ADVANCED ARCHITECTURAL STONE

APA ARCHITECTURAL PRECAST ASSOCIATION

1927 CAST STONE INSTITUTE® CERTIFIED PLANT PRODUCER MEMBER

PROJECT
Market Square Tower

LOCATION
Houston, Texas

ARCHITECT
Jackson & Ryan Architects

GENERAL CONTRACTOR
Harvey Builders

MASONRY CONTRACTOR
Brazos Masonry

AWARDS

APA: Design and Manufacturing Excellence Award, Residential Category

CSI: Manufacturing Excellence Award, Design Excellence Award

VISION

The Market Square Tower is Houston's tallest residential building. It is 42-stories high with 463 luxury apartments. The project was planned for downtown Houston with an effort to bring more residential housing to the downtown area.

The use of dark color Leuders limestone for the exterior walls, gives the building and its surrounding area a true Texas feel. The architects used cast stone with a very specific much darker color to highlight the building. The architects wanted significant attention to the projecting pilasters at the lower levels. They also wanted to accentuate the top of the building with massive extruding pilasters.

Achieving the specific tone of the custom color, and seamlessly integrating the cast stone with the exterior cladding and limestone veneer design were key requirements of the project.

PROCESS

The AAS team reviewed the design drawings with the architect and contractor to confirm the design feasibility. The team worked closely with designers to suggest changes that would simplify the anchoring of the cast stone panels to the structural elements of the building. The detailed analysis and communication at the CAD drawing's level confirmed design feasibility in initial stages of the project.

The manufactured stone panels were required to have a darker color than the limestone used on the building. AAS received control samples of the dark color limestone, and developed a custom batch mix to achieve a specific darker color hue for the cast stone panels. The team developed several mock ups for the panels, and got the color tone and finish approved by the architect and building owner before finalizing the specific admixture to use for casting the stone products.

With a high-tech color lab and fully automated batch plant, the AAS team was able to consistently match the color and structural properties of the cast stone products used throughout the project.

The design intent was to integrate the cast stone seamlessly with limestone, as well as glass and steel used for design accent at the top of the building. The AAS team used its proven methodology to design and develop custom molds with specific shapes with stringent tolerance requirements.

This project had over 17,000 pieces with some pieces weighing as much as 7,500 lbs.

The cast stone pieces used for coping at the top of the building required special connections and anchorage to integrate with the cylindrical steel tube frame that held large glass pieces.

The AAS team worked closely with the installation team on site to explain the details. The team was able to troubleshoot installation challenges, and provided solution to the issues at the time of installation.

The Tower building is located downtown Houston, there wasn't sufficient space to layout all of the stone. The AAS team worked closely with the contractor, and recommended a very specific settings plan with delivery schedule for the stone panels to match the construction plan. The project team sequenced and delivered the stone panels with an effective tracking system to manage every single cast stone piece used in the building. With this careful planning, the contractor was able to get supply of cast stone pieces on the days of construction avoiding disruptions to the active traffic in the downtown area.

RESULT

The use of cast stone and Texas limestone gives the building and the surrounding area a true Texas feel. The Custom design and manufacturing of cast stone panels provided flexibility and freedom to realize the intended design vision. Detailed planning in sequencing and tracking of individual stone pieces minimized delays and surprises in the construction process.