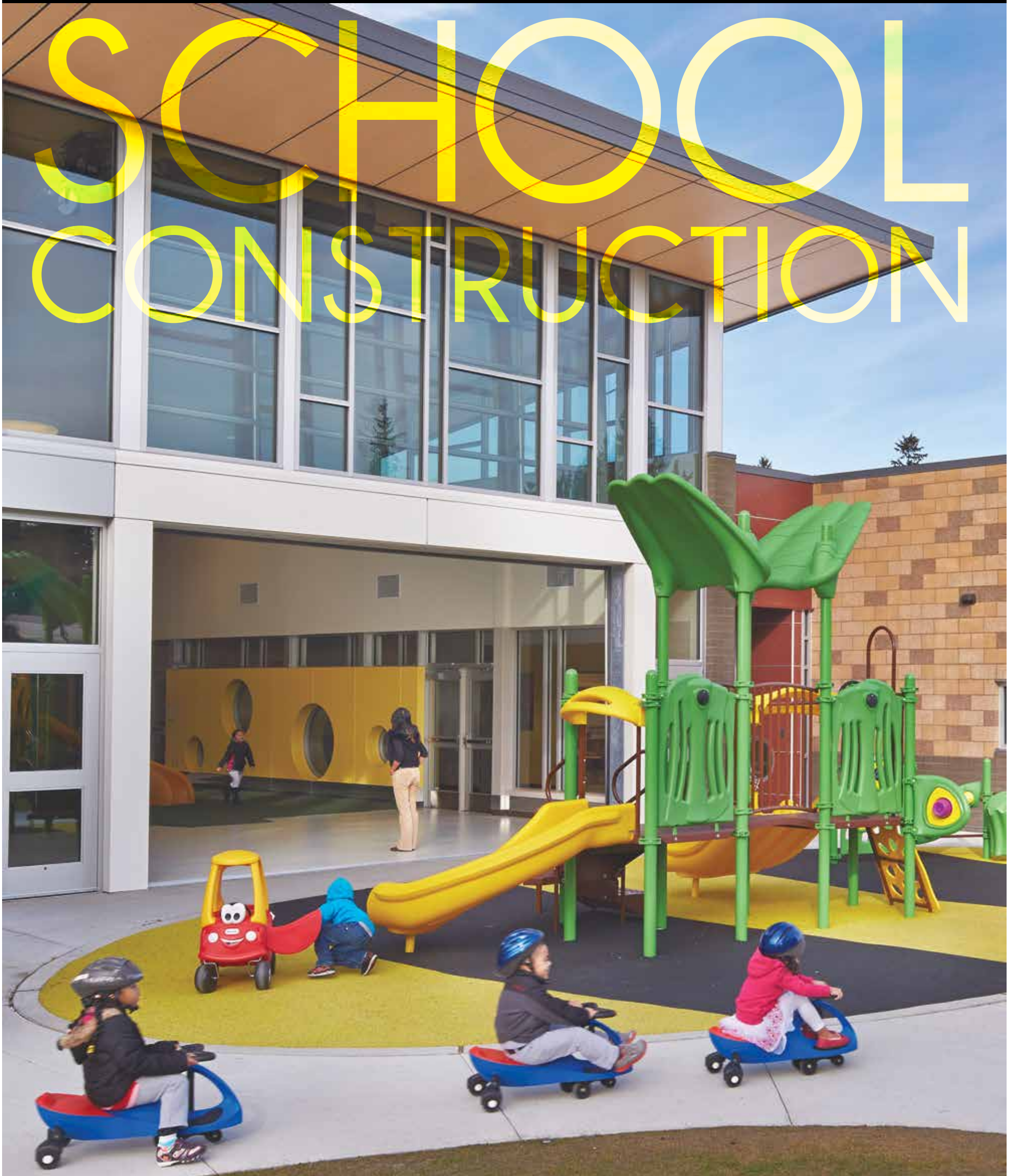


SCHOOL CONSTRUCTION



CAN YOU DESIGN A SCHOOL THEATER THAT PLEASES EVERYONE?

It's hard to create spaces where speech and music both sound their best. Maybe it's time to consider alternatives.

Educators and design professionals are taking a fresh look at the architecture of high schools in an effort to align education with the skills needed for our country to compete globally.



BY MICHAEL R. YANTIS
SPARLING

Although some of this creativity has been directed at the design of high school theaters, current designs remain remarkably close to those created 50 years ago. With few exceptions, most high schools contain a proscenium-style theater with full or partial fly loft to seat an audience of 500 people.

Questions to consider

Perhaps the consistency of the design of the performing arts facility is because it still effectively serves its mission. However, to be consistent with the creative thinking that is modifying K-12 architecture, is it time to take a fresh look at high school

performing arts facilities design? If so, there are a few fundamental questions:

- What purposes will the performance space serve for the school? For the community? Is the emphasis on drama or music? What size audience is expected most often? If we add to the number of performance spaces, what other academic functions can they fulfill?

- Broadway-style musicals generally require a proscenium theater with a fly loft. It is often a busy, highly utilized space. But it is also expensive and the seating area is often not used during daytime school hours. Can we achieve the educational goals associated with the performing arts without it? If there were more, smaller performance spaces, could they properly serve the performance and rehearsal goals for the school? Would we need to modify a larger space such as the commons to serve as a performance space for large audiences?

- Will the need to be more economically efficient in the performing arts change professional venues? How might those changes drive the need to change the way performing arts

are taught and performed in high school?

Competing goals

Most high schools do not have separate performance spaces for music and speech.

They have a multipurpose proscenium-style theater used for

both music and drama. However, the acoustics of a space intended primarily for music are much different from a space dedicated to speech.

They have opposite acoustic goals. A space for speech should be acoustically dry with very little room response so the content of the speech can be easily understood. A lively room can blur speech and make it difficult to understand.

On the other hand, music depends on its environment to add to the content of the music. It requires the room to add reverberance, spaciousness and a sense of envelopment in order to create an experience that transcends the mere content of the music.

Imagine listening to a string ensemble in a chamber music hall as opposed to listening to the same music outdoors. We might enjoy the weather outside, but the music suffers. The venue has to complement the music.

By definition, then, a theater used for both drama and music has conflicting acoustic goals. If the space is optimized for speech, the music suffers. If it is optimized for music, speech can be difficult to understand, particularly without an excellent sound-reinforcement system and an equally qualified sound operator.

