IS THERE A NEW SCHOOL IN YOUR FUTURE?

by Pat Smith and Jessica Billings

Aging buildings along with increasing enrollments have put school construction on the agenda of many school boards.

Some school districts are feeling a pinch as the children of the Baby Boom generation fill and overflow classrooms. In the next ten years, according to population projections, many school districts will see a swell in enrollments, which are expected to continue over the next decade.

Many school districts that haven't undertaken any serious construction or renovation for the past two decades or more are up against the wall—and in many cases, the wall is crumbling.

Even those districts that are not seeing a significant rise in enrollments may need to spend more money on their schools. A recent survey conducted by the federal General Accounting Office indicates that some $112 billion is needed nationwide for repairs and upgrades of existing schools. Ten percent of that amount is needed just to meet federal mandates: that is, to make the buildings accessible to handicapped students and to remove, or otherwise protect students from, hazardous substances in their schools, such as asbestos and lead. Much of the rest is needed to accommodate students and give them an education which will prepare them for life in the twenty-first century.

So alarming is the report that President Clinton has called for a $5 billion school construction program to be financed with proceeds from the federal government auction of communications licenses. The proposal calls for an interest subsidy to reduce costs on new school construction and renovation projects by up to 50 percent. School construction typically is funded through tax-exempt bonds that currently carry interest rates of about six percent, which a 50 percent subsidy would reduce to three percent. School districts could use the money to finance repairs in existing schools, to build new schools to replace old ones or to accommodate increased enrollments. Also eligible would be projects to facilitate technology, increase physical safety at school, improve access for those with disabilities, improve energy efficiency and address environmental hazards such as poor ventilation or indoor air quality.

Legislation is expected to be introduced in Congress in early 1997.

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If your district is among them, what can you expect when you venture out into the construction/renovation marketplace?

First, if you haven't been keeping up on construction costs, expect sticker shock, says Marion Poggas, vice president of Garrison, Jones Architects in Carbondale, Illinois. Then, when you get over the increase in construction costs since the 1960s or 70s, be ready to explain it to your community, especially those who remember what they paid for a high school 30 years ago.

You'd pay more even if you were to build the same kind of building you would have built back then. But of course, you won't. Too much has changed.

One of the biggest changes in education also has numerous implications affecting school design. That change is technology, which requires everything from additional wiring to larger classrooms. Computer labs still exist in many schools, but most educators believe computers best enhance learning when they are located in the classroom. A standard-sized classroom won't accommodate six, eight, or a dozen computer stations. Whether you are just getting started in technology or already have as much equipment as you can imagine ever needing—plan for more.

Lighting is also important in planning for computer use, Poggas points out. Lighting that glares off a computer screen makes for miserable working conditions. Both artificial and natural lighting (placement and orientation of windows) need to be planned to reduce glare.

RETHINKING LIBRARIES

In schools of the past, a large chunk of space was devoted to the library, which was designed to be a quiet study area. Electronic storage, which reduces an entire reference section to the size of a compact disc, is becoming more and more common. In

some cases, libraries might become smaller and classrooms larger. Or library space might be reconceived as a place where teams of students would use computer stations.

Another consideration that is more important now than it used to be is vehicular traffic control. More elementary and junior high school children are driven to school and picked up by their parents. More buses are being used. School sites have to be carefully planned to separate bus and auto traffic, to allow space for parents to wait for their children and to safeguard children who walk or ride bicycles.

Parking is a major consideration when planning a high school, where more and more students drive their own cars. Also, adding staff members will increase the need for parking.

Another problem of our times: security. A school in California, trying to escape the noise from the Los Angeles International Airport, was built underground for the most part: as an unexpected bonus, the administration found that vandalism and security problems were much easier to handle. The school's utility bills were lower too.

If an underground school is not to your community's taste, plenty of high-tech products and strategies exist to help provide security. There are various materials for windows and window coverings, including wire screens. One school system was awarded a $355 million grant to monitor all doors electronically and to set up an automatic locking system with a fire alarm release. Some New York City schools issue identification cards which are checked by electronic card readers which will not let a student in without a card.

In large urban schools, fairly drastic security measures are needed. For many schools, though, there are simpler, less expensive ways to protect children, such as putting windows in the doors of offices and closets. Special primary washrooms can be positioned close to the younger children's classrooms, and all classrooms can be equipped with intercoms.

Other schools are using phones with callback capability in every classroom instead of intercoms, Poggas adds. If a student becomes disruptive or if someone comes into the classroom bent on trouble, the teacher can pick up a phone and have immediate access to the office. (A happier reason to have telephones in every classroom is to allow for electronic networking.)

Other security measures can include minimizing the number of doors and making sure the office is located so that it has good visual control over doors. Care must be taken not to compromise safety in case of a fire however.

In general, flexibility is a key word in school construction of the 90s. Some districts need to plan for future expansion, which will be much easier and less expensive if it is designed into the building from the start. Others will be seeing enrollment declines and need spaces that will lend themselves to alternative uses.

Because space costs money, rooms are being designed for multiple uses : a huge cafeteria that is used for only two hours a day is a luxury that few districts can afford. The cafeteria might be designed so it can be used for band practice and other purposes. Large classrooms that can be divided into smaller spaces with folding partitions allow various uses, such as multi-age groupings or teamwork of various kinds.

COMMUNITY USE

One district that is building a new facility is getting maximum use from classroom space by not assigning teachers to their own classrooms. Instead, teachers will have work stations so that valuable classroom space is not tied up during teacher preparation periods.

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Even if enrollment is not expected to decline, there is more interest in designing schools that can be used as community facilities. In many cases, schools are no longer used from 8am to 3pm five days a week, nine months a year. Rather, buildings are housing before-and after-school programs, continuing education classes, senior citizens' events, and other community activities.

