

Mary Olstad is the Business Development manager with Sheldon Laboratory Systems. She can be reached at www.sheldonlabs.com.

NEWS & VIEWS

( CONT. FROM PAGE 3 )

competitors and a wrap-up report: www.energystar.gov/BattleOfTheBuildings.

Academic review finds report on mayor-led schools problematic

Mayoral governance — where a city’s mayor replaces an elected school board — is in use in several major American cities, including New York City and Chicago. A recent report from the Center for American Progress claims that “mayoral-led” districts improve school and student performance. A new review questions whether mayoral control is appropriately credited with the claimed improvements. The report, “Mayoral Governance and Student Achievement: How Mayor-Led Districts Are Improving School and Student Performance,” is being called “problematic due to inappropriate comparisons and a lack of reliable and valid evidence.” To view the review, visit www.greatlakescenter.org. For the report, visit, www.americanprogress.org/wp-content/uploads/2013/03/MayoralControl-6.pdf.

School nurses need more training to stop dating violence

School nurses are the first line of defense in assisting adolescents suffering from physical or mental abuse as a result of dating, but most aren’t getting enough training or guidance, says a new study from Ball State University. “Providing Assistance to the Victims of Adolescent Dating Violence: A National Assessment of School Nurses’ Practices,” recently published in the Journal of School Health, says there are a number of barriers to assisting student victims including lack of training, insufficient time and lack of private space to consult with victims. To read the report, visit www.ncbi.nlm.nih.gov/pubmed/23331273.

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LEONS LEARNED

Real-life examples of how leading educational institutions solved their toughest problems.

THE RIGHT SOLUTION FOR THORNWILDE ELEMENTARY SCHOOL

Thornwilde Elementary School in Hebron, Ky., recently opened in response to tremendous community growth and the need to redistribute student population from another elementary school in the district. The school, which is part the Boone County School System, the third largest school district in the state of Kentucky, has adopted a cleaning system that requires minimal upkeep, in terms of time and budget.
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A New Frontier in Sustainability
MAKING SURE OUR GREEN SCHOOLS DELIVER ON THEIR PROMISE.

IN DECEMBER 2012, USA TODAY PUBLISHED a controversial special report on sustainable schools. Entitled “Green schools: Long on promise, short on delivery,” the article took a skeptical view of the evidence linking green school design with lower operating costs and improved learning environments. Many in the planning and design profession have taken the newspaper to task for what is viewed as a selective interpretation of the facts. However, whatever your view of the article, the claims made in the USA Today special report are not to be dismissed. Instead, they should be embraced as a springboard for a new frontier in responsible design. It is common sense to say that our educational facilities should perform at their expected levels. The question is: How do we achieve this vision for all buildings, not just some?

**Make the maintenance staff your design partner**

Many new or renovated educational facilities arrive with sophisticated systems that the maintenance staff is ill-equipped to operate or maintain. Buildings should not only be designed to meet educational and operational goals, they should also take into account the abilities and expertise of the current facilities staff. In some cases, the sophistication is driven by energy codes (e.g. building controls with static pressure regain or economizers) and in some cases it is the result of over designing.

During the planning and design of the new Belleville High School in Belleville, Mich., the district specifically requested building systems that could be easily maintained. Working collaboratively with the district staff, the design team used energy models to apply technology in areas where it had the most impact on performance and the least impact on operations.

**Design with the end in mind**

Green school certification programs have been very successful at driving change in some areas of school design and construction. The USA Today article highlights that approximately 90 percent of LEED Schools use low-cost strategies such as low-VOC products and regionally produced building materials. The certification programs have been less successful in driving change in other areas that have additional impact on occupant health and performance, such as mold prevention features and enhanced acoustics.

These statistics suggest that some schools are designed and constructed with certification as the primary driver, rather than focusing on specific performance goals. With many state and organizations requiring minimum levels of certification, this is understandable. However, we must continue working toward increased adoption of strategies that positively impact the physical health of students and staff, as well as the fiscal health of districts.

**Make benchmarking the rule, not the exception**

All major sustainable certification systems require commissioning of energy consuming building systems. Yet any experienced design professional will tell you that is not enough.

There are many variables contributing to the long-term sustainability of a school. The planning, design and construction process is certainly one element. However, facility operations have the largest impact over the building’s life. Facilities are not static. Schedules change, walls and roof systems expand and contract with the weather, equipment and systems become unbalanced over time. For this reason, it is essential to use measureable data to analyze performance on a consistent basis. As the old adage goes, “you can’t improve what you don’t measure.”

The benchmarking process does not need to be an expensive or time-consuming endeavor. The U.S. Environmental Protection Agency, through its Energy Star program, provides simple, no-cost tools for tracking energy usage across multiple facilities. If this effort seems too daunting, there are a multitude of consultants who will enter the district’s initial information and train facilities staff on the use of Energy Star’s Portfolio Manager.

The new frontier for green schools is not solely based on a new product or a new design strategy. Instead, to truly deliver on the promise of these wonderful buildings, we must take an honest and data-driven approach to evaluating performance and value. In the process of arguing over semantics and reports, we risk missing the broader point. The goal of the planning and design process is to create the best possible learning environment at the lowest possible price. These are the metrics that should be our guide, no matter what guidelines we may be required to meet.
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MANAGING USER ACCOUNTS FOR STAFF and students is becoming increasingly complex. They may need access to file systems and to electronic learning environments like Blackboard. If the school or district has a web portal, the parents may want access to specific information, such as grades and homework.

In the past, it was possible to manually set all account access once a year using a script, but that is no longer feasible from a time or budget standpoint because of the huge amount of data and the size of the population that needs to be managed. Information constantly changes. An automated solution helps address these user account management issues in several ways.

Errors. When staff members create accounts manually, the accounts often have errors or are missing information because the forms are handled by several people. To mitigate these errors, information technology (IT) employees may need to go back several times to try to ascertain the correct information.

With automated account management, when an account is created in an active directory, it automatically populates the parent portal, the student information system and any other systems required, eliminating a tedious and potentially error-prone manual process.

Account edits. Student accounts often need to be edited to add permission to access the Internet or other applications. That means asking the IT staff to make the changes manually.

North Hunterdon—Voorhees Schools in Annadale, N.J., established an automated solution. When the permission slip for Internet access is received, the registrar checks a box in the student’s profile and Internet access is granted. If the student transfers to another school in the district, his or her information and files are easily updated and moved appropriately.

Delegation. Although not difficult, account management can demand a lot of the IT department’s time. To free up the IT staff’s time for higher-level projects, the district can delegate account management to other school employees.

At Tangipahoa Parish School District in Amite, La., the human resources (HR), payroll and student information departments were each making its own changes. It was nearly impossible to track who was doing what.

By automating its account management, the district’s human resources department now handles all account management and can easily make changes that in turn update all the appropriate systems. User accounts in the HR system are automatically synchronized with the user accounts on the network. HR is now the only department that creates, updates or disables student and employee accounts, which makes the process easy and efficient.

Disabled accounts. When students transfer out of the district or graduate, their accounts must be disabled. In schools with hundreds, or even thousands, of students leaving each year, disabling their accounts manually can be time-consuming.

Fitchburg State University in Fitchburg, Mass., found it difficult to remove or update student accounts in a timely fashion. By automating its account management, school personnel can easily flag a student or employee and disable the account according to predefined rules. For instance, a predefined rule is set to allow graduating students to use their accounts for three months before they are automatically disabled.

Thanks to intelligent solutions, schools, colleges and universities no longer need to manually manage user account life cycles by using scripts or tedious manual procedures.

Mass creation. Students often require accounts in several different systems, such as e-learning, Google Apps and library systems. Creating new accounts for all students in each of these systems and issuing credentials is time-consuming. By automating the account management process, accounts can be created for several students very quickly.

Minnetonka Public Schools in Minnetonka, Minn., freed up the time of several full-time equivalents by automating accounts. Now, the process is much more efficient and only one employee is needed to handle account management.

Freeing time to focus

Thanks to intelligent solutions, schools, colleges and universities no longer need to manually manage user account life cycles by using scripts or tedious manual procedures. The solutions house the scripts and manual procedures. Accounts can be automatically created, modified or deleted in all applications within the school.

As educational institutions face tight budgets, strict regulations and reduced financial support from the government, these tools can help mitigate exposure to additional unplanned expenses and allow internal IT staff to focus on more lofty goals.

—This article is excerpted from the January 2013 issue of School Business Affairs, published by ASBO International. www.asbointl.org.

Dean Wiech is U.S. managing director at Tools4ever, an identity and access management solutions provider (www.tools4ever.com).
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All a-Twitter!
YOU CAN USE SOCIAL MEDIA TO CONVEY YOUR SAFETY MESSAGES EFFECTIVELY.

As classrooms empty for the summer, it is the time to think about fire and life safety messages for when students return in the fall. In the past, most schools have relied on posters, brochures, presentations and email as effective ways to disseminate fire prevention and fire safety messages. Now we must find ways to use social media to spread the word.

Twitter is one of the fastest and also most popular ways to reach students. Parents and community members can also follow your Twitter feed. However, before you are ready to tweet, you must consider your strategy for the message or behavior you want to encourage with your messages. Since most people in the fire prevention field are not social media experts, I would suggest that you consult with your media communications office for technical guidance on how to make best use of this technology.

Using Twitter will require you build a following and gain the trust of your intended audience. A review of successful Twitter campaigns will demonstrate that there are several key elements that will help you spread fire prevention messages.

1. Share — sharing pictures of people engaged in the behavior you are trying to get your reader to adopt will capture follower’s attention, and if the pictures are “fun,” they will retweet them to their friends, who in turn will follow your account.
2. Listen — regularly monitor the comments others make about your fire prevention tweets.
3. Ask — ask questions of your followers to glean valuable insights into why they ignore alarms or participate in unsafe behaviors.
4. Respond — when students answer and give feedback; respond with a compliment.
5. Reward — tweet updates about fire system improvements in buildings that students will be using. Offer a discount for a local business to those who retweet or respond within a certain time period.
6. Champion your target audience — talk about students and events that promote fire safe practices. Students are more likely to retweet messages to others if they are personally involved in the message.
7. Establish a voice — Twitter users prefer a direct, genuine and likable tone. Think about the “voice” they will hear in the words. If the message appears negative, one that uses “don’t,” it is less likely to be retweeted. If the message has a positive tone, it has a better chance of being retweeted.

An ideal plan for creating a fire prevention and life safety Twitter presence includes the early identification of a strategic plan concerning what types of messages should be sent and when they are appropriate. Once the type of messages is identified, the messages will need to be edited down to just 140 characters (choose your words carefully). Keep messages short and simple. Each tweet can have three phrases — the words chosen should be short, and when needed, a link can be included to lead to a picture that can more clearly tell the story.

Once you have identified the messages, develop a schedule to post each message. Many Twitter-based safety messaging programs post less, rather than more often. At the beginning of the school year, consider posting every other day during the first two weeks of the school term. A simple strategy may be to highlight three different aspects of fire prevention each week:

Monday — feature helpful tips that apply to a specific building;
Wednesday — feature a student or student group that is incorporating fire prevention into their activates; and
Friday — focus on a specific individual that helps promote fire safety within your organization.

As the school year progresses, messaging campaigns can be developed that address large events — Halloween, Thanksgiving and holiday fire safety. Tweets can also be sent that respond to fire events at other locations. If there is a fire in a classroom lab at another school, you can tweet messages about the cause of the fire and steps to take to ensure that the risk is minimized in your classrooms.

Mike Halligan is associate director of Environmental Health and Safety at the University of Utah and is responsible for Fire Prevention and Special Events Life Safety. He frequently speaks about performance-based code solutions for campus building projects, is recognized as an expert on residence hall fire safety programs and conducts school fire prevention program audits/strategic planning. He can be reached at 801/585-9327 or at mike.halligan@ehs.utah.edu.
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ACCESSIBILITY 2013
ALL STUDENTS BENEFIT FROM INCLUSIVE DESIGN.

Accessibility. Often times this word is described as a minimum standard; an obligation in the design of any facility. How would students — all students — benefit if planners and designers changed our perspective on accessibility in design? How would learning be impacted if the content were accessible to all students, regardless of learning style or disability?

Students with disabilities are in need of accommodations, but every student stands to benefit from the incorporation of design elements that address acoustical and visual access, as well as different learning styles and proper technology integration. Accessibility is not only about getting students into the classroom, it is also about getting the education into students — all students.

Those with hearing impairments are not the only students affected by poor classroom acoustics. Being able to hear instructions is a fundamental imperative when it comes to delivering educational content to students. As much as 80 percent of what students learn is provided by spoken communication. Many factors affect speech intelligibility including ambient noise, the geometry of a classroom and reverberation.

In the Essex Study, conducted by the Essex County Council, students and teachers tested four classrooms — three acoustically treated rooms and one untreated control room. Researchers not only concluded that the acoustically treated classrooms affected the delivery of educational content, but had a positive impact on student behavior. Teachers commented that vocal strain was reduced due to the acoustical treatments.

Properly controlling the ambient noise created to operate a building can significantly impact its affect on classroom acoustics. Up to 40 percent of audible information can be lost over a distance of 26 feet, and reverberation should be controlled through the use of acoustically absorptive materials. With such a significant quantity of education being delivered verbally, properly addressing classroom acoustics not only benefits students with hearing impairments, but improves acoustical access for all students.

Students with visual, and even hearing impairment, may benefit from good visual access. In addition, most students in this generation of technology are visual learners. Visual delivery is effective and popular for teachers to integrate into all curriculums, and access can be impacted by many factors including lighting, line-of-sight and the use of visual aids. Appropriate lighting improves test scores, reduces off-task behavior and plays a significant role in student achievement. Providing flexibility with seating arrangements can allow a good line-of-sight to any and all teaching points within a classroom. The successful use of visual aids, which include audio and visual equipment as well as mobile technology, can provide all students with the visual access they need to be successful.

