

Shared-Risk, Multi-Party Contracts Drive Delivery for Sutter Health

Reliable Delivery Model Binds 11-Member Team to \$320M Project's Success

Published September 2010

Sutter Health is employing shared-risk, multi-party contracts to drive the successful creation of a state-of-the-art new \$320-million, 130-bed medical center currently under construction in Northern California's Castro Valley. For complex projects such as this, these contracts are essential to creating a reliable delivery model where the goal is to equally bind each of the 11 project team members—including architects, design engineers, trade contractors, and specialty consultants—to the owner's definition of what constitutes ultimate project success.

"It is my perception that the biggest challenge with executing large capital projects in this constrained capital market is not a cost-quality-schedule problem. It's a problem of predictability," says Digby Christian, Senior Project Manager at Sutter Health.

"A really great team together would work well even if the contract were written in crayon on a napkin, but over and over, even a great team faces challenges of predictability. The big problem for corporations and government agencies alike is not that a project was too expensive or took too long to build, even though that's the way it is framed. The problem is that it cost way more than expected, and took way longer than expected."

Christian says that what's needed is a delivery model that can bring solid predictability to budget, scope, and schedule with no trade off between those three.

"Having a shared-risk contract, between the right mix of owners, designers and builders from the start of design aligns the financial interests of the participants with the goals of the owner. That shared financial interest creates a focus on risk and uncertainty, and that focus on risk and uncertainty drives out all our historic behaviors that create that risk and uncertainty and opens everyone up to inviting in behaviors that drive that risk and uncertainty out. That drives the success of the project."

Slaying the Dragon

Christian details five management principles for slaying what he refers to as "the dragon of uncertainty."

1. Clearly define the goals.
2. Create a contract in which there is a clearly targeted project cost, a strictly limited set of reasons why anyone can ask for more money, and an incentive plan that ties financial performance to ability to meet the goals.
3. Plan the sequence of design decisions to support the goals.
4. Design the design process to support that sequence of decisions.
5. Finish the design to level of shop drawing fabrication before you start construction.

This unique integrated project delivery model has kept the massive 230,000-sf project on track for budget, timeline, and owner expectation, despite a high level of complexity. Currently under construction (foundation

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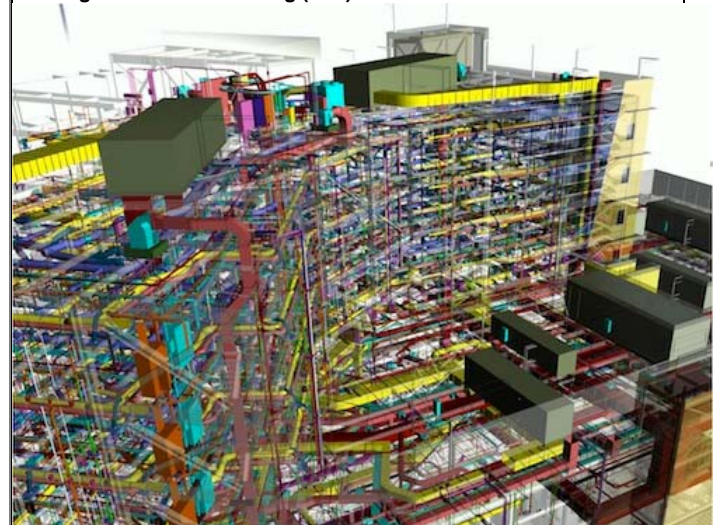
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Sutter Medical Center Castro Valley



Sutter Medical Center Castro Valley, a new 320,000-sf, 130-bed, state-of-the-art acute care facility slated to open January 1, 2013, is being built using an innovative integrated project delivery model that is driven by an 11-party "shared risk" contract. The \$320-million project is being fully funded by Sutter Health. (Image courtesy of Sutter Health)

Building Information Modeling (BIM)



The complexity and intensive schedule and budget constraints necessitated the use of Bentley's ProjectWise Building Information Modeling (BIM) software which enables early and direct input on the

and superstructure is complete and interior build-out of MEP systems is now underway), it is expected to be open on schedule, January 1, 2013.

“On this project, everyone’s profit is 100 percent at risk. This means that, in a worst-case scenario, you could have your best people on the project for five years and not make any money. The upside is that, if you max out all the incentive programs, you could make 60 percent more than normal. The reason for the 100 percent shared risk contract is not to create a hedge for the owner, but to break people out of their silos,” says Christian. “For instance, it makes sure the designer is very concerned that the design can be built for the price that was estimated, and that trade contractors are very concerned that the design is complete and buildable before the design is declared finished. None of them can come for change orders when we’re building it, because they were all there in the room when we designed it.”

Plan, Price, Repeat

According to Christian, in addition to creating a predictable delivery model, the secret to keeping large capital projects—which for Sutter would certainly include anything funded above the \$100 million level - on track for budget and schedule is to do the following during the design phase:

- Maintain a constant focus on planning out the work needed to get design done,
- Repeatedly re-projecting the cost of project as design progresses to ensure that it remains within the funding limit or continues to trend down toward the funding limit.
- Repeatedly re-planning the work of design in order to ensure that design stays on schedule.

“This is difficult to figure out with traditional teams that work in silos. We recorded costs of things like concrete and drywall continually and had everyone bringing in their expertise to continually re-price the job. We still meet to discuss this every month, but for a long time it was every two weeks,” says Christian.

Due to the scale of the project’s size and complexity, managing all the fundamental planning elements including architectural designs, MEP, and extensive structural rebar installation necessitated the use of BIM software, and a sophisticated work planning and tracking tool.

