

Precaster Partnerships Offer Project Benefits

— Craig A. Shutt

Using several precasters on a project can create benefits in speed, economics, and quality



The Mott Haven Substation in the Bronx, N.Y., used four precasters to produce a large number of pieces in a short period of time, with the precast concrete panel fabricator subcontracting double-tee production to two additional precasters and GFRC being produced separately.

Photo courtesy of Con Edison Co. of New York.

PCI-certified precasters often compete for projects in their markets. But in some cases, they team up to provide the precast concrete components necessary to complete a project. The reasons for creating partnerships, and the formats that are used, vary with the type of project and the needs of the construction team. But such partnerships can produce key benefits in speed, economics, and quality without creating challenges for the designer.

A good example of such a partnership is the Mott Haven Substation in the Bronx, N.Y., on which owner Con Edison Co. of New York served as designer and engineer. The project consisted of constructing a massive, two-story, 125,000 ft² substation in a dense urban environment on a tight schedule. It features 1150 structural and architectural precast concrete components, including wall panels, double-tees, beams, columns, and fence posts.

In addition, 2942 pieces of glass-fiber-reinforced concrete (GFRC) detail pieces were created for door and window trim, cornices, and pediments. The pieces help minimize the building's mass and create a unique neighborhood-sized facade for the structure.

The design team awarded the precast concrete contract to Coreslab Structures (CONN) Inc. in Thomaston, Conn. Coreslab, in turn, subcontracted fabrication of the double-tee units to two additional precasters, J. P. Carrara & Sons in Middlebury, Vt., and William E. Daily Inc. in Shaftsbury, Vt. In addition, David Kucera Inc. in Gardiner, N.Y., supplied the GFRC components. The project won a 2008 Design Award for Best Manufacturing Facility in PCI's design awards competition.

Single Point of Contact

"From our perspective, it was not apparent that there were multiple vendors working on the job," says Mike Corcoran, Con Edison's senior architect on the project. "And that's the way we wanted it. We needed a single point of contact to coordinate and guarantee the job and make sure all the pieces fit together. When I



wrote the spec, I allowed for the precast to be subcontracted as needed, provided the subcontractors also were PCI-certified plants."

As Rob Del Vento Jr., sales manager for Coreslab Structures (CONN) Inc. adds, "Designers typically prefer to have a single source of communication and responsibility for these types of projects. Having to deal with multiple precasters and detailing firms can create some confusion. We recommend a single-source precaster as the lead and contract holder, giving the client a sole source of contact who manages all aspects."

There are a variety of reasons for using more than one precaster, either in a partnership coordinated by the architect or through subcontractors with one precaster as the single source of contact. The reasons include:

Schedule. "Like many of our projects, Mott Haven had a very tight schedule, with a drop-dead deadline," Corcoran explains. Due to the complexities of switching electrical services between stations, bringing a new facility online can be done only in off-peak periods. "When I need to put electricity into the system, it has to be now," he says. "Being ready to go one week from now doesn't do me any good. At that point, I might have to wait 6 months, and you can imagine the carrying costs on that."

Using several precasters splits up the work so it's easier for each fabricator to fit the production needs into the schedule. At Mott Haven, for instance, the components were erected in less than 4½ months. That, in turn, allowed faster access for interior trades to begin installing the sensitive and

complicated electrical equipment.

Coordinating between precasters isn't a problem, because each takes on the work knowing the deadline and fits it into his timetable, explains Matt Ballain, vice president and general manager at Coreslab Structures (INDIANAPOLIS) Inc. in Indianapolis, Ind.

Coreslab provided structural components while Gate and High Concrete teamed up to produce architectural components for Lucas Oil Stadium, the new home of the National Football League's (NFL's) Indianapolis Colts. Coreslab produced risers, rakers, beams, columns, vomitory walls, and slabs, while Gate Precast Co. in Ashland City, Tenn., received a separate contract for architectural precast concrete panels.