Visual learners access information visually, auditory learners through hearing and kinesthetic learners through hands-on experimentation. Everyone has a primary learning style, but we actually employ a combination of learning styles to retain information. Writeable wall finishes and flexible wall systems can provide flexibility in educational delivery that benefits visual and auditory learners.

Providing flexible furniture and different styles of seating not only accommodates different types of learners, it can address the limitations on students’ abilities to sit still and focus in the classroom. Elementary students struggle to focus after five minutes. Middle and early high school students struggle after about 15 minutes, and older high school and college students after approximately 25 minutes.

Different styles of furniture allow students to sit, stand and move around the classroom to work individually or in a group. In addition to the successful use of flexible furniture, the proper integration of technology can have a significant impact on a student’s ability to learn. Technology integration is not just about providing cutting-edge equipment in the classroom; it is about delivering education in a manner that empowers the learner to retain the curriculum. Students with learning disabilities or challenges benefit from flexibility within the learning environment, but with proper implementation, that benefit could extend to all students.

The built learning environment has an impact on a student’s ability to access information and achieve academic success in the classroom. Strategies that accommodate different learning styles in the classroom, provide for acoustical and visual access and successfully integrate technology into the learning process can impact every student. Accessibility in the classroom is an educational need that transcends compliance.

Wayne Reynaud is an associate principal with PBK with over 23 years of experience in providing architectural planning, design development and construction administration services. He is an active member of the Council of Educational Facility Planners (CEFPI).
By Ellen Kollie

PRE-K EDUCATION

The GOOD News & The BAD News
LARGE AND GROWING BODY OF RESEARCH SHOWS THAT INVESTING IN HIGH-QUALITY pre-kindergarten education yields significant long-term benefits for children and communities. “I think what we’ve learned is a mixture of good news and bad news,” says Tom Schultz, director of Early Childhood Services at Council of Chief State School Officers (CCSSO), which provides leadership, advocacy and technical assistance on major educational issues. “The good news is that we have a much better understanding of the importance of the early years in terms of the pathways it creates for learning and school success. The bad news is that, if students are behind when they start school, their experiences in school don’t narrow the achievement gap as they progress through school.”

THE GOOD NEWS IS PROVEN

Two foundational studies that set the stage for sending a message about the importance of pre-K education are the Abecedarian Project and the HighScope Perry Preschool Study.

The Abecedarian Project, a 1970s program of the FPG Child Development Institute of the University of North Carolina at Chapel Hill, studied the potential benefits of early childhood education for children from low-income families. According to the website, projects.fpg.unc.edu/~abc, “Four cohorts of individuals, born between 1972 and 1977, were randomly assigned as infants to either the early educational intervention group or the control group.” Children received full-time educational intervention in a childcare setting from infancy through age five. Each child had an individualized prescription of educational activities. Activities focused on social, emotional and cognitive areas of development with specific emphasis on language.

Among the project’s findings were that the children who participated in the program had higher cognitive test scores from the toddler years through age 21, and academic achievement in reading and math was higher from the primary grades through young adulthood. In addition, the children completed more years of education and were more likely to attend a four-year college. Also, they were older, on average, when their first child was born.

The website notes the study’s implications, including that early childhood education significantly improves the scholastic success and educational attainments of poor children — even into early adulthood. Also, “Welfare reform has increased the likelihood that poverty children will need early childcare. Steps must be taken to ensure that quality childcare is available and affordable for all families. This is especially critical for poor families.” Two other implications include that learning begins in infancy and quality care requires sufficient well-trained staff to ensure that every child receives the kind of appropriate, individualized attention the model provided.

In the HighScope Perry Preschool Study, conducted through four decades by the late David P. Weikart, founder of the HighScope Educational Research Foundation; Larry Schweinhart, HighScope’s current president and their colleagues, children were randomly assigned either to receive the HighScope Perry Preschool program or to receive no comparable program and were then tracked throughout their lives to age 40.

The landmark study shows that adults at age 40, who participated in a preschool program in their early years, are more likely to have graduated from high school, are more likely to hold a job, have higher earnings and have committed fewer crimes. Overall, the study documented a return to society of more than $16 for every tax dollar invested in the early care and education program, according to a press release www.highscope.org/Content.asp?ContentId=282 by HighScope, an independent nonprofit research, development, training and public outreach organization headquartered in Ypsilanti, Mich.

“These findings can be expected of any Head Start, state
preschool or child care program similar to the program HighScope coordinated and then studied,” says Schweinhart. “Our teachers were well-qualified, they served no more than eight children from low-income families at a time, they visited these families as part of the program to discuss their child’s development and the classes operated daily for children three and four years old.”

More recent studies continue to prove the value of pre-K education. In April 2012, Boston Public Schools presented results of a pre-K study bpsearlychildhood.weebly.com/uploads/1/0/1/3/10131776/bps_school_committee_pts_presentation_4_10_12_2.pdf to its school committee. Impacts of BPS K1 on Children’s Early Numeracy, Language, Literacy, Executive Functioning and Emotional Development sought to answer two primary questions — What is the causal impact of the Boston Public Schools pre-kindergarten program on child early mathematics, language, literacy, executive functioning and emotional development outcomes; and do some student subgroups benefit more from the program than others?

Results showed the largest mathematics and receptive vocabulary impacts to date in a public pre-K evaluation; small effects on children’s executive functioning and emotional development; and all students are benefitting from pre-K education, with some effects being stronger for Latino, English Language Learners (ELL) and free/reduced lunch eligible students. Overall, the study confirms the city’s and district’s investment in pre-K education.

Just a month later, the state of Michigan released a report titled Great Start Readiness Program (GSRP) Evaluation Findings 1995-2011, which examined how participation in the Great Start Readiness Program was related to performance later in school. The study sought to answer two questions: Does GSRP participation improve the high school graduation rate, on time and year later; and how much the GSRP effect on grade retention influences the timing of high school graduation?

Among the study’s findings were that significantly more of the students graduated from high school on time; fewer students experienced grade retention; at grades 11 or 12, students had a higher level of proficiency on the Michigan Merit Examination in mathematics and in math and language arts combined; and 43.5 percent of the cost of the GSRP was recouped from savings created from the reduction in grade retentions.
OVERCOMING THE BAD NEWS

As Schultz notes earlier, students who are behind when they enter school do not make up the achievement gap. “The education community in general is more aware of the importance of early childhood education as the school reform movement has increased scrutiny about outcomes based on No Child Left Behind and state performance prior to that,” he observes. How states are responding varies across the country, although funding cuts driven by the Great Recession aren’t helping.

According to The State of Preschool 2012 Yearbook, an annual comprehensive report by the National Institute for Early Education Research (NIEER), which has tracked and measured state preschool funding and quality since 2002, drastic funding cuts at the state level resulted in a 10-year low point in access to quality early childhood education.

According to the report, in the 2011-2012 school year, state funding for pre-K decreased by more than half a billion dollars, adjusted for inflation; the largest one-year drop ever. The cuts resulted in two historic “firsts.” Last year was the first time there was no increase in the percentage of children served in state pre-K and the first year since the Yearbook’s inception that the average funding per child across the states slipped below $4,000, now more than $1,000 less than it was a decade ago.

The funding loss is because, for most states, pre-K education is discretionary. Therefore, when the economy is tight, it’s one of the first things to go. “As we’ve moved out of the recession,” says Dr. W. Steven Barnett, NIEER director, “things have begun to come back somewhat. Still, each state in the country would have had to add an additional $10 million to its budget to get back to where they were before the cuts.”

School districts find creative ways to compensate for the lack of funding. For example, they develop partnerships with community programs already serving the public, essentially contracting with those organizations rather than competing with them. “There are a lot of ways of doing this,” Schultz says. “In some cases, the public school money pays the salary of teachers who works in the centers. In other cases, the partners receive a per child dollar amount and must meet state standards.”

Barnett agrees, noting that these partnerships allow districts to hire certified teachers, bring up the quality of their programs and/or create a longer learning day.

And President Obama’s new initiative to make full-day preschool available to families with incomes at or below 200 percent of the federal poverty line will help. “The president’s plan includes a cost-sharing arrangement with states, with the entire federal investment of $75 billion covered by a new cigarette tax, and with incentives for states to make programs available for even more middle-class families,” Arne Duncan, secretary of Education, states in the Apr. 18, 2013 edition of the Washington Post.

“I think the debate on the proposal in Congress will be significant in terms of what happens in the future regarding early childhood education,” says Schultz. “I think there’s a larger movement for early childhood education at the state and municipal levels. For example, Michigan is discussing a 50-percent increase in funding from their own revenue, and this is a state that has many other priorities and has endured a tough economic downturn. It’s significant that they’ve come to that decision.”

Clearly, the evidence supports the value of high-quality pre-kindergarten education. With their usual can-do attitude, both individual school districts and states are finding ways to implement strong programs, thus providing long-term dividends for both students and their communities.
EDUCATORS IN DIVERSITY FROM COAST TO COAST prepare and reevaluate emergency evacuation plans for students with disabilities and special needs. It’s important work that is usually unnoticed, unless there’s a controversy or unfortunate incident.

Federal law requires that schools prepare an individual educational program (IEP) for each student with a disability, providing related services known to include safety in an emergency. Codes stipulate warning systems and require regular drills for all students, and schools around the nation reevaluate their plans regularly. Yet, given the many variables and threats today, additional ideas and insights can be helpful.

Specialists in the field recently shared some insights about ways to help fortify emergency evacuation plans for youngsters who have disabilities and special needs. Among the themes: cooperation, change and vigilance.
A good plan is “a live plan,” says Robert J. Davidson, a code consultant and a former fire marshal. By “live,” he’s referring to the need to account for staff changes, new students, building renovations and differing room uses. Furthermore, different grade levels call for different arrangements for building sweeps and head counts, he adds. All such factors call for vigilance in an emergency plan in any given school.

Then, there’s cooperation. As Allan Fraser, senior building code specialist for the National Fire Protection Association, says, “There’s a phrase that’s used in the disability community—‘nothing about us without us.’ In other words, the individual who you are planning to evacuate has to be included in the initial planning. After all, nobody knows better what they need.”

Reaching out across districts, schools and their communities is also part of the equation, and Luke McCann, deputy superintendent of Schools for Marin County, Calif., spoke to that aspect. The county, which has 19 separate districts and 56 schools, provides guidelines for those schools to create their own plans, he explains, and one size does not fit all.

It’s a cooperative process. McCann points out that students and parents, district administrators, facilities managers, teachers, para-professionals, fire, police and EMS professionals all bring important points of view and skill sets to bear on the preparation of evacuation plans that meet the needs of individuals.

Things change, whether it’s the student population, requirements or technologies. Keeping on top of that and updating a plan accordingly are other keys. Along that line, McCann is a member of a county council that meets several times a year to discuss new information, recommendations and best practices on preparedness along a broad range. Council members develop instructions accordingly, which are localized in

[ TACTICS ]

Evacuation Plans for the Disabled

SOME SUGGESTIONS ABOUT MAKING EVACUATION PLANS FOR THE DISABLED AND OTHERS AS EFFECTIVE AS POSSIBLE:

• Start with the individual and their parents. Fraser puts it this way: Empower them as crucial participants who know their needs. Also reach out to faculty and staff, first responders, police and fire professionals.

• Ask plenty of questions. Be willing and able to step outside your comfort zone. After all, “we don’t know what we don’t know,” Fraser says.

• Consider medical information badges on outer clothing for those with special needs.

• Plan and practice evacuation plans for the disabled with the individual first, then practice it with your evacuation plan for the entire student body. Practice using various locations and routes — any could be compromised in an emergency. Work out alternatives with responders.

• Think through all scenarios and go through them with responders. You probably cannot think of every possible scenario. “But you can envision most of the big ones,” Fraser says. That’s a crucial start.

• Plan ahead. According to Gentzel, if your district is renovating systems in your schools, like new roofing, or removing asbestos, it can be an opportunity to upgrade fire protection systems. Bring together your local fire professionals and your architects.

• Embrace the opportunity to test your systems.
Ingersoll Rand Security Technologies can help ensure your school is secure today, and into the future. Our national network of Security and Safety Consultants are experts in physical security, access control, lock down procedures, as well as building codes and local standards. And, our school solutions such as classroom security functions and indicators can help improve security and access control. Let us work with you to design solutions specific to your school’s needs.

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Also, Gentzel points out that accounting for temporary disabilities should also be an active part of the equation. Sports injuries, for example, are such a disability, and they are probably becoming more frequent and affecting younger kids.

John (Dennis) Gentzel, fire protection engineer for the United States Fire Administration, and a former state fire marshal and chief fire protection engineer for Maryland, has worked on fire and life safety systems and programs for deaf students and blind students. In his experience, it’s important to work with teachers on a number of different aspects and approaches, ranging from evacuation plans to educational handouts to another aspect crucial to individuals with disabilities: the specifications of strobe and other alarms.

Also, Gentzel points out that accounting for temporary disabilities should also be an active part of the equation. Sports injuries, for example, are such a disability, and they are probably becoming more frequent and affecting younger kids. Gentzel urges districts to reach out and talk with parents in such instances and, on another tack, to bear in mind that faculty and staff can also experience temporary disabilities of their own.

Cognitive issues also need to be identified. Fraser points out a particular challenge along this line: that people may be hesitant to self identify, and he points to stigmas about such disabilities as the reason why. That’s a societal and cultural...
issue — and can be a high hurdle to clear, but “perceptions need to be changed,” he says.

