Category: 11 – Best Building Project – GC ($70M)

Contractor: Haselden Construction

Project Name: University of Colorado Hospital

As recently as five years ago, delivering a 12-story, 735,000 SF healthcare facility in two years would have been nearly impossible to consider. But through the highest level of team collaboration and the use of prefabrication, Haselden did just that for the University of Colorado Hospital (UCH) in April 2013 when it delivered the $262M New Inpatient Tower and Critical Care Wing Expansion at the Anshutz Medical Campus.

This project presented several challenging aspects. While schedule considerations were critical, the 24/7 campus operations and ongoing patient care was paramount. This required extensive pre-planning and coordination with numerous UCH entities and various departments. This coordination was especially critical for the remodel in the existing Cancer Pavilion, which houses some of the most immune-deficient patients in the hospital. Taking this into consideration, Haselden immediately erected infection control barriers that included extending the walls vertically and installing special filters to ensure nothing escaped the construction zone.

Haselden divided the remodel into phases to allow Hospital staff to move into newly remodeled areas without the loss of day-to-day work efficiency. While phasing provided the least impact to existing operations, it also required that the Infection Control Plan be continually adjusted as work shifted through the different phases. It also necessitated continual coordination with UCH staff and the third party industrial hygienist who monitored area quality and levels of bacteria and mold. Ensuring the safety of the fragile patients was the number one priority.

Several factors contributed to the successful project execution and management/team approach. These included collaboration, trade management partners (TMPs), and prefabrication.

The collaboration commenced with a series of three-day design charrettes including UCH, HDR (architect), subconsultants, and TMPs. TMPs are prequalified subcontractors brought onto the team very early to bring their knowledge to the table when it can influence design. This expedited the design phase and ensured quality, cost effective details in a timely fashion. For example, a unitized curtainwall system typically has a lead-time of 15 months, but through the TMP process, we reduced that time frame to 9 months.

To successfully deliver a project of this magnitude within the time frame demanded by UCH, Haselden Construction developed a creative strategy that implemented multi-trade prefabrication to complete the six-phase project four months ahead of the competition's proposed schedule. This was the first hospital in Colorado—and only the third in the country—to utilize prefabrication. The 144 bathrooms, 300+ patient and exam room headwalls (each on containing as many as 24 different power emergency power, medical gases, nurse call and low voltage receptacles), and over 2,400 linear feet of MEP infrastructure corridor racks were first created

virtually via BIM in the early stages of the project to determine the direction of the fabrication, which trades had buy-in to the process, and what assemblies could best be used for the Inpatient Tower. They were then constructed at an off-site shop a few miles from UCH, approved by a third-party inspector, and transported as complete pieces to the site where they were installed in their designated spots.

“Prefabricating elements off-site saved time because workers are building units at the same time that rooms and hallways are being built, rather than waiting for construction to finish,” stated Joe Hanlin, Haselden project manager. “It saves on labor and money because fewer people are needed to install the pre-built elements at the construction site. We had 40 workers in the warehouse prefabbing whereas we would have needed 60 in the field to do the same work.”

The predictable production schedule provided by prefabricating those sections was instrumental in maintaining the aggressive construction timeline. And successfully utilizing this prefabrication method required the cooperation of the hospital, architect, and Haselden. By creating these pieces off-site through prefabrication, the entire project was turned over in only 23 months—5 weeks ahead of schedule—and resulted in faster completion times, reduced costs, reduced site safety risks, increased quality due to the repetitive assembly process, and improved project performance.

The controlled atmosphere of the prefab shop also meant weather did not impact the schedule. For example, the 17 inches of snowfall that occurred on February 3rd in 2012 necessitated a partial work day for the on-site crews, but for the prefab shop it was business as usual. Additionally, the controlled setting provided a work environment more conducive to efficient operations, as there are less interruptions and distractions than on the site.

Given the magnitude of this project that, at times, required up to 1,200 workers on site in close proximity to hospital staff, patients and visitors, Haselden employed a full-time Health and Safety Manager who worked closely with UCH, Colorado Department of Public Health, and the City of Aurora to develop a custom, site-specific program.

Every team member is responsible for safety, and safety and education go hand in hand. Haselden took the initiative to facilitate OSHA’s 10-hour training course for any field workers who had not received this certification. OSHA 30-hour certification was also offered to all subcontractors to encourage safety education. Additionally, over 1,000 workers participated in Haselden’s Site Orientation Safety Class, and the team orchestrated bi-weekly “Tool Box Talks” for the entire field crew. Topics included refreshers on first aid, walking/working surfaces, danger tape maintenance, requirements for running special equipment, ladder safety, etc. A debrief of the most recent client safety inspection and any new concerns were discussed. Haselden used these meetings to formally recognize workers who demonstrated excellent safety and work performance. Award certificates honoring these crewmembers were then displayed in the jobsite conference room. Over 325,000 man hours were logged with a zero lost time accident rate.

The use of prefabrication significantly increased safety. It decreased the risk of worker accidents and lost time because construction was transferred away from the jobsite into the controlled manufacturing environment where work typically done overhead was performed at bench height. Working in the warehouse also provided superior lighting and ventilation conditions, ample room to move around modules and install ceiling elements, and clean, organized space which reduced tripping hazards.

Construction also focused on being environmentally responsible. The prefab component allowed Haselden to order pipes and studs to the exact length needed instead of having to cut off the ends, making it a greener method. The designers chose materials that improved indoor air quality and reduced environmental impacts through recycled content. Many of the products were sourced from local manufacturers. The serpentine curtainwall with sunshades is a great example of an energy-reducing feature composed of environmentally friendly material. The glass is high performance, low-e insulating glass, and the aluminum frames and exterior sunshades contain an average of at least 70% recycled content. Energy-reducing systems included high efficiency mechanical equipment (outperforming ASHRAE 90.1 energy standards by 15%) and light level sensors which turn off lighting in corridors during bright daylight conditions.

