

Additions and Renovations To Educational Facilities

40TH ANNUAL
TASA/TASB CONVENTION

Early Bird Workshop

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INTRODUCTION

□ Presentation overview

School districts throughout the state are looking for ways to accommodate expanding student populations and changing educational programs. Often at the heart of the debate is the question of what to do with aging school facilities and how can School Districts accommodate more students at a reasonable cost.

This presentation will focus on key issues that must be considered when making the decision to renovate an existing facility or add new facilities to an existing campus.



Interesting Facts—Did You Know

- ❑ Since 1989 - 80% of all construction dollars have been allocated to additions & renovation of existing schools.
- ❑ Laws, Regulations and Codes have frequent contradictions and are in a constant state of change.
- ❑ Many codes and code officials require the entire building to be brought up to current standards if renovations exceed a limited area. (*Building and life safety codes, Disabled Accessibility, State minimum square footage standards*)
- ❑ “School House in the Red” by Shirley Hansen
(*Direct correlation between achievement and condition of facilities*)
- ❑ Maintenance and operation costs exceed original construction cost by six times
- ❑ 1996 – General accounting office estimated \$112 billion required to renovate and modernize schools



Reasons To Renovate or Expand

- Accommodate new educational concepts
- Student growth
- Improve appearance of learning environment
- Upgrade, expand or replace worn out or out dated building spaces and systems
- Reduce maintenance costs
- Improve energy efficiency
- Eliminate hazardous materials or improve indoor air quality
- Incorporate technology
- Upgrade to meet current building codes, life safety codes and disabled accessibility
- Possibly the least costly option





Primary Considerations

- ❑ Design
- ❑ Construction
- ❑ Cost considerations





Design Considerations

- ❑ Designer must work w/ the school district to accommodate new and anticipate future educational program space requirements
- ❑ Structural systems often render existing facilities inflexible to change
- ❑ Codes will have likely changed since the facility was constructed
- ❑ The appearance of a school facility is important to the community and fundamental to the education of children



Common Problems Found In Older School Facilities

- ❑ The need for more space
 - Narrow corridors
 - Lack of support space
(Storage, Restrooms, Core facilities, etc.)
 - Small classrooms
 - Core capacities
- ❑ Disabled accessibility
 - ADA & TAS
- ❑ Infrastructure
 - Air conditioning (fresh air)
 - Technology
 - Fire rated construction
 - Walls, floors & ceilings
 - Roofing and other systems
 - Smoke barriers (30,000 sf)
 - Electrical
 - Roofing
- ❑ Difficulty in concealing wires, ducts and conduits in limited space



Construction Considerations

- Hazardous materials removal
 - New asbestos testing requirements
 - Plan early and start construction as soon as school is out to allow for new materials to be installed before school starts (ie. Ceilings, floors, lighting, plumbing, etc.)
 - Develop contingency plans to accommodate students in the event of construction delays.
 - Temporary Buildings
 - Busing to another campus
 - Extend Summer Vacation
 - Incentives for overtime work and schedule adherence
 - Lead in drinking water
 - Test water before and after construction



Construction Considerations - 2

□ Wall and window replacement

– Exterior walls and windows

- Construct temporary wall 2' to 3' inside exterior wall to separate construction from students
- Provide temporary windows or doors to exterior for emergency exiting

– Interior walls

- Free up a block of rooms to renovate all at one time
- Utilize portable classrooms to accommodate displaced students
- Temporary busing to another facility
- Specialty rooms such as Science labs require additional time to field measure and fabricate casework and countertops



Construction Considerations - 3

□ Security

- Provide security to avoid theft
 - School equipment
 - Construction materials & tools
 - Require I.D. tags for authorized construction personnel
 - Don't mix construction parking/Storage areas w/ school parking and student areas

□ Safety

- Limit access to construction/Educational zones
- Maintain 1-hr exit ways through construction areas from existing buildings
- Limit overhead construction to unoccupied spaces
- Welding - Screen view of unprotected viewing



Construction Considerations - 4

☐ Noise

- Schedule construction activities that create impact and vibration noises after hours and on weekends
- Coordinate testing days w/ contractor

☐ Odors and dust

- Seal off construction areas from non-construction areas
- Provide positive ventilation and fresh air
- Reduce use of materials w/ toxic fumes. Allow time for material off-gassing prior to student occupancy
- Clean frequently to reduce problems w/ dust & odors



Cost Considerations

Estimating construction costs for additions and renovations work is far more complex than for new construction. Allow contingencies for unanticipated and concealed conditions that will be discovered during construction.

- Type - I
 - **Finishes** – Paint, floors, ceiling – mostly cosmetic improvements and repairs
 - **Time** - easily accomplished during a summer break
- Type - II
 - **Systems replacement** – Air conditioning, plumbing, electrical, roofing and code requirement upgrades
 - **Time** - often completed during summer break but depends on extent of renovation
 - **Materials** – Order early so materials arrive on site prior to construction period
- Type - III
 - Structural changes – Reroofing, wall relocation, systems replacement, small additions, etc.
 - Time - difficult to complete over summer break
 - Larger additions require more than a summer



Other Cost Considerations

- ❑ Site work *(Substantially less than new construction)*
- ❑ Soft costs (Professional services, F F & E, Technology, Etc.)
- ❑ Construction in occupied buildings
 - Protect exits from buildings during construction
 - Temporary accommodations
 - Staging, storage & parking areas for construction
 - Prolonged construction activities by phasing (General conditions – time is money)
- ❑ Quality of materials and systems
- ❑ Moving expenses
- ❑ Contingencies for unforeseen circumstances
 - New Construction – 2% to 5% of Const. Cost
 - Renovations – 5% to 10% of Const. Cost



Special Considerations When Expanding

- ❑ Site work
 - Verify accessible parking drop-off zones and routes to new construction and primary functions
 - Site pollution controls for storm water run-off
- ❑ Disruption of existing systems
 - Try to locate underground utilities
 - Consider existing roof drainage patterns
 - Be aware of affect on existing long term warranties
- ❑ Determine allowable floor area
- ❑ Distance to required emergency exits
 - 250' to 350' (in sprinkled buildings) 200' to 300' (Un-sprinkled)
- ❑ Phasing of construction
 - Additions must often be complete before renovation can begin
 - Order materials early to avoid delays
 - Plan for disruption



How To Decide the appropriateness of Additions and Renovations

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What are your goals?

- Appearance
- Educational adequacy
- Growth

Location

- Land locked
- Appropriate location

Other uses for facility

- Alternative learning center
- Central administrative offices
- Storage/Warehouse

Community attitude toward facility / Historical Significance

Schedule

Environmental concerns

Safety



SPEAKER PROFILE

□ Speaker profile

Brad Pfluger is president of Pfluger Associates, Architects and Planning Consultants. With offices in Austin, San Antonio and Dallas, Mr. Pfluger has Devoted the last 14 years of his career to planning and designing educational facilities for over 70 school districts throughout Texas. As 1997 & 1998 Chairman of the Texas Society of Architects Committee on Architecture for education, Brad helped develop Guidelines for the Tasa/Tasb educational design competition, Established a state wide touring exhibit of educational projects and served on a committee to guide legislation on alternative construction delivery methods for Texas public schools. Mr. Pfluger is past President of the Council of Educational Facility Planners Central Texas Chapter North. Through his involvement in these groups, Brad has gained a wealth of knowledge on school planning and construction issues and has been able to utilize this information to not only improve the educational projects he works on, but also educate others through presentations to these organizations.

