



The \$438 million (development cost) design-build replacement of the Central Utility Plant project at Los Angeles International Airport, which is being built by Clark/McCarthy, A Joint Venture, is slated for completion in 2014. (Rendering Courtesy of Gruen Associates)

Collaborative Approach Drives Fast Growing Alternative Project Delivery Methods and Processes

By Carol Eaton

Over the past few years the construction industry has experienced a seismic shift in the way many projects are delivered. Alternatives to the traditional "design-bid-build" delivery method – including integrated project delivery, design-build, design-assist, CM at risk and public private partnerships (P3s), among others – have all gained ground, accompanied by an array of virtual design and construction tools and lean processes that aim to cut waste, control cost, shorten project schedules and improve quality.

So what's the common thread run-

ning throughout these progressive delivery methods and project management tools? At their core they all rely on highly collaborative, solution-oriented project teams, an approach which stands in stark contrast to the often combative, "separate silo" mentality that has been associated with the traditional low-bid environment.

Debora Ballati, partner in Farella Braun + Martel's Construction Group and past president of the American College of Construction Lawyers, has been practicing law in the construction market sector for more than 30 years. Within the last

several years, she has witnessed a dramatic change in the widespread adoption of new approaches and methods.

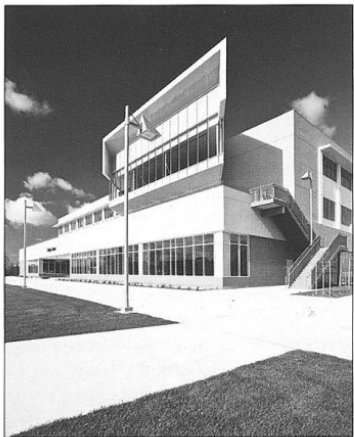
"The whole area of project delivery systems both from a legal standpoint and from a construction practitioners' standpoint has really blossomed over the last four to five years with all the focus on integrated project delivery systems and on putting together a collaborative team to conceptualize, design and deliver the project," Ballati comments. "I think this is where the future of construction is and, frankly, has needed to be for a long time."

Design-Build Soars

Design-build delivery in particular has gained market share over the last several years, as illustrated by a report released in May 2011 by RSMeans Reed Construction Data Market Intelligence and highlighted on the Design-Build Institute of America website (www.dbia.org/pubs/research). Incorporating detailed data from RCD RSMeans' proprietary data base of nearly one million projects from 2005 to 2010, the report found that design-build delivery had slightly more than 40 percent market share in those years and has showed steady growth since 2005.

The report compared design-build to both design-bid-build (the traditional low bid method) and CM at Risk in nine non-residential building categories. Among its other findings: design-build was the delivery method of choice for military construction projects, totaling 80 percent; it was most likely to be used on larger projects, with more than half of the projects valued above \$10 million being delivered via design-build; it was used on more than 40 percent of healthcare projects in that timeframe; and the Pacific region led in the use of design-build in the U.S.

Building Contractors Lead Charge



McCarthy was design-build contractor for the College of San Mateo College Center, the new flagship building for the Bay Area community college district. LPA, Inc. was architect, and Swinerton Management & Consulting served as construction manager. (Photo by Mikki Piper)

A glass enclosed lobby highlights the entrance of the new \$20-million Martin Luther King, Jr. Center for Public Health delivered by the design-build team of McCarthy Building Companies and TAYLOR. (Image by Assassi Productions, courtesy of TAYLOR)



It's not difficult to find examples of successful design-build projects in California across a broad spectrum of market sectors. McCarthy Building Companies, Inc. is one leader in this area. In the healthcare market, the design-build team of McCarthy and TAYLOR are currently working with St. Joseph Health System to build a new patient tower, parking structure and central utility plant at the St. Jude Medical Center in Fullerton, CA.

Another McCarthy/TAYLOR design-build team recently completed the Martin Luther King Jr. Center for Public Health in Los Angeles. In Northern California, McCarthy is employing design-build on the new seven-story UC Davis Health System Parking Structure and led the design-build process on two major recent projects for the College of San Mateo (CSM), among others.