The completion of the UCH New Inpatient Tower and Critical Care Wing Expansion was critical to the community as the existing inpatient tower was fully occupied. To serve this immediate need, the new tower broke ground in early 2011 with an aggressive 24-month construction schedule. Accepting the challenge, Haselden Construction worked collaboratively with HDR Architects and University of Colorado Hospital to collectively brainstorm solutions to overcome the timeline, and ultimately compress the design duration by 10 months. All three parties set their individual interests aside, and all decisions were made in the best interest of the patients and the community.

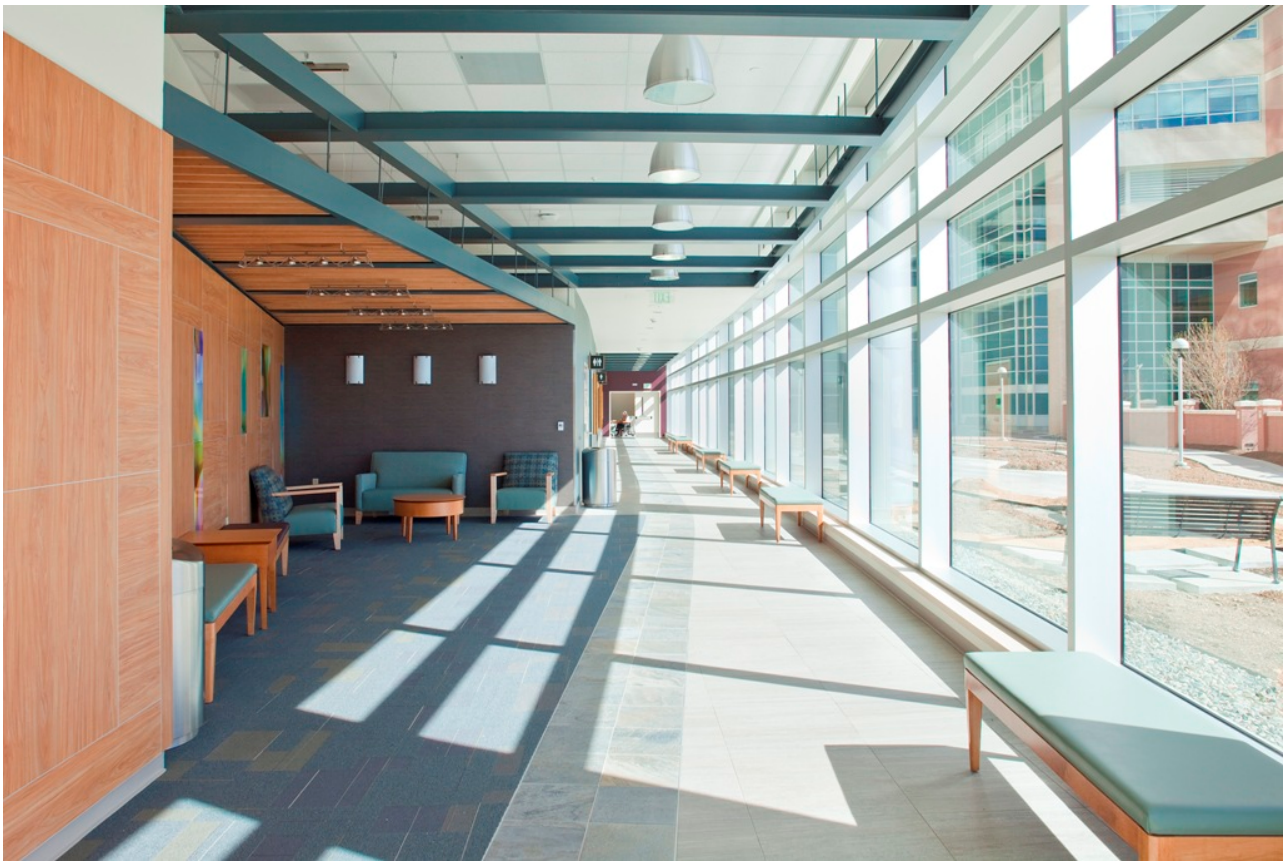
This project was designed to place the patient at the center of care, decreasing wait time in the emergency department (ED), and optimizing quality and the patient experience. This transformation in patient care is immediately apparent as you walk in the 54,000 SF ED where patient wait times are virtually non-existent. Instead of a traditional emergency department triage system where patients are often asked to wait, patients are brought directly to a care provider. Critically ill and injured patients are immediately cared for in one area of the ED, while less seriously ill patients are seen in another area by a dedicated team of care providers and quickly treated.

Another contribution this facility makes is that of a teaching hospital. The state-of-the-art 274-seat auditorium and conference center can be used to televise procedures to other universities around the country and around the world.

Excellence in client service can best be demonstrated via the accolades we received from our clients. The Board of Directors University of Colorado Hospital Authority stated, “Haselden Construction consistently exceeded the Hospital’s expectations in all areas, especially in their commitment to delivering outstanding customer service.” Tony Ruiz, vice president of

operations at UCH said, “Haselden Construction has been an outstanding partner and team player. Ed, Mike and Byron Haselden have always been personally involved in our projects and have continually demonstrated a commitment that flows throughout their company.” Merle Bachman at HDR was also ecstatic about Haselden’s performance: “There is no normal here! I have worked with construction firms across the country and the collaboration and solutions implemented by this team is truly impressive.”


UNIVERSITY of COLORADO HOSPITAL




37
EXIT


43


42


RSC
765878


RSC Equipment Rental