Most often, high school projects attempt to find a proper physical compromise between these two acoustic extremes, adding volume and proper shaping to the room to support music while not pushing the design so far as to impair speech. This technique can produce an acceptable environment for both music and speech.

Two examples of high school theaters that have found this

The 230-seat theater at Vashon Island's new high school, which opened in January.



PHOTO BY CAMERON WALKER

optimum balance are at Roosevelt and Vashon high schools. Both theaters effectively support their school's drama and music programs and are very well-received. For reference, Roosevelt seats 750 and Vashon seats 230, both different from the most common seat count of 500.

But even if the design team hits a bullseye, the result, although acceptable, is not optimum for either drama or music. This creates additional questions:

- Does a good but not great environment sufficiently serve the theater's purpose? Does the level of performance warrant better spaces? This is a reasonable question for music, but to the extent that speech intelligibility is not ideal in a multipurpose hall, it is easy to argue for a space optimized for speech alone.

- Would a space with great musical acoustics better inspire future professional musicians? Similarly, would a space optimized for drama better serve the academic mission related to the theater arts?

- Can we afford to build spaces more aligned with each acoustic extreme?

Is there a better way?

If the performance venues associated with a high school are to be recreated, a vital part of the team would be the arts staff of the school. They may not know how to create what they need, but they have the best knowledge of what they do, how they do it and what they need.

Questions about who will operate the theater after construction are equally important. A theater is like an instrument



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SCHOOL THEATER — PAGE 8

WHAT SCHOOLS CAN LEARN FROM STARBUCKS

The Internet is making single-purpose spaces like libraries less relevant. Why not replace them with spaces students will actually use?

I'd like to make a risky statement: The school library should be replaced with a coffeehouse.

I hope that you're either excited or upset by that idea. First, because as an architect I love that people are passionate about their ideas of what a place should be. But more importantly because



BY TODD FERKING
DLR GROUP

there are some crucial educational principles behind my proposal.

In creating schools today, we've seen a shift in district philosophies toward a greater emphasis on building relationships and school community.

This isn't to say that the desire for community is new, but rather our understanding of the value of community has expanded.

Safety and security (in the wake of school shootings) have been big drivers in appraisals of community; it's arguable that school safety is less about barriers, and much more about the health of a school community. And our better understanding of how people learn has also driven these conversations, acknowledging the value of collaborative and project-based learning as well as applied learning opportunities through connections to local businesses and community organizations.

This shift is also occurring at

the same time that we're beginning to question the relevance of certain kinds of places, such as the library, thanks to dramatic changes in how we access stories, knowledge and information through new technology.

Coffeehouse as culture

Look inside your local coffeehouse. It can be a small business or a chain like a Starbucks. Today's coffeehouse has transformed from a place into a culture. It is no longer a booth where adults sip a hot drink; it has become a multi-generational way of life.

Coffeehouses are artistic and intellectual. Students (and all visitors), can explore their creative side by participating in open mic nights, poetry readings, book signings and art exhibitions.

Coffeehouses provide a place to learn more about a special interest or to collaborate on a project. Wi-Fi is available, power outlets are abundant, and comfortable couches, tables and bar areas create the perfect escape — be it for a few minutes or many hours. In some communities coffeehouses are found on every corner, creating a convenient meeting spot for personal connections.

Kids today are living in an open, collaborative world outside of school, however inside the walls of a school many students are still learning in a fragmented environment that's increasingly incongruous with how they best learn and connect with one another.



Hazen High's learning commons offers students a place to study or hang out after class.

PHOTO BY CHRIS ROBERTS/DLR GROUP

Students read in the library, complete lessons in a classroom, practice band and music in the music room, perform a skit in the auditorium and eat lunch in the cafeteria — a program of isolated spaces that persist based on long-standing assumptions about what

a school should look like. All too often these spaces are too large or too institutional for students to actually want to be there. In contrast, the coffeehouse culture stems from the way we live: open, interconnected, comfortable.

A third place

A coffeehouse concept allows us to simplify our designs, creating flexibility to meet various needs.

STARBUCKS — PAGE 8

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ON THE COVER

Renton School District's \$19.2 million Meadow Crest Early Learning Center opened in 2013. The 68,000-square-foot center was designed by BLRB and built by Porter Brothers Construction.

PHOTO BY BENJAMIN BENSCHNEIDER, COURTESY OF BLRB ARCHITECTS

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RENTON PRESCHOOL OFFERS KIDS A RUNNING START

Each classroom wing has a unique insect mascot so that non-English-speaking students and families can easily find their way.

According to the National Education Association, providing quality early learning programs for children before they turn 5 yields significant lifetime benefits. In one study, individuals who were enrolled in a quality preschool program ultimately earned up to \$2,000 more per month than those who were not.



BY ANDY COTTRILL
BLRB ARCHITECTS

Children in early learning programs are less likely to repeat grades, need special education or manifest behavioral problems. High school graduation rates, home ownership and even marriage statistics have all been found to be influenced by early childhood education.

While human brain development is a lifelong process, the brain's plasticity and receptivity to learning and enrichment is never greater than in early childhood. In fact, 90 percent

of human brain development occurs between birth and age 5, making early learning programs critical to establishing the basis for future scholastic success.

There is then arguably no age group for which a thoughtful, tailored approach to educational architecture can have a more critical impact than in the pre-kindergarten years.

Focus on early learning

Most often treated as a program element within the context of a larger facility, early learning is given primacy at the Renton School District's Meadow Crest Early Learning Center. Completed in September 2013, this new 68,800-square-foot early learning center is wholly dedicated to a wide variety of educational and support programs serving the educational and developmental needs of children aged 3 to 5, many with physical, psychological or developmental disabilities, and their families.

Sited in an economically disadvantaged urban area, Meadow Crest serves a preponderance



At Meadow Crest Early Learning Center special-needs children learn alongside typically developing children.

PHOTOS BY BENJAMIN BENSCHNEIDER, COURTESY OF BLRB

of non-English-speaking and low-income families. Accordingly, the district sought to develop a facility that, while providing educational and support services to young children, also offers resource and

referral services to parents in an environment that is welcoming and inclusive to all.

