

Using the Design-Build Approach for a K-12 Private School Performing Arts Center

The Customer

Whitinsville Christian School (WCS) is a private, Christian K-12 school located in the Blackstone Valley of Central Massachusetts. The school sits on 40 acres and has a student enrollment of over 570 children. WCS combines faith and learning and focuses on students' intellectual, creative, and spiritual development.

Built in the 1950s, the school had undertaken multiple construction projects over the past 60+ years. However, all of this previous work was performed under the design-bid-build approach, so the design-build process was completely unfamiliar to WCS.

The Challenge

The school's decision to move forward with the project stemmed from two main needs. WCS's existing gym, which is undersized for its needs, was serving as both a gymnasium and a venue for performances. The school has a very popular and well-known athletic program, and the space, with its 700 maximum occupancy, had become too small for its sports events.

From just a logistics standpoint alone, alternating space use was inefficient and difficult to manage. For example, each time a student assembly or performance was planned, chairs had to be individually set up on the floor and then removed for athletic events. Additionally, the acoustics of the space were not designed with performing arts in mind, yet the school had no



Whitinsville Christian School's existing gym/auditorium

other venue for these purposes. This was a major hindrance to WCS's ability to provide top-notch musical and performing arts programs for its students.

A new cutting-edge facility would help WCS enhance its athletic and arts programs, and remain competitive with the increasingly saturated private school market. WCS wanted a structure for the past, present, and future – a fantastic space for current students, a facility for alumni to look upon with pride, and a mechanism for attracting future students. The school also needed to build a second-story addition above a portion of the existing school building to create more learning space to relieve overcrowded classrooms. In particular, a larger more open room was needed to accommodate students' musical instruments during rehearsals and lessons.

Defining the Need

New performing arts center & gym to meet growing enrollment demands and attract new students

Addressing the Challenges

- * Incomplete design
- * No certainty of complete funds
- * Largest project to date
- * Unfamiliar with D-B delivery

Meeting the Need

- * Hands-on approach with WCS
- * Assembling the right team players
- * Bringing in the experts
- * Focused collaboration & active support

“This was the largest and most complex project we have undertaken at the school. We knew it would be a challenge, but we believed in our mission and were united in wanting to create the best space possible for our students.”

– George Murray, OPM, WCS

A pedestrian bridge connecting the “old with the new” was also needed for ease of access between the two buildings.

Understanding WCS’ objectives was just the first part in the process. The challenge came in developing the right design to meet these needs, and then executing the design in construction. There were a number of considerations. What was the best way to connect the existing school to the new facility? How did we ensure a cohesive aesthetic of three very different spaces to fit within existing campus landscape and existing architecture? How could we even start without having all the answers figured out, a completed design, final budgets, and final selection of subcontractors? Nevermind that there was no guarantee fund raising efforts to finance the project would meet the final goal. Only by beginning the work would we be able to generate enthusiasm and excitement among donors, but that would be putting the cart before the horse.

On the other hand, maybe it was more like “you miss 100% of the shots you don’t take.” In this case, WCS chose to shoot.

The Resolution

The first step was to ensure a high comfort level with the design-build process among WCS, its building committee, and community supporters. Moving forward without a completed design and the “typical”



Dixon Salo Architects and WCS building committee members work through the design-build process



Hands-on STEM learning for WCS middle school students

bidding process (or a guarantee of all of the necessary funds) was overwhelming, especially since this was the first project of this magnitude the school had undertaken.

Although not a bid requirement, JMC chose to team with Dixon Salo Architects, who had completed the preliminary design of the new performing arts center and gym. Dixon Salo’s familiarity with the school and the board and their existing knowledge of the project was a true asset to the project, and set the stage for the rest of the team selection process. We met with and hand-selected companies who only specialize in theater design and acoustics engineering, which enabled our team to precisely address the technical aspects to take the space from a typical school theater to a world-class performing arts center.

“From an architect’s point of view, the difficulty in any design-build project is learning to let go,” comments Dixon Salo Principal/Architect, Jesse Hilgenberg. “Not being able to control the entire design process can be uncomfortable, and requires a huge amount of trust in your in team. Egos have to be set aside.”