Thus, he suggests that districts be proactive instead of expecting everyone with a potential disability to come forward. Fraser suggests handouts to all explaining: “If you have a disability, here are the accommodations that we can provide for you. If you need any of these, tell us and we will provide them.” Putting such information together can also be an important step in the process; that is, thinking through “all disabilities and how to respond.”

Practice is another crucial step. Drawing up a plan and not practicing it “would be like saying to a 16-year-old, ‘Here’s the driver’s manual and here’s your license,’” Fraser says. “It has to be automatic. Unless you’ve ever been in a burning or shaking building, you have no idea of the panic, disorientation and confusion that can happen.”

Districts across the country continue their work. Back in Marin County, for example, employees recently attended a half-day training seminar on active shooter awareness — it’s a sobering reminder of changing threats in today’s world.

It’s also a reminder of something else: the fact, as McCann points out, that “this work never ends. It changes based on need.” He adds, “The dangers out there are real … [and] the most important work educators do is to have a safe environment.”

NFPA’s Planning Materials

To see NFPA’s planning materials related to students with disabilities, go to tinyurl.com/nfpa-planningmaterials.

A safe and secure classroom with the push of a button

Stand-alone access control lock with remote panic button option allows you to lock the door quickly from inside the classroom.

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In the construction industry, workers are the most valuable assets, making worker safety a top priority. For this reason, OSHA and ANSI guidelines are valuable tools in safeguarding the health of workers on the jobsite. However, one of the toughest and most crucial standards to enforce is fall protection/scaffolding, as scaffolding was the third most cited violation for federal OSHA standards in 2012, with the related issue of fall protection topping that list. Since OSHA was created to prevent work-related injuries, illnesses and deaths, taking their guidelines and citations into concern can only benefit worker health.

To help contractors stay proactive about scaffolding safety, we’ve compiled five scaffolding safety tips for construction projects to be safe and maintain ideal productivity.

**SLOW DOWN, CONSIDER EFFICIENT BUILDING ALTERNATIVES**
This tip is the most important and the toughest to enforce. Speed is often of the essence, but you don’t need to sacrifice speed for safety, as long as you’re working at the highest level of efficiency. Being safe plays its own role in this process. Invest in techniques and tools that allow for greater efficiency so that safety isn’t compromised.

**KEEP YOUR WORKPLACE ORGANIZED**
The category of slips, trips and falls accounts for the highest number of safety violations. An easy way to avoid both citation and injury is to encourage worksite organization. Making sure tools are not left in random places can help guarantee less risk for tripping accidents. Tripping is an especially dangerous mishap when done on or around scaffolding, and the easiest ways to avoid this hazard are either through systemization of tool placement or equipment that facilitates an easy and out-of-the-way organizational system. Another safety benefit to tool organization is that it can reduce the likelihood of knocking the tools from scaffolding or platforms, which can then injure those working below, waste time and damage tools.

**IDENTIFY HAZARDS**
Evaluate both the site and the project to figure out what the most likely hazards could be, and think about potential solutions before construction starts. Are you working near overheard power lines? Make sure your scaffolding is constructed far enough away to not be a potential electrocution risk. Are you going to need to move scaffolding during the project? Analyze the game plan before you erect a time-consuming scaffolding piece, and have an easier-to-construct alternative handy. Are you hoisting awkward materials like windows or skylights to a second floor or roof? Consider access platforms or systems that have hoists to lift items into place.

**PROPER TRAINING**
Make sure workers are trained in the most recent OSHA requirements, and know the procedures for dealing with the potential hazards that could arise. Workers who have the proper training and knowledge before heading into a job can prevent costly and time-consuming safety mistakes, and ensure the success of a project.

**REVIEW THE SITE**
It’s important not only to identify the hazards, but also to review the worksite during construction. If you keep an eye out for potential problems, they can be caught and avoided before they arise. Before work begins, make sure a qualified professional has checked that scaffolding or platforms have been set up correctly and include all relevant safety precautions preferred by OSHA to protect workers at heights. With the right training and equipment, this process only takes a bit of extra time and will ensure worker safety.

**CONCLUSION**
Scaffolding safety involves an effort to be as efficient as possible. Safety and efficiency can go hand in hand, as healthy workers will keep the job on track. Not to mention that fall protection and scaffolding issues were some of the top cited violations, and no one wants to have those problems or join that statistic.

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**TACTICS**

**Scaffolding Safety and OSHA TIPS, TRICKS AND THINGS TO CONSIDER**

Mike Mumau is the president of Kee Safety, North America. He operates both the USA and Canadian divisions. He can be reached at mmumau@keesafety.com.
WHAT HAPPENED ON YOUR school’s property in the years, decades and centuries before the school was built?

Perhaps the community’s earliest settlers built houses using wood from the species of trees still growing on the site. Maybe those settlers skirmished with Native Americans. What if someone notable in American history was born in the community?

Whatever happened can form the foundation of a lesson plan for an outdoor history course that can tie local events to broader historical themes.


Broda recommends studying the site’s natural features as well as its history. What indigenous plant and animal life inhabit the site? Why here? That’s a science lesson, if not a course.

Make a flowerbed and plant some daffodils this spring. William Wordsworth wrote a poem entitled “Daffodils.” It begins with the familiar line: “I wandered lonely as a cloud.” That’s a lesson in English poetry. An outdoor classroom could support an entire course on pastoral poetry, a genre devoted to the countryside.

Add to these examples outdoor lessons in agriculture, botany, wildlife, environmental science and so on.

You don’t have to make up new lessons and courses to move classes outside. Just move an arithmetic or mathematics class outside and enjoy the weather.

According to Broda, research shows that “a mix of outdoor instruction and indoor...”
teaching leads to improved achievement.”

“Every school we design today incorporates one or several opportunities for outdoor education,” says Stephan C. Howick, a landscape architect and associate with Celina, Ohio-based Fanning Howey, an architectural firm with a specialty in pre-K–12 and higher education. “It’s about getting kids outside. Between high fructose corn syrup and video games, kids today don’t have a chance.”

**Start with a committee**

While it can be as simple as just taking a class outside now and then, today’s approach to outdoor classes often involves building a program and enhancing outdoor locations to accommodate regular classes.

Accomplishing that requires broad-based support from the administration, teachers and students, as well as the custodial staff and parents.

Broda recommends forming a planning committee that draws members from each of these groups. Consider specialists such as naturalists and building contractors as committee members, too. Invite neighboring residents to participate, or at least inform them about your plans.

The committee should begin work by pursuing two goals, continues Broda. First, it should develop a long-range outdoor plan for the school. Second, it should identify one or two small projects to get the program underway.

Broda warns against plans that are too large and ambitious, noting that it is better to succeed with one or two limited projects than to fail at a large one and risk discouraging everyone.

Topics for the committee to consider go beyond specific projects. They include fundraising to aid in the purchase of materials; construction issues, planting and landscaping, and fitting the curricula to the outdoor setting. Broda suggests assigning small subcommittees to explore each of these topics.

**Playing around**

Elementary students, of course, are frequently more interested in playing outside than studying it. For them, Howick designs ground-based play structures. These include seesaws, slides, swings and climbers that you can access from the ground...
instead of elevated platforms.

“This makes the entire playground accessible to all of the kids, including those with disabilities able to use some of the structures,” Howick says.

Play is key to outdoor learning for pre-K–5 students, continues Howick. “Play introduces kids to their bodies,” he says. “There is a continuum. They learn to rock, bounce and swing. Then they begin to use the upper body and develop strength.

“Beyond individual training, you begin to teach cooperation. One student wants to swing but can’t get going, so another student pushes. Cooperation leads to games and competitions.”

**Designing outdoor spaces**

For older students, pretty much any subject can go outside for class — as long as the weather cooperates. You do, however, need an appropriate space.

Broda recommends conducting a site inventory. What exists on your site? What areas will function as outdoor classrooms? Rough out a site plan.

The first site enhancement, he writes, is to locate a teaching/meeting area somewhere away from heavily traveled paths, playgrounds and prospective expansion plans for the site — but usually adjacent to the school building.

A teaching/meeting area can accommodate a class or serve as a starting point.
When a class moves outside, for instance, the teacher and students go first to the teaching/meeting area. There, the teacher explains the purpose of the outdoor class and the physical boundaries — stay within the circle made by these trees. The teacher will also pass out any supplies required to carry out the activity.

Perhaps the class will study wildlife indigenous to school grounds. Maybe an art class will take on a landscape project. Whatever the class, it all starts at the teaching/meeting area.

Teaching/meeting areas provide some form of seating. Some schools use picnic tables. Others use logs or landscape features such as small grassy mounds.

**Professional advice and volunteers**

The teaching/meeting area will spawn other projects: a garden here, picnic tables over there and bird feeders up there.

Maintenance arises as a major stumbling block for outdoor learning spaces. Grass grows. Someone has to cut it. Weeds infest gardens, and someone has to pull them.

“Once you develop a couple of outside areas, you will need someone in the school district to manage the important work of maintenance,” Howick says. “This should be someone that appreciates the outdoor classrooms and wants to preserve and improve them.

“ Athletic booster clubs are composed of volunteers that take care of a district’s athletic facilities. You don’t have that kind of help for outdoor spaces. If you are developing outdoor areas, you may need some professional advice as well as volunteers to help establish and maintain them.”

Professionals might include local landscaping firms, employees of home stores like Home Depot or the green superintendent at a local golf course.

You can also contact your conservation district, a local unit of government that works with landowners to manage natural resources at the local level.

Volunteers might include master gardeners, who can advise you on developing and planting outdoor areas, adds Howick. There are nearly 100,000 master gardeners in the U.S. These volunteers have been trained in taxonomy, plant pathology, soil health, sustainable gardening, managing pests and plant diseases.

Chances are, some of your students will have master gardener family members that might be willing to help.

**It’s a different world**

Generations ago, youngsters roamed freely through their neighborhoods, local wooded areas and parks with little formal supervision. Establishing a connection with the natural world outside came, well, naturally.

Today, all of that has changed dramatically. The contemporary world requires that parents and teachers supervise young people constantly, as they participate in tightly organized activities. Those activities and the lure of smart phones and tablets threaten to disconnect young people from the natural world.

Outdoor playgrounds and classrooms can help overcome that problem by enabling students to build and sustain an appreciation and understanding of nature.
THE ACOUSTICAL ENVIRONMENT inside our buildings has gotten worse over the last few years, according to the 2009 International Facility Management Association (IFMA) workplace satisfaction study. Unlike the 1991, 1997 and 2004 studies, that had noise as number 10 in the list of top 10 complaints (behind other complaints like temperature and cleanliness), noise has risen to number 5 on the list — still behind 4 air quality items. The 2009 list is as follows:

1. It’s too cool
2. It’s too hot
3. Bad air quality
4. Too drafty
5. Noise level/too noisy

The only change in the last few years is the growth of LEED and its design requirements, which, in part, promote daylighting and green materials. Further, the General Services Administration has reported that absenteeism is up in buildings that are designed to LEED standards. It seems that the greening of our workplaces, schools included, is not having the positive impact on our buildings we hoped it would. So why...
FACILITIES  SOUNDS BAD

DOES THE FLU ATTEND CLASS TOO OFTEN?

TOUGH JOBS DEMAND SMART SOLUTIONS

Walls have been removed from many of the designs to promote better daylighting into spaces. This is great, but if daylighting is really required on all four sides of a personal work space, what about glass in the partitions?

First, and some say the most important, is room acoustics. This refers to how the space sounds — an analogy would be interior design for the ear. Reverberation, echoes, diffusion and the effect of room finishes on sound all fall under the umbrella of room acoustics.

Sound isolation, or how sound or noise is contained in a room, closely follows room acoustics. Sometimes we may be working to contain noise in an equipment room so it does not impact the adjacent space. At other times, we may be keeping exterior noise out of a quiet space like a reading room. Sound isolation has been referred to as the “bones” of the building. Once these bones are in place, they are very hard and usually costly to modify.

The third aspect of the acoustical environment is the noise generated by the building systems. Mechanical noise control includes the heating and cooling...
systems (i.e., items 1 through 4 of the IFMA Workplace complaint study), as well as the pumping systems and any other systems that circulate items within the lungs and arteries of the building.

**Other contributors**

So, what besides the adoption of the formal process of sustainable design (LEED) has changed in the last few years, and what can we do about it in the future? The biggest impact we have seen is in the introduction of truly "open work spaces" and "collaborative learning areas." Yes, group think is great; we love it. However, the activity of one group creates a distraction for others, which is not helpful.

For schools it could feel like the difference between the cafeteria at noon, with the cliques around the tables, and the library where scholarly learning was expected. In our offices, we have moved from cubes to clusters of tables. In the cube environment, the short walls did provide some protection from the person's voice on the other side of the cube wall when they were on the phone.

To provide some level of speech privacy between work spaces, we need to break the "your mouth to my ear" path. When there is a direct path for sound, with nothing interfering with it, there is no privacy. If we add a 60-inch partition between us, it really helps. Without some type of barrier, there is no chance for any type of speech privacy.

The same is true for our classrooms; we need the walls or alcoves to provide some privacy to the group at work. Open cluster spaces, where two or three classes share a larger common gathering space for presentations or assemblies, need easy and effective ways for teachers to close those spaces off when the students retreat to their home rooms.

Walls have been removed from many of the designs to promote better daylighting into spaces. This is great, but if daylighting is really required on all four sides of a personal work space, what about glass in the partitions? While it is not soft and absorptive, it still helps get daylight into the interior spaces while blocking some of the sound. It is all about the speech privacy — without barriers, speech privacy will not exist.

**Dealing with background sound**

While barriers are one part of the speech privacy equation, the other is background noise. While we do not want too much background noise, it does need to be in place. When natural ventilation and thermal masses are used to heat and cool our buildings, the noise associated with the building’s circulating systems are much quieter. Natural ventilation, plus no partitions makes for some very intimate work groups where everybody overhears the phone call or conversation about family issues and weekend plans.

