



PROJECT SPOTLIGHT



Perforated panels add dramatic light feature to Texas parking structure

In Austin, Tex., eclectic eateries, historical sites, natural areas, and live music venues are part of a real estate boom that led to the genesis of 7001 Burnet Road, a modern mixed-use development. The project, which was led by architect Gomez Vazquez International and engineer MJ Structures, includes three buildings: a five-story structure with offices and commercial space, a two-story pavilion that serves as a hub for offices and a restaurant, and a five-story parking structure with a contemporary design featuring nearly 10,000 ft² (930 m²) of large-format, perforated precast concrete panels manufactured by Gate Precast.

For the parking structure, architect GVI's primary goal was to establish an open-air feel. Gate Precast collaborated with Gate Precast to provide precast concrete panels for the 7001 Burnet Road parking structure in Austin, Tex. The five-story structure uses nearly 10,000 ft² (930 m²) of large-format, perforated precast concrete panels. Photo © 2024 Dave Henz.

GVI to accomplish this via custom-designed architectural precast concrete panels with a pattern of triangular openings.

The 69 panels for the parking structure's perforated skin create unexpected effects on the interior of the structure. Instead of typical uniform illumination, a cascade of light rays and shadows is projected onto the floors and walls, creating unusual interactions with light for users. Beyond offering a striking aesthetic, the precast concrete solution reduced the complexity of construction and saved time compared with the original breeze block facade option. Installation was completed in just 12 days.

Mike Ryan, vice president of operations for Gate Precast in Hillsboro, Tex., says that the Gate Precast team worked closely with GVI throughout the preconstruction and design phases of the project. A major hurdle was deciding on the best approach for the panels' joints and connection points, which had to be strategically placed so that loads were transferred to the structure appropriately. The Gate Precast team was ready for the challenge, devising solutions for both the connection points and the complex molds needed for the panel design.

"Our in-house carpenter shop is amazing," Ryan says. "We made the formliners and then had to determine how to suspend the rebar in thin sections while still being able to pour and strip the product every day. There was also plenty of design and coordination surrounding each panel's center of gravity. Each of these had to be at the right spot to not only ship efficiently but also to hang plumb once installed."

Another challenge was minimizing the number of molds needed to create an efficiently sized panel while also retaining the modern look of mesh specified in the design. Gate Precast used a computer numerical control machine to fabricate the casting deck so the molds that created the openings could be placed in the same location for each cast, resulting in more efficient and cost-effective production.

One of the most innovative aspects of the structure is that it was conceived with adaptive design in mind. While primarily intended to be used as a parking structure, the project team took a potential future conversion into apartments into consideration during design. The structure is fully compatible with residential footprints, including generous ceiling heights and column layouts.

Ultimately, precast concrete was the only solution that could produce a long-lasting signature facade with the potential for future conversion, all thanks to meticulous work from the Gate Precast team from conceptualization through design and production.

—Mason Nichols



Precast concrete panels represent bone structure in medical facility

Integrating education, discovery, and health care, the Emory Musculoskeletal Institute in Atlanta, Ga., is a state-of-the-art facility for the diagnosis, treatment, and repair of bones, joints, and connective tissues. To bring the six-story, 180,000 ft² (16,700 m²) institute to life, Gate Precast of Monroeville, Ala., and architect HKS of Atlanta, leveraged 35,000 ft² (3,300 m²) of precast concrete panels for the building's exterior, generating an iconic aesthetic that reflects the care taking place inside the building.

Bill Leggett, senior project manager and principal with HKS, says that precast concrete was key in meeting all the goals set forth by project owner Emory Healthcare.

"Precast was chosen for its panelized qualities, ease of construction, ability to shape the building, and textural qualities that support the design aesthetic," he says. "Specifically, it offered the design team the ability to develop a textural building skin that represented bone structure."

Of the 35,000 ft² (3,300 m²) of precast concrete installed on the project, 20,000 ft² (1,900 m²) (108 panels) used a proprietary simulated natural limestone finish. These 5.5 in. (140 mm) thick panels are located on the west elevation and southeast corner of the building. An additional 82 panels (12,000 ft² [1,100 m²]) have simulated honed, medium-abrasive blast, and light-abrasive blast finishes. The remaining 3,000 ft² (300 m²) of panels installed are 5 in. (127 mm) thick and treated with a light abrasive blast.

From a production standpoint, the biggest challenge on the project was generating the multiple finishes specified across the panels using just one architectural concrete face mixture design. One panel type featured nine locations in which a different finish was applied. According to Joey Langham, senior project manager for Gate Precast, this required heavy focus, concentration, and dedication from the fabrication team.

"Once the panel is pulled from the mold and reaches the finish area, the expertise needed to maintain the approved textures comes into play," he says. "You need to maintain consistency with each of the finishes. It's a lot different than pouring panels with just one finish or one color."

Variations in color were also key to establishing the Emory Musculoskeletal Institute's signature facade.

"We were dedicated to making sure that we achieved the variance needed," Langham says. "To accomplish this, we deployed a marking system that used numbers to identify how much dye to apply in each case. This helped prevent plant personnel from mistakenly adding too much of a concentration in any one area or panel."

Several curved precast concrete panels were also fabricated for the project, some spanning more than 11 ft (3.3 m) in width. The curved panels were pertinent to the overall design because they provide a fluidity to the facility that mimics human anatomy.

In the end, precast concrete was the only solution that could provide the texture, depth, and massing desired in a singular building material that could also be erected efficiently and relied upon for the long-term. With an exterior aesthetic that reflects the importance of the work taking place within, the Emory Musculoskeletal Institute will serve as a place of healing and advancement for the community for years to come.

—Mason Nichols ■

The Emory Musculoskeletal Institute in Atlanta, Ga., used precast concrete panels from Gate Precast with a proprietary simulated natural limestone finish to represent bone structure. Photo © Tom Harris.

