



13th CAB Barracks, Fort Carson, Colorado

Fort Carson's 13th CAB Barracks project consists of 486 high performance, insulated non-composite wall panels with inset thin brick and acid etched architectural surfaces. This project consists of six buildings featuring 18,400 square feet of structural concrete and 207,700 square feet of architectural concrete. The project features nominal 15 inch thick high performance, insulated non-composite, load-bearing wall panels with inset thin brick supporting steel floor and roof systems. The wall panels have an average width of 12 feet and a height of 48 feet. The panels feature a concrete strength of 500 psi and are designed to meet blast loading and anti-terrorist-force protection criteria. A quantity of 486 panels (226,100 sf) were erected in approximately 15 weeks, resulting in timely completion and turnover to the U.S. Army.

In order to meet thermal efficiency project requirements, low-conductivity thermoplastic wythe ties were selected for use within the precast panels to create a wall panel system providing a solid superior R-value. These prestressed panels include a layer of polyisocyanurate [or polyiso] rigid insulation for maximum energy efficiency. The steady state R-value provided was 32, with the use of insulated non-composite wall panels over the entire precast panel area.

Precast concrete was chosen for its versatility, the benefits of energy efficiency, cost effectiveness, fire resistance, and rapid construction. The panels also provide a low maintenance facade that will retain its excellent condition and attractive appearance throughout the life of the structure.

Project Facts:

Market Segment: Military

Products Used: Insulated wall panels

Finishes Used: Thin brick and split-face masonry with acid-etch surface



Project Design Team:

Owner: United States Army Corps of Engineers, Omaha, NE

General Contractor: M.A. Mortenson, Denver, CO

Architect of Record: HDR Minneapolis, Minneapolis, MN

Engineer of Record: Structural Engineering Solutions, Temecula, CA



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The structure's exterior is clad with prestressed 14-3/4" in. thick insulated wall panels with cast-in conventional clay thin brick accented with acid etched, architectural concrete banding. These panels were combined with fully acid-etched panels to accentuate specific building elements. The versatile precast wall panels provide lateral shear load resistance and support a steel frame floor and roof system.



The wall panels are designed to house a significant number of windows to maximize daylight. Because the exterior walls are precast, the windows are anchored within the rough opening cast into each panel. The precast walls contribute to sustainability and high energy performance in the buildings.



This project features load-bearing precast/prestressed concrete panels, supporting a steel framed floor and roof system, and designed to meet blast loading and anti-terrorist-force protection criteria. All panels (207,700 sf) were erected in approximately 15 weeks, dramatically faster than any other enclosure system. The walls contribute to sustainability and high energy performance in the buildings.



These structures, designed to limit the effects of local collapse, also prevent or minimize progressive collapse. The 13th CAB Barracks is designed to hold abnormal loading and is built with continuity, ductility and redundancy to resist the spread of damage after a blast or impact.