One solution to the quiet background noise levels in a space could be sound masking. Sound masking is a great tool for the acoustical design of a space. While it uses loudspeakers, it is not a sound system and should not be thought of as such. You do not want a sound masking system unless it has been carefully designed and coordinated with the rest of the building systems, including walls, ductwork, light fixtures, anything in or above the ceiling.

There are many predesigned systems on the market right now. Some work better than others. We have yet to be satisfied with the installation from one from a "turnkey" vendor, but that is another article. The key to a successful sound masking system is to have enough loudspeakers whose sound can be adjusted to blend in with the natural sounds of the building heating and cooling systems. The systems must also provide nonintrusive uniform background sound level throughout the space, which helps cover sound or noises that were once audible because of the quiet background noise levels associated with natural ventilation.

On the other extreme, we have seen mechanical systems become too noisy. This is
due to one of two things. The first, is the desire to remove acoustical liner from the ductwork. Acoustical duct liner is a form of insulation that is installed inside the duct. The acoustical duct liner is treated so it will not flake or disintegrate as the air blows over it; the surface treatment allows it to reduce the noise from the fan. Without this material, noise from duct systems is much louder and can be distracting in its own right.

The concern with the duct liner is the buildup of mold. Here is where “the rest of the story” is helpful. Acoustical duct liner does not and cannot support the growth of mold. It is the dust inside the duct system (that is there with or without the liner) that supports the growth of mold. So, it is back to the “it’s dirty” issue — one of those original top 10 complaints.

The last “it is too loud” issue is heat pump air conditioners. These are becoming common in many schools. They are stand-alone units, so each room is individually controlled. But each of them have a compressor. If you have an air conditioner for your home that has an outside unit, you know the noisy part is the compressor.

How do you think your workspace or classroom would sound with that unit in the room? These units are becoming popular because they work well with geothermal energy. They would work even better, acoustically, with a central boiler and chiller system that provides hot and cold water to the unit as needed.

This brings us back, full circle, to room acoustics. In most spaces, we are looking to minimize the buildup of occupant noise, either work or play, so the room you are in does not sound too harsh or reverberant. In the past, this was done with acoustical treatments on the walls, some form of acoustical ceiling system, office partitions, etc.

LEED design requirements for green materials and daylighting have placed a number of compromises on the acoustical design. Historically, fiberglass batting compressed into a semi-ridged board was one of the most cost-efficient acoustical treatments in our acoustical finish pallet. The problem with fiberglass, which comes from sand (a very sustainable material), is that the process of turning sand into fiberglass is not sustainable.

Early in the LEED process there were not a lot of acoustically green finishes that could be used. This is changing as recycled content and new substrates for acoustical finishes are being introduced daily. By treating the walls and ceilings with these newer components, we can create environments that are not as fatiguing and acoustically hard and stark as those spaces that were forced upon us by the early adoption of “green” finishes.

So what is the solution to IEQ factors, acoustics, daylighting, thermal control, air quality and the effect each of these places on the other? The short answer is proper planning and coordination.
Real-World Learning Environments
BLURRING THE LINES BETWEEN K-12, HIGHER EDUCATION AND OFFICE BUILDINGS.  p. 36

Pride in Design
HIGH SCHOOL ACADEMIC BUILDING PLAYS ROLE IN NEIGHBORHOOD REVITALIZATION.  p. 44

Design for Learning
SPACES WE CAN LEARN FROM.  p. 52

Learner Think Tank
LESSONS FROM THE WORKPLACE INFORM CLASSROOM DESIGN.  p. 58

A Common Designer Error
AVOID WHITE-WALLED CLASSROOMS WITH ADDED ELEMENTS OF COLOR.  p. 61
In the past, the difference between a K-12 school, a university facility and an office building was plain to see, quite literally. Each building type employed a unique approach to spatial layout and interior presentation. With the exception of vocational education — which was too often relegated to second-class status — a school was a school, an office was an office ... and never the two did meet. As a result, students moved from one stage of life-long learning to another, constantly adapting to a new environments along the way.

With the rise of project-based learning, the lines between secondary education, higher education and workforce environments have become increasingly blurred. In fact, many school districts are discovering that the best way to prepare students for the next step of their lives is to replicate the types of environments they are likely to find.

The Milan Center for Innovative Studies (MCIS) in Milan, Mich., is a perfect example of the cross-pollination currently taking place among a variety of building types. Built as an addition to the existing Milan High School, the center offers a project-based learning environment designed to help high school seniors transition to higher education or the workforce. In keeping with this mission, the interior environment models itself after...
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the real-world experiences student will have after high school. The result is an environment that functions, feels and looks different than a traditional school. In fact, one of the most common remarks heard from first-time visitors to MCIS is, “This doesn’t look like any high school that I have ever seen.”

A new framework
The differences between the Milan Center for Innovative Studies and a traditional high school extend beyond the use of modern finishes and furniture. The entire arrangement of the 23,000-square-foot building is designed to support the project-based learning curriculum. MCIS faculty members do not “own” a particular classroom. Instead, a series of specialized labs surround a central collaborative space dubbed the Innovation Zone. The proximity of a variety of different learning environments allows students and faculty to easily flow from space to space, accessing resources as needed.

This type of arrangement is more typically found in higher education, a fact that is not lost on the MCIS community. Students often compliment the school by saying, “It doesn’t feel like a normal class-

room.” High praise, indeed, coming from high school seniors.

The flexible organization of the building not only creates a sense of something new and exciting; it also makes the best use of available space. Every square inch of MCIS is available for learning and collaborating. The open arrangement eliminates circulation corridors. The amount of space devoted to offices and administrative facilities is significantly reduced. Rather than having individual offices, teachers shared a compact and highly efficient planning/work area on the second floor.

Designed to work
One of the most popular spaces within MCIS is the Design Lab, an open lab that exactly mimics the type of collaborative studios used by architecture firms, ad agencies and other design professions. The room is organized as a series of clustered workstations equipped with high-powered desktop computers. The clusters allow students to work in teams of two or three, or combine a grouping of four workstations for small group presentations and brainstorming sessions. The Design Lab is equipped with everything you would find in a modern office: multiple flat screens for displaying work, a pull-down projection screen for large group presentations and office-grade printers and plotters. Exposed ductwork and metal roof decking add to the professional feel of the space.

While the Design Lab provides a space for virtual exploration, the nearby Production Lab is an environment where students can get their hands dirty. The room includes mobile tables with highly durable butcher block countertops. Retractable electrical
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service lines support the use of a variety of production tools. The proximity of the Design Lab and Production Lab creates an intentional link between the spaces. As project teams develop concepts in the Design Lab, they are able to quickly move over to the Production Lab to begin building prototypes. The cumulative effect is that of a modern research lab, where ideas are quickly developed, tested and modified.

Thinking small

For years, universities and companies such as Google and Apple have embraced the power of small, personalized spaces for collaboration within the larger built environment. In the same way, the Innovation Zone, the central commons area within MCIS, is broken into a diverse mix of individual and small group spaces. A mixture of soft seating, standard-height tables and café-style tables creates an inviting and comfortable atmosphere. Even the structural elements are in use. Wrapped with durable countertops and equipped with charging outlets, structural columns become the perfect place to work on a laptop or hand-held tablet. The wide range of seating options fits perfectly with the project-based nature of the school’s curriculum.

The feedback from MCIS students shows the power of going small. Within the 23,000-square-foot facility, the most popular space is the smallest. Each morning, students line up waiting for the MCIS doors to open. When they do, a footrace ensues to claim a prized spot in one of the second-floor Pod Bays. The Pod Bays are a series of three booths, each equipped with a central table, two small couches and a wall-mounted monitor connected to the projectors.
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to a custom central receptacle. Students plug their laptops or tablets into the receptacle and are able to share control of what is displayed on the monitor. The Pod Bays are a cost-effective and compact alternative to popular manufactured systems that perform a similar function. To maintain security and visual supervision, the Pod Bays are located next to the second-floor teacher planning suite.

**Innovation on a budget**

While higher education and corporate facilities typically have a higher cost-per-square-foot than K-12 schools, creating real-world learning environments does not need to break the bank. The Milan Center for Innovative Studies was completed for $239 a square foot, including technology and loose furnishings. The multifunctional nature of the school maximizes valuable resources. Even the stairway to the second floor serves a key purpose. The stairway acts as an amphitheater and is used for all-school assemblies. Each morning, students fill the stairs to hear the day’s announcements and discuss their current projects. During the day, the stairs provides another place for students to congregate and collaborate.

Other cost-saving measures include the use of durable materials to extend the building life-cycle. The Innovation Zone and amphitheater stairs use polished concrete to reduce wear and tear, a key concern given the constant reorganization of the school’s mobile tables and chairs.

**Responding to a shifting landscape**

School districts throughout the state of Michigan are touring the Milan Center for Innovative Studies to gain a glimpse of the future of education. However, the strategies located within this progressive building are not entirely new. Instead, the environment draws from best practices already being implemented in modern secondary education, higher education and work environments. By providing high school seniors with real-world educational experiences and facilities, the Milan Center for Innovative Studies better prepares students to succeed in their chosen fields.

**Carla Remenschneider, RID, IIDA,** is an interior designer with Fanning Howey, a educational facilities planning and design firm. **Misty Raatz** is a project manager with Fanning Howey.

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Pride in Design

HIGH SCHOOL ACADEMIC BUILDING PLAYS ROLE IN NEIGHBORHOOD REVITALIZATION.

by PHIL DIETZ

Upon first stepping inside the new Edison High School Academic Building the eyes are drawn upward. The soaring windows and lofty ceiling are truly stirring in the abounding natural light. It is sure to be a spot that will exhilarate and inspire the students who walk the halls of this unique new construct.

Edison Technical High School was originally founded in 1906, just 21 years after Fresno, Calif., was incorporated as a city in 1885. Those who had originally traveled to central California in search of gold and adventure found the region’s soil rich for planting and settled to grow predominantly wheat and later stone fruit and raisins. The high school’s west Fresno neighborhood saw steady growth through the next 60 years. From its humble beginnings with just two buildings, the campus grew to include additional classroom wings — art and drama. On all sides, the school expanded to support the thriving community.

However, in 1972, the aging classroom building was demolished, triggering a great loss of identity for Edison High School. With the values and aspirations of the campus and community so intrinsically linked, after almost 30 years of decline, it became clear a defining change was necessary. Planning sessions were held to integrate the ideas and needs of administrators, staff, students, parents and members of the community into one cohesive Campus Master Plan.

The first new building to usher in this era of growth and pride for Edison High School is an iconic flagship for the changing campus. The dynamic new Academic Building holds cardinal value in the process of updating the architectural vernacular of the institution through all projected growth and modernizations yet to come.
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Additionally, it is through its completion, that the students, staff and community have begun to recapture that lost Edison High School identity.

It was the architect’s goal in working with the district and community to “build identity and find inspiration.” As such, it was important that the design features of the new building hearken back to the lost history of the school’s earlier days. One of the most significant features of the original classroom building to be incorporated in this new design were the exterior window rhythms and size. Nearly floor to ceiling and placed in symmetrical groupings throughout the façade, they allow for an open, naturally well-lit environment. This fit well with the goals of the district, as studies in recent years have shown that use of natural light in school buildings correlates with higher test scores and genuinely happier more productive learning.

According to a study by Heschong Mahone Group of Sacramento, that looked at 20,000 students in California, Colorado and Massachusetts in 1998 and 2002, test scores increased as much as 26 percent among students who learned in classrooms filled with natural light. This is obviously in addition to the reduction in overall electricity usage and utility costs.

Moving past the tall exterior windows and into the main foyer of the first floor, the ceiling opens high and grand. Punctuated by a natural wood accent wall of striated color pattern waterfalls from the ceiling to warm the space and provide a dramatic backdrop for the new Edison High School crest. As need for school security has unfortunately increased, the necessity that staff and teachers have “eyes on campus” has become of growing importance. To this end, the windows from each classroom facing inward upon the wide hallways are strategically placed at a height to allow a standing teacher to view out and supervise, while a seated student could not. Additionally, these windows were placed thoughtfully to permit additional natural light to pour through the clerestory window banks high above the second floor hallway and into classrooms and labs even on the first floor. The outcome is a space that provides both safety and comfort to the end user.

During the design and construction processes, it became clear that in the open
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second story space at the south entrance to the building there would have to be a large steel structural support beam. This was a slight setback, as the beam provided an unwanted eyesore to the otherwise understated and unique space. As a solution, the graphics department conceived a second use for the beam, as a canvas for what would become a motto to connect the theory of education with the relevance of learning. “Non scholae sed vitae discimus” — we learn not for school, but for life — is the phrase which greets the students each morning as they arrive or afternoon as they depart. In bold Edison yellow, the feature transforms the space and gives vital purpose to a necessary aspect of the design.

Moving though the building, another noticeable interior spec feature is the use of polished concrete floors rather than traditional VCT or carpet throughout. In recent years, this practice has become a trend in new school facilities due to the lower maintenance costs and minimized off-gassing. Traditional school flooring must be applied using noxious glues and wax maintained with harsh chemicals, while concrete need only be polished using standard cleaners. The main drawback, however, is a space that is audibly more wet or resonant, and so, not conducive to classroom lessons and casual speech. To mediate this, classroom and lab interior walls have incorporated a new acoustically enhanced gyp-board product deadening the sound of the rooms noticeably and providing an excellent lecture environment.
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Disposing of outdated portable classrooms to make way for leading-edge technical labs, classrooms and learning spaces was of high priority:

- As a magnet school for math and science it was important that the labs and standard classrooms matched and even exceeded technological standards, allowing for a project-based learning environment potential and future integration of state-of-the-art equipment.
- Art classrooms and a lecture hall/presentation space were needed, allowing students to foster their expression and communication skills, while also providing a space for staff training and even community meetings.
- A unique special education classroom should provide a space tailored to hands-on teaching, and be supportive of integration with the larger student body.

