

2017 ACE AWARDS

Category 9: Best Building Project
(\$40 –\$70 Million—General Contractor)

HCA Swedish Medical Center Tower Expansion and Renovation

PROJECT TEAM

OWNER HCA (Hospital Corporation of America)	ARCHITECT Perkins + Will	CIVIL ENGINEER Redland
GENERAL CONTRACTOR/ CONSTRUCTION MANAGER JE Dunn Construction	STRUCTURAL ENGINEER LA Fuess Partners	MEP ENGINEER WSP

PROJECT NARRATIVE

Project overview

“The only thing we build better than buildings, are relationships,” – Bill Dunn, Sr.

JE Dunn prides itself on the strong relationships built over their 93-year history. A shining example of this is their enduring relationship with Healthcare Corporation of America (HCA). So, when HCA needed a Construction Manager/General Contractor for their master plan at Swedish Medical Center, they turned to a partnership 10 years in the making. The projects completed as part of the master plan consisted of multiple phases including the:

Neuro Expansion and Renovation: Two-floor vertical addition with 40 patient rooms totaling 35,000 SF along with an 11th floor penthouse.

4th Floor Renovation: Demolition of the existing 4th floor patient rooms to accommodate 18 new Intensive Care Unit (ICU) beds totaling 12,548 SF.

Lobby Renovation: Two-floor, 21,000 SF infill below the Critical Care Unit (CCU) Tower, comprising of a 1st floor lobby and office space and 2nd floor shell space.

Chiller Replacement and Central Utility Plant: Demolition and replacement of the hospital’s existing cooling tower, chiller and condensing water pumps, chilled water pumps and variable frequency drives (VFD’s). The project also included the demolition of the existing carpenter and paint shop to build-out a new 3,000 SF generator and switch gear room with three new 2500kW generator sets and paralleling gear.

Solutions of special projects

Adding on to, infilling and renovating a fully operational hospital created many challenges that required innovative and efficient solutions. In order to complete the vertical expansion of the 9th and 10th floor while the hospital remained operational, the team built two 11-story exterior stair scaffolds to get the workers to the site. Once access was established, mobile kiosks were placed in the construction areas to enhance the productivity and provide trade partners access to the most updated documents. To install the new waste and vent piping for the 9th floor, removal of the existing roof and placement of a temporary roofing membrane was completed to accommodate the new penetrations. Further, with no true “8th floor” in the existing hospital, completion of the expansion required trades to work above the existing overhead systems. This mandated a coordinated effort with the owner to temporarily relocate the 7th floor department, and to complete all overhead work in one phase. By doing so, plumbing rough-in was completed in eight weeks, instead of the 29-31 weeks that would have been needed in a phased rough-in process. The shortened schedule allowed for earlier completion and usage of the space.

Another challenge was the scope of work at the central utility plant, which included demolition of an existing portion of the plant to construct a 3,000 SF generator and switchgear room. Three brand new 2500kW gen sets and paralleling gear were installed, that required tie-in to the facilities existing Automatic Transfer Switches (ATS). When the new gen sets were brought online and the existing taken off line one by one, numerous Methods of Procedures (MOP’s) were required to safely change over the emergency power so that the hospital would never be at risk. We were able to switch all the emergency power to the new generators from the old generators without the hospital ever losing emergency power and remaining operational. Each MOP was planned and executed to the minute!

Excellence in project execution and management/team approach

Maintaining repeat clients is a complex process that requires the development of a strong partnership, built on trust. HCA and JE Dunn have a history built on trust based on the high quality of work delivered on every past project and will be delivered on every project moving forward. When working on a building as important as a hospital, quality is not optional to ensure patient comfort. While the use of 360 Field assisted in delivering quality, the success of this project is credited to the team’s commitment to delivering the very best.