Jesse explains, “We allowed the rest of the team freedom to provide their design expertise and ideas for making the project better. As the architect, we then offered our suggestion on how to bring the design more closely in line with the original concept.”

This same strategy was extended to the gym space. JMC procured vendors who specialize in sporting equipment and therefore understood how various materials would impact students’ athletic performance.



Constructing the connection bridge section by section

Not only were these companies experts in their niche areas, but more importantly, their philosophy aligned with the rest of the team, and their passion for their work matched the school's needs. Sometimes the company with dozens of similar projects on its resume isn't the right fit; it's a more global approach of how they fit in within the overall landscape of the project and all parties involved. This type of atmosphere is extremely difficult to achieve in standard design-bid-build work.

WCS itself began similar stewardship efforts, assembling a building committee comprising community members and school administrators. Committee members offered a wide range of experience, bringing local business owners, vendors, and tradespeople together for a common purpose they could all support.

Selecting the right team and establishing a high level of trust with the school was critical for setting the project up for success. It was not "owner versus contractor," or "architect versus engineers." It was a mutual understanding that everyone was on the same team, celebrating the highs and working through the lows. In essence, the design-build approach was much more closely aligned to Integrated Project Delivery. But it couldn't have worked if everyone didn't "buy in" to the project or if the only focus was on cost and schedule. The focus had to be more about open communication, alignment of objectives, and shared accountability.

The End-Result

By spending the time up front to focus on the team and client, the project's pre-construction phase proceeded with design and budgeting, and enabled construction to begin on time, making final adjustments to budget, schedule, and design as work continued.

This provided a mechanism for WCS to promote their future facility, hold fundraising events, and generate excitement within the. If we had waited until each piece of the puzzle was finalized, construction start likely would have been delayed a year or more. We took small bites (smart, calculated bites) to make progress on a schedule and a budget that made sense.

To help sustain enthusiasm for the project, JMC and Dixon Salo developed STEM teaching days for students and supported WCS at monthly meetings to update the committee, alumni, and parents on progress. There was a ground breaking ceremony, topping-off ceremony, in-progress tours, and fundraising events. JMC worked diligently so the school could plan a soft opening for the senior class to use for graduation and for several class performances. All of these activities continued to promote the project and encourage donors, all while moving towards the completion date.



The final product - Whitinsville Christian School's new gym and performing arts center



The completed 9,400 sf, 450-seat performing arts center is host to WCS's musical and theatrical performances. The space features a clean, modern aesthetic with state-of-the-art audio/visual equipment, and includes tiered and balcony seating.

The 12,300 sf collegiate-level gymnasium includes multiple basketball courts, bleachers, and a custom sound system. The gym can accommodate multiple, simultaneous athletic events and has an occupancy capacity of 1,500 people (more than twice the capacity of the old gym).

A large lobby joins the theater and gym and provides a space to gather before and after events. A custom concession stand, trophy display case, and plenty of natural light from the lobby's many windows help define the space. The exterior entrance features custom granite signage, as well as a patio area and sculptural fire feature with custom iron fencing for safety.

The addition above the existing school building was constructed before the new facility, and includes numerous multipurpose classrooms. A new 100-ft-long clear span elevated pedestrian bridge connects to the lobby of the performing arts center and gymnasium from this addition. The bridge was the most complex element of the entire project due to its size, location, and weight.

The Takeaway

While the design-build delivery method worked extremely well in this application, not every project is a perfect candidate for this approach. Even if it is, the

process may still be challenging if those involved cannot embrace the ambiguities that are characteristic of the design-build approach. A combination of commitment, trust, and true partnership must be attained well before any shovels can go into the ground, otherwise it could be a painful process for everyone involved. ■



The pedestrian connection bridge between the new facility and the second floor addition to the existing school building



About JM Coull, Inc.

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The firm's proven StartSmart® preconstruction program generates the best value for its clients, regardless of delivery type. Objectives of the program include:

- Setting the stage for the entire project
- Analyzing & discussing project aspects up front to prevent surprises later
- Minimizing front-end investment while providing early, accurate information
- Maximizing return on investment
- Articulating project goals to client & team
- Identifying & optimizing solutions for major costs & schedule drivers