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# United They Build



Integrated-project-delivery skeptics become believers during \$320-million California hospital job with an unprecedented 11 partners

## GOOD RELATIONS

The building team for the \$320-million Sutter Medical Center, Castro Valley has 11 partners committed to an all-for-one-project, one-project-for-all strategy. Despite the job's many challenges, some call it the best project they have ever worked on.



**Edwin Najarian**  
Structural Design Partner

**T.J. McClenahan**  
Plumbing-Heating Trade Partner

**James Goetz**  
Electrical Trade Partner

**James W. Mobley**  
Architectural Design Partner

**Bryan E. Johnson**  
Mechanical Design Partner

**Digby R. Christian**  
Owner Partner

**Randy W. Richter**  
Mechanical Trade Partner

**Eric R. Lamb**  
Construction Manager Partner

**Samir Emdanat**  
Process Partner

**Kristina Martin**  
Electrical Design Partner

**Julie Schmidt**  
Fire-Sprinkler Trade Partner

PHOTO BY DREW KELLY



# Pioneers Push Paradigm Shift

At 70% completion, California hospital constructed using integrated project delivery “on steroids” is on budget and beating its schedule by six weeks **By Nadine M. Post**

**P**rior to the \$320-million Castro Valley project, Sutter Health’s Digby R. Christian had never managed a hospital job, let alone one with a relational contract. But that isn’t stopping him from making integrated project delivery history in earthquake-prone California and in the U.S. For the 230,000-sq-ft Sutter Medical Center, Castro Valley near San Francisco, Christian skipped over the baby steps of IPD with a tri-party agreement and went straight to IPD with an unprecedented 11 partners sharing risk and reward.

“I wanted to be able to talk directly to the contractor, the major designers and the major trade partners,” says Christian, a senior project manager in the non-profit health-care system’s facility planning and development group. “I wanted everyone to know the profit-risk scenario, which is completely alien to most,” adds Christian, who

had cut his teeth on integrate project delivery on a Sutter medical office building.

When the hospital’s partners penned a commitment agreement in late 2007, having 11 signers was a brand-new approach even for the Sacramento-based Sutter, which is writing the book on the paradigm shift to IPD—also called lean project delivery with a relational contract (LPD-plus). Four years later, Castro Valley’s “IPD on steroids” remains the exception.

By all reports, Christian’s collaborative, waste-reduction strategy—though not without considerable challenges—is working. “We have seen fewer change orders of less substance and less rework than we typically see,” says Chris Murray, supervisor for health-facilities review with the Office of Statewide Health Planning and Development, Sacramento. “They’ve done some wonderful things,” he adds. OSHPD



**CONTRACT DOCUMENT** Sutter Health covers project costs for its 10 non-Sutter signatories. If the project goes over budget, all 10 lose part or all of their profit. If the project is under budget, they split the savings with Sutter, increasing their profit.

is the regulatory, review and permitting agency for state health-care projects.

The 164-bed hospital, at 70% completion, is on budget and set to open six weeks early on Nov. 15, 2012. To date, there are only 333 requests for information, when 3,000 is the norm for an equivalent conventionally built hospital, according to the Redwood City, Calif.-based DPR Construction, the job's construction manager and general contractor. There are 26 owner-initiated change orders that amount to less than 1% of the project's cost, which includes furniture and equipment. About 400 is typical, says DPR.

With most of the project bought and the handover set for July, there is \$2.2 million left in the project's \$5.8-million contingency fund. "This is one of the great success stories and my best project in 43 years," says Lance Slagle, director of preconstruction in the South San Francisco office of the hospital's electrical trade partner, Morrow-Meadows Corp.

Slagle is amazed Sutter was able to take a "bunch of type-A personalities, convince them that this was a good thing in spite of their own resistance and trepidation" and mold the group into an effective team.

"It turned into a great experience and one of the best coordinated drawing packages we have ever had," adds Edwin Najarian, a principal of structural partner TMAD TAYLOR & GAINES, Pasadena.

Sutter is applying the Castro Valley model, with lessons learned, on its 250,000-sq-ft Patient Care Pavilion for the Alta Bates Summit Medical Center, Alta Bates, Calif. The pavilion job has 12 partners; five are on the Castro Valley job, including DPR and Devenney Group Ltd. Architects, Phoenix.