“Once you get a big enough team together, you realize how complicated it is to decide what should get designed first. You really can’t keep your arms around the whole thing unless you’ve got some kind of strong logic engine capturing all the dependencies between different disciplines, and on this project we have a specific piece of web-based planning and workplan generation software that does that,” says Christian.

Like many hospital projects, Sutter Health started construction while still finishing off the interior design. But Christian emphasizes all the design decisions within the interiors that could impact the structure have already been made, and so there is minimal risk in erecting steel while still waiting for the interior layout plans.

“We’ve essentially set out to redefine what it means to finish design. That’s why we had the trade contractors working with the team all the way through the design phase so we could get to the end of shop drawings. On this project, the end of design was defined as a fully coordinated, constructible, affordable shop-drawing-level set of documentation,” says Christian.

Clear Goals, Passionate Owners

A critical component to this type of integrated project delivery is having an owner with clear goals.

“You need a passionate owner who understands that the real problem is uncertainty, an owner who is always asking the question: ‘How does this help me drive certainty into the project and drive risk out of the project?’ If it doesn’t start with the owner, it’s very hard to do this,” says Christian.

To keep priorities clear throughout, the owner’s goals for the project were explicitly stated in the contract. This set of fundamental guidelines provided a clear framework for the team and massively accelerated decision-making in the project.

“As the owner, we are very clear in the contract about the fact that we will not, under any circumstances, go over budget,” says Christian, adding that

design from all disciplines and increases pre-construction efficiencies. In addition to providing a multi-disciplinary 3-D model allowing real-time access to all project information from each discipline, BIM modeling was used to facilitate trade sequencing and other logistical issues critical to Integrated Project Delivery. (Image courtesy of Sutter Health)

For More Information

Biography

Digby Christian is the Senior Project Manager in the Facility Planning and Development group at Sutter Health, for the new Sutter Medical Center currently under construction in Castro Valley, California. Christian has managed construction projects for many years. Over the last six years he has focused exclusively on healthcare facilities with an emphasis on developing innovative approaches that improve efficiencies and coordination of design and construction teams.

This report is based on a presentation by Christian at Tradeline’s 2010 Lean Processes for Capital Projects and Facilities Management conference.

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by budget Sutter is referring to the approved budget as set before design starts, not the approved budget after design finishes. "Sutter's experience is that the largest budget overruns occur during the design phase not the construction phase.

"At the same time, we must also transform clinical care in this building. So if you're trying to save money by making our nurses walk further, I'm going to say no. And since team members know that already, they'll never come to me with that option, because they already know what the goals are."

In the contractual exhibits of the 11-party agreement, the owner explicitly states the criteria for the project to be considered a success, including a fixed cost, fixed delivery dates for both completion of design and structure, environmental stewardship, innovation in healthcare, and transformation of the traditional project delivery model.

The real teeth of the agreement come from the limited list of allowable reasons for making changes that can impact cost. One is if the owner changes their mind about what they want; second, if the law changes and there are new regulations to comply with; or third, there are truly un-anticipatable site conditions that only come to light after site excavation.

"What this basically comes down to is, if you can't hang the air conditioning unit because there's a wall in the way, then the team has to fix it at their collective cost, not the owner's," says Christian, pointing out that this leads to collective thinking that encourages team members to solve these kinds of problems ahead of time, in design. "So BIM becomes a risk management tool rather than something 'everyone else seems to be doing that I guess we should too,' as does fabricating from model, and getting trade contractors and specialty vendors on board way earlier than normal, and so forth. The result is risk management driven by all 11 business entities."

New Way Forward

Christian emphasizes that the success of this sort of model comes down to having a committed owner and getting everyone involved in the planning process as early as possible.

"You need a committed owner who's sick of the traditional ways of working," he says. "What you don't want is anyone doing an end run around an experienced, committed CM, GC, or architect. Because this way of working is uncommon, there's a high chance that this is exactly what will happen.

"It's important to get everyone, including the trade contractors, in early because you want them to really own the design. Then there are no excuses later on about what the designer did, because they were there from the beginning," says Christian.

Under the integrated pain-share/gain-share model, the team's profit is calculated by subtracting the cost of the project from the total amount of funding available. Everyone mutually benefits if there is more money left over than the participants would normally expect. But, if there is less, everyone shares the financial risk with the maximum amount of pain being zero profit.

"The idea behind creating a contract that binds the team together is to get design and expectation aligned from day one. It's not a matter of trying to build cheaper buildings; it's a matter of knowing how much it's really going to cost to deliver them on time, exactly as they were designed," says Christian.

By Johnathon Allen

This report is based on a presentation by Christian at Tradelinc's 2010 *Lean Processes for Capital Projects and Facilities Management* conference.

Project Team

The 11-party team for the Sutter Medical Center Castro Valley consists of:

Owner: Sutter Health

Architect: Devenney Group – Phoenix

General Contractor: DPR Construction, Redwood City, Calif.

Mechanical and Plumbing Design: Capital Engineering, Sacramento, Calif.

Electrical Design: The Engineering Enterprise, Alameda, Calif.

Structural Design: TMAD-Taylor & Gaines, Anaheim, Calif.

Mechanical Design-Assist and Construction: Superior Air Handling,
South Clearfield, Utah

Plumbing Design-Assist & Construction: J.W. McClenahan,
Sacramento, Calif.

Electrical Design-Assist & Construction: Morrow Meadows, City of
Industry, Calif.

Fire Protection: Transbay Fire Protection, Sacramento, Calif.

BIM Integration & Model Management: Ghafari Associates, Dearborn,
Mich.

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ISSN: 1096-4894