Meadow Crest's federally funded Head Start program offers preschool and family support services, including community resource and emergency assistance referrals, child health screenings and parent engagement opportunities. The Early Childhood Education and Assis-

tance Program offers similar services and is state-funded. Both are available to families meeting specific income thresholds.

The center also features an inclusive preschool program in which children with special needs learn alongside typically developing children, providing educational and social benefit to both. Other specialized programs include Extended Day for

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Classrooms were designed to be flexible and interchangeable.

children with autism, and Child Find, a program that provides free developmental screenings for children aged 3 to 5.

Engaging the senses

Brain development, research tells us, is activity-dependent. Interactive experiences encompassing sensory, motor, emotional and cognitive functions stimulate and shape the way neural pathways develop and set the stage for future learning. Every experience excites some neural circuits and leaves others inactive.

Those circuits that are consistently “turned off” over time may be dropped away, a process that can have permanent implications for learning capacity in subsequent years. This is why multimodal early education programming is key to overall child development.

Between the neuroscience of brain development and the unique space requirements of early learning programs, one might ask how bricks and mortar can aspire to address the range of physical space needs while optimizing developmental and educational outcomes. The answer, at Meadow Crest, is very well.

Overarching design priorities were driven by the specialized needs of the early learning program and the small stature of Meadow Crest’s students. Personalization of learning spaces, facility flexibility and adaptability, provision for student safety and supervision, and facility zoning and security were chief among them.

One of Meadow Crest’s thematic design elements is the integration of “experience opportunities” that engage and stimulate children’s senses — sight, smell, touch, taste and hearing — throughout the facility. Organized into three distinct classroom wings acces-

Owner:
Renton School District

Project manager:
Greene Gasaway

Architect: BLRB Architects

General contractor:
Porter Brothers
Construction

Civil engineer:
AHBL Engineers

Structural engineer:
PCS Structural Solutions

**Mechanical/electrical
engineer:**
BCE Engineers

Landscape architect:
Thomas V. Rengstorf
& Associates



Children can choose from a variety of play equipment for building motor skills.

sible through a central reception area, Meadow Crest offers a visual feast of color, shapes and forms immediately upon entry, and throughout circulation and learning areas.

Classrooms were designed to be flexible and interchangeable to accommodate multiple programs, variable class sizes, unique program requirements and future changes in educational programming.

Multipurpose rooms and meeting spaces adaptable for a variety of school functions and events, and are segregated from student areas to preserve security while permitting public access and use.

Small-school environment

The intimate nature of the wing concept creates a small-school environment within the context of the overall facility. Beyond inspiring feelings of safety and belonging in small children, this organizational model enhances safety and security by allowing a

high degree of student visibility and staff supervision capacity.

Material, graphics and aesthetic choices create an organizational flow that helps both children and adults find their way, eliminating the need for reading skills, an important strategy in serving a high proportion of non-English-speaking students and families.

Each classroom wing has a unique insect mascot and color theme identifier, and infusion of the overarching nature theme via environmental graphics and digital wall coverings. Unexpected patterns in the floor coverings present themselves in circulation areas, offering children spontaneous play and kinetic learning opportunities.

Places to discover

Corridors connecting the educational wings feature tall windows with “right-sized” nooks that create scaled discovery opportunities for children on their travels between spaces. Peekaboo view-

ing portals and small platform seats near windows allow children to get up close and personal with outdoor vistas. One-way mirrors offer exploration and play opportunities for children while also affording discrete student assessment and observation vantage points for staff.

Shared indoor play courts are accessible from each classroom. Floor-to-ceiling windows fill play areas with natural light and allow children to experience the outdoors on even the rainiest of Pacific Northwest days.

The play courts offer multiple surface types, passive and interactive play opportunities and a variety of equipment that builds motor skills including riding, climbing and balancing. Movable glass walls on the south side of each play

court can be fully opened, blurring the indoor/outdoor division and providing access to the adjacent inclusive playground.

American statesman and 19th-century education reformer Horace Mann famously said that “education, then, beyond all other devices of human origin, is the great equalizer of the conditions of men.”

At Meadow Crest Early Learning Center, educators work to equalize the playing field for students’ scholastic and life success in a facility that’s tailor-made to meet the unique physical, developmental and educational needs of the children they serve.

Andy Cottrill is a senior associate with BLRB Architects and was the project designer and architect for the Meadow Crest Early Learning Center.

Glass walls on the south side of each play court open up to the outside playground.



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The former auto shop at South Puget Sound Community College is now the student library, shown in the right photo.

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HOW REPLACING AN OLD BUILDING IS LIKE SELLING NEW COKE

Architects face pressure to chase the next new thing, but a radical student center renovation shows that even a tired old building can be successfully revived.

The urge to innovate is real — to be creative, generate new thinking, break out of the box and sail the high seas — and preferable to getting caught in a



BY BARNEY MANSAVAGE
SRG PARTNERSHIP

feeding frenzy of competing interests or just paddling along in your normal circles. Innovation in education faces these cycles regularly. The desire to do better spurs an “innovation culture,” which in architecture translates to building newer, better, cooler,

more “state of the art” facilities. Tear down the old, start over with new ground-up facilities that look to the future.

However, innovation rarely starts with a blank slate, so there are some business axioms that challenge the innovation culture.

According to bestselling marketing expert Sergio Zyman many companies rely too heavily on innovation to solve their problems. Whenever a brand or business gets old and tired, the impulse is to scrap it and start over with something fresh. It sounds great, but more often than not, innovation simply doesn't work. Zyman knows this firsthand — he was the chief marketing officer at Coca-Cola

during the disastrous launch of New Coke in 1985.

Perhaps equally important to being new is the concept of stability and permanence, a sense of history and connection. Zyman wrote a book for business that praises the power of renovation over innovation, recapturing the essence of a business's existing brands, products and core competencies, and doing more of the things that made it great in the first place.

Can you have it both ways? Can you be out on the bleeding edge but also have a sense of roots? Absolutely: Treat it — don't trash it!

Renovation and innovation are not mutually exclusive, and in higher education combining them can be essential. An existing college campus has history and culture embedded that can spark innovation by building on existing strengths.

In 2006 SRG began working with South Puget Sound Community College in Olympia to revamp its campus master plan. At the heart of reinventing the college's future was figuring out what to do with a 1970s-era metal shed, Building 22.

Known as the Center for Student Success, Building 22 was the largest structure on campus, set in the middle of others that had grown up around it over the years. Completed in 1976, it was the first and only permanent building on campus, below-average condition, and still used primarily for the automotive and welding programs on which the college was founded.

