

BASE Line

The quarterly newsletter of BASE

Fall 2017

B A S E

“I feel the need—the need for speed!”

FAST-TRACK CONSTRUCTION

Though not quite as fast as the F-14 Tomcats flown by Maverick and Goose in *Top Gun*, fast-track delivery accelerates the overall schedule by commencing construction before design is 100% complete. This process can reduce the cost of construction financing for owners, provide new homes faster for buyers, offer services or goods more quickly to the public, or decrease overcrowding in school districts in time for a new school year. Effective planning and focused coordination amongst the entire project team are crucial elements for success with fast-track projects. We are currently in the middle of four exciting fast-track projects.

ARMY RESERVE CENTER ARLINGTON HEIGHTS, IL

This design-build Army Reserve Center is comprised of three separate buildings: a two-story Training Center (70,877 SF), a one-story Organizational Maintenance Shop (4,944 SF), and a one-story Unheated Storage building (4,860 SF). Facilities include administrative, educational, assembly, weapons simulator, work bays, and supply areas for Army Reserve units. For the Training Center, the primary structural system of composite steel framing, open web bar joists, and exterior load-bearing precast walls was selected with careful consideration of economy, constructibility, resistance to blast pressures, and aesthetic flexibility. In order to enclose the Training Center on time and keep the critical path for the guaranteed completion date, the foundations must be poured before the ground freezes in winter. As a result, the entire structural design must be approved while shop drawings for precast and structural steel are being completed. The very aggressive schedule included bringing the structural design of all three structures from 35% complete to 100% complete in only two weeks. The project intends to officially break ground by the end of October.

Architect: FGM Architects
Contractor: Blinderman Construction Co.
Owner: USACE Louisville



Training Center rendering courtesy of FGM Architects

PIERCE TERRACE ELEMENTARY SCHOOL FORT JACKSON, SC

This approximately 77,000 SF facility replaces the existing Pierce Terrace School and will meet the Department of Defense Education Activity's criteria for "21st Century School Design." With a targeted move-in date just 14 months after notice to proceed was given, foundation drawings were pushed ahead of the rest of the structural set to allow grading to begin prior to the complete design being finished. BASE worked closely with the architect, contractor, and subcontractors to quickly develop constructible designs that met the design intent and owner's requirements. Challenges confronting this fast-track project included design for blast effects in accordance with the military's Antiterrorism and Force Protection standards and the high seismicity present in South Carolina.



Rendering courtesy of FGM Architects

Architect: FGM Architects
Contractor: Poettker Construction
Owner: USACE Savannah

CONSOLIDATED RENTAL CAR FACILITY (CONRAC) KAHULUI, HI



Currently under construction on 17 acres, this four-level, 1.85 million SF facility at Kahului Airport on the Hawaiian island of Maui will house more than a dozen rental car offices; customer service counters; rental car pick up and return; areas for refueling, maintenance, and washing of vehicles; and a tram system connecting ConRAC to the airport terminal.

The structure is designed with no shear walls and an expansive 40-foot x 60-foot column grid (to provide maximum future flexibility). A unique system of post-tensioned special seismic moment frames is used to resist the project's wind and seismic design loading. Tendon layouts were carefully coordinated to simultaneously address gravity loading, high seismic capacity limitations, and locations/sequencing of construction joints.

Architect: Demattei Wong Architecture
Contractor: Hawaiian Dredging Construction Co.
Owner: Hawaii Dept. of Transportation

BASE was initially engaged to conduct a value engineering review of the project's bid documents in May 2015. In October 2015, our client

and the owner decided to retain BASE as SER to maximize structural cost savings. The primary challenge was implementation of a complete structural redesign without delaying the final completion date. BASE used staff in various time zones to maximize resources required to produce the work in a short time frame.

BASE completed the overall construction documentation within seven months. During this period, early release of specific packages and expedited shop drawing review allowed the contractor to start foundation work and begin vertical construction within five and six months, respectively. Throughout this process BASE worked intimately with the contractor and their subs to continuously provide design refinements and supplemental information necessary to maintain their workflow.

CONSOLIDATED RENTAL CAR FACILITY (CONRAC) HONOLULU, HI

Honolulu's five-level, 1.8 million SF ConRAC is also under construction and includes rental car offices; customer service counters; ready/return and quick turnaround areas, as well as approximately 2,250 parking stalls.

BASE was retained to perform value engineering of the foundations. Changing driven precast piles to augercast piles significantly reduced project costs and facilitated constructibility.

Construction is split into phases in order to allow rental car companies to continue operating during construction. In approximately two months, BASE completed VE for both phases and submitted the prefinal set for the owner's review. Construction drawings were issued approximately one month later.

BASE worked integrally with the contractor and extensively coordinated with the original A-E team to ensure the revised foundations met all loading criteria. Close coordination with the contractor was key as portions of the construction proceeded as the VE was finalized.



Architect: Demattei Wong Architecture
Contractor: Watts Constructors LLC
Owner: Hawaii Dept. of Transportation