The Sutter path is not an easy one, agree all involved. "The actual effort required was underestimated on both the design and construction sides," says James Mobley, a Devenney principal. "We had to make adjustments—some were painful," he adds. Still, he refers to the project as a "phenomenal adventure."



**"I wanted everyone to know the profit-risk scenario."**

—Digby R. Christian, Sutter Health senior project manager



**"We had some very spirited conversations."**

—Ralph Eslick, DPR senior project manager

Bryan E. Johnson, a principal of mechanical engineer-partner Capital Engineering Consultants Inc., Rancho Cordova, Calif., says that creating the project culture "was and at times continues to be a challenge." Capital is an IPD veteran but not as a signatory.

"The partnership is dependent on the quality of the parties and a good leader," adds Julie Schmidt, chief financial officer for fire-sprinkler partner Transbay Fire Protection Inc., Pleasanton, Calif. "Digby was instrumental in making this work," she says.

Team members chorus: Don't try this with strangers. Expect lengthy contract negotiations and endless meetings. Get ready to open your books. Be patient. Prepare for culture change and new work flows. Be vigilant about communicating.

Hospital development has long been risky in California, due to meticulous state reviews because of the quake threat. In the early 2000s, faced with a \$5.5-billion capital program, Sutter sought a better delivery system (ENR 11/26/07 p. 80). By 2005, it had adopted LPD and written its own relational contract, called the integrated form of agreement, or IFOA (see p. 43).

When Christian joined the Castro Valley job in July 2007, the team was mostly formed. The plan had been to deliver the hospital under a triparty IFOA. "We would have had to have made sure all the subconsultants and subcontractors were in alignment with the IFOA," says Christian. "I didn't see that as being any less of a headache than getting more signatories."

Christian wanted direct access to the IFOA's "gainshare/painshare" partners to prevent a return to traditional behaviors, especially the way the architect deals with its subconsultants and the contractor its subcontractors. He also needed to explain the counterintuitive idea that, with a shared risk pool, an individual firm can make more money even if its costs go up. On the other hand, if its costs are cut in a way that doesn't help the project overall, a firm can lose money.

## Collaboration Still Possible Without Sharing Risk

The steel contractor for Sutter Medical Center, Castro Valley, was not invited to join the 11-party relational contract as a partner. But Herrick Corp. did sign on for preconstruction services and a negotiated contract, in support of the \$320-million hospital's integrated form of agreement.

And like the partners, Herrick opened its books. "We also established a target price," which included profit and changed as the scope increased, says Robert Hazleton, vice president of the Stockton, Calif.-based Herrick.

"If we under-ran the budget, the under-run would go to the owner," he adds. Herrick ended up returning \$1.5 million to Sutter on its \$15-million contract.

Hazleton supports the collaborative Sutter model. "It's beneficial to all members of the team and particularly the owner," he says. In good economic times, contractors put in "fear money" on high-risk hospitals, he adds. The relational contract eliminates the fear money.

For Sutter jobs, Herrick is fine as a



HAZLETON

signatory or as a subcontractor. The firm is a partner on Sutter's 250,000-sq-ft Patient Care Pavilion at the Alta Bates Summit Medical Center and also will be a signatory on Sutter's \$1.5-billion Cathedral Hill Hospital project in San Francisco.

"You don't need to take on more risk to collaborate," Hazleton says.

On the other hand, the partners have opportunity to mitigate risk on behalf of the entire team and can wind up as beneficiaries of the process, he adds. ■

To aid with the process change, especially regarding building information modeling (BIM), Christian added Ghafari Associates LLC, a Dearborn, Mich., multidisciplinary designer, as the 11th partner.

At contract talks, each signatory had to have a lawyer present. The IFOA was signed on Aug. 26, 2009, after 15 months of negotiation. But even in late 2007, the collective thinking was, “Yes, it’s going to be a great experiment—let’s do it,” says Devenney’s Mobley.