Building 22 has housed many functions during its life and been through a number of renovations, repairs and expansions. It was a tired old dog.

Redevelopment plans

The 2007 campus master plan identified a comprehen-

sive list of planning recommendations that was based on the institution's core strengths and determined a scope of work known as The Campus Center Redevelopment:

- Reorganize programs in Building 22 to provide a student- and community-centered core of student, library and information services as the physical and intellectual heart of the campus.

- Relocate automotive and welding programs to create more pedestrian-friendly uses at the campus core and provide new, up-to-date instructional spaces for these programs.

- Relocate shipping and receiving to new space at the perimeter of campus to improve safety and minimize pedestrian conflicts with automobiles and service vehicles.

The Campus Center redevelopment project became a series of projects over four phases:

- Phase 1: New Building 16 — Automotive, Welding & Central Services: Completed in 2009, this was a new building to house automotive and welding programs, as well as the main campus' shipping and receiving. These functions vacated Building 22 prior to its renovation in phase 3.

- Phase 2: New Building 23 — Anthropology, CADD and Geomatics: Completed in 2010, this administrative and instructional building relocated various existing campus functions from Building 22 prior to its renovation in phase 3.

- Phase 3: Renovation of Building 22 — Center for Student Success: Completed and occupied in January 2014.

- Phase 4: Minor renovation of interior spaces of Building 25 — Administration: Reconfigures the floor plan after student services spaces are relocated

to Building 22 during phase 3 and consolidates remaining administrative functions.

A new hub

In the fall of 2008, the college developed a learning plan for the new Building 22 program, which focused on library, student services and e-learning. Produced through a series of four all-day work sessions with the planning team, the plan highlighted and synthesized the strengths of the existing institution and made a set of recommendations.

Building 22 is now alive with the buzz of students all the time. Representing what the college has become since the 1970s, it realizes the new master plan with program uses (library, media and student services) that touch all disciplines and functions. What began as the automotive and welding facility at the center of a vocational institute has been transformed into a light-filled place promoting student interaction on the campus of a modern, comprehensive college.

The renovation and redevelopment of Building 22 has truly reinvigorated the core of South Puget Sound Community College.

Located at the physical center of campus, it is now the heart of college activities, housing functions that touch all students and faculty, and improving cross-campus circulation between adjacent buildings. Building 22 is the first place of contact for entering students and visitors, and a place for returning students to use throughout their educational experience.

A few themes from the learning-plan recommendations drove the site development:

- Campus front door: This building and its functions are part of the first impression made by the campus and represent a welcoming and responsive environment.

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- **Central hub:** All parts of the campus will interact with this building due to its central location and functions. It has many "fronts." Particular attention is given to the improved exterior connections to the student union and administration buildings. Exterior areas are provided with excellent lighting, clear pathways, and a variety of site seating and outdoor gathering options.

- **Connection to the outdoors:** The school's beautiful, forested environment was treated with the utmost respect, with priority given to maintaining existing mature trees. Re-imagined exterior spaces around Building 22 are primarily pedestrian friendly, and to the south they engage with Percival Creek, one of the most unique and special site features on campus. To date, no other building or space on campus has acknowledged Percival Creek in this way.

Pedestrian friendly

Renovating Building 22 has redefined its ground plane, both inside and out, and made the Center for Student Success a first-floor building and place for pedestrians. Formerly, level one was a series of service entries, primarily for automotive and welding program vehicles, while pedestrians entered at level two via bridges and ramps.

At the ground level, pedestrians had mostly experienced the "backside" of Building 22. The redevelopment project removed the existing bridges and ramps, located the main entry on the first floor and introduced a series of additional entry points. Building 22 now has many "front sides" that are clear and welcoming.

The renovation and redevelopment of the Center for Student Success transformed an industrial metal shed into a new campus heart that is filled with high-quality spaces appropriate for an institution of higher learning.

Building 22's renovation has located all program spaces along a new central commons, which serves as both an internal public space and a primary circulation street, connecting multiple building entry points with all the program components. The commons exists on two levels and provides both physical and visual connections



The second-floor space on the left was converted into a commons that connects the library, cafe and student services.

between each program component and outward connections to the rest of the campus.

Building 22's renovation has not provided new campus services, but rather reorganized them so that they can be delivered in a new manner, one that meets the goal for treating students in a welcoming and responsive way.

The Center for Student Success is now a one-stop shop, easily located at the heart of the campus. Transforming a physical structure and a service-delivery model gave an existing building an entirely new lease on life.

Renovation? That's innovation.

Barney is a principal at SRG Partnership dedicated to excellence in planning and design that inspires learning.

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SCHOOL THEATER

CONTINUED FROM PAGE 2

that the staff needs to learn to play to bring out the best it can offer.

Part of the educational aspect of the theater is its operation.

With respect to acoustics, a gifted person working the sound-mixing board is akin to a virtuoso violinist. He or she can "play" the room, maximizing its assets and minimizing its liabilities. A less gifted person could struggle with the same room, creating liabilities and minimizing assets.

This is particularly problematic in a multi-function theater where the acoustics of the room has been pushed for the benefit of music and the intelligibility of speech is at least partially dependent upon the design of the sound system and the capability of its operator.

The design team can provide a venue that finds the perfect balance of music and speech, but an unskilled sound board operator might not be able to measure up to the room's demands. A high school student as board operator, a common position and one that is part of the educational goals of the performing arts, would not often have the experience to truly optimize speech intelligibility in a hall that has been pushed to provide desirable musical acoustics.

Although the current high school proscenium theater serves its mission, can we do better? If we can do better, can we create performance spaces that improve their performance characteristics but don't cost appreciably more? Perhaps, if talented design professionals and educators tackle the task.

It would at least be fun to consider.

Michael R. Yantis is principal of acoustical design and consulting at Sparling.

STARBUCKS

CONTINUED FROM PAGE 3

Years ago, our approach to educational design was based on a singular modality — dining spaces were used for dining, classrooms were used for learning, and the auditorium was used for performing arts. Not only were these spaces separated, but often sized for utility and efficiency instead of real human interaction. Today's concept allows us to exercise a hybrid approach to create interdisciplinary, multifunctional spaces that enrich the learning environment.

