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ASCENT

DESIGNING WITH PRECAST

INNOVATION ISSUE

High-Tech Approach Revives Gothic Details

St. Mary's Hall at Boston College, Chestnut Hill, Mass.

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MID-CENTRAL EDITION

Photo: GE Johnson.

Precast Concrete Meets the Freestanding ER Trend

Completed in 5.5 Months!

To meet the needs of a growing community, UCHealth added its new 18,000 square foot Harmony Emergency Department (ED) freestanding emergency room (ER) on Poudre Valley Health's 96-acre Harmony Road campus. The ED serves as UCHealth's anchor for the Poudre Valley Health hospital system. The rapid intake model of the ED ensures a convenient and smooth patient experience, with reduced wait times and easy access. Following the current free standing ED model trend, and with a focus on continued exceptional medical standards, UCHealth expanded services and technology to better serve the Ft. Collins area. This extension of the hospital offers 24/7 emergency access, and the identifiable UCHealth name, which is associated with the system's standard of high quality care.

Located in Ft. Collins, CO, UCHealth's new state-of-the-art, $12.3 million freestanding emergency facility features 12 private exam rooms, a major trauma room, two behavioral health rooms, isolation and decontamination rooms, advanced imaging, ultrasound and x-ray services, and a 24 hour lab and pharmacy. As shifting care patterns in the local area necessitated a need for greater access to emergency care, as well as diversification from the standard hospital emergency room setting, UCHealth developed the freestanding ED solution as an alternative to their standard of acute patient care.

The nation's latest trend in emergency patient care shows these EDs relieve congestion in hospital ER settings, reduce patient wait times, and add convenience to suburban and rural areas. There is currently a decrease in the number of hospitals operating onsite emergency rooms, and an increase in population, creating a demand for these stand-alone facilities. UCHealth's ED facility expands the hospital's reach in Colorado and offers easy access to a Poudre Valley Health alternative, providing a much needed asset to the Northern Colorado community.

After initial meetings with the project developer, precast was selected as the preferred material due to the ease of fabrication, an expedited erection schedule, and more economical pricing over conventional steel framing. Precast also provided an effective building envelope while meeting desired project architectural features; primarily, blending into the existing campus landscape. The precast ED footprint is designed to maximize efficiency and space, and to accommodate future expansions.

Precast concrete was also chosen for its versatility, fire resistance, rapid construction, and for the ease in creating a total precast structure with a single source supplier for the core and shell of the structure. The wall panels provide a low maintenance facade that will retain its pristine, factory built condition and attractive appearance throughout its life.

The Harmony project process began with an initial meeting to introduce precast as a viable project option. The General Contractor, GE Johnson, then contacted Stresscon, and a budget was presented, along with a scaled model and project sketches. A collaborative design-build team including UCHealth, S.A. Miro, Inc., H+L Architecture, GE Johnson, and Stresscon Corporation was then formed in late 2014. Precast production began in early 2015, with erection starting in April of 2015. Throughout the process, the project partners utilized Lean Construction's Last Planner System to identify strategies for achieving and meeting a fast-paced project schedule. The project team used 3D modeling throughout the project, benefitting both internal and external project coordination, as well as pre-planning the erection sequence to deliver the structure in only 11 days.

Typical construction technologies would have added twelve weeks to the build schedule. The team completed the entire project, from design phase through erection, in just over five and a half months, utilizing heavy collaborative and coordination efforts from all involved project partners. Stresscon was able to protect both the project budget and scope, and keep the precast price in place with the use of a unique precast framing design.

The Harmony facility incorporates 132 pieces of precast concrete, serving as both an architectural envelope design and structural support for the facility. The hospital project highlights the use of Stresscon's architectural precast products, featuring three colors of inlay bricks accented with brick banding. Stresscon accomplished a creative, innovative and aesthetic use of precast concrete and masonry to create the difficult brick banding in the panels.

Stresscon's precast/prestressed components included long-span double tees, inlay brick wall panels, beams, and columns. One very unique project feature is the precast sloped double tee roof system. The precast components are designed to meet specific natural disaster force protection criteria.

The precast exterior load-bearing horizontal panels were cast with block-outs as a complete wall system that encompasses needed fenestration to consolidate trade

requirements and reduce required on-site installation time. All pieces were cast at Stresscon's Colorado Springs plant, shipped to the project site, and quickly erected. The significance of the hospital's mission required that new facilities be erected quickly to keep pace with the growing demand for services. The open floor design requires double tees spanning 72 to 78 feet, creating a roof system with no interior load bearing elements.

ED's are required to provide 24/7 emergency access to the community. The facilities are medical buildings, meeting code requirements, and built to withstand specific levels of force and seismic activity without disrupting services during natural disasters. Since the ED must have specific mechanical, electrical and plumbing lines and structures, there are several accommodations to be made in the design and build processes. The design process for Harmony included many challenges including layout, function, heavy mechanical structures, building requirements, electrical wiring, vacuum lines, oxygen tanks and lines, and disaster mode specifications.

As annual ER and ED visits continue to increase, and Colorado's population continues upward growth, patients will continue to seek more accessible and convenient ED options such as the new Harmony facility. Stresscon's participation in this free standing emergency room market positions precast as an ideal high-performance material, and reinforces the need and desire for precast concrete for convenience, speed of turnaround, high quality building materials, and specific federal requirements for existing ED and ER structures. These factors are key drivers to increased owner and patient satisfaction for the health system expansions, as well as for the provisions of alternatives to greater health care access.

For more information: www.enconunited.com