MACTON® Turntable Divisible Auditoriums

"BUILDING THE BEST AUDITORIUM"

Printed in the March 2008 edition of ***American School Board Journal***

It's a twofold challenge: How do you optimize the dollars you spend and increase the use of your space? The key is to reduce the cost of initial construction and ongoing operations.

Traditionally, auditoriums represent some of the most expensive spaces within schools, yet they tend to be used the least. In addition, due to budget constraints, they are rarely built large enough for the school's needs.

So the challenge is twofold: How to optimize the dollars spent and increase the use of the space. The solution lies in using approaches to reduce initial construction and ongoing operating costs. In working with schools across the country, we discovered the following important cost-cutting strategies to consider when building auditoriums.

Reduce lighting costs by using more efficient lighting fixtures. Even modest efficiency improvements to the proposed lighting system can mean substantial savings in electricity costs. Install high-efficiency lighting systems such as T-8, compact fluorescent, or metal halide lighting fixtures. Use LED lighting systems for more than just aisle and exit lighting – use them for wall and area lighting, too. LED systems have the added advantage of low ongoing maintenance costs.

Install occupancy sensors and time clocks so lights are automatically turned on and off as needed. Also, install dimming sensors, which automatically reduce the lighting levels when natural daylight is available in the auditorium. While these measures may involve some additional construction costs, the added expenses will be more than recouped in reduced operating costs. In addition, federal, state, and utility company energy savings programs may be available to pay for some or all of the costs of installing these new high-efficiency systems.

Reduce heating, ventilation, and cooling costs. Your heating, ventilation, and air conditioning (HVAC) system is one of the largest energy users in most schools. Use of programmable thermostats and occupancy sensors can reduce ventilation air requirements when the auditorium is unoccupied. Additionally, selecting an HVAC system with a high-energy efficiency rating can provide further operational savings. Also, research if it's practical for your school to use natural ventilation or a displacement ventilation system for additional cost savings. You can work with your architect and mechanical consultant to determine which of these options is best suited for your needs.

Install high-efficiency electrical distribution systems. Installing a high-efficiency electrical distribution system can impact both initial purchase costs and ongoing energy costs. Because the design of the auditorium influences the selection of an appropriate system, make sure a professional engineer or consultant takes into account both the performance requirements of the facility as well as the original and ongoing costs of these systems.

Hire an architect and/or a consultant focused on cost reduction. Make sure architects, engineers, and consultants are focused on delivering a building that provides the best value for your needs. Ask them for suggestions on how to reduce upfront construction costs and ongoing operating costs for your facility. The best consultants for the project will help you secure the optimum balance in the areas of quality, reasonable cost, optimum use of space, and timely completion.

REDUCING YOUR FOOTPRINT

The trend in new schools is towards "green" construction, which includes disturbing as little of the surrounding land as possible. You can ease auditorium construction and operating costs by reducing the overall footprint required for the school. One way to accomplish this is by converting space form one use to another without any extra duplication of space.

Typically, auditorium space goes unused at least 90 percent of the time. Today, innovative auditorium systems can convert a portion of the auditorium space into usable classroom or alternative performance space. This lessens the total amount of classroom or alternative performance space required for schools, resulting in reductions in initial construction and ongoing operating costs.

"What schools are looking for is as much utilization of space as possible. A lecture hall or an auditorium that's only used once or twice a month is not sufficient. Look at all the different ways to increase the utilization of the space or see if you can use an auditorium for lectures or smaller performances by closing off part of it," says Sue Robertson, president of Planning Alliance Inc., in Raleigh, NC, an organization that helps school districts develop facility master plans and educational specifications.

One example is a **turntable divisible auditorium (TDA)** system that converts 30 to 40 percent of an auditorium's space into quality, usable classroom or performance space. TDAs work by taking a conventional auditorium and placing one or more of its seating areas onto turntables that can rotate to different positions.

The rotating seating sections can then create separate teaching, performance, training, or meeting rooms that can be used when the full auditorium is not needed. The turntable-mounted walls permit simultaneous, multi-use capability and high-quality soundproofing for those using the space.

In most instances, TDAs lower both the initial construction cost as well as the ongoing operational costs of the facility by reducing the number of rooms needed at that facility. A study on the TDA system was conducted by BLRB Architects, P.S., in Tacoma, Wash., on the two TDAs installed at the 600-seat auditorium at Kentlake High School in Kent, Wash. This study concluded the installation of the TDAs resulted in a 6.3 percent reduction in overall construction costs, as a result of the elimination of duplicative auditorium and classroom space.

A TDA's construction and operation can be dynamically incorporated into a school's curricula, such as engineering, fine arts, and ecology. In fact, several school officials report some of their students are motivated by the TDA and have become more involved in the associated curricula. Students can also learn how the TDA works, how it saves space, and its mechanical engineering aspects.

INCREASE ALTERNATIVE USES

One of the best approaches to reduce auditorium costs and still be able to budget for the type of facility needed at your school is to find other organizations that will share the costs of construction and ongoing operation. You can rent your auditorium to the community for special events during the evenings and weekends. It's possible some community groups will share in the operating costs or even some of the construction costs.

In some instances, auditoriums are built so they can be accessed separately by the public and not through the school. This allows the auditorium to be easily closed off from the rest of the school, thus leaving it available for community use.

"There has been increased concern for community space. People want to get the most benefit that they can from their tax dollars and there is a considerable push for sharing the space with the community," says Robertson. "For some smaller communities, the school may be the only gathering space in the community for large groups of people, making the auditorium a large asset for the community. It helps create a sense of community."

With some auditorium systems, such as the TDA system, some of the existing auditorium space can be classified as usable classroom space. In some states, a TDA system entitles school districts to a higher reimbursement rate from the state on upfront construction costs.

According to the U.S. Department of Energy's Building Technologies Program, the ongoing operating costs for new high-performance schools (designed to save energy and reduce environmental impact) can be 50 percent less than those in traditionally designed schools.

Further, the Department of Energy notes that renovating existing schools to replace outdated systems (such as inefficient boilers and lighting) can save up to 30 percent annually in operating costs. Additionally, if planned and executed properly, upfront construction costs can be significantly reduced.

Achieving construction and operating savings when building an auditorium is important. However, don't overlook another crucial strategy: Involve students, teachers, parents, and community members in the planning and design of the structure. These key people bring a wealth of knowledge crucial in designing the auditorium to reflect the learning process of students and the interests of the community.

When you involve the entire community and honor their ideals, it will have a positive effect on the use of the facility and the success of cost-effective, innovative auditoriums.

To learn how you can integrate a TDA into your next educational facility, please email us at: **TDA@macton.com**, call us at **800-334-TURN** or visit **www.macton.com/tda.**

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