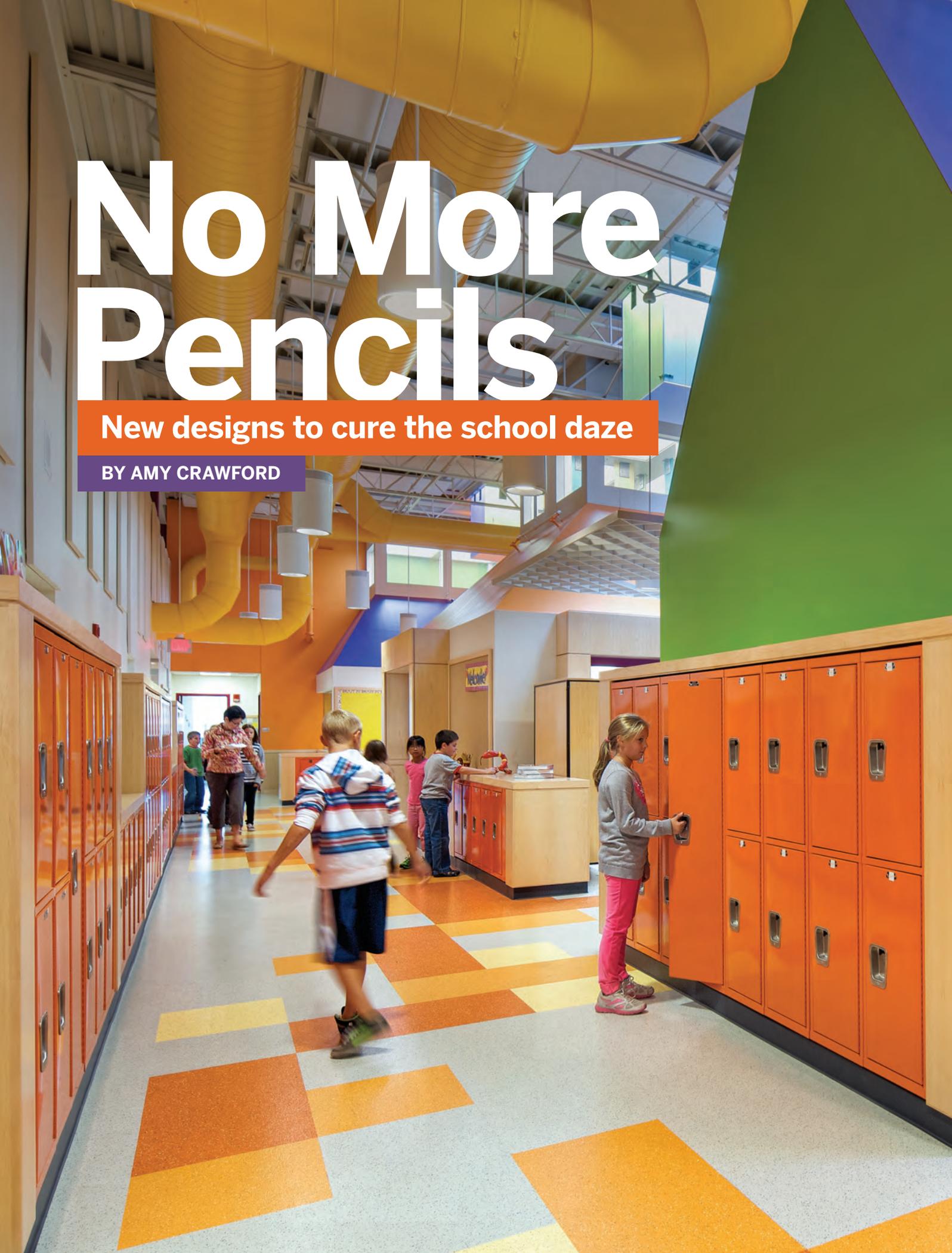


No More Pencils

New designs to cure the school daze

BY AMY CRAWFORD



It's just after lunch on a Friday, but many of the classrooms at Abbot-Downing Elementary School in Concord, New Hampshire, are empty. Instead of sitting behind desks as their teachers lecture, a handful of fifth graders are holed up in a nook by the stairs, taking notes on a whiteboard.

Two boys stand at a counter working on iPads, while other students are clustered around tables in a common area, discussing novels. Overhead, the sun streams in through skylights, and interior windows connect a double-height library with the second floor. The building, with its casual atmosphere and warm color palette—orange floors, yellow-painted ductwork, bright-green walls, and blond wood furniture—does not feel like a typical public school. And according to the architects who designed the new building, that was the idea.

In recent years, educators have begun to realize that traditional schooling may not work for every child. Many studies have shown that children learn best by working on open-ended, real-world problems. Schools have also embraced theories of diverse learning styles: Some children learn best in groups; others have trouble



paying attention unless they're on their feet. Today, rather than forcing children to sit still and be quiet, teachers are assigning hands-on projects and allowing students to learn in whatever way suits their brains.