Imagine an intimate space featuring digital collaboration nodes with TV screens lining the walls, multiple seating formations, informal and formal gathering areas, a gallery to exhibit student work, and shared media options. It's the coffeehouse culture integrated into space within a school.

Square footage is pulled from surrounding areas to create this in-demand coffeehouse vibe. The added bonus is that the space is a neutral zone. It is not wholly owned by students or staff. This neutrality encourages relationship building between teachers/teachers, students/students and teachers/students.

Integrating the coffeehouse culture into our schools doesn't necessarily mean adding square footage or costs. For example, if a library founded on an experience of books is becoming outdated, why not allow at least a portion of that space to become the coffeehouse? Or the shockingly impersonal cafeteria? By recapturing space that would have gone into a place that students don't want to use unless they must, we can get much more value out of a third-place environment where students are eager to connect, hang out, learn and create.

Just as exciting as the in-school use

of the space itself is the opportunity for students to gain real-world experience by operating a business, and the inclusion of the whole community in a lifelong lesson. An exterior storefront could allow a coffeehouse to function independent of a school. Community members, students and staff would be welcomed as customers to the business.

Three challenges

As with any new concept, challenges will surface and must be addressed. I see three primary challenges that a school might face in trying to implement the coffeehouse concept, and have some ideas on how we can overcome them.

The first is safety. If the coffeehouse is operated by students, and the community at large is welcome to visit, supervision is essential.

I see two options to solve safety concerns. The space could be connected to the marketing or business program, allowing for constant supervision from the adjacent program instructor. The other option is to design an open space, similar to a kiosk coffeehouse in an airport. A clearly defined zone outlines the coffeehouse, but the openness allows for sight lines from all corners of the school.

The second challenge is mixing food, drinks and devices. Some rules still exist that require food and drink to be consumed separately from technology stations, however districts are realizing students are more mobile than a few years ago and blending technology with eating or drinking is second nature. I believe we are at the tipping point and in the near

future the fear of mixing food and drink with technology will be expended.

The third challenge is furniture, especially providing comfortable furniture that does not cause maintenance headaches. The solution is selecting types of furniture that convey the coffeehouse effect but are durable and easily maintainable. A win-win for both students and maintenance staff.

My space

Unlike the institutional spaces that we often find in schools, the coffeehouse offers a culturally valued landing place. Such an environment might inspire students to linger in their school with friends or classmates past their 3 p.m. dismissal bell. Students could collaborate on projects, read a book, listen to music or socialize all without leaving the physical structure of their school. Schools themselves already correlate with each student's sense of identity, it's a place that they can call their own, often despite any number of impersonal spaces within. So imagine what could happen when students, parents, teachers and community members have spaces within that school on which they can impose their own identity. After all, isn't that part of the allure of the coffeehouse? The ability to say, "that's my coffee shop," and then invite others to meet you there?

Todd Ferking lives for school design, and since joining DLR Group in 2000 has worked with diverse clients around the world to reimagine schools as places that enable student-focused learning, use of new and emerging technologies, and strength of school community.



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LOCALS DESIGNERS HELP REBUILD SCHOOLS IN HAITI DAMAGED BY EARTHQUAKE

Architects and engineers working with a relief group are creating disaster-resistant designs for 10 new schools in a quake-ravaged area.

Before I left for Haiti in 2010 an acquaintance said to me, "You are wasting your time going to Haiti. The corruption is so widespread and the poverty there provides so little opportunity, your efforts won't make a difference."



BY DENNIS ERWOOD
STUDIO MENG
STRAZZARA

Improving the lives of the people in Haiti is certainly a challenging mission. Less than 25 percent of the children attend secondary school, and the majority who do never graduate. Only a small percentage of those enter college.

As many throughout the world can attest, it is not easy to break free from the grip of poverty. And nowhere in the Western hemisphere is that more apparent than it is in Haiti.

Schools for the Children of the World

The nonprofit group improves schools in underdeveloped nations. Over the past 15 years, SCW has completed more than 100 projects in Central America and Africa. For more information, see www.schoolsforchildren.org.

Haiti is the poorest and least literate country in all of the Americas. That was true before Jan. 12, 2010, the day of the devastating magnitude-7.0 earthquake, and it is true today.

The earthquake was one of the most disastrous ever in terms of loss of life and property damage. Assessments of the death toll vary widely, but the United Nations estimates that over 200,000 people died and over 1.5 million were left homeless. More than 4,000 schools were



Students in Leogane, Haiti, at their new school, built in 2012 to replace a damaged structure.

PHOTO BY DENNIS ERWOOD

destroyed. In response, numerous aid organizations set up temporary schools in tents and minimal structures, many of which are still in use today.

Relief effort

Schools for the Children of the World (SCW) partnered with the Council of Educational Facility

Planners International (CEFPI) to create the CEFPI/SCW Haiti Schools Initiative, a relief effort

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WHAT TO CONSIDER WHEN BUILDING A NEW SCHOOL NEXT TO THE OLD ONE

It takes a lot of planning and communication to avoid disruptions and keep staff and students safe.



BY MIKE FINNEGAN



DAVID BEAUDINE

HEERY INTERNATIONAL

directs district leaders to building a new school on the grounds of the existing facility, typically while class is in session. In those cases, construction on occupied sites needs to be managed thoroughly to ensure safety to students, staff and the public and to minimize impacts to the educational process.

As a guide, schools leaders need to consider the following points before moving forward with school construction on an occupied site.

It's a puzzle

Fitting a new school onto an occupied site requires a great deal of creativity. Designers, school officials and the construction manager all need to work together to determine the best approach to building a school on the available land and phase construction so that learning can happen with a minimum of inter-



PHOTO BY CHRIS J. ROBERTS PHOTOGRAPHY

Many urban school districts frequently face a dilemma.

Their schools are aging, providing a less than optimal environment for modern teaching techniques and the new technology that underpins education today. Usually, it is better and more cost effective to construct a new facility than renovate an existing school.

Problems arise, however, when open land for building new schools is scarce. This often

NEW NEXT TO OLD — PAGE 15

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WSU TECHNOLOGY LAB COMBINES WORK WITH SHOW

Visitors can see scientists at work in a lab equipped with a 25-foot-high traveling bridge crane and hooks that can lift 15 tons.



BY ADRIAN
MACDONALD



DEAN
CLARK

LMN ARCHITECTS



The 96,000-square-foot building will finish construction in September 2015.