Designed and lead by Darden Architects, and built by Turner Construction, the project has now come to completion. With $12.3 million in combined funding (including an HPI incentive grant, PG&E savings by design grant, SFP Modernization & Growth, and ORG) and a bid amount of $11.8 million, non-district funding sources more than paid for the project.

The Academic Building establishes on the campus, a memorable and dramatic visual identity. In keeping with its technical background, a binary code environmental graphic pattern is woven onto the sunscreen used to shade the west-facing classrooms and is taken inside the building at strategic locations. In support of school spirit, the Edison “Tiger” yellow punctuates the building’s understated color scheme. With features like its abundant naturally illuminating clerestory windows and spacious classrooms and hallways, this high-performance, sustainably minded design will bring together the rich history and bright future of Edison High School.

As the 2013 C.A.S.H./AIACC Leroy F. Greene Design Award of Merit recipient for Project in Design, the new Academic Building at Edison High School is a progressive breakthrough for this esteemed California institution and a symbol of change and pride for its students, staff and community.

Phil Dietz is the Business Development Services coordinator at Darden Architects. He can be reached at phil@dardenarchitects.com.
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Design for Learning

SPACES WE CAN LEARN FROM.

by SARA GRANT

“The design of classrooms determines what and how children learn. If you build a quiet corner, children read.”
– Virginia Connor, Head of School. St. Hilda’s and St. Hugh’s School.

Educators are constantly thinking about what’s next for their students, their school and their community. When teachers set up their classrooms each summer, they expertly incorporate elements to engage students in the lessons of the coming year. Teachers dedicate their time and resources to preparing the space of the classroom because they recognize the importance of the student’s first impression of this space in setting the tone for learning. In planning for new facilities, we’ve often heard from educators that the building is the first teacher. We share this belief and are excited to share the ways in which we’ve implemented creative and well-considered design to positively impact learning. Our schools can and should be places that encourage and inspire both teachers and students to excel.

The most effective approaches to education embrace many methodologies and take many forms. Each student learns differently, each class has a different dynamic and each school has different challenges. There is no one-size-fits-all solution for the perfect school building, nor one perfect classroom design. What we share here are considerations to make your school building work for you. This includes using scale, color, daylighting and spatial concepts geared specifically towards student to design age-appropriate spaces that are flexible and easily adaptable to multiple purposes.

The physical elements of the school building including scale, color and daylight are only a part of the picture, though. A successful design relies on engaging the people within the school community in a structured process. An early focus on smart planning...
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and careful programming underscores the mission of the school and leads to innovative and sometimes unexpected results that can greatly enhance the project. The best design is not only functional, but embodies and reflects the identity of the school itself. Architecture should express the pedagogy, culture and values of the institution.

**Age-appropriate design**

Schools should provide students with dynamic, child-centric learning environments. School design demands sensitivity to the stages of human development and the scale appropriate for users. This means tailoring the height of counters, benches and shelving to the size of the students and selecting fixtures and fittings adapted to their bodies and motor skill levels. Reading nooks and small spaces scaled to small bodies draw students into quiet and concentrated study. Plumbing is fascinating to our youngest learners and should be celebrated through design including practical elements like soap dispensers that little hands can operate. For younger learners, bright punches of color are effective way-finding tools, organizing activity within a classroom or corridor. Older students benefit from more complex palettes with colors and textures that encourage environmental awareness. A focus on the specific needs of child users when designing learning spaces ultimately supports and enriches the academic experience.

Children need the flexibility to be out of their seats, moving around and occupying the floor. Resilient, easy-to-clean flooring comes in natural materials and a variety of colors and makes an ideal surface for students to spread out and work on a group art project or experiment. Carpets and rugs delineate inviting areas for reading, meeting and play and should be soft to the touch. Stepped seating serves as a natural gathering spot for children of any age. As the traditional teaching surface, walls are a primary focus in classroom design incorporating a wide variety of functions. Each wall must be carefully planned to allow students to easily see and reach materials while minimizing distracting visual clutter. Although out of reach, the ceiling is equally important. The design of the ceiling will largely determine the quality of the lighting and acoustics in the classroom and every child should be able to clearly see their work and easily hear the teacher. Every surface in the classroom should support learning.

**Building community**

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Multifunctional Learning Spaces. Schools should be open, collaborative and nurturing environments where students feel comfortable sharing ideas; they should be adaptable for changing academic needs. Varied spaces both within the classroom and within the building also allow different subject matters to be featured in immersive environments. The physical elements of the school building including scale, color and daylight are only a part of the picture, though. A successful design relies on engaging the people within the school community in a structured process.

Experiential learning

Successfully designed schools celebrate the act of learning and the intellectual exchanges that occur between students and faculty. Schools should be open, collaborative and nurturing environments where students feel comfortable sharing ideas; they should be adaptable for changing academic needs. Articulated classrooms give teachers space for group instruction and students room to work independently while benefiting from proximity to their peers. This provides a variety of spaces to support different types of learning including easy-to-clean areas with hard surfaces for material experiments, tables for teamwork and quiet areas with soft surfaces, such as carpeted floors or cushioned benches for focused study. Varied spaces both within the classroom and within the building also allow different subject matters to be featured in immersive environments. Studying art in a space that feels like a studio or science in a space that feels like a lab lends seriousness to a child’s study and elevates it beyond the ordinary.

Flexible environments

Flexible learning environments support varied and changing pedagogies and are particularly essential on campuses where space is at a premium. School entries, gymnasiums and libraries can serve as assembly and casual meeting spaces. In schools where the gym also functions as an auditorium, finishes should both endure an errant basketball and provide a fitting backdrop and acoustics for a holiday concert. When furnishing a classroom, mobile or flip-top worktables offer teachers the flexibility to configure their classrooms around a specific lesson. This approach to planning allows schools to maximize their square footage and accommodate a multitude of activities and teaching styles. When maximizing spaces, it is also important to consider the daily schedule, including setup and preparation times for a given room, and to plan for adequate storage for each use.

Integrated technology

The way schools use technology to teach and communicate is unique to each institution. Technology is no longer relegated to a “computer lab” in an age when digital natives carry mobile devices with multiple communication formats and the ability to search the web. Anticipating a school’s use of technology is an integral part of the
design process. Whether overtly displayed or seamlessly integrated into the background, technology supports and enriches the student learning experience.

Security
Ensuring the safety of the school community involves a broad range of considerations including access control, ease of supervision and efficient evacuation routes. School architecture must give students the sense of security that enables them to focus on learning. Whether we are designing a single building or a full campus, creating a secure entry point to a school is imperative. Developing security solutions at the beginning of the design process is essential to avoiding “bunker” architecture when an open, welcoming environment is desired. New building materials and sophisticated security technology enable seamless integration of these critical elements into the architecture of the school.

Sustainability
Managing limited resources and strategically employing sustainable and easily maintainable materials and systems is essential for schools anywhere in the world. Sustainability is a value that influences the behaviors of the entire school community. In addition to designing low-impact, energy-efficient schools, we interface with science teachers to develop sustainable agendas that dovetail with their work in the classroom. Sustainable schools improve student health, boost learning and provide an ethical paradigm for shaping the built environment. The link between the quality of the indoor environment and the ability for students to learn cannot be overstated. A growing body of research reinforces what we know intuitively — that ample daylight and fresh air are essential to allowing students to perform their best.

Each design and construction project is an opportunity to turn current obstacles into future possibilities. Planning offers a chance to step back and evaluate your school’s needs. Design follows as your team develops specific solutions to meet your program, budget and schedule. We hope that some of these design strategies help inspire and inform your next building project.

Sara Grant is an associate at Murphy Burnham & Buttrick Architects, a New York-based firm specializing in educational projects. Sara can be reached at sgrant@mbbarch.com.

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Photography courtesy of Tao Zhang
Lessons from the Workplace Inform Classroom Design.

by Irene Nigaglioni and John Sumlin

During the past few years, schools have reevaluated their learning environments and aggressively pushed for a new focus on college and career readiness. In doing so, they looked at the original inspiration for classroom design and organization. Rooted in the industrial model, it has not evolved. By comparison, manufacturing environments have undergone radical change. Modern workplaces too have moved toward flexible, collaborative spaces, transcending the notion of isolation and noninclusive work product.

Ironically, school workspaces have not changed much.

Educators, architects and educational facility planners are now embracing change and looking to the modern workspace for inspiration. Aligning the learning environment with the work environment helps create spaces where ingenuity and teamwork thrive. An added benefit of drawing from workplace experience is that there is abundant research and documentation on its design and role in engaging its occupants and supporting their success.

In 2010, the Institute for Workplace Innovation at the University of Kentucky developed the Innovative Workplace Model that identifies dimensions of dynamic work environments. Aimed at promoting communication, collaboration, creativity and innovation, these concepts can inform classroom design. We’ve incorporated some of these dimensions into the Learner Think Tank, a model that encourages higher student performance and closer connections between students with facilitators, fellow learners and the community.

Learning and Advancement

In the Learner Think Thank, facilitators work with students’ individual learning styles to create the best learning environment for each. Activities are designed based on student’s strengths and interests, so they are engaged in their own learning. Learners are challenged, given opportunities for creativity and rewarded for their work. Facilitators allow learners to identify projects that they consider meaningful and assist in making real life connections based
on the selected tasks. Accomplishments are rewarded and celebrated, empowering students to take on more challenges and become fully engaged.

**Health and wellness**

Studies show that poor IAQ detracts from a favorable learning environment, reduces productivity, is costly to resolve and causes adverse health conditions. The indoor air quality of learning environments can be positively or negatively affected by the selection of interiors products. Floorcoverings cover a large area of interior space, providing significant opportunity to impact IAQ. Some carpet manufacturers treat their products with antimicrobials, which are classified as pesticides by the Environmental Protection Agency. Wet adhesives used to install flooring products also can be an issue, releasing volatile organic compounds (VOCs) detrimental to indoor air quality.

Moisture intrusion from spills, condensation leaks, pipe bursts, roof leaks and maintenance practices occurs every day in school buildings. If moisture is allowed to pass through flooring, microbial growth can occur. Flooring seams should be molecularly bonded, not taped or glued. There should be no open seams associated with free laying modular carpet products or unwaxed VCT. Microbial growth will occur if moisture and food sources (such as dirt, skin cells and dust) are not managed. Hybrid resilient sheet flooring is impermeable with molecularly bonded seams that minimize microbial growth and allow complete removal of soil, food sources and moisture through normal maintenance. This helps protect the classroom from adverse health conditions. The leading cause of school absenteeism is chronic asthma, and many other health conditions associated with poor IAQ contribute to school absences.

**Social and support teams**

In a work environment, employees stay with the company longer if they develop meaningful relationships with their coworkers and bosses. In the Learner Think Thank, learners and facilitators have a connection that is based on trust, allowing them to work together collaboratively. Learners also have the same opportunity to develop connections with other

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The world of learning is changing, and its relationship to the workplace is growing.
The need for flexibility, agility, creativity and collaboration is growing as demanded by changes in technology, economics and globalization.

Learners and collaborate, creating an environment where creativity and innovation thrives. Trust from the facilitators motivates them to work more productively and creatively.

The learning environment supports social activities and teamwork with extra attention given to acoustics in the design process. Acoustics is an important consideration as studies show that students miss up to 33 percent of verbal communications in poorly designed classrooms.

Flexibility and inclusion

To support a learning environment that is inclusive and tailored to each student's needs, the classroom is moving toward greater flexibility. The Learner Think Tank provides varied settings for tackling diverse activities and tasks, and learners are allowed to work on the schedule that best suits them. Learners are treated with respect and support, so they feel comfortable sharing their ideas, which may be based on their own cultural background. In this environment, students can commit fully to learning as they respect and are interested in everyone's input and ideas.

Interiors products can facilitate a flexible learning environment. Furniture and finishes greatly impact the space. Floorcovering selection is especially important since the floor sets the stage for the tone and color palette.

Sustainability

A sustainable environment maximizes renewable energies and weaves them into the curriculum, stressing the importance of people, relationships and our place in the world. In the Learner Think Tank, we strive to include sustainable building materials, including those made from post-consumer recycled materials and those that are recyclable. Floorcovering can be an important contributor to a sustainable environment.

Creating the Learner Think Tank

At the CEFPI 2012 World Congress, we had the opportunity to showcase a vignette of the Learner Think Tank concept. This classroom design incorporates different organizational strategies that are similar to those found in the Innovative Workplace Model:

1) The Spill Over Area encourages informal conversation, where different teams can touch down and vet ideas with other classmates. The seating configuration and transparency to the room allow for observation to other the activities occurring in the classroom. Graphics also provide a bright focus for increased conversation and exploration. The transparency, seating configuration and floor plan delineated by the hybrid resilient flooring help tie this space to the Innovation Station and other functional areas.

2) Creation, collaboration and ideation is the main focus of the Innovation Station, where new ideas and concepts can be developed in a setting that allows for individual thinking or teamwork. The seating area allows spaces for students to work individually, but the transparency of the screens and the meeting capability of the furniture create excellent collaboration and conversation spots. Inspired by graphics on the wall and ceiling, the space is abuzz with energy, ideas and fun.

3) Adjacent to the Innovation Station is the Quiet Tank, where ideas are developed and concepts evaluated. The table provides for conversation, with walls that provide privacy and plenty of writing opportunities. The acoustics of the entire classroom are enhanced by the ceiling treatment and the floorcovering, allowing for the creation of a quiet space to deliberate and develop plans of action.