"We have different strengths and ways of learning," says Laura Wernick, senior principal at HMFH Architects, which designed Abbot-Downing and two other new schools in Concord. "How do you provide an environment where that can happen?"

In 2012, researchers at the University of Salford in England found that school design, including such elements as a flexible classroom layout, wide hallways, and interesting decor, can account for up to 25 percent of academic progress. The paper, part of an ongoing study of more than 20 schools in the United Kingdom, is consistent with other recent research, including a 2009 University of Georgia finding that freedom of movement and views of the outdoors correlated with higher test scores in reading, math, and science. Other studies have looked at such factors as the impact of color on memory and engagement.

OPPOSITE PAGE
The Learning Commons at the Abbot-Downing Elementary School.

LEFT
The Amphitheater at the Abbot-Downing School.

ABOVE
The cupola was reused from the school's predecessor.

All photos: Ed Wonsek.

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While researchers are still exploring the intricacies of design's effect on learning, their findings have already begun to reshape the classroom. "Schools of the past were set up for the way you and I went to school—the teacher at the front of the room, disseminating information," says Phillip Poinelli, an architect with SMMA/Symmes Maini & McKee Associates in Cambridge. "We're changing from teacher-centric to student-centric, from passive learning to active learning."

Poinelli pointed to the layout of a new high school his firm designed for the town of Grafton, in central Massachusetts. Instead of a long hallway with rows of classrooms on either side—what Poinelli called the "egg crate" floor plan—the Grafton school was divided into "pods," with several classrooms arranged around a common area that can be used for group projects such as rehearsing a play or conducting a physics experiment. The classrooms themselves can be easily rearranged to accommodate group work. "We haven't turned schools on their heads," Poinelli says. "When you walk in, they still look like schools. But when you look closely, there is a whole series of features that accommodates the learner better."

In addition to innovative floor plans, those features can be as simple as an emotionally engaging color palette and the right kind of lighting, says Lorraine Maxwell, a professor of design and environmental analysis at Cornell University. She is studying the Concord, New Hampshire, schools as part of an inquiry into the effect of design on learning. Maxwell's

previous research has found that the way a school looks—the patterns on the walls and floors, for example—can influence how well students engage with their lessons.

"What the research generally finds is that a moderate amount of complexity is best," she says. "Too little is boring. It doesn't encourage kids to want to explore, to be active and excited. Too much complexity is overwhelming."

In the same vein, sunlight and views of the natural world may help children learn. A 1999 California study of more than 2,000 classrooms found that students exposed to the most daylight did 20 percent better in math and 26 percent better in reading after a year than students in classrooms with the least.

These principles were put into practice at the John D. Runkle School, a public elementary school in Brookline, Massachusetts. As part of a renovation project that wrapped up last year, architects at the Design Partnership of Cambridge brought the outdoors in, with glass walls that look out to a courtyard garden. In the classrooms, large windows provide natural light, while an angled ceiling ushers it inside.

"The ceiling is a very inexpensive way to get any light that enters and bring it deep into the room," explains Robert Bell, the lead architect of the project. "It's also about avoiding contrasts, light and dark."

The lighting, as well as the school's acoustics and muted blue and green color palette, were engineered to minimize children's stress and distraction, says

THIS PAGE
More views of the
Abbot-Downing School.

All photos: Ed Wonek.



Bell's colleague, David Finney. "Making the classroom a calmer environment, reducing the level of visual stimulus so that it's not overpowering, has been proven to lead to more retention."

Although it is too early to say whether children at Runkle are learning better, kindergarten teacher Tanya Paris says that she has noticed a change since the teachers and students relocated to the updated building from a temporary space in October. "I think the kids are happier," she says. "I think having all the lighting does something to you."

Although architects and educators are increasingly thinking about how building design affects learning, persuading community leaders—and taxpayers—that a flashy new building could pay off years from now can be a challenge. Architects say it's a myth that a well-designed school is necessarily more expensive, but the belief can be hard to dislodge. "It's much easier to go with what you're comfortable with, with what you know," says HMFH's Wernick.

However, it may soon become imperative that communities begin to think differently about school design.

David Stephen, the founder of New Vista Designs for Learning, an education consulting firm in Boston, points to the lack of room for group work or individual lessons in traditional classrooms, which may also not be equipped with the technology that a 21st-century curriculum requires. "We could continue to use our



older buildings, but I think they're increasingly a constraint," he says. "Maybe the way it changes is kids are going to demand it."

Stephen, a licensed architect who changed careers in the 1990s to work in education and now advises schools on building and curriculum design, notes that building a new school is a chance for communities to rethink their basic philosophy of education.

"The building should be geared toward evolving with the school," he says. "Designing a building is a once-in-a-lifetime opportunity, and we need to be designing schools for tomorrow, not for today. And certainly not for yesterday." ■