Gate assisted the architects in the early design phase and produced the portion of the 400,000 ft² of insulated sandwich wall panels required for the long east and west walls, as well as all of the arches. These panels featured an Indiana-limestone finish with blasted accents and embedded brick. The panels for the two gabled walls, which feature a similar finish, were subcontracted by Gate to High Concrete Group's plant in Paxton, Ill., with the two precasters coordinating their production of the architectural components.

Gate also subcontracted the erection of the panels to Sofco Erectors Inc. in Indianapolis, while Coreslab similarly subcontracted with the same erector for the structural components.

"There is more coordination needed among the precasters when more than one is involved," says Ballain,

"but it's not that difficult because erection still comes under one company's control. The company that is delivering the pieces to be picked and erected each day is seamless."

Early Involvement. Bringing the precaster onto the project early creates a significant benefit, especially when the project's large size or schedule will require splitting the contract, Corcoran adds. "We bring the precaster in early, even before the general contractor, so he can begin working on shop drawings and create a package that we can let to the general contractor. No matter how the contract is being let, the critical issue is to involve the precaster early."

The early entry not only allows the

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precaster to find the most effective and efficient design for casting, delivering, and erecting the pieces, but it provides time for creating the subcontractor documents prior to needing them completed. In addition, it ensures the project a guaranteed slot in the precaster's production schedule. "By getting the contracts out early, we know we will have product coming out when we need it, because the precaster has us scheduled in advance," Corcoran explains. "Hitting that production schedule is critical to being on time. You want to get the contract out early and get on the schedule."

Project Size. The sheer size of the project is just as important a driving force to using more than one precaster as schedule can be. "With large, expansive projects, it's hard to work with only one precaster and have it delivered on time," says P. J. Carrara, project manager at J. P. Carrara & Sons on the Mott Haven project. "When there are more precasters working on the project, it means it will be produced faster."

Del Vento agrees. "On Mott Haven, we determined that we would need to subcontract the double-tees to two



The load-bearing architectural precast concrete panels used to clad the 4339-car Bergen Town Center parking structure in Paramus, N.J., were subcontracted to a second precaster after the project was value-engineered to change the structural design.

Photo courtesy of High Concrete Group LLC.

precasters due to the volume," he says. "Based on the companies' production capabilities and work volume, there were 6 months' worth of tees to be produced, and we only had 3 months to do it."

This ultimately focuses on scheduling as well, but a massive size can create problems for one precaster even if the capacity is available. High Concrete Group, a subcontractor on Lucas Oil Stadium, partnered with Architectural Precast LLC in Middleburg, Pa., to bid the precast concrete components together for a new residential hall at Kean University that is still under construction on the Union, N.J., campus.

"That was a partnership of need, because we didn't have the capacity to produce the number of components that were needed," explains Mike Achilles, New York state sales representative for High Concrete. "Working with Architectural Precast ensured that together we could produce everything."

Maximizing Capacity. High Concrete also has worked with Architectural Precast through a subcontracting agreement, letting a contract to the company to produce architectural brick-faced panels and other architectural elements on a new parking structure at Bergen Town Center in Paramus, N.J., a 4339-space facility. In that case, High Concrete could have provided the panels, but it wanted to

use its capacity for other purposes.

"The architect approached us about the project, which has a high number of architectural panels," explains Achilles. "We are set up to produce structural components much faster than high-end architectural panels such as those used at the Bergen Tower Center, which had to be finished on three sides and required more form changes. We decided it made more sense to use our available capacity for projects where we could provide the structural components without needing to produce panels separately. So we subcontracted the architectural panels to Architectural Precast to use our capacity more efficiently."

Skill Set. Maximizing each precaster's skills often drives a division or subcontracting arrangement. "Using several precasters can ensure you receive the best product from the best vendor," says Con Edison's Corcoran. "Coreslab produced superior architectural panels for us, but they didn't have the facilities to do those as well as the structural components. So they subcontracted the double-tees and flat slabs to make the whole job work together."

Typically in such divisions, one precaster focuses on structural elements while the other produces architectural pieces. Such a division requires little coordination, as each is fabricating a type of component with a specific function, and creating an interface for them is no different than if one pre-

caster was producing both parts.