Swinerton Builders also has numerous projects underway using alternative delivery, such as the highly complex Sharp Memorial Hospital seismic upgrades design-build project in San Diego. Chris Day, Vice President of Healthcare for Swinerton Builders, says the trend has been accelerating for several years. "Almost all our clients are moving away from traditional design-bid-build toward more collaborative design and construction processes," he comments. "Most of the delivery methods used to accomplish this are also moving the industry toward a much earlier contractor involvement."

Hensel Phelps is another market leader in the use of design-build and other alternative delivery approaches. "In the last few years we have seen 70 percent of our work

shift to design-build or at a minimum design assist," comments Wayne Lindholm, Executive Vice President, Pacific Division for Hensel Phelps Construction Company.

Current design-build projects Hensel Phelps has underway in Southern California include the Kaiser Permanente Anaheim Medical Center project and the Harbor UCLA Hospital project. On the latter, savings created through the procurement method enabled the owner to add a badly needed parking garage to the project scope and still stay within its original budget.

While the private sector was earlier to embrace design-build delivery, public or governmental entities are now beginning to enjoy many of the same benefits as laws have been passed authorizing its use in an increasing number of public arenas, Lindholm notes. Case in point: the California Department of Corrections & Rehabilitation recently procured a major new state prison project in Stockton, CA, using design-build with a stipulated sum.

"In this procurement the state shortlisted contractors, issued the contract amount and asked what could be provided for that amount," says Lindholm. "They received three very different proposals, so they captured the ideas and ingenuity of the design-build teams and then paid a stipend to the two losing teams!"

Growing Use in Transportation Sector

In the public transportation arena as well, alternative delivery methods are being employed by a growing number of agencies and owners at the state, federal and local levels. Last summer, for exam-

This rendering illustrates the Kaiser Permanente Anaheim Medical Center project currently underway by Hensel Phelps Construction Co.



ple, the Los Angeles Exposition Construction Authority awarded a \$542 million design-build contract for the second phase of the Expo Corridor light-rail project to the joint venture of Skanska and Rados.

In Northern California this January, the joint venture of Skanska with Shimmick Construction and Herzog Contracting Corp. won a \$347 million design-build contract to construct an extension of the Bay Area Rapid Transit (BART) system from Fremont to San Jose. Their proposal scored extra points by utilizing BIM to devise and illustrate an innovative solution to a massive amount of utility relocation work originally projected in the RFP. The team showed how a train guideway at one key intersection could be lowered beneath the maze of existing utilities to save time and mitigate risk.

Such involvement by the contractor during the earliest planning stage utilizing virtual design and construction tools can pay dividends, according to Skanska Deputy Project Director Fred Morell. "For the benefits of design-build to truly blossom, owners must fully release projects, allowing the design-build entity to select project elements and drive real innovation," he comments. "More freedom and early input provide greater economic benefit."

LA Metro Sees Benefits

At the Los Angeles Metropolitan Transportation Authority (Metro), the design-build delivery method will be used for two major projects that are expected to get underway this year – the \$1.7 billion Crenshaw/LAX Transit Corridor project and the \$1.3 billion Metro Gold Line Regional Connector Transit Corridor project.

Krishniah Murthy, Executive Director of Transit Project Delivery for Metro, says design-build was selected because the agency determined the benefits outweighed any potential perceived public risk, since the projects are an extension of the existing system, with standards and criteria already well-defined from previous projects along those transit lines.

"We already know the geology of the two areas fairly well, so we feel comfortable that design-build can provide the industry the opportunity to be creative and come up with innovative solutions to get the job done and cut down on the total delivery time," Murthy comments. He estimates the approach will shave at least 8-10 months off the schedules compared to delivery using the traditional low-bid method.

Lean Processes, BIM Aid in Collaboration

Hand-in-hand with the newer delivery methods, projects are employing a range of collaborative tools and lean construction processes and are utilizing technology such as BIM, tablet computers with web-based applications in the field, laser scanning and layouts, GPS, company intranets and project webcams, to name a few. All those high-tech tools and applications aim to cut waste, increase collaboration and meet owners' demands for faster schedules and tighter budgets.