For DPR, a veteran LPD contractor with non-Sutter IPD experience and 20 finished Sutter projects, IPD-on-steroids was a natural next step. Mobley says Devenney was ready for change. And under a triparty contract, design subconsultants participate through joining agreements, so Castro Valley was not that big of a jolt for Capital, TMAD and the electrical engineer, The Engineering Enterprise (TEE), Alameda, Calif.

For the trade subs, the expanded IFOA represents a seismic shift. “I was skeptical at first because I didn’t understand the contract and the process,” says T. J. McClenahan, president of plumbing and heating partner J.W. McClenahan Co., San Mateo, Calif. “I’m all for it because it brings the team members together in a trusting environment, working for the project.”

Mechanical trade partner Superior Air Handling, Clearfield, Utah, endorses the expanded IFOA—if it is done with the right partners. “We [are achieving] the best result for the owner at the lowest overall cost and with more predictable earnings for the IFOA companies,” says Randy W. Richter, Superior’s president.

Under the Castro Valley IFOA, each non-Sutter signatory gets paid its costs based on audits. Profit percentage for each signatory is determined through group discussions. Sutter pays out 50% of the profit pool at agreed-upon project milestones. Designers typically receive profit earlier than contractors. Sutter pays the other 50% at completion, assuming it has not overspent the contingency fund. In that event, prof-



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—T.J. McClenahan, J.W. McClenahan president



**“This is one of the great success stories.”**

—Lance Slagle, Morrow-Meadows director of preconstruction

its cover coverage. If necessary, partners are required to return profit already dispensed. Any money left in the contingency fund is split 50-50 between Sutter and its partners, according to their share of risk.

LPD relies on collocating the implementation team in a “big room” and other tools that foster collaboration and minimize repeat work. There is also an oversight team, called a core group, of principals of partner firms. The group meets every two weeks to manage strategies, behaviors, the time line and risk. Decisions are made via consensus, but the owner can prevail.

Castro Valley’s core group consists of two representatives of the owner: Christian for Sutter and Bryan Daylor, vice president of ancillary and support services, for the user, Eden Medical Center. Other members are DPR’s project executive, George J. Hurley; Devenney’s Mobley; McClenahan, who also represents Morrow-Meadows and Transbay, and Capital’s Bryan Johnson, who also represents TMAD and TEE.

The core group also tackles problems. For example, early on, the design team lacked “engagement,” says Christian. “I do not believe the at-risk contract drives behavior in the design room,” he adds. The solution was to get Mobley to step up the design team.

The seven-story building has a four-story steel-braced frame sitting on a reinforced-concrete shear-wall podium. The building is founded on cast-in-place friction piers, drilled down 30 ft to 60 ft.

Castro Valley has a tight budget. Initially, the perceived cost was \$36 million over the \$320-million budget, called the target cost in LPD language.

Working together during a validation phase, the team achieved the budget. Some \$20 million was removed by buying metals early. But the decision to lock in prices some three years early did not come easily.

“We were having a hard time getting our heads around each other’s expectations for escalation with the economy

## Sutter’s Improved Relational Contract on Its Way

**S**utter Health, a pioneer in integrated project delivery, will soon release a revamped relational-contract form. The Sacramento-based non-profit health-care system, in the midst of a \$5.5-billion capital program, is culling lessons learned from its IPD projects to improve the form, making it more user-friendly. The form will also integrate building information modeling into the main agreement.

The basic underlying philosophy of the integrated form of agreement (IFOA) will stay the same, says Howard W. Ashcraft, a

partner in Hanson Bridgett LLP, San Francisco, which is Sutter’s outside counsel. “The core theory is for a fully integrated and lean team.”

Sutter will continue to pay direct costs and separate out partners’ potential profits.

Sutter’s IFOA includes a limitation of liability. Signatories do not sign away their right to sue. “If you are going to assert a claim, you can’t waive the right to sue or insurance won’t apply,” says Ashcraft.