In addition to making greater use of expensive space, turning school buildings into true

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community facilities is a highly effective way to increase community support for schools, especially among those segments of the population that don't have children in school.

Recreational facilities, such as gymnasiums and locker rooms, also lend themselves to community use, Poggas added. These facilities seem more important than ever, he reported. Despite tight budgets, his firm has not seen cutbacks in gym facilities.

When planning facilities for community use, carefully written policies and the advice of an attorney are essential to avoid liability problems.

Energy conservation continues to be an issue—and a complicated one at that. During the 1970s, said Poggas, "we insulated buildings better, tightened up windows, built vestibules and used wind-resistant wrappings." Sealing up buildings reduced heating and cooling costs, but had unintended consequences as well: "sick building syndrome." Sealed-in pollutants created health hazards for the inhabitants of buildings. That in turn caused building codes to start requiring more fresh air to be brought in via the mechanical systems. And, of course, that air has to be heated and cooled.

LESS INSTITUTIONAL

Siting and orientation of the building also has an impact on energy costs. So does landscaping: carefully placed trees can shade buildings in warm weather and serve as a windbreak in winter. However, when money is tight, landscaping tends to get short shrift. One reason is that it takes time for those trees and other plantings to grow, so that the value of landscaping is deferred—and hard to sell. School districts tend to spend the money on more square footage, said Poggas.

In general, Poggas sees a trend toward school buildings that look less institutional. "We're moving away from the boxes of the 1950s, 60s, or 70s, and seeing more variety in the design," he said. Buildings are designed to fit into their neighborhoods, rather than being an isolated institutional block. Even working within a tight budget, a good architect can suggest design options.

One of the first decisions your school board will have to make is: Do we build from scratch or renovate?

Even though a brand new school can fill many needs and solve many problems, some communities just don't want to pay for one. The design and construction of new schools can seem extravagant, even though it may be more economical in the long run than renovating old buildings. The cost of a new building may not be as much more than you'd expect, and a new building can be up and in service much more quickly than a renovation job on a school which remains open during the construction period. Renovating an existing school while it is in session can take longer than renovation of an unoccupied school.

Still, remodeling and/or adding to an existing school can sometimes be easier to justify to your community than all-new construction. One choice is to "gut" and transform a school with landmark status, particularly one built before 1940. Such buildings are strongly constructed, with high ceilings and large windows. Classroom size and shape sometimes can be reconfigured to reflect current needs—but not always, warned Poggas. Inconvenient load-bearing walls sometimes make it difficult or impossible to enlarge small rooms.

Other problems include making the building energy-efficient—

very difficult in many old buildings—and making old buildings with their stairs, small restrooms, and narrow doorways, accessible to those with physical disabilities.

Boiler systems, with some updating, can often be reclaimed, although the electric, plumbing, and ventilation systems should be completely replaced, usually at a cost some five to ten percent higher than that of systems in a new building. Accommodating technology can be a problem—thick walls and floors often make rewiring a real challenge.

RENOVATE VS. BUILD

Since older buildings are often viewed with great affection in the community, working to keep the architectural values of a school while renovating to serve today's students can be a popular project.

If your town does not have a charming old school to renovate—or if someone has already turned it into a profitable minimall—schools built after 1940 can also be suitable candidates for renewal. If an addition to a school is planned, it may be simpler to attach it to a newer school, since the cost of making new construction harmonize with a charming old school tends to be relatively higher.

And, speaking of costs, some construction firms estimate that the national average for contingency [unforeseen costs] is around ten percent of the estimated costs for renovation work. Some expenditures are legitimately unforeseen, such as those that follow the discovery of corrosion or dangerous substances behind innocent looking walls; some expenditures arise because the planners did not anticipate certain conflicts, and some, because plans were changed after construction had been started.

New building or renovation, once the actual work starts, someone must be in charge of the project at the administrative level, and someone must follow every day's activity on the site. There must also be regular communication between the building site and the school board. (see *Alternative Project Delivery Approaches for School Construction* on page 23).

If it's time to build in your district, be sure to allow plenty of time for planning. In fact, allow more time than you think you really will need, and rest assured that it won't be too much. Only careful planning will ensure that you get the facilities you need at the price you determine.

You'll need a planning team that should include representatives from groups that can be expected to criticize and oppose building plans. This representation will be an important card to play in your referendum campaign. Among the information that should be collected by the committee is the following:

- Description of existing facilities in the school district;
- Current enrollment numbers and projections for the next ten years;
- Ethnic and economic makeup of the community
- State and local requirements for school programs, construction, and support functions such as library, cafeteria, administration and maintenance;
- Assessment of the community's feelings about district space needs; and
- Recommendations for meeting those needs.

Public hearings on school needs will help elicit information about what your community wants—and doesn't want—in its schools. Hearings also will help uncover likely points of opposition. You may learn, for example, there is no way on earth that your community will pay for a swimming pool, no matter how good a case you can make for the need. You may find that people in your community align with a recent national survey that shows people are willing to pay quite a bit for instructional technology.

Build into your plan time to investigate various options. These even include standardized designs for schools. The architectural firm of Ehrenkrantz & Eckstut in New York City, for example, designed a prototype school with components that include classrooms, facilities for children with disabilities, an auditorium/library/gymnasium complex, and a section containing office space and facilities for teachers (Ezra D. Ehrenkrantz and Stanton Eckstut, "Made to Measure: How one City Saved Time and Money with a Prototype Design for New School Buildings," *The American School Board Journal*, April 1994)

Remember—while the schools of your dreams may not be realizable, with careful planning and judicious compromise you can achieve an attractive facility that will serve your community well for many years to come. ◆

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