

# Special Delivery

BY USING TECHNIQUES FROM INTEGRATED PROJECT DELIVERY TO SPACE PLANNING MOCK-UPS, BSA LIFESTRUCTURES HAS SAVED CLIENTS VALUABLE TIME AND MONEY ON A RANGE OF PROJECTS.

**W**hen it comes to design and building, a multitude of elements can arise that challenge the time, cost or efficiency of a project's outcome. BSA LifeStructures, a nationally recognized architecture and engineering firm, meets these challenges with innovative techniques for finishing projects on time, within budget and in line with a client's goals.

Jake Snyder, BSA LifeStructures' director of engineering, explains some of the processes and solutions used by teams working on projects of various types and sizes.

## Integrated Project Delivery

When a hospital decided to change the delivery method and construction team on a major facility addition, BSA LifeStructures won the bid to design the build-out as the mechanical electrical and plumbing (MEP) engineer and immediately began assembling a team for the integrated project delivery (IPD) method the hospital had chosen. Subcontractors' qualifications were received and evaluated based on their ability and willingness to succeed within the IPD approach, which can save valuable time and costs for highly complex projects.

"The integrated project delivery is a special contract that ultimately pools all the project money into one checking account, and then the team all signs the same contract," Snyder explains. "If there's savings – if the team figures out ways to do things better – then the team as a whole profits on that savings. Fifty percent of the savings goes to the owner, and 50 percent is shared among the other team members."

## Lean Construction

When working with multiple subcontractors, BSA also seeks to implement lean design and construction techniques, which help to coordinate everyone's efforts suc-



▶ BSA LifeStructures uses innovative techniques to finish projects on time and on budget.

cessfully. One technique that has proven especially effective is pull planning – a visual and interactive lean tool that uses sticky notes to ensure smooth project communication.

"It may take everyone some time to understand how to do that, but in the end, it makes us much more effective," Snyder asserts. "It's a series of individual tasks or promises you're making so work can be

## BSA LifeStructures

[www.bsalifestructures.com](http://www.bsalifestructures.com)

- *Headquarters:* Indianapolis
- *Number of Employees:* 200-plus
- *Specialty:* Design and planning

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*– Jake Snyder, director of engineering*

released downstream. We could start our work knowing we weren't going to have to redo it, because we knew the piece that was ahead of us was done. It greatly eliminates the amount of rework."

### Quiet-Time Solutions

A willingness to collaborate and embrace innovative solutions allowed BSA LifeStructures to complete a project in an existing hospital without disturbing current patients. "Supervising the MEP design of a multi-level addition to a healthcare facility, the team was doing work on seven or eight floors, if you count the lower level," Snyder says. Approximately half of a floor was already completed for a special pediatric needs unit. BSA and an IPD team had to devise ways for the subcontractors to work carefully around the floor and not disturb the occupied levels above.

The IPD team collaborated to come up with a solution that would reduce the impact of drilling on the floor below the patients. "We clamped a unistrut grid to the existing steel structural beams and hung everything off a unistrut, which was almost no noise at all," Snyder says. "That is one of the benefits of integrated project delivery. We had all the teams' designers and constructors there to come up with a solution for this hospital."

Other ways to reduce construction noise can include installing rubber flooring. "When you're walking on VCT tile, you can hear your feet," Snyder points out. "With rubber flooring, that sound is much less, and it's better for the staff – it's a little softer so they don't get fatigued as much. So it has a dual benefit."

### Cost Estimating

A helpful cost-saving technique can include having an estimator on hand during the design stage. When choices have to be made between options – for example, sliding glass doors instead of wooden ones with a window – the owner can make a quicker decision based on firm costs calculated by the estimator. This eliminates having to value-engineer after a design is completed. "We never had to go back and take scope out of the project," Snyder says.

Cost estimating helps expedite a decision among several options to shift funds in order to offer more space or meet facility needs. "Traditionally, decisions can take weeks to go through many options and get costs back, and we have been able to complete these steps in a matter of days by having the entire team available," Snyder declares.

### Space Planning

When designing laboratory and health-care facilities, creating a space to accommodate various pieces of equipment – while also enabling researchers and care providers to navigate and move through the space as efficiently as possible – can be a major challenge.

Among many approaches BSA has used to tackle this challenge, one of the most innovative has involved the creation of mock-ups during the design stage. This system allows teams to locate assets, such as storage areas or electrical outlets, and know exactly where they are needed to save time and unnecessary employee movement. Movable partition walls can be erected to simulate different arrangements, and equipment can be brought in to create the closest real-world model of room sizes and distances involved.

On a project with a particularly tight timeline, BSA LifeStructures employed a technology solution that offered a way for the design to happen in a much shorter timeframe. The solution was to develop an interactive website that was only accessible to the team members.

Seeking an efficient communication system among teams, BSA LifeStructures created a model used with MEP vendors that removed the official request for information process. One particular IPD project was organized so that the MEP vendors had direct access to the design team.

"Having the contractor in the field directly call the design engineer helped save both time and confusion," Snyder explains. "Requests for information can change or sometimes be misinterpreted in the normal delivery model, and this method completely removed that from the equation." ♦

## Image Stream Medical: Recommendations for a Successful Video Integration Implementation

### Recent awards and accomplishments:

Winner, 2014 North American Surgical Imaging Integration Customer Value Enhancement Award by Frost and Sullivan; Ranked two years in a row in Deloitte's Technology Fast 500TM fastest growing tech companies list; Received patent on its LiveStreamTM virtual presence & streaming platform 2013

### Brief project description/spaces

**integrated at Riley Children's:** 16 OR's (general, neuro, CV, hybrid, ortho), 1 Cath Lab, 2 Interventional Radiology Rooms, Pathology, 5 LiveStream connected Video Status Board locations. All areas communicate via a server application that allows image archival, remote presence, and remote access for service.

### What are the keys to selecting the right vendor in a project of this size?

"Riley assembled a vendor selection committee that included nurse and physician stakeholders; but also representatives from facilities, IT and clinical engineering. Video integration impacts all areas of the hospital enterprise and getting a consensus from all these areas will ensure everyone is committed to the decision and has 'buy-in' to the implementation" said Patti Forest, ISM's Vice President of Operations.

### What advice can you give to avoid costly changes?

"Riley made it their goal to make their vendor selection for integration early in the process. This allowed them to provide IT, the architects, low voltage and electrical contractors—as well as the boom and light vendor, the right infrastructure information and design requirements needed so we were all on the same page early in the project."

### Keys to completing this project successfully on-time:

"From the onset of the project, we maintained constant communication and collaboration across all trades, the owner, their consultants and project managers. We had weekly meetings so that all the trades and the owner stayed on the same page allowing us all to quickly react as a team to changes or unanticipated events. This ensured that delays could be avoided and we delivered the project on time" said Bill Nelson, ISM's Senior Project Manager and Installation Manager.

### Why did Riley choose you?

"They wanted a vendor whose product minimized cost impact on the infrastructure plan—but also had previous large project experience. On the clinical side, they chose ISM because of our overall ease-of-use with our EasyPort Universal Connection System and our ability to communicate and exchange information with their EMR to allow systems to work together. This results in less confusion and easier workflow so the clinicians can focus on the patient" added Forest.