"Any concern about interfaces can be easily overcome by coordination meetings during the preplanning and designing of individual components," says Coreslab's Del Vento. Having a single firm design and detail all of the components regardless of which precaster produces them also can smooth this process.

Dividing contracts for architectural precast concrete, as was done on Lucas Oil Stadium, can create a separate challenge because of the high quality of finish that is required. By using PCI-certified precasters, owners and designers are assured that quality-control procedures will be followed, and the precasters can coordinate aggregates and finishes to ensure a close match between plants.

Location. In some cases, the complexity of the project and concerns about sustainability and energy use drive the decision to add a precaster. J. P. Carrara, for instance, was subcontracted by Metromont Corp. in Greenville, S.C., to produce specialized components for Gillette Stadium in Foxboro, Mass., home of the NFL's New England Patriots.

Some of the required raker beams created oversized loads, and it was more efficient for J. P. Carrara to produce those components in its Vermont plant to transport to nearby Massachusetts rather than have Metromont transport them from South Carolina. "We produced and delivered the beams based on Metromont's drawings, just as we'd do with our own drawings," Carrara says.

A similar approach worked for Tindall Corp. in Spartanburg, S.C., when it landed a contract to produce precast concrete components for a prison in Glen Falls, N.Y. Some of the required components were large and oddly shaped, restricting them from using rail cars for transport. Tindall instead subcontracted with J. P. Carrara to deliver the pieces from its Vermont plant.

Value Engineering. In some cases, benefits are derived from converting projects to precast concrete designs during the design process. Value engineering can save significant time and money, but it can result in needing more precast production time, sometimes more than the original precaster can provide.

That was the case at the Bergen Town Center Parking Structure, which

was initially designed with architectural precast concrete wall panels supported by a concrete frame. High Concrete value-engineered the project to feature load-bearing precast concrete panels, eliminating the structure behind the panels but requiring the production of a new type of component. That led to subcontracting panels to Architectural Precast.

"A key challenge for the precast team is ensuring timely returns for the production-schedule changes that can occur on a large project," Coreslab's Del Vento says. "Understanding the project's schedule sequence and how it relates to the production sequence on each plant's individual portion is the key to success."

Partnership or Subcontract?

In some cases, architects prefer to control the entire precast concrete contract and split it for separate bids. Since Mott Haven was completed, Con Edison has completed four other stations, and designers purchased the precast concrete directly on two of them. "It gives us an advantage on some projects, because we can bring in all of the precasters earlier to get them working on shop drawings," he says. "When we're doing total-precast concrete projects, we've found

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that we can coordinate the various parts ourselves. On smaller projects, we may let the general contractor coordinate the work."

Typically, Coreslab's Ballain says, architects want to have one point of contact and a single source for responsibility. On total-precast concrete projects, that usually falls to the structural precaster, as that contract is larger and drives the architectural-panel plan. In some cases, two structural precasters bidding the same job will work with one architectural precaster. "We ensure everyone knows who we're working with up front," says High Concrete's Achilles. "We don't bid the job and then go shopping for an architectural precaster."