The 96,000-square-foot Paccar Environmental Technology Building at Washington State University in Pullman will help the school pursue interdisciplinary research related to sustainability.

The four-story structure for the College of Engineering and Architecture is scheduled to finish construction in September 2015.

LMN and Skanska are delivering the project under a design-build contract — a first for an academic facility at WSU.

The design, which is targeting LEED gold, demonstrates themes of water conservation, daylight access and renewable

materials. But the building is also designed to be social and inviting.

The project sets a precedent for the character of the university's built environment in the 21st century. The 2012 master plan for eastward expansion along Grimes Way calls for densely organized classroom and laboratory buildings, empha-

sizing a "neighborhood" feel that promotes walkability, street-level encounters and connections to the natural landscape.

The Paccar Environmental Technology Building sits next to the landmark Observatory Hill, mediating between its grassland ecology and the more established area surrounding Martin Stadium. Unlike neighboring

structures, the new building is set back only minimally from the street edge, with wide sidewalks along two frontages and a small street plaza at the intersection with Lincoln Drive.

Stormwater from the site passes through permeable pavement and is piped to a series of rain gardens along the Grimes Way sidewalk. Closer to the hillside,

plant choices reflect the grasses of the Palouse. Part of the building merges into the slope, creating an earthen roof condition.

Showcase bar

The building serves as both a research laboratory and a public showcase of innovation in action. The architectural con-

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cept derives form directly from these two functions, defining a “workhorse bar” housing secure laboratory, office and workstation spaces that are closed to the public, and a “showcase bar” that presents an extroverted face to the campus, inviting the larger community to participate in the life of the program.

The two bars intersect perpendicularly in an L-shape, filling out the street edges of the site while creating an inner courtyard for truck loading and outdoor workspace. The two-level showcase bar is clad primarily in glass and contains two key laboratory spaces that feature work of a visually impactful nature.

The first, at the south end of the bar, is the high-bay Sustainable Infrastructure and Design (SID) lab, with its traveling bridge crane that moves along the ceiling, 25 feet high, supporting hooks capable of lifting 15 tons. The south wall of the lab is a 2-foot thick “strong wall” with a grid of reinforced bolt holes, 2 feet on center, used to anchor material assemblies during breakage testing. The bolt holes continue onto the floor, forming a “reaction floor.”

At the north end of the showcase bar, a transparent wall in the front lobby offers a view of the second showcase lab, the Integrated Design Experience Collaboratory, focused on sustainable infrastructure design. This space functions as a flexible design studio and classroom, offering a constantly changing view. Stepped seating inside and outside of the lobby invites students to congregate and socialize.

As users ascend the main stair

to the second level of the showcase bar, they are first treated to a huge floor-to-ceiling window, looking down onto the high-bay volume of the SID lab. The second level opens into a broad cafe and lounge space — often referred to as the town square of the facility.

Here, users experience a heightened sense of centrality and connectedness, with views of the campus, the Palouse, the SID lab and a double-height, glass-enclosed seminar room. The town square is the buzzing social hub of the program, where both researchers and the general public can mingle.

The adjacent seminar room is integrally connected with the town square. Flooded with daylight and views of the campus, cantilevered dramatically over the entry plaza, the room hosts public lectures and presentations while also serving as a multipurpose event space for researchers and staff.

Like all of the showcase bar, the seminar room is framed not with steel but with structural timber — a demonstration of sustainability as well as WSU’s history of innovation in the development of engineered wood building materials, such as glue-laminated beams.

Workhorse bar

From the town square, entry to the workhorse bar — a four-level edifice where the bulk of the program’s research work is done — is restricted by key card. The sense of connectedness does not stop at the security

A second-floor cafe and lounge will serve as a social hub.



A central “Main Street” will run the length of the building on three floors.



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DO ART AND SCIENCE MIX? LAB DESIGNERS GIVE IT A TRY

The Evergreen State College wanted to see if it could build a space that messy artists and fastidious scientists could share.

The success of a design lies in a client's stakeholders, users and consultant team being fully vested in the project.

The architect's role is to create a structured forum where stakeholders can share their perspectives and collaborate on every phase of the design.

BY ALEX ROLLUDA, DONN STONE AND KATHI WILLIAMS
ROLLUDA ARCHITECTS

It is a mark of a successful design process that the result is often highly customized (in the best sense of that word) and clearly comes from deep within the client's organization. Rarely does it develop from a designer's preconceived idea or derive from a formal iconic logic.

That process was at work for a 12,800-square-foot renovation on the second floor of the Lab II building at The Evergreen State College. Construction is set to begin in September.

The programming phase included brainstorming sessions, design charrettes and meetings with the faculty, staff, maintenance crew members and the facilities team. Information was gleaned from questionnaires regarding the goals of the teach-

ing space and the infrastructure required to achieve the program objectives.

Users toured the existing facilities with architects to see if their suggestions to the architects were workable.

The role of today's architect is to facilitate these exchanges of information, mining the relevant information and helping the stakeholders/client-designers reach a consensus on design concepts and priorities.

A compromise

The foremost programming and design questions for the Evergreen Lab II renovation were: Is it possible for two different academic programs to coexist on one floor? And, more specifically, can they share spaces?

In theory, it is true that interdisciplinary team teaching has been common practice in the K-12 realm. We often design adjacent classrooms with movable acoustical partitions, and in classroom pods regularly provide common areas large enough for two full classrooms.

However, we return to these same classrooms years later to find bookshelves or other fur-

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General contractor:
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Laboratory consultant:
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A space-planning exercise for Evergreen's Lab II floor renovation.