4) The Large Group Area provides flexibility for a variety of activities. From lectures to individual work, the flexibility of the tables and chairs allow for an agile work environment that can change as needed. Learners can reorganize the room and work in groups, depending on the task at hand. A technology rich wall allows for a variety of displays and for interactivity with the students' own technology via docking stations for tablets and phones. The large group area is open to the outdoors, allowing the two to merge into one large learning environment.

5) Within the large group area is the Informal Breakout Space, with seating that is loose, relaxed and fun. The area allows for conversation and for a fun setting where ideas can be shared. The seating brings color and comfort to the room, and its light weight allows it to be relocated anywhere in the room, and even the outdoors.

6) The Sustainable Learning Environment brings nature into the space and utilizes materials that are environmentally friendly. Understanding that change is good; it allows for reconfiguration to occur as needed.

The world of learning is changing, and its relationship to the workplace is growing. The need for flexibility, agility, creativity and collaboration is growing as demanded by changes in technology, economics and globalization. The design of the Learner Think Tank, based on dimensions of the Innovative Workplace, allows change to occur naturally and positively. The opportunities for students to learn and perform at their best suits them. Learners are treated with respect and support, so they feel comfortable sharing their ideas, which may be based on their own cultural background. In this environment, students can commit fully to learning as they respect and are interested in everyone's input and ideas.

Interiors products can facilitate a flexible learning environment. Furniture and finishes greatly impact the space. Floorcovering selection is especially important since the floor sets the stage for the tone and color palette.

Sustainability

A sustainable environment maximizes renewable energies and weaves them into the curriculum, stressing the importance of people, relationships and our place in the world. In the Learner Think Tank, we strive to include sustainable building materials, including those made from post-consumer recycled materials and those that are recyclable. Floorcovering can be an important contributor to a sustainable environment.

Creating the Learner Think Tank

At the CEFPI 2012 World Congress, we had the opportunity to showcase a vignette of the Learner Think Tank concept. This classroom design incorporates different organizational strategies that are similar to those found in the Innovative Workplace Model:

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Although proven non-productive to academic performance or morale, classrooms with white walls have continued to dominate in educational facilities and remain as constant representatives today. Many designers try to add some “life” in a white-walled classroom environment by adding accents of color within the space for impact. Regrettably, research has shown that they are correct that an impact is created, however, it is a negative one when it concerns the stimulation of learning within a classroom.

Placing elements of color such as classroom furnishings (e.g. green chairs or blue desks), window treatments (e.g. black or yellow blinds) or student or teacher artwork within a classroom of white walls do not have the positive impact that many designers intend to achieve. Using white on the surrounding classroom walls and then throwing color into the space with furniture or other finishes can give an appearance of something being forced to counter the visual power of the background white. The added color in the design then appears to be an afterthought.

Psychologically, it takes humans a lengthy period of time to adapt to the prevailing use of the color white. To the human perception, the surrounding white design quickly becomes tiring due to eyestrain and fatigue long before the adaptation to the color.
The correlation between the learning environment and the learner must be unified to achieve the maximum potential of education for the students.

color can occur. The person occupying the space is most aware of the largest majority of color that is present in the setting and when elements of color are added, they are just that: accents to the largest quantity of background color. The largest distribution of color is obviously from the walls and the psychological effect stems from whatever color is used in the dominant amount.

In contrast to having colored walls in our classrooms, environments that have values of white walls and colored furniture do not achieve the desired effect that humans need to stimulate productivity, morale and academic performance in classroom settings. It is often argued that white in interiors is an ideal background to set off colored decorative effects. According to some research, regardless of accent color distribution, the main impression of the environment more than likely will remain white.

This “white walls with added colored element” design thinking is also opposite to what nature exhibits for human enjoyment. Skies are blue and provide the greatest amount of color in the outdoor environment. They have accents of white clouds that gracefully pass through in different shapes and sizes through the blue canvas called sky. A person experiences the magnificent radiance provided by the blue background and can enjoy the clouds as accented elements or “artwork.”

The same scenario pertains to grass. Grass as a ground covering is typically green and holds the largest distribution of color that a person sees and feels. White picket fences are the accents that are added on the green canvas and create a pleasing contrast for the human eye.

Imagine an entirely pure white sky and that the clouds that pass through are shades of blue. How would that feel to view? Would it have the same peaceful and calming effect as viewing the brilliant blue hues of the sky every day or would it feel different, possibly cold and sterile? Alternatively, imagine a rolling field of pure white grass with green picket fences stationed around the perimeters. Would this be as enjoyable and soothing as the rolling fields of green as it occurs in nature?

This is the same effect achieved from design concepts utilizing white walls and additive elements of color within the classroom. With white walls, the viewer experiences the same encounter as if there was a white sky or white grass because white dominates in quantity over other colors in the space. This is also analogous to having colored desks, chairs and window blinds in a room painted values of white.

Edward Nuhfer, an educator with 15 years’ experience who is director of Faculty Development at California State University of the Channel Islands, also has witnessed the lifeless effects of white walls and added colored elements with his own students. Nuhfer’s research again showed the benefits of colored walls as compared to white walls. His students were more productive with colored wall use, and the study paved the way for the logic that using colored artwork alone on a sterile background wall setting is overpowering to the artwork itself. The institutional feeling of white or off-white inevitably shines through in its dominance to generate the feeling of the classroom.

Using color trends in elements of furniture can also be a wasteful use of budgeted school funds, since the trendy colors can become tiresome quickly. Due to the costs of replacement, furnishings are not replaced on any type of regular basis and are generally used until they are worn out. The replacement costs of furnishings with trendy colors would far outweigh the costs of repainting classroom walls, which is already part of the regular maintenance requirements for a school facility. In order to be most effective in a learning environment, color values have to be strategically chosen and implemented.

Student artwork is often displayed on classrooms walls in many elementary school settings. In a Canadian case study performed by color scientist and university professor Dr. Harry Wohlfarth in the mid 1980s, it was...
concluded that efforts by many elementary school teachers to display student work on white or off-white classroom walls actually boomeranged, and resulted in the production of “visual noise.” The artwork on display, in fact, distracted students from performing their assigned tasks.

Wohlfarth’s study utilized a test school that implemented a warm, pale yellow hue on three classroom walls and a pale blue accent wall behind the instructor. This color combination resulted in a decrease in students’ disruptive behavior, as well as a decline in student aggressiveness and habitual comments. The test school was compared to the control school that used off-white walls with added elements of dark brown and gray hues.

Before his death in 1996, Wohlfarth had made outstanding progress in the promotion of colored walls and productive teaching. He was the president of the International Academy of Color Sciences in his native country of Germany, as well as a consultant for the Institute of Psychobiological Studies at California State University.

Every color has its place somewhere within the world today, and white paint, due to its high light reflectance value (LRV) of 80 to 90 percent, is best suited for applications of interior ceiling finishes in educational environments. In her 1993 dissertation, “The Effect of Color and Light on Selected Elementary School Students,” E. Grangaard makes a strong and viable point by stating, “The human learner is the product with the greatest profit potential, the product of whose environment has remained sterile, bereft of stimuli or bombarded by stimuli, in classrooms of industrial white with inadequate fluorescent lighting .... White must go and off-white must follow.”

The correlation between the learning environment and the learner must be unified to achieve the maximum potential of education for the students. It is apparent from the multitude of color research that adding colored elements to a classroom surrounded with white walls in an effort to provide some type of “life” to the space as a design concept is hindering our academic potential and should be eliminated.

Kathryn Grube, M.I.D., LEED-AP ID+C, IDEC, IIDA, is a seasoned veteran of 13 years involved with educational interiors, and has recently completed her Master of Interior Design in order to pursue teaching professionally.
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| MAY 2013 / SCHOOL PLANNING & MANAGEMENT 65 |
Flipped Classroom, Forward Thinking

New Braunfels ISD employs multimedia tools for student-centered learning.

by CHRISTINE BEITENHAUS

From projectors to iPads and iPod Touches, YouTube and teacher-created “textbooks,” multimedia lessons and the technology needed to run it are throughout New Braunfels Independent School District (ISD) in New Braunfels, Texas, from kindergarten to high school. It all started when Randy Moczygemba became the district superintendent.

“When they made me superintendent,” Moczygemba explains, “I asked the board to designate $3 million of our fund balance to technology so that we could prepare to start incorporating this kind of technology in the district.”

Knowing they were going to focus at certain grade levels with 1:1 and a flipped classroom model, Moczygemba also wanted to make an impact in every classroom. So the district began by installing Epson projectors in every classroom to give teachers and students a chance to try out the technology. Teachers could use their own classroom computer with the whole class, and any issues could be managed by the district’s technology department in their office.

Along with projectors, teachers have another tool to create their innovative lessons — the iProjection app. “We have an app on our iPads and our iPod Touches that allows teachers to give access to the students to display work,” he says. “That is moving more towards the flipped classroom where it’s more student centered than teacher centered.”

Giving teachers the “basics” with projectors in every classroom, computers and devices for students, and interactive software like the iProjection app, allows for a huge shift in the way teachers can approach presenting material to students, and also helped the district build their flipped classroom model.

Another indication that a 1:1 environment was right for their students was the way they interacted with the devices. “The students were very, very engaged with the devices and seemed to have a high level of motivation utilizing devices,” Moczygemba observes. “We have a pretty high percentage of economically disadvantaged students in our district, and a lot of those students don’t have access to technology except at school. What we realized was that our typical lab environments did not give those kids the amount of time and technology that we needed to have them seeing.”

The big flip

Moving their focus to a 1:1 environment meant rethinking how space would be used. An upcoming bond election included a ninth-grade center for temporary relief of overcrowding at the high school. Moczygemba explains his vision: “Within that I saw an opportunity with that ninth-grade center — one grade level at one campus being able to implement 1:1 so that, number one, we could learn about what works and what doesn’t work. And so we implemented the 1:1 initiative at the ninth-grade center this year.” If anything is an indication of the success with this trial, already the district has purchased iPads and has them on hold to roll out the initiative for 10th through 12th grades next year.

The change to a flipped model was not without some bumps in the road. He adds, “One of the things we realized very early in this … is that during the first six weeks,
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students and teachers both became very frustrated because it is such a drastic change.” The model they used goes from substituting technology for the whiteboards and chalkboards all the way to students designing the curriculum. Of course, that huge shift in how the classroom works will probably take many teachers several years to get there.

Despite the fact that teachers often will take some time to get to a fully flipped classroom, Moczygemba saw many of their teachers embrace the flipped model right away. These teachers are creating lessons in iTunes University (New Braunfels ISD was the second school in the state of Texas to have an iTunes U site) or creating content and uploading it to YouTube channels for their students. “With the flipped classroom model, you’re really moving away from a textbook as we know it and really into the multimedia lessons that the teachers can create,” Moczygemba adds.

The real thrill of seeing the flipped model working is in seeing students make connections outside of the classroom. “We know that there’s probably at least 40 percent of our kids who don’t have Internet access at home,” Moczygemba says. Whether or not they have Internet access or the technology the need, their iPads fill that gap. At school, students can download a lesson from iTunes U to view it at home. When they are having trouble, they can re-watch lectures and other content without needing to connect to the Internet. Downloading the lessons and previewing them before class also allows the homework to become the introduction and reinforcement and class time to be used for application of the material and for critical thinking and problem solving.

**Planning for progress**

“We probably took longer than other school districts do in planning the 1:1 initiatives,” Moczygemba explained. “One of our school districts in Austin, they came down to talk to us in our planning phase, and took what they got from us along with the rest of their planning and implemented a year before we did. We had the ability to go to their high school and walk through and observe what was going on there and ask questions — what worked well for you and what didn’t work and to try to utilize that information from the start with us.”

Moczygemba feels that collaboration with other districts in key to creating an effective flipped classroom model that will make the most use out of multimedia technology tools. “We were fortunate to visit a couple of districts, Ames ISD in Austin and McAllen ISD in the valley, and actually go through some classrooms and listen to some teachers and administrators. And, of course, you can’t leave out the technology folks who make the system work.”

In the end, Moczygemba emphasizes that the flipped classroom model and using multimedia technology in the classroom is important because districts need to work to move all students forward with 21st century technology. “The whole thing with me is, you know, we shouldn’t as schools be reinventing all the wheels. I think we always have to be looking for ways to refine our wheels.”

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### [GETTING PREPARED]

**Designing For Multimedia**

Multimedia classrooms demand an ever-increasing amount of technology to be effective. Despite not knowing what devices will be used in the future, having a solid infrastructure is a smart way to support innovations:

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  - Systems consisting of a microphone, amplifier and ceiling speakers allow for clear hearing

- **CENTRALIZED CONTROL PANEL**
  - Intuitive and easy to operate
  - Consistent control from room to room
  - Configurable to support current and future source and display devices

**NETWORK MANAGEMENT OF AV SYSTEM**

- Monitor classroom technology over the network
- Remote maintenance and support increase technology uptime
- Flexible scheduling options help to reduce the operating costs and extend operating life of components

Having near and long term technology plans is smart. Make sure your planning is consistent with available resources, methods of instruction and professional development commitments.

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*Anthony Cortes* is the director of Sales & Marketing, K12 Classroom Systems for Extron Electronics. He can be reached at acortes@extron.com.
Doing the AV Math
HOW MUCH POWER DO I NEED?

My March 2013 column provided a quantitative answer to the subjective question of, “What is loud enough?” In this month’s edition, our example is extended further to answer the question, “How much power do I need?”

To briefly sum up the previous article, we know that, in order for a loudspeaker to be deemed “loud enough,” we need its signal to be 25 dB greater than the ambient sound level in the room. Extending this acoustic example to electrical systems, we want to figure out exactly how much power is required at the loudspeaker to achieve those signal levels.

