

## Group Think

*Project teams find integrated project delivery very helpful*

by Kate Moser | photo by Terrence Duffy | April 2009

On a recent morning at the North Highlands office of Clark & Sullivan Construction, engineers came to the same table as architects, hashing out details of a planned library. The next week, the group met at the downtown office of Anova Architects. It's a sight rarely seen in the construction industry — the project team working in such close quarters.

That collaboration is at the heart of integrated project delivery, a model in which designers, engineers and builders cooperate early in a project, sharing its risks and rewards. Used more often in large and complex projects, clients across the spectrum are increasingly demanding IPD for better value and less waste, industry experts say.

The team on the Mesa Verde High School library is aiming for a cost of \$3.38 million, well under the \$4 million price tag estimated for the project last summer, says Orion Endres, senior estimator for Clark & Sullivan. "We're trying to set a target far more aggressive than what we actually need," Endres says.

Clark & Sullivan says the success it has seen by using IPD is spurring a cultural shift there. The company's North Highlands office has completed 29 projects using some or all aspects of the model, claiming nearly \$17 million in savings on \$244 million in construction revenue.

Replacing the conventional design-bid-build model, IPD brings designers and builders together as a team from start to finish. That difference minimizes the traditional acrimony that accompanies the old model's change orders and competition for innovation. It is also meant to reduce wasted time and money.

Through its emphasis on reducing waste, IPD is often mentioned in the same breath as lean construction — a set of principles born in manufacturing but now applied to construction as a way to make projects more efficient. While IPD describes the structure of this new way of designing and building a project, lean construction is the philosophy and set of practices that guide the new way of building.

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The method has spread throughout the industry, particularly to giant health care projects such as the California Prison Health Care Receiver's multibillion-dollar plan for new medical facilities. An international effort, it has developed a hot spot in Northern California; Sutter Health was the first major client to embrace the method in 2004.

At the headquarters of Sutter Health's \$1.7 billion Cathedral Hill hospital project in San Francisco, designers and builders — everyone from the project architect to the drywall and fireproofing teams — occupy a single floor of a building where, together, they're planning the 555-bed hospital. Experts say the new hospital could, at the moment, be the country's largest demonstration of the method.

We're now at the tipping point for IPD, says Glenn Ballard, co-founder of the Lean Construction Institute and director of a UC Berkeley think tank, the Project Production Systems Laboratory. The lab provides industry research on the lean construction model. "I think every industry organization would now say you should not do the design without construction," Ballard says. "That's mammoth."

Will Lichtig, a construction attorney and shareholder in the Sacramento law firm McDonough Holland & Allen PC, helped bring the IPD method to Sutter Health's attention. His interest was born out of years of work in construction litigation, "which is sort of like working in the morgue," says Lichtig, recalling years of time spent on projects that went wrong.

Lichtig recalls one lawsuit over a UC Berkeley chemistry lab, when he remembers looking around the room at the contractors and designers and suddenly being struck by the futility of the situation. "Why are we here," he asked? "It's not going to create more labs. It's not going to build more classrooms." For him, that realization changed everything.

He created the legal contract that is the basis of Sutter Health's embrace of this delivery method, and he's an attorney with the team of about 200 people working on the controversial California Prison Health Care Receivership project. That team has been in place since last July. "They are in a position to deliver," Lichtig says, "significantly faster and significantly cheaper."

Efficiency in that project, still in the design process, would be significant: Total estimated costs have been compared to the \$8 billion investment that built London Heathrow's Terminal 5, also using IPD. The design-builders on the prison project are Hensel-Phelps Construction, HKS Inc., HOK, DPR Construction, Stantec, Kiewit, Rosser International Inc. and CMHH, a business entity of Clark Construction, McCarthy Builders, HDR and HGA.

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“It’s not perfect here,” says Gregory A. Howell, co-founder of the Lean Construction Institute and a consultant on the receivership project, “but people are working together.”

Experts say IPD is bigger than an industry fad. Proponents say it can help get more than construction back on track. “It’s quite clear that we have a major need to produce infrastructure more efficiently in this country,” says Howard W. Ashcraft Jr., an attorney at San Francisco law firm Hanson Bridgett and an expert on IPD.

Advocates say the delivery method invites innovation back into the construction process. “In normal project execution, innovation gets pushed out by the question of who pays and who gains,” Ballard says.

The legal underpinning is the contract, also called an integrated form of agreement. “We’re still at a situation where everything is tailor-made,” says Ashcraft of the contracts. “You can’t just go in and buy it off the rack.” Not many attorneys have experience in writing these contracts, he adds, but that won’t be true in three or four years.