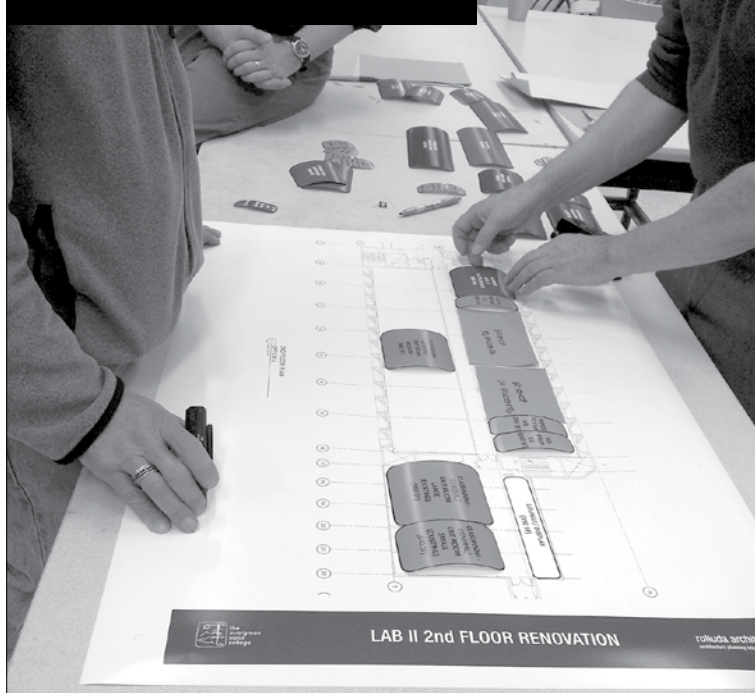


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niture purposely placed in front of the partitions to render them inoperable and common areas "siloe" into isolated instruction groups and not by larger, cross-

pollinating idea groups as initially intended. In the programming process and in the interviews, K-12 teachers are generally enthusiastic about the possibility of team teaching, but it appears this enthusiasm is not always borne out in practice.

At Evergreen, however, a core mission is interdisciplinary team teaching — actively promoting the opportunity for one academic program to be taught in conjunction with a different program for the benefit of shared knowledge and the wider view to education.

Early on in the programming phase there was enthusiasm for co-locating the science and arts programs on the same floor, where they would share classrooms, ideas and techniques. Unfortunately, as we drilled down into the finer details of the technical requirements of each department, it became evident that these two particular programs, as defined, were not destined to share lab spaces.

The reasons were evident:

- Science labs require a fastidiously clean environment. All surfaces must be well oriented and clean of potentially contributing "externalities" both before and after each class.

- Art, on the other hand, is by its definition self-expression. Its multiplicity and collaging of mediums, is not necessarily "clean" in process or in its finished state. Moreover, the studio nature of its curriculum requires a space where work could potentially remain "in process" throughout the quarter.

- In the science lab food and drinks are prohibited. Not surprisingly, this restriction did not

sit well with the artist-student, while the science lab-student choices are co-opted to defer to another time and location.

- Though many of the activities of both programs demand worktops of the same chemical-resistant material, science experiments require specialized exhaust, gas, air and vacuum receptacles, as well as computer access at the tabletop. Art lab projects need large, expansive tabletops with ventilation specific to the task at hand.

In the end, the stakeholders determined that science and art programs could not share lab spaces but could share adjacent non-lab/studio areas. Additionally, hallways between the two separate programs sharing the same floor would have common visual access through door and wall relites into both lab spaces from their common corridor. The intent is to spark interest and bridge conversations between these contrasting lab environments: professor/student, student/student, and visitor/guide.

As the project moved into the later design phases, the art and science department members and the facilities and maintenance group had frequent informal on-site access to the architect. At the end of each milestone, formal design review meetings were held. During the design meetings, the art and science stakeholders had the opportunity to focus on the specifics of the design of their individual lab spaces to customize aspects

NEW NEXT TO OLD

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ruption.

Puzzling out the new construction requires a significant amount of coordination. Often, it means designing a new building around the existing one and keeping as much of the old facility in use as long as possible during construction.

Lake Washington School District's Rush Elementary was built in five separate phases to minimize the impact on school operations. The first two phases were dedicated to selective demolition of the first grouping of classrooms and construction of a new academic wing.

Once completed, students, teachers and administrators moved into the new wing. Next, the remainder of the original facility was demolished except for the original gymnasium, and was replaced with a new wing for the art, science, music and physical education programs, as well as administrative and kitchen operations. During the final phase, completed during the summer, the original gym was demolished, and parking lots, a new bus drop-off loop and a parent drop-off lane were installed.

Plan for safety

Before a shovel hits the ground on any school project, the construction managers and contractors develop detailed plans to maintain a safe school environment.

At Lake Washington's Bell Elementary, the new building was constructed less than 10 feet from occupied spaces. The construction managers spent a great deal of time thinking through each scenario for safety and school impacts. In addition to moving students into temporary buildings, the construction managers and design team worked closely with the school and the district to make sure there were no compromises with safety and that any impacts on learning were kept to a minimum.

Planning usually also entails working with the local government officials. Throughout the project, construction managers worked closely with the fire department and buildings department to ensure the codes and safety minimums are met.

Local police officers are often hired, most notably during the first two weeks of each school year or phase in construction, to direct traffic through the new traffic patterns that almost always occur during construction.

Work with the principal

In any project like this, making sure school operations are not impacted is a key priority. Every school has its own rhythm of testing and other significant instruction periods during the year that have to be respected,

even as classroom space gets shuffled around.

To ensure this happens smoothly, it is important to maintain an ongoing conversation with the principal and other key administrators to identify those sensitive times and plan accordingly. Noise, dust and odors are all critical concerns. When an overlap cannot be avoided, the construction manager and contractor shift the impactful activity to off hours, either before or after test times.

The principal is also an effective channel of information to parents, teachers and students. Spokane Public Schools allows the principal to assign a teacher, coach or assistant principal to work with the construction manager on day-to-day issues.

If teachers have a complaint, for instance, or the construction manager needs to share information about traffic changes, this individual can serve as the point of communication between the school and the construction manager. This arrangement relieves the principal from having to oversee the construction project while also trying to run the school.

Get everyone involved

Involving teachers and students in the construction project in appropriate ways can not only help take the sting out of the inconvenience, but can also make the whole project go smoother.

Groundbreaking is the first best opportunity to get the community involved. Additionally, including teachers and students in events can help make for a memorable moment.

For example, at Bell Elementary every student was given the chance to sign the last steel member once it was in place. The signatures may never be seen again but the students will always know they are there.

Formal observation areas, a place where the view is good and safety is best, give students and teachers a chance to keep an eye on the progress of the work. At Ferris High School in Spokane a group of students and teachers who called themselves the "crane crew" spent their lunch breaks watching the tower crane and other big equipment work. They even made T-shirts for themselves.

The final opportunity is move-in day. The first day of school — or first day in the new building — is always a great day. Students often cannot believe their eyes and there is a definite air of excitement and joy as they marvel at their new school. Remember to take advantage of it.

