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Calvert Street Parking Structure – Case Study

The Calvert Street Parking Garage in historic downtown Annapolis, Maryland is a 168,000 SF parking structure owned by the Department of General Services of the State of Maryland. Morris & Ritchie Associates was the Concept Design Consultant on the project, Coakley-Williams Construction provided design-build services, Cagley and Associates was the Engineer of Record, and Hayes, Seay, Mattern and Mattern (HSMM) was the Architect of Record. Shockey utilized the drafting and engineering services of FDG, Inc. for design and detailing of the precast structure.

Design of the structure called for four bays of four levels of elevated precast framing, consisting of two ramped bays and two flat bays, providing 727 parking spaces. Exterior aesthetics were of paramount concern to the owner throughout the duration of the project given the close proximity of the new structure to several historical brick-clad buildings of the State Capitol complex. Shockey met this desired intent by providing a structural gray precast frame surrounded by a separate façade of architectural precast utilizing a mix of highly articulated thin-brick and architectural precast elements. The architectural façade was essentially self-sup-

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porting with regard to gravity load, with required lateral support provided by tieback to the structural frame. In order to ensure a successful project, the design team had to be vigilant in detailing the numerous interface/ offset conditions and connection schemes such that requirements for constructability and access proved conducive with aesthetic requirements.

Shockey's Winchester production facility provided 554 pieces of structural precast for the project, including double tees, beams, columns, spandrels, vertical ramp walls, shear walls, flat slabs, and stair/elevator core walls. The 223 elements of the architectural façade were provided by Shockey's Fredericksburg production facility and consisted of an array of spandrels, wall panels, cornices, coping, and column covers.

The design of the façade specified two colors of thin brick to be used in either standard running or Flemish bond coursing at specific locations along the exterior elevations. Layout and detailing of the horizontal and vertical coursing of brick presented a formidable challenge to all members of the design and production team, thus requiring diligent attention to assure proper alignment of brick between precast elements. The presence of several highly articulated, ornate cornice and sill details of architectural precast presented a challenge to both design and production teams. In order to accent the precast façade, numerous pieces of decorative steel columns, channels, beams, grilles, and glazing were field-installed, and coordination of required appurtenances for such in the precast elements was quite intensive.

Erection of the structure was extremely difficult due to limited access in only the interior footprint of the structure. The architectural façade had to be erected in conjunction with the structural components of the parking structure. The access plan had to be changed to eliminate ramp construction, and the last phase of construction was moved to the top of Bladen Street out of the footprint. This change saved time and expense for the general contractor, and resulted in a shorter and more continuous erection process. Erection of the structure was completed on schedule in approximately 12 weeks.

CALVERT STREET PARKING STRUCTURE CONSTRUCTION TEAM

Owner
State of Maryland Department of General Services
Baltimore, MD

General Contractor
Coakley-Williams Construction, Inc.
Gaithersburg, MD

Architect
Desman and Associates

Engineer of Record
Cagley & Associates
Rockville, MD

Architect of Record
Hayes, Seay, Mattern & Mattern (HSMM)
Washington, D.C.

Precaster
The Shockey Precast Group

Precast Specialty Engineer
The Shockey Precast Group
Winchester, VA

Project Timeline:

July 2005 – December 2005	Design
December 2005 – February 2007	Construction
January 9, 2006 – May 16, 2006	Production Winchester
January 3, 2006 – May 17, 2006	Production Fredericksburg Precast
April 3, 2006	Erection Start
July 21, 2006	Erection Complete
January 10, 2007	Open to Public