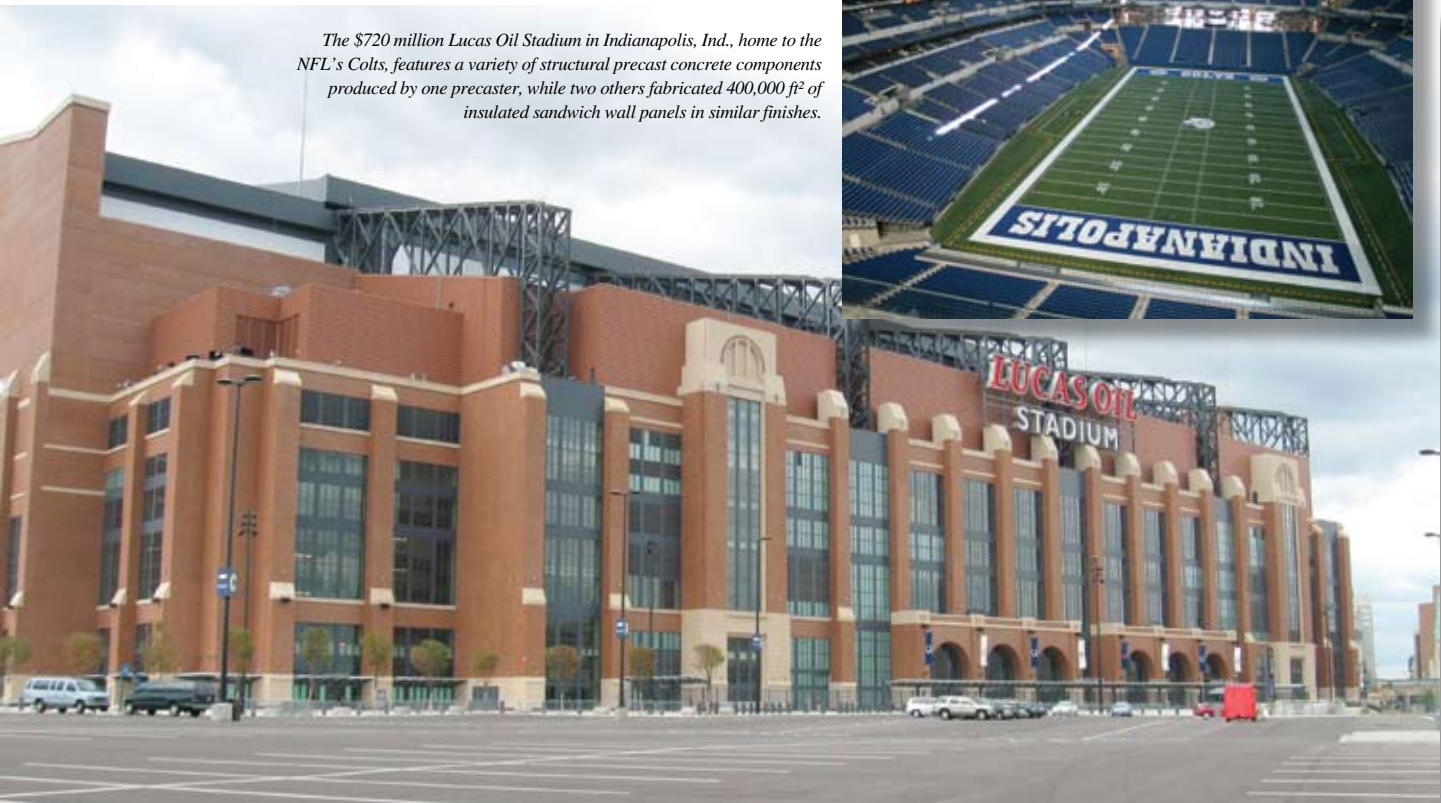
In some cases, the lead precaster will be determined by who has the longest relationship with the construction partners, he notes. "Architects and general contractors like to take advantage of partnerships that are a good fit. It serves the owner best when the team works well together from the beginning, and it helps us because they

feel confident listening to our suggestions that can add efficiency."

The variety of benefits can build on each other, creating significant advantages to the entire project, notes Coreslab's Del Vento. "The benefit for a designer to have multiple precasters is often not realized until the final project comes together," he says. "It is important that the designer feels comfortable with the lead point of contact managing the team of precasters, as that firm can organize the project according to each plant's strengths."

Regardless of the reasons for the division of production or the specific format that the relationship takes, designers and precasters anticipate that such partnerships will continue to grow. "Especially with steel prices going up and designers becoming more familiar with the benefits of the system, there is a lot of potential for an increase in total-precast concrete structures," says Coreslab's Ballain. "As that complexity and scope grows, it will create more interest and need for using precaster partnerships." ■

The \$720 million Lucas Oil Stadium in Indianapolis, Ind., home to the NFL's Colts, features a variety of structural precast concrete components produced by one precaster, while two others fabricated 400,000 ft² of insulated sandwich wall panels in similar finishes.



Photos courtesy of Gate Precast Co.