Firms that have a lot of experience in IPD report promising statistics. DPR, the general contractor for the \$96.9 million Camino Medical Group medical center, a surgery center and urgent care clinic in Mountain View, says IPD saved Sutter Health almost \$9 million and cut back six months on construction compared with the traditional design-bid-build model.

Following on the heels of that success with IPD, the company says, more clients are requesting the new model, bringing DPR onboard for projects such as a briefing center for Autodesk in San Francisco and the national headquarters of the American Institute of Architects in Washington.

“It’s going to take more successes like that, and I think you’ll see [integrated project delivery] take hold,” says Mark Cirksena, Sacramento regional manager for DPR. Having the architect at the table with the engineers and “working back and forth as things evolve” changes everything, he adds.

At industry conferences on IPD, the team designing and building Sutter’s Cathedral Hill hospital talks about how far they’ve come since starting the project in March 2007. Then, they say, it was as if they were given the choice the main character is given in the film “The Matrix:” Take the red pill or the blue pill — either discover the truth and see things differently forever, or continue in your comfortable old-model ways of viewing the world (or, in this case, the construction industry).

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At the heart of that team is Wisconsin-based The Boldt Co., a corporate member of the Lean Construction Institute. Companies like Boldt that are committed to IPD are quick to acknowledge how different it is from the way they used to do things, Lichtig says. “There’s a humbleness that comes with integrated project delivery,” he says. “There’s no sense of bravado that this is easy.”

That profound difference from the old ways of doing things reveals itself in the most minute to the largest details of the project. Dry-erase markers are labeled, and guidelines of efficient meetings are posted in every meeting room. Color-coded work plans line a wall, so everyone can see exactly what everyone else is working on and when they have promised to complete each task. “Study action teams” meet weekly to discuss books on lean construction, and all 140 people on the project team meet as a large group regularly; in fact, various members of the team attend a total of 42 hours of meetings each week.

The Cathedral Hill team and the IPD team working on the California Prison Health Care Receivership project have visited each others’ sites to exchange information and learn from each other, part of the fundamental lean construction principle of spreading knowledge. “If we can be collaborative even with people we’re in competition with, it’s still a good thing for the industry and a good thing for what we’re doing here,” says Boldt’s Stephanie Rice, a leader of continuous improvement and training on the Cathedral Hill project.

The up-front costs and trust required by IPD mean it’s not for everybody or every project, experts say. But proponents say skeptics aren’t usually persuaded of the model’s merits even by statistics that show early successes. “We’ve got a lot of owners and designers and subcontractors within the industry that are used to doing things a certain way,” says Cirksena of DPR. “Change takes effort.”

As a compelling idea that is catching on with clients, though, IPD has some companies scrambling to catch up — sometimes in a naive or superficial way. Howell and Lichtig say they frequently get calls from construction firms’ marketing departments asking for a crash course in IPD to help win a bid.

“The cultural shift we haven’t made yet is from a culture of knowing to a culture of learning,” Ballard says.

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## **Defining integrated project delivery**

In 2007, a task force for the American Institute of Architects California Council released a guide on integrated project delivery. Also known as IPD, the guide describes the delivery method as a catalyst for transforming the construction industry.

IPD calls for the project's team of designers, builders and owners to assemble early in the project's life and work collaboratively, sharing both risk and reward. Each member of the team can only succeed if the entire project is successful. But the method isn't altruistic; it's also had legal implications as well. The legal basis of this new structure is a contract called an integrated form of agreement, or a tri-party collaborative agreement. Last May, the American Institute of Architects released templates for IPD legal contracts.

The council defines IPD as an "approach that integrates people, systems, business structures and practices into a process that collaboratively harnesses the talents and insights of all participants." Mutual respect and trust are fundamental to IPD as well as the method's five key ideas: collaborate, optimize, couple learning with action, consider the project as a network of commitment and increase relatedness.

Technology is also fundamental to IPD. Building information modeling, a 3-D digital method, is frequently used with IPD projects. As a tool that allows for earlier and more accurate cost estimates, it facilitates collaboration among designers and builders.

The concept of IPD is closely related to the principles of lean construction. Originating in Toyota manufacturing practices, lean construction was first championed in California by Greg Howell and Glenn Ballard, who founded the nonprofit Lean Construction Institute in 1997. Lean construction uses technology and principles, such as monitoring results and maximizing value, to manage work flow, coordinate materials and minimize the waste of time and money.

In discussing lean construction or IPD, experts often describe a philosophy that sounds much bigger than the construction industry. "For me, I see it now as a different way to see, understand and act in the world," Howell says.