The equation for calculating the Effective Power Required is shown below. It may look complicated, but it is another example of plugging in the proper variables and adjusting as needed.

Most professional quality loudspeaker manufacturers publish specifications on their products, which are necessary in order to calculate how much power is required. Here are the values we are specifically seeking in this application:

- $S_n =$ signal level required at the listener — from the previous article, we determined that was 80 dB
- $D_l =$ distance to furthest listener
- $D_r =$ reference distance (this should be the same value as the distance at which sensitivity is measured, see below)
- $L_s =$ loudspeaker sensitivity — this is a measurement taken by placing a microphone at a specific distance away from the loudspeaker and measuring the dB level of the output when 1 W is sent through it. Loudspeaker manufacturers typically use an industry standardized standard distance of 1 meter, but it is always important to verify this by looking at the specifications. This is, in essence, the efficiency of the loudspeaker: a more efficient loudspeaker (from a power perspective) will have a higher sensitivity value.

It is important to note a brief disclaimer: many factors can skew the results of this measurement. But for brevity and for the purpose of this article, we will assume that manufacturers hire an independent third party to measure all loudspeakers with the consistency required to allow us to trust the results.

The last piece of this puzzle is called “headroom.” Headroom is the amount by which the capabilities of a system exceed the necessary requirements of the signal. An analogy for this might be the “red line” on your car’s tachometer. While your car may be able to handle a little bit of extra RPM, sustained amounts of use at those levels will damage the system. For this example, we will use a figure of 6 dB of headroom. You might find more headroom in a theatre, and maybe less in economical systems where audio performance is not as great of a concern.

For this example, we will use actual data from two different loudspeakers. Loudspeaker “A” has a sensitivity rating of 87 dB SPL, measured at 1 meter away with a 1-W signal sent through it. Loudspeaker “B” has a sensitivity rating of 91 dB SPL (also measured at 1W/1m). The results for each loudspeaker are shown underneath the Effective Power Required formula image at the side. Loudspeaker “A” would require 170 W, while loudspeaker “B” only requires about 68.

Even if we revise our headroom down, it is unlikely we will achieve a very power efficient system. It is important that an acoustician take a look at even the simplest designs in order to determine if there is anything that can be done that will bring the ambient noise to a manageable level. For example, it would be more manageable if we had a baseline ambient noise level of 35 dB wherein a signal could be considered “loud enough” at 60 dB at minimum for the farthest listener.

If we can begin our equipment selection using these more realistic values (see scenario “C” at the side), we will be able to bring the power required down to a much more manageable 1.7 W (not a typo) for the less efficient loudspeaker — one that also saves money, which is a plus.
The latest Speak Up survey report has been released. More than 100,000 parents and educators weighed in with their thoughts on technology — how they use it personally, how it is being used in schools and how it should be used for teaching and learning.

“From Chalkboards to Tablets: The Digital Conversion of the K-12 Classroom” is the first in a two-part series to document the key national findings from Speak Up 2012. For the past few years, Project Tomorrow has used the Speak Up survey to diligently document the growth in educators’ access to emerging technology devices, tools and services, and how that increased familiarity has resulted in greater interest in digital learning. The Speak Up survey data has also highlighted the growing expectations of parents each year for interactive and collaborative digital learning environments that they believe are essential for preparing their child to compete in the global information society. And, we have shared information and research over several years about the widespread national interest in enhanced college and career readiness for all K-12 students. Given all of those positive conditions, why is there so much new fervor around digital conversions today? What makes today’s education landscape different than last year, the year before or five years ago? What is different? This report takes an in-depth look at the transformative factors that are driving this new digital conversion momentum and the new capacities to build toward to support the process.

Key findings from this year’s report include:

• Today’s teachers, administrators and parents are increasingly mobile-using, texting, tweeting social media devotees whose personal and professional lives are dependent upon Internet connectivity and online collaborative learning environments. A majority of teachers (52 percent), parents (57 percent) and district administrators (52 percent) are now regularly updating a social networking site, and many are using a personal mobile device such as a smart phone to do that.

• Four out of 10 district leaders (41 percent) in 2012 pinpointed achievement measured by test scores and closing the achievement gap as top concern points for their district, a growth of 21 percent over 2011 responses.

• Teachers are increasingly interested in leveraging technology for activities with students and many are modifying their instructional plans to incorporate more digital experiences. Nearly a majority of classroom teachers (45 percent) noted in 2012 that they were creating more interactive lessons because of having access to technology, an increase of 25 percent in just the past two years.

• A continuation of the multiyear stagnation in funding for new education technology investments is finally forcing school and district leaders to scrap the plans they have on hold, and to test new ways to leverage technology to increase revenue or decrease costs even though some of these approaches challenge conventional wisdom and long-held policy positions. In 2012, we see proof of this digital conversion happening right in the principal’s office. Today, over a third of principals (36 percent) say that a new BYOD policy for students is likely this school year.

• Social media and digital tools and resources have transcended the classroom and are emerging strongly as key components of 21st-century school to home communications. Thirty-seven percent of parents wish that their child’s teacher or school would communicate with them via text messaging, less than one-quarter of teachers (23 percent) say that texting between parents and teachers is a common practice today.

In fall 2012, Project Tomorrow surveyed 364,240 K-12 students, 39,713 parents, 53,947 teachers, 2,399 librarians, 1,564 district administrators, 3,947 school administrators and 500 technology leaders representing 8,020 public and private schools from 2,431 districts.

School Narrows the Digital Divide

Passaic City Public Schools, Passaic City, N.J., in partnership with Samsung Electronics America, Inc., recently deployed 5,000 Samsung Chromebook 500s to all district students in grades seven through 12 in a 1:1 computing program aimed at providing the district’s educators and students with the technology and resources needed to bridge the digital divide.

“This 1:1 initiative with Samsung Chromebooks is the culmination of many years of planning aimed at realizing our goal of narrowing the digital divide for our student population,” says Passaic City Public Schools Interim Superintendent Dr. Lawrence Everett. “With access to Samsung Chromebooks every day and all day at school, and also in their homes from later this year, Passaic students will now have much greater opportunities to obtain the 21st-century skills that are so essential to success...”

“We’re excited that Passaic City Public Schools chose Samsung Chromebooks for this important project that will open up new opportunities for its students to learn in a more collaborative, rich and globally engaged way,” says Tod Pike, senior vice president at Samsung Electronics America’s Enterprise Business Division.

“In the past, if you were to deploy 5,000 laptops, you’d have to image them, keep all software updated and perform maintenance on a regular basis, putting a significant strain on IT resources,” says Joshua Koen, director of Information Technology for Passaic City Schools. “With the Samsung Chromebooks, when we want to deploy a new app or update, we just add it to the management console and it applies to all 5,000. The bottom line is, this massive deployment would simply not have been possible for Passaic City Schools with any other device.”

The Samsung Chromebooks provide a number of benefits for school districts, including a lower cost to purchase, a quick boot time, the option to remotely manage each device from Google and a reduced total cost of ownership.

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**Tech Showcase**

**BYOD Management**

Aruba Networks, Inc. — With the addition of Aruba WorkSpace, a new component of the ClearPass Access Management System, for the first time, Network Access Control (NAC), Mobile Device Management (MDM) and Mobile Application Management (MAM) systems are a part of one solution and work together to secure company data and reduce BYOD helpdesk costs.

**Touch Screen**

BALD Technologies — This highly precise and portable 15.6-inch monitor allows any Windows 7 or 8 user to run any software with their fingers. Simply plug the monitor into your PC via one USB and one VGA cable and replace your computer mouse with your fingers.

Optoma Technology, Inc. — Two new EcoBright solid state illumination (SSI) short-throw projectors, the 2500-lumen ZW212ST and its 2300-lumen cousin, the ZX212ST, are designed to more effectively display presentations, save money and reduce carbon footprints. Both employ all the latest command and control technologies, ensuring easy system integration and operation.

**Expanded Purchasing Agreement**

Panasonic Corporation — With this addition of the Toughpad family to the contract available through the National Intergovernmental Purchasing Alliance Company, public and nonprofit agencies across the country have a new, efficient method to purchase Panasonic’s industry-leading family of tablet computers built to withstand challenging conditions.
THE FIRST APPLE IPAD WAS released Apr. 3, 2010. Coincidentally, the last print edition of the Encyclopedia Britannica was published in 2010. Students now have immediate access to virtually all information with digital wireless technology — information that was once found solely contained in textbooks, newspapers and media centers. Technology is now blended into our work, our lives and the lives of students. Instruction incorporating one-to-one technology (often referred to as blended learning) is enabling educators and students to individualize education and monitor progress in real time.

Educators and designers are collaborating to create facilities that support students’ physiological, psychological and social needs so that these students can focus on gleaning information through all learning modalities and developing critical thinking, collaboration, creativity and communication skills. This philosophy is intended for an improved learning experience that prepares students for their professional future.

It is important for leaders in both the education and architecture industries to create forward-thinking, spacious and comfortable media centers that inspire students to work collaboratively and openly with their mobile learning devices.

Designed with students in mind
Media centers were traditionally repositories to secure books and other valued media. With the current mobile learning that comes with technological advances and an understanding of the different ways students learn and the future skills they need. At SHP Leading Design, an Ohio and Colorado-based architecture and design firm, architects and designers work in tandem with educators to create forward-thinking, spacious and comfortable media centers that inspire students to work collaboratively and openly with their mobile learning devices.

by TODD THACKERY
access to information 24/7, the security of textbooks becomes less of a concern. Educators are looking for spaces that serve a multipurpose — traditional and digital media repository, social learning environment and educational commons. In certain instances, schools distribute contents in the media center (traditional media) throughout the school and use the media center as an extended learning area.

SHP Leading Design client Ridgemont Local Schools, is a 525-student K-12 school located in Mount Victory, Ohio. The school is currently designing a new educational delivery model and a new school slated to be complete in 2015. The school currently has a “bring your own device” (BYOD) policy through which students can access information from anywhere, anytime. With this flexible policy, the school has purposely planned to not have a central media center, but instead to distribute this space allocation into “extended learning areas” within 150 student learning communities. With a focus on blended learning, Ridgemont still finds print alive and well. In fact, printed text is accessible as leisure reading and independent learning.

The renovated Ridgemont school is designed as four quadrants with two classrooms per elementary grade level organized around extended learning areas. The middle and high school students are to be organized by a STEM (science, technology, engineering and math) cluster as well as a social studies, language and arts cluster. Each quadrant is designed to have its own common area where students can access books for leisure reading and work independently or flexibly in medium or large groups.

Fewer books, more atmosphere

Architects and designers are seeing a trend in media centers that is less about the books and more about the needs of students. Teens are drawn to comfortable environments that promote social interaction, self-directed learning, collaboration and autonomy.

With so much digital stimuli surrounding students these days, class is often the only face-to-face social learning they experience. It is the role of educators to prepare their students for the working world. Companies look for prospective employees who are creative, collaborative problem-solvers, with strong interpersonal and multimedia communication skills. That’s why more educators are working with architects and designers to create a comfortable, open environment that promotes social learning activities.

In 2011, Butler High School, located in Vandalia, Ohio, charged SHP Leading Design with creating a media center to react to changing educational needs — a project that had to be completed in just 14 months. Butler’s educators wanted to create a transitional, multipurpose social commons that could be used for flexible learning (individual, small group, multi-class). Their philosophy holds that technological learning is equal to social learning. When technology was taken into account (with fixed stations), the design accommodated group work centered on technology instead of individuals stationed in computer carrels.

In the initial planning phases, the media center had more than 20,000 volumes. Mid-construction, Butler educators realized they wanted to open up the space by scaling back 10,000 volumes to create an open transitional environment.

To accommodate this atmosphere, the designers at SHP Leading Design ensured all furniture was mobile and chairs had high backs so students could create their own zones in the space to work on group or individual projects.

Think ahead

Planning ahead for a media center that just might be around for the next 50 years or longer can certainly be difficult. In doing so, educators should consider what influences the minds of their students. In today’s society, we must remember there is a world of information at our fingertips. The challenge is to help students learn how to use this information effectively to best educate them for their professional future both socially and technologically. Whatever the next trend in education might be, educators, architects and designers must be a few steps ahead in creating the best environment for students to foster creativity, critical thinking and collaboration.

Todd Thackery is vice president of Architecture at SHP Leading Design in Cincinnati, Ohio.
District Saves Energy, Improves Comfort

CHOOSEN AS AN EFFICIENT and low-cost energy-saving strategy, the Air Pear Thermal Equalizer by Airius LLC was recently installed in gymnasiums and multipurpose rooms across the entire Elizabeth, N.J., school district.

The school district began installing the Air Pear destratification fans after an energy service group recommended that all 10 schools in the district use the Air Pear in various spaces.

George Washington School #1, for example, installed eight Model 25 Air Pear fans with the Airius dropped ceiling kits to accommodate the T-bar ceiling tiles at a height of 22 feet.

School officials say they’re already seeing an impact.

“The Air Pear destrat fans installed over the summer have had a huge, positive impact in terms of comfort,” says Ken Sagzda, the head custodian of George Washington. “We have monitored this over several months and find them to be money well spent.

“Our ambient temperature is a steady 68 degrees to 70 degrees throughout the gymnasium. We no longer make adjustments on a regular basis. The space is untouched and comfortable. Job well done.”

The Air Pear fans, manufactured in Longmont, Colo., feature exclusive patented stator technology to mix hot air from high ceilings in a direct column to the cooler floor below to thermally equalize a space, balancing the temperature throughout the gymnasiums.

By reducing the run time of a building’s HVAC system, energy and maintenance bills are reduced in both summer and winter months. Case studies show energy savings up to 35 percent are possible.

