

SchoolConstructionNEWS

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MAY/JUNE 2011 | VOLUME 17, NUMBER 4



DISASTER PREPAREDNESS

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Renovating Historic Schools to Meet Today's Educational Needs

By William S. DeJong

Some of the most extraordinary school improvement projects in the United States involve renovating historic school buildings.

Not only do many of these buildings have architectural significance, but they are landmarks in the community. While each renovation project creates both challenges and opportunities, the end result is enormous community pride and a magnificent facility.

There is a great deal of debate in



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defining what is historic. In Europe, this is defined as buildings that are several hundred years old. In the United States, most people think of historic schools as those built before 1940. Some organizations go as far as defining a building that is 50 years or older as a historic school. Personally, I am hard pressed to categorize a school building constructed in 1960 as historic unless it has some very unique characteristics.

Schools built prior to World War II were structurally sound and included grand entries, high ceilings, large windows, and many unique architectural features. These schools were constructed with high-quality interior materials, including Terrazzo floors and beautiful tiling. Unfortunately, some of these glorious characteristics were spoiled in the 1970s and 1980s during renovations to reduce energy consumption. For example, many of the schools built in the

1920s had their windows replaced, but the new windows often clashed with the original architecture of the building.

Renovating older buildings entails more than just attention to architectural detail and bringing a building up to code. They also need to work educationally. A building from the 1920s is more than 80 years old. A lot has changed in education in eight decades, and there will be more change in the future. To give an old building a new life involves substantial modifications. Here are just a few:

- Many classrooms in older buildings are small, often less than 700 square feet, and they are long and narrow. Classrooms were organized for students to sit in rows and listen to lectures.

- Buildings were structured in the form of double-loaded corridors, making it difficult to arrange space to support team teaching today.

- Staff size has increased, including more specialists and support personnel. Many older buildings have rows of classrooms with very little space for students who require additional assistance.

- Special-needs students were not served in schools in the 1920s; therefore, serious attention needs to be given to ADA compliance.

- Lab environments have changed over the decades, including science, vocational education, consumer education, and technology education.

- Athletic programs now emphasize fitness and wellness. Many older gyms do not provide adequate space for strength training and conditioning.

- Schools didn't have computers prior to the 1970s. Fortunately, we are moving toward wireless environments, but there are still substantial challenges in providing adequate electricity and addressing wireless issues.

- There were no kindergartens and pre-school programs.

- Most of the older schools lack cafeteria space because students went home for lunch. And, there were no breakfast programs.

- Busing wasn't available as it is today, and far fewer parents drove their children to school because students walked with their neighborhood friends. Now that busing and carpooling is more prevalent, older school sites must be reconfigured for student drop-off and pick-up.

This list is not meant to be exhaustive. Instead, it is meant to point out the many educational considerations in renovating an historic building.

We can't have a discussion about renovating older buildings without including the age-old debate: renovate or replace with new construction? Clearly, everyone involved must consider the cost of renovating the building to meet educational requirements. Seldom does anyone want to spend more to renovate a building than what it would cost to build a new school. However, based on some of our experiences, renovating a 1920s building to meet infrastructure and educational needs is often 80 percent to 100 percent of the cost of a new building.

Nevertheless, whether renovating or building new, when done right, these buildings continue to serve as viable educational institutions and as landmarks in the community for many years into the future.

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consumption, we would not be able to cover our energy needs with photovoltaics within any reasonable footprint. Many of our energy-reduction strategies — such as extensive use of natural daylighting to reduce the dependence on electric lighting — actually increase the comfort and livability of the space. Energy reduction does not have to impose hardships on users."

As for the challenges encountered, Powelson says many of the team's plans required extensive integration of design strategies among various consultants and client support.

"The reliance of natural ventilation as a cooling strategy, for instance, required the client to understand that the campus facilities and users would have to be involved in maintaining the building to optimal comfort levels."

Natural ventilation required the extensive collaboration between the architect and the mechanical engineer, Stantec, to ensure that the buildings were narrow enough to allow effective cross-ventilation and had enough operable windows in the correct locations. It also required the collaboration of structural engineer, Tipping Mar, to make sure there was enough concrete in the slabs to provide sufficient thermal capacity to absorb the required amount of heat energy.

Scott Shell, EHDD principal in charge, said "It's inspiring that the school itself became a teaching tool. Ultimately, the new buildings are both a physical manifestation of and an ongoing inspiration for our commitment to creating ecologically literate students and creating transformative new curriculum around educating for sustainability. As students and adults will attest, they're also some pretty cool places to hang out and connect." ■