Mike Finnegan is the Northwest regional director of project management with Heery International. David Beaudine is a senior project manager with Heery International.

TECHNOLOGY LAB

CONTINUED FROM PAGE 13

line, however, as daylight and views penetrate throughout the entirety of the workhorse bar's long, rectangular floor plate, and social activity continues.

The organization of the workhorse bar builds around a central "Main Street," running the east-west length of the building on three floors. Wet labs are stacked along the south facade, connected via service elevator with the outdoor loading space. Faculty offices are clustered along the north side, overlooking the street.

In between these two clearly defined program blocks, the Main Street zone takes on an informal structure with open workstations for graduate students, team conference areas, casual seating areas and computer simulation labs, all occupying overlapping spatial and visual boundaries.

Each floor of the workhorse bar houses a different research identity: sustainable materials on the ground and second level, water quality on the third level, and air quality on the fourth level and on the roof. Even so, the lab infrastructure is flexible

and interchangeable, allowing migration as needed.

To encourage interaction between floors, the Main Street concept extends vertically as well as horizontally, with wide floor openings surrounding crimson-colored open stairwells. Placement of the stairs and openings is staggered to spread their effect over more of the area and create unique patterns of layout and visibility. Researchers in different groups are constantly aware of the other groups working in the building, and have multiple opportunities to pause, share and connect.

Green features

Sense of place — a constant theme throughout the interiors as well as the outdoor public spaces — emerges from a comprehensive analysis of environmental conditions. This includes visual connections to the landscape, social connections between user groups, as well as the physical relationship with the local climate.

Rainwater collected from the roof filters into a below-grade

cistern, which is then pumped to a day tank in the town square, supplying 85 percent of non-potable water demand. Quality of daylight is considered from every angle, taking maximum advantage of low-UV northern light with a 50-foot wide, three-story window overlooking the street and clerestory windows on the top level.

Digital modeling determines the form of exterior sunshades — horizontal on the south and vertical on the west — that make panoramic views possible without glare in all seasonal conditions.

In its pursuit of holistic approaches to sustainability research, the Paccar Environmental Technology Building embodies the same approach in its architecture, weaving together multiple site and program influences into a responsive, living whole.

Adrian MacDonald is the communications manager for LMN Architects. Dean Clark is a principal at LMN Architects and the project manager for the Paccar Environmental Technology Building.

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HAITI

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to build 10 schools in the area around Leogane, near the quake's epicenter. Architects and engineers from throughout the United States and Canada made several trips to Haiti in 2010 to document the conditions and meet with educators and school officials. When they returned, they provided pro bono design services and prepared construction drawings for new schools.

Studio Meng Strazzara was one of the many firms involved with the relief effort. We designed and prepared construction drawings for the primary school Ecole Nationale de Guerin in Leogane.

Construction was completed this summer and classes will start this fall. The new school accommodates 300 students in seven classrooms, and includes a large multipurpose room with a kitchen.

It was designed with electrical power and lighting, and future data capabilities. But unlike schools here in the Pacific Northwest, it needs to be able to function without any operating utilities. There is a well on site with a hand pump, which will be supported by an electric pump when power is available.

Sanitation was a problem at this school and many others, both before and after the quake. To improve conditions, rainwater will be collected from the schools' roofs for hand washing, and composting latrines are providing needed improvements to the previous pit toilets.

The buildings' floors are raised above the ground for protection against flooding during the hurricane season. All of the new construction is designed to resist earthquakes and hurricanes in accordance with the International Building Code. All buildings have also been designed to be accessible, which is particularly important in light of the many disabling injuries suffered by the people there due to the quake.

Continuing progress

Initially, the Spanish Red Cross intended to provide construction funding and project management for nine of the schools, with one of the schools funded by the Holy Cross Order of the Catholic Church. Unfortunately the financial crisis in Spain impacted the projects' schedules and the amount of funds available.

Modifications were made and additional partners were brought on board. The German Red Cross and Fonds d'Assistance Economique et Sociale, with financial support from the German Development Bank, provided construction funding and project management for two of the schools.

The projects were bid by Haitian contractors who employ local workers.

The construction practices used on these schools are quite different from what the laborers are used to, as there are traditionally no building codes, material standards, testing or jurisdic-

tional inspections of the work. So outside experts are on hand to ensure proper practices are followed and the projects stay on budget.

Although the funding and construction process has not been as quick as originally planned, progress has been made — five of the schools have been completed, and the remaining five are under construction. SCW has also established a permanent presence in Haiti and has completed three additional schools in other areas of the country.

Altogether these schools serve more than 7,600 students. And it doesn't stop there. Additional school projects are in the works for 2015.

In spite of the numerous challenges in Haiti, considerable progress is being made due to efforts by SCW and the many other organizations working there. According to the United Nations, primary school enrollment has increased from less than 50 percent in 2006 to 77 percent in 2012. With more new schools opening, those numbers will only get better.

The Haitian people will continue to struggle for years to come, but increasing the education opportunities for new generations of students will provide them the best chance to overcome the obstacles that lie ahead.

Dennis Erwood is a principal leading the education studio at the Seattle-based architectural firm Studio Meng Strazzara.

ART AND SCIENCE

CONTINUED FROM PAGE 14

to better fit the needs of the their faculty, staff and students.

Owning the results

Participatory design is a powerful tool. The process is engaging and immensely rewarding. The architect can use the process to help the other stakeholders to develop, test and then use design criteria to shape their educational facility.

To do this, the architect must begin by building and developing trust with and between project participants, finding common ground and shared goals. It was especially interesting during the Lab II project to hear the science and art department members extending the process by sharing ideas during separate meetings. The design of the individual spaces reflects the input and perspectives of multiple users, regardless of discipline.

The more the stakeholders shape the design, the more confidently they will later make use of the design features they've selected. This includes changing those features that direct experience indicates needs amendment, as well as owning those results with pride.

As the Lab II renovation design process comes to a close, the resulting spaces are by and of the stakeholder-designers as facilitated by the consultant team. Through this process, these new art and science labs will have the best chance of success in serving the goals of the Evergreen faculty, staff and students.

Alex Rolluda is president and a principal at Rolluda Architects. Donn Stone is a principal and Kathi Williams is a senior project designer. The firm provides architecture, interior design and planning services.



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