Quality is ultimately based on the skills and talents of the construction workers that are putting the work in place. This is why JE Dunn has risk managers that review every trade partner’s capabilities before contracting with them. Once the trade partner is awarded the job, they are held to high-quality standards by an in-house QA/QC team. QA/QC staff members include architects, structural engineers, and other in-house design professionals, including mechanical and electrical engineers, who are engaged in the process from day one, working to ensure a consistent and seamless transition from programming and concept design through commissioning and handover.

Construction innovations/state-of-the-art advancement

Building Information Models (BIM) were used to support every aspect of the design and construction: preconstruction planning, estimating, quality and safety planning, constructability and site logistics planning. Cloud-based technology, like Autodesk BIM 360 Glue, played a large part in expediting the decision-making process amongst the design team and various trade partners so that the project team could meet or even exceed parts of the construction schedule. JE Dunn is an advocate for the use of BIM on complex healthcare projects like this vertical expansion and renovation because modeling and coordinating the building virtually prior to installation is paramount to keep the steady flow of construction and deliver a superior product to the client. While this technology is becoming more prevalent in the industry, JE Dunn has stayed on the cutting edge thanks to their partnership with Autodesk.

To ensure information was accurate at all times and to avoid any rework, BIM Coordination models were made available in the field during construction via jobsite kiosks. The use of BIM 360 field was crucial to the success of this project. Barcodes were placed around the jobsite so that the client and the trade partners could easily scan them and see what the final product should look like, according to the model. This was an extremely valuable visual tool for the team to avoid any confusion or mistakes. This program also helped to identify and track safety issues and safe acts done by trade partners. The customization of the safety checklists is vital to ensuring that the right items are being inspected job to job. JE Dunn was able to upload HCA based checklists into this program and minimize excess work by keeping all persons who were utilizing checklists on the same inspection page.

Environmental/Safety

The safety of the project team is always a priority to JE Dunn, expressed by the motto; everyone, everywhere, all the time. Working nine stories up, required all workers to tie off and all tools to be tethered at all times. A site-specific orientation was conducted for each worker prior to working onsite. The management approach was based on a philosophy of active caring rather than reactive enforcement. The team leadership was actively and visibly engaged in safety; they held frequent talks on safety issues and publicly recognized workers who exhibited safe behavior.

Because this project was in a busy neighborhood, an occupied building, and was a vertical expansion, safety was a major concern for the client and project team. One of the biggest concerns was protecting the public, so a covered vehicle/pedestrian protection were put in place. This walkway was unique because it was 20 feet tall so that cars could drive under it for patient drop off.

Patient safety was a major focus during the 4th floor renovation because the team was working directly above the existing ICU. For infection control efforts included over \$70,000 in plastic covering to isolate construction and protect the ICU. Constant communication was vital to making that portion of the project a success. In the end the project had no recordables.

Excellence in client service and/or contribution to the community

Swedish Medical Center is an acute care hospital that has been providing care to the community for more than 100 years. This was the second largest expansion in recent Swedish history and with all eyes on the project, it was critical that the team maintain the integrity of the existing facility. While this expansion added much needed infrastructure to the facility, it also needed to blend seamlessly with the current design. Primary of which included the extension of the exterior curtain wall.

The facility was designed to align with the mission of Swedish focused on integrity, compassion, accountability, respect, and excellence. Their vision is to bring exceptional healing, to all human beings. The design focused on improving the patient experience and maximizing patient comfort. The project team organized functional components of the building by designing the circulation of patients, services, and staff in a way that removed conflicts and service functions from the patient experience.

“The work the team is completing today is rare,” said Marc Brisebois of HCA, “it’s a major interior renovation which touches several floors concurrently and the hospital is not adding a single bed. I feel very fortunate to have an experienced team that understands the drill with healthcare work and is extremely customer-oriented.” The work our team has completed so far for Swedish Medical Center will help provide the community with many additional services and care in one central location, but there is a lot of work left to do for the Medical Center as the healthcare industry evolves and hopefully we will continue to provide advancement for HCA and the community.