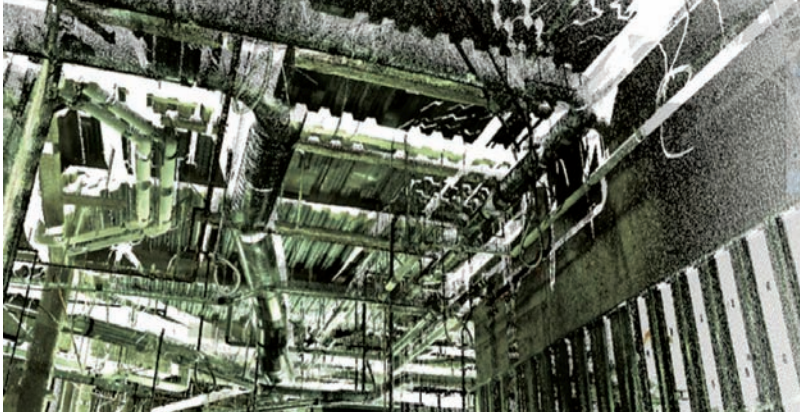
In the IFOA, first released in 2005 and updated in 2007, Sutter agrees to limit

liability to signatories’ profit-at-risk, with exceptions: cases where a claim can be covered by insurance, cases arising from fraud or willful misconduct, cases arising from claims directly against non-signatory subs or suppliers for fines or penalties assessed against signatories in connection with the project or cases arising from any party abandoning completion of the project.

The IFOA, currently 85 pages long, may even be shortened. People are more familiar with it, so “we don’t have to explain as much anymore,” says Ashcraft. ■



**VALIDATION** Under a pilot project, the team used laser scanning to validate layout accuracy and verify early in the project that field crews were following the building information model. The decision to invest in the scanning effort, which minimized rework, was made by the team.



beginning a downturn in August 2007,” says Ralph Eslick, DPR’s senior project manager. “We had some very spirited conversations.”

The design team decided it would take only eight months, not 13, to complete the design package for submission to OSHPD. Thus, detailed design was delayed until the program and user interests were more stable, which saved \$1.2 million in design labor.

The team also had a strategy to get into the ground sooner. The job was among the first to use OSHPD’s phased-review process for incremental permitting. “There was a good, open, honest relationship with OSHPD,” says Kristina Martin, a TEE principal.

LPD-plus involved a preconstruction collaboration with the Herrick Corp., Stockton, Calif., which was not a trade



**“The partnership is dependent on the quality of the parties and a good leader.”**

—Julie Schmidt,  
Transbay Fire  
Protection chief  
financial officer

partner. In the big room, the fabricator helped develop better connection detailing and found and resolved conflicts ahead of time. The steel package came in \$1.5 million under budget (see p. 40).

Using BIM, the team also coordinated shear wall and slab openings required for risers, piping and ductwork and included opening sizes and locations in the structural drawings. This was completed several months prior to submitting architectural and utility drawings to OSHPD, says DPR, which self-performed concrete work. The team also modeled underground utility lines to minimize conflicts with foundations.

In early 2010, Ghafari suggested laser scanning as a way to validate layout accuracy and verify early on that field crews were following the 3D model. The IFOA team agreed to invest in a pilot effort, starting with the first floor just before the slab was cast. In some cases, dimensional variations checked against the design resulted in adjustments to the utility systems in advance of their installation. This prevented rework, says DPR. The team is also using scanned data to provide easy-to-use representations of the completed facility to Sutter’s facility maintenance team.

The need for better communication is one of the job’s important lessons. For example, Mobley says that, in the big room, there is a need for the field and tradespeople, not the preconstruction team, to be “looking over the designers’ shoulders, saying, ‘We really can or can’t build it that way.’” McClenahan adds that collaborative behaviors need to be pushed into the field.

For his part, Eslick learned that more BIM is better and that there should have been a drywall model. “Each field conflict is a \$10,000 issue,” he says. “Do you know how much you can model for \$10,000?”

Sutter’s Alta Bates project is incorporating many of Castro Valley’s lessons. For about six months, the two teams have been meeting monthly “to exchange stories,” says Hurley, DPR’s project executive for both.

Alta Bates has already profited. Contract negotiations went much smoother and faster, and BIM production and coordination is also better, says Hurley.

Christian is pleased with the Castro Valley job. “We’re delivering exactly the clinical program requested,” he says. “The owner has not had to compromise, which often happens but isn’t talked about.”

Though IPD-on-steroids calls for extreme effort, Christian and his team think Castro Valley is the closest thing in California to utopian hospital building. ■

