

## Resort opts for total precast concrete for 1.16 million ft<sup>2</sup> parking structure

**M**GM Springfield in downtown Springfield, Mass., set to open this year, balances a modern flair with a look that blends with the nearby historical buildings.

Adjacent to the casino, the 300 × 600 ft (90 × 80 m) footprint parking structure has eight levels comprising 1.16 million ft<sup>2</sup> (354,000 m<sup>2</sup>), enough to park 3400 vehicles.

The design-builder for the project, Tishman Construction, opted for a total-precast concrete structural system for the parking structure, and Blakeslee Prestress of Branford, Conn., was selected to provide design-assist and construct the precast concrete components.

The design features structural products including: pre-topped double tees, inverted-tee beams, columns, shear walls, horizontal litewalls, stairs, and slabs as well as architecturally finished spandrels and wall panels with multiple finishes such as embedded thin brick, and sandblasted colored concrete and formliner texture to achieve a limestone look.

The architect had several reasons for choosing precast concrete for the job. “One of the challenges of a design-build project is the need to design to budget,” says Christopher Zarba, director of sales and project development for Blakeslee. “The north-facing elevation of the parking garage of the MGM project presented such a situation.” Early rendering concepts indicated a hand-laid masonry and natural limestone facade to complement the local architecture.

However, these conventional materials proved to be costly and time-consuming, so when the design-build contractor looked at alternatives to reduce the cost and maintain the design intent, precast concrete was the obvious solution. “Our design-assist role allowed us to work closely with the design-build team and offer various solutions incorporating textured formliners, color-pigmented concrete, projecting lintel shapes, and thin brick finishes,” Zarba says.

The team worked to develop plans, sample concrete mixtures, and perfect forming materials and techniques. During this process, resources from Blakeslee’s engineering, production, field operations, and estimating departments were called on as needed.

The erection of the parking structure also involved an innovative and efficient approach. Material was staged on-site and at an off-site queuing yard so that it would be readily available as needed. A large crawler crane was used for the erection pro-



**The 3400-vehicle parking structure for the MGM Springfield resort in downtown Springfield, Mass., uses a total-precast concrete structural system. Courtesy of MGM Springfield (photo by Mark M. Murray).**

cess, which began in September 2016 and was completed in June 2017. Parking finishes were applied in late 2017 for the casino’s 2018 opening.

The end result is the detailed precast concrete facade that exists today. “A visual comparison of the initial renderings to the final photographs is testimony to the success of the design-assist approach and teamwork relationship among all of the project members involved, as well as the Blakeslee production and erection staff,” Zarba says.

—William Atkinson

## Precast concrete cladding saves time and money in Ohio parking structure

The Tri-C district parking structure at Cuyahoga Community College in Cleveland, Ohio, is across the street from Progressive Field, home of the Cleveland Indians baseball team.

The parking structure itself was built with cast-in-place concrete, which was handled by Thomarios Construction Group. However, the decision was made to use precast concrete for

the facade. The architect, Richard Fleischman + Partners, wanted the parking structure to match an adjacent building that featured utility-sized tile on the exterior. “So instead of scaffolding the project to install the tile, the architect realized it would be faster and easier to use a precast facade,” says Larry McCune, sales and quality control manager for Sidley Precast Group in Thompson, Ohio, the firm selected for the precast concrete portion of the project.

Although it was a relatively small project, it was not without some challenges. “There was an odd-shaped piece of land being used for the garage, so it wasn’t going to be a typical rectangle-shaped garage,” McCune says. “Instead, it was radiused on one end, so while it was a small job, it was a somewhat complicated job.” One of the challenges was that the structure contained several different radiuses. This required the manufacturing of a number of radius panels, each with a utility-sized tile. In addition, some of the panels were skewed on the top and there were several curves. “The project also required a running bond, so we had to make sure the panels were stacked correctly to make sure everything stacked up properly to ensure the running bond,” he says. “Overall, there was an exceptional amount of formwork for the size of the job.”

The size of the work area presented another challenge. “There were only about 25 to 30 precast panels, but they were very large,” McCune says. “Some of the panels were 9 ft [3 m] by 46 ft [14 m].” They decided to make a small number of large panels instead of a large number of small panels because there would be fewer panels to erect, reducing time and cost. This made delivery and installation more difficult because the site



**The Tri-C district parking structure at Cuyahoga Community College in Cleveland, Ohio, used precast concrete for faster and easier construction of the facade.**

was small and work areas were often tight. “However, we were able to work through these issues,” he says.

“One key to the overall success of the project was that we have a great engineering group, which led the way,” McCune says. “Another key involved coordinating with the cast-in-place guys, especially since there were so many radiuses to take into account. We had a lot of meetings with them. We were also meeting with the architect from the beginning of the job, which allowed us to determine the best way to joint the panels and deal with other details.”

—William Atkinson **D**