The complex, logistically challenging Los Angeles International Airport Central Utility Plant project, currently underway by a Clark/McCarthy Joint Venture, is a prime example of the synergy that can be achieved by combining highly collaborative delivery approaches with advanced tools and technologies.

Located in the heart of the world's seventh busiest airport, the project is being delivered using a fast-track design-build approach with several design-assist subcontractors who were brought on board during preconstruction and are all working in a highly collaborative environment.

Less than a year into construction, the project team has already built and used a detailed 3D BIM model to avoid major existing utility conflicts on site, and it plans to use 4D BIM for site logistics and schedule planning as well as 5D BIM for some estimating functions. The project is slated for completion in 2014.

Lean tools and processes are increasingly helping improve project delivery, says Hensel Phelps Project Development Manager Andrew Millar. "Some of the lean practices on the design portion of a project are helping to bridge the differences from the architectural and general contracting communities by creating this collaborative environment, helping to visualize deliverables and holding people to their commitments," he comments. "On the construction side, there are a lot of practices that have been in place but were

not coined with titles that lean construction has added.”

Lean has been further brought into the spotlight by AGC of America, which in 2011 launched the Lean Construction Forum promoting the sharing of best practices and latest information on how lean can improve jobsite performance. AGC offers several other educational resources relating to alternative project delivery, BIM, lean and more. For more on these resources and tools, go to www.agc.org/cs/industry_topics/project_delivery.

IPD, CM at Risk, Other Methods Also Growing

As referenced elsewhere throughout this issue of *California Constructor*, Integrated Project Delivery (whether formalized with an integrated form of agreement such as on the Sutter Santa Rosa project featured on page 12-13, or simply “IPD as a philosophy”), “best value” procurement such as that now authorized for the entire UC system (see page 18 for more on this), CM at Risk, and other alternative methods are also gaining ground.

Public-private partnerships (P3s) also hold plenty of future promise, although they have been slower to be adopted due

to public contracting restrictions and their more specialized applications. LA Metro is currently analyzing three specific upcoming highway projects to determine if P3s would be a good fit. (Editor’s note: Look for an upcoming issue of *California Constructor* magazine for more on the LA Metro’s promising 2012 construction program funded largely by Measure R.)

Owners who have tried alternative delivery and experienced the benefits of having a more collaborative team on their projects are unlikely to turn back the clock anytime soon, according to the “12th annual CMAA/FMI Owners Survey” released in November 2011. More than 60 percent of owners surveyed who were already using “best value” procurement policies essentially said they were unlikely to give up the best value approach in favor of low bid procurement, even if the latter method offered potentially sizeable cost savings in the highly competitive current marketplace.

“Exciting Time” for Industry

Whatever the market sector, one thing is clear: the construction industry as a whole has changed dramatically within just the last 5-10 years – and contractors

who want to stay relevant and continue to fill owners’ increasing demands for better project results must change along with it.

From a legal standpoint, Ballati points out that in some ways the industry’s migration to a more collaborative approach may mean “less business for construction lawyers,” at least in the litigation arena, but she adds, “At the end of the day, that’s a good thing. What you really want if you’re truly committed to the construction industry, as most construction lawyers feel like they are, is just for projects to be done right and to be done efficiently and effectively.”

Frances Choun, Vice President of Business Development for McCarthy Building Companies in Northern California, says she welcomes the changes that are taking place, echoing a sentiment shared by many other construction professionals.

“This is a really exciting time to be part of this industry. There are so many new things going on, and I think people are realizing there are huge benefits utilizing these new tools and approaches,” she comments. “It seems like everyone’s finally rowing in the same direction, and we’re just now scratching the surface. I think we’ll continue to see these grow across all the different markets.” ■



The seven-story UC Davis Health System Parking Structure, slated for completion this March, is a design-build project that was constructed by McCarthy and designed by Watry Design, Inc. (architect) and Criteria Parking Consultant: International Parking Design, Inc. (architect and engineer).