New Plumbing Fixtures Reliable

WITH 100 SCHOOLS AND 14 support buildings to maintain, Tim Stanfield, Maintenance Services supervisor for the Fulton County Board of Education in Georgia, has a big job. His team provides preventive and corrective maintenance and emergency response service in Georgia’s fourth largest school district. So when existing plumbing fixtures started malfunctioning, it was his team’s responsibility to find the best solution.

“We had installed plumbing products throughout our facilities that began leaking and were damaged,” Stanfield says. “When we contacted the manufacturer to service the products, we learned that the warranty was no longer valid, and we were left in a tight spot ….” Instead of repairing the existing faucets and flush valves, Stanfield and his team decided to replace them with products from Moen Commercial.

There were a number of factors that led Stanfield to choose Moen Commercial: two of the most important were its industry-leading five-year warranty against material or manufacturing defects and its contribution toward lower lifetime operation costs for the facilities. Heavy-duty M•Dura faucets, M•Press metering faucets and M•Power electronic faucets were installed throughout the buildings, along with M•Power electronic flush valves.

“Since the M•Power line features piston technology, it allowed the new products to work with our low pressure,” Stanfield adds. “Plus they’re a much more reliable product and aren’t as susceptible to the line trash issues, keeping our overall facility maintenance running much smoother and keeping our costs much lower.”

Another benefit of the Moen Commercial products are the long-lasting cartridges, which cut down on the number of parts the maintenance team needed to keep in stock. Plus, any electronic components are able to be serviced and replaced easily if needed, without having to remove the entire valve.

www.moencommercial.com

Look for more Case Histories online at: www.webSPM.com
### Product Showcase

**Collaborative Furniture**
*Computer Comforts* — Is it a conference table? Is it a computer workstation? The Collaborative Table is both. This table's design is the perfect solution for groups of three to six students. What makes this table unique is the wide variety of tabletop ports, monitor mounts and student control systems, which are available.

**Water Fill Stations**
*Evive Station* — Evive Stations are free water fill stations to help eliminate the senseless waste caused by disposable plastic bottles. The dispensed water is free to users, and the stations are provided at no charge to the facilities. Evive Stations also provide complimentary unlimited bottle cleaning.

**Play Kitchen**
*Jonti-Craft, Inc.* — The TrueModern Play Kitchen from Jonti-Craft is the ultimate in creative play. This modern collection of educational furniture — created by designer Edgar Blazona — features a sleek, modern aesthetic that adults will appreciate and interactive elements that will keep kids entertained!

**Backpack Vacuum**
*ProTeam, The Vacuum Company* — The new ProTeam Super Coach Pro 6/10 improves user comfort and productivity. Ergonomic triangular shape and patented articulating harness fit closer to the body, increasing user range of motion. Learn more at www.proteamnextgen.com.

**Walk-Behind Scrubber**
*Kärcher Commercial* — The newly designed B 80 W walk-behind scrubber’s compact, narrow design makes it easy to maneuver, and its tank’s asymmetrical shape gives the operator a clear view of the brush head. With the Kärcher Intelligent Key system, a different profile can be set for each user, thereby ensuring ease of use.

**Luminaires**
*Peerless* — Peerless Staple luminaires from Acuity Brands deliver all the fundamentals of great lighting — modern design, comfortable illumination, efficient performance and energy-saving controls options — at a value that makes it a practical choice for all education facility spaces. For more information, visit www.peerlesslighting.com.

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<table>
<thead>
<tr>
<th>Advertiser</th>
<th>Page #</th>
<th>Address/Contact Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airius LLC</td>
<td>p. 75</td>
<td><a href="http://www.theairpear.com">www.theairpear.com</a></td>
</tr>
<tr>
<td>American Specialties Inc.</td>
<td>p. 59, 63</td>
<td>americanspecialties.com/Tri-Umph</td>
</tr>
<tr>
<td>Armstrong Ceiling &amp; Wall Systems</td>
<td>p. 5, 63</td>
<td>armstrong.com/shapes, 877/AMRSTRONG</td>
</tr>
<tr>
<td>Aruba Networks, Inc.</td>
<td>p. 71</td>
<td><a href="http://www.arubanetworks.com/beyondMDM">www.arubanetworks.com/beyondMDM</a></td>
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<tr>
<td>ASSA ABLOY</td>
<td>p. 25</td>
<td><a href="http://www.assaabloydss.com/K12">www.assaabloydss.com/K12</a></td>
</tr>
<tr>
<td>BALD Technologies</td>
<td>p. 71</td>
<td><a href="http://www.baldtechnologies.com">www.baldtechnologies.com</a></td>
</tr>
<tr>
<td>BioFit Engineered Products</td>
<td>p. 42, 63</td>
<td>biofit.com, 800/597-0246</td>
</tr>
<tr>
<td>Chicago Faucets</td>
<td>p. 49, 64</td>
<td><a href="http://www.chicagofaucets.com">www.chicagofaucets.com</a>, 800/323-5060</td>
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<tr>
<td>Clorox</td>
<td>p. 32, 33</td>
<td>Cloroxprofessional.com</td>
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<td>Computer Comforts</td>
<td>p. 75</td>
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<tr>
<td>Diversity - Sealed Air Corp.</td>
<td>p. 80</td>
<td><a href="http://www.taskbydiversity.com/crystalsheild">www.taskbydiversity.com/crystalsheild</a></td>
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<td><a href="http://www.evac-chair.com">www.evac-chair.com</a></td>
</tr>
<tr>
<td>Evive Station</td>
<td>p. 75</td>
<td>evivestation.com</td>
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<td>Harlequin Floors</td>
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<td><a href="http://www.harlequinfloors.com">www.harlequinfloors.com</a>, 800/642-6440</td>
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<td>securitytechnologies.ingersollrand.com, 888/704-4889, 888/988-4561</td>
</tr>
<tr>
<td>Jonti-Craft, Inc.</td>
<td>p. 75</td>
<td><a href="http://www.jonti-craft.com">www.jonti-craft.com</a></td>
</tr>
<tr>
<td>Kärcher Commercial</td>
<td>p. 75</td>
<td><a href="http://www.karchercommercial.com">www.karchercommercial.com</a></td>
</tr>
<tr>
<td>Kay Park &amp; Recreation</td>
<td>p. 30</td>
<td><a href="http://www.kaypark.com">www.kaypark.com</a>, 800/553-2476</td>
</tr>
<tr>
<td>KI</td>
<td>p. 45, 64</td>
<td><a href="http://www.ki.com">www.ki.com</a>, 800/424-2432</td>
</tr>
<tr>
<td>MDC</td>
<td>p. 53, 64</td>
<td>mdcwall.com, 800/621-4006</td>
</tr>
<tr>
<td>Minuteman/Para Systems, Inc.</td>
<td>p. 24</td>
<td><a href="http://www.minutemanups.com">www.minutemanups.com</a>, 800/238-7272</td>
</tr>
<tr>
<td>Modernfold</td>
<td>p. 9</td>
<td>modernfold.com</td>
</tr>
<tr>
<td>Moen Commercial</td>
<td>p. 64, 74</td>
<td><a href="http://www.moencommercial.com">www.moencommercial.com</a></td>
</tr>
<tr>
<td>Nilfisk-Advance, Inc.</td>
<td>p. 19</td>
<td><a href="http://www.advance-us.com">www.advance-us.com</a>, 800/850-5559</td>
</tr>
<tr>
<td>Optoma Technology, Inc.</td>
<td>p. 71</td>
<td><a href="http://www.optomausa.com">www.optomausa.com</a></td>
</tr>
<tr>
<td>Peerless</td>
<td>p. 75</td>
<td><a href="http://www.peerlesslighting.com">www.peerlesslighting.com</a></td>
</tr>
<tr>
<td>Petersen Aluminum Corporation</td>
<td>p. 7</td>
<td><a href="http://www.pac-clad.com">www.pac-clad.com</a>, 800/PAC-CLAD</td>
</tr>
<tr>
<td>Playworld Systems Inc.</td>
<td>p. 2</td>
<td><a href="http://www.playworldsystems.com/SPM1303">www.playworldsystems.com/SPM1303</a></td>
</tr>
<tr>
<td>ProTeam, The Vacuum Company</td>
<td>p. 75</td>
<td><a href="http://www.proteamnextgen.com">www.proteamnextgen.com</a></td>
</tr>
<tr>
<td>Q-Ball Renewal Glides</td>
<td>p. 64</td>
<td><a href="http://www.qball.com">www.qball.com</a>, 877/466-3878</td>
</tr>
<tr>
<td>Roppe Corp.</td>
<td>p. 51, 64</td>
<td>roppe.com, 800/537-9527</td>
</tr>
<tr>
<td>Samsung Electronics Co., Ltd.</td>
<td>p. 71</td>
<td><a href="http://www.samsung.com">www.samsung.com</a></td>
</tr>
<tr>
<td>Screenflex Portable Partitions Inc.</td>
<td>p. 50, 64</td>
<td>Screenflex.com, 800/853-0110</td>
</tr>
<tr>
<td>Spartan Chemical Company, Inc.</td>
<td>p. 43, 65</td>
<td><a href="http://www.spartanchemical.com">www.spartanchemical.com</a>, 800/537-8990</td>
</tr>
<tr>
<td>Tandus Flooring, Inc.</td>
<td>p. 47, 65</td>
<td>Powerbond.com, 800/248-2878</td>
</tr>
<tr>
<td>Virco, Inc.</td>
<td>p. 37, 65</td>
<td><a href="http://www.virco.com">www.virco.com</a>, 800/813-4150</td>
</tr>
<tr>
<td>Wausau Tile, Inc.</td>
<td>p. 29</td>
<td><a href="http://www.wausautile.com">www.wausautile.com</a>, 800/388-8728</td>
</tr>
<tr>
<td>Wenger Corporation</td>
<td>p. 41, 65</td>
<td><a href="http://www.wengercorp.com/soundlok">www.wengercorp.com/soundlok</a>, 400/493-6437</td>
</tr>
</tbody>
</table>

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A FINAL THOUGHT | PAUL ABRAMSON

Asking the Right Question — Finally

TECHNICAL ISSUES ARE SIGNIFICANT, BUT NOT THE MOST IMPORTANT.

During the 1960s and '70s, powered by a wave of relatively new educational leaders, many of them parents of school-age children, we began to question the ways in which education was structured, noting that schools, classrooms and teaching had barely changed in more than a century.

The feeling was, had a Rip Van Winkle fallen asleep in 1910 and awakened 50 years later, he would barely recognize the town, but he would feel perfectly at home in his unchanged schools. They were still composed of classrooms along a corridor in which a teacher assembled 25 to 35 children and talked to them while they took notes. They probably were using ballpoint pens, rather than the nibs Rip would have remembered, but otherwise the school would have been the same.

At the time, the Ford Foundation funded Educational Facilities Laboratories (EFL) to look at schools — at the physical facilities and at the new ways in which education could, should and would take place. In looking at ways to change the facilities to meet the new programs, EFL introduced several new "technologies" into the process of school design. Among them were wall-to-wall carpeting and air conditioning, two products that were seldom considered in schools. They were keys to starting to change and open up the schools.

With air conditioning, open windows and cross-ventilation was not necessary. You could have interior space with no exterior walls. And, with carpeting you could deaden sound, making it possible to remove interior walls and create an open flexible space that could be configured to suit any curriculum.

One result — for better or worse — was that the "open classroom," a curricular approach, evolved into the "open school," with virtually no interior partitions. These open schools tended to have some significant drawbacks. Physically, they were often windowless both to save energy and to keep children focused, rather than gazing at the outdoors. Windowless schools were a serious mistake for students and teachers.

But a more important mistake, whether the open school was windowless or not, was the failure in most school districts to show teachers how to use their new open environment. Where teacher training did take place, the open schools tended to work very well. But without that training, teachers were thrown into an environment that made it difficult to operate their programs, which were designed to be used in the closed space of a classroom.

This is a long introduction to a discussion now taking place among members of the Council of Educational Facility Planners International (CEFPI) about new attempts to provide open, flexible space in schools. It was started by a representative of a company that makes sound barrier furniture and was continued by architects and engineers concerned with acoustics and the different kinds of acoustics that are needed, for example, in a music space and a discussion space.

More recently, the discussion was taken up by people who put the needs of children into the mix — something that too often gets skipped over when facilities (or education) are being discussed.

Educational consultant Glenn Meeks writes, "We may be missing a fundamental concept. We are talking about humans who are developing from young children into young adults .... Students become more sophisticated in manipulating their environment to match their task as they grow older .... Elementary schools should not be configured like middle schools and high schools look even more different. The 'open' space concepts strike me as more appropriate for the later years of student development."

To which Steven Turckes, an architect with Perkins & Will replies, "I wonder about the notion that our younger students have a limited capacity to organize their space/learning. My kids all spent their earliest days at a Montessori school. I was amazed every time I walked into their classroom. Not only were they organizing their space, they were organizing their learning .... Sadly, that program ended in kindergarten. I still recall my oldest commenting, after spending his first few days in first grade, that the teacher 'is always telling me what to do.'"

I tend to agree with Turckes’ assessment of the abilities of younger children (most successful pre-kindergartens operate in open space), but I am most impressed that this discussion among planners and architects has turned from the technical question of acoustics to the needs of children. Wouldn’t it be wonderful if all decisions about teaching, learning and the spaces where they take place started with the question, “What would be best for these children?”

If you’re a member of CEFPI, you can join the conversation online. If you’re not but want to comment, email me. 

>> Paul Abramson is education industry analyst for SP&M and president of Stanton Leggett & Associates, an educational facilities consulting firm based in Mamaroneck, NY. He was named CEFPI’s 2008 “Planner of the Year.” He can be reached at intelled@aol.com.
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