

Case Study

Kaiser Downey Hospital Downey, California



THE JOB

Design • Build mechanical construction of a new acute care hospital for Kaiser Permanente.

THE CHALLENGE

The Kaiser Downey Hospital and its central plant may be perhaps one of the most challenging jobs we have ever faced. It was originally designed as a plan and spec job, and when Kaiser asked Southland to start budgeting for it, the project was mired in permit problems, already over budget and behind schedule. Kaiser was ready to pull the plug.

However, when we approached Kaiser with our estimates, they reconsidered. Kaiser wanted to know if we could, in effect, save the project. As they were already under contract with a design consultant, we agreed to partake in a Design • Assist approach, working on the central plant but not the main hospital. We were soon approved to submit our plans to California's Office of State and Health Planning Department. However, we only had six months to redo the entire proposal – redline the design, gather all documentation and resubmit to the OSHPD.

During this six-month period, Kaiser chose to make Southland the Engineer of Record due to Southland's proven ability to deliver cost effective and efficient projects. Southland was then awarded the entire project (central plant and hospital) as a Design • Build instead of Design • Assist, and we quickly adjusted the OSHPD proposal accordingly.

PROJECT SCOPE

This hospital was one of the largest construction projects ever undertaken by Kaiser Permanente. It featured a seven-story patient tower with 352 beds, four-story D&T (diagnostic treatment) and central plant consisting of a 3,300-ton chilled water system, 1,500 hp heating hot water system and 300 hp high pressure steam system. The key elements of the project were staggering, and included:

- Medical gas distribution, medical air, medical vacuum and lab air systems
- Emergency 30,000-gallon water storage tank with ozone generator
- Direct Digital Control (DDC) system
- 100% OSA constant volume air handling system
- Fuel oil system with two 40,000-gallon underground storage tanks
- Decontamination waste and clean stream systems
- Nuclear medicine, negative pressure isolation rooms, emergency patient care, MRIs, CT scan and 13 operating rooms

THE SOUTHLAND INDUSTRIES ADVANTAGE

At Southland, we typically use our 3D BIM design drawings as permit drawings. However, you can only use BIM if you start a project with it, which was not the case in this scenario. It's usually impossible to incorporate new BIM technology into a non-BIM design, but thanks to our expertise and resources, we found an unusual way to accomplish this task – doing the detailing of the project as we did the engineering.

The engineer redlined what he wanted to put where (such as piping), while a detailer would fit the engineer's work into the structure and architecture of the building. Both engineer and detailer did overlay drawings for the key trades (sheet metal, piping, sprinklers, etc.) and layered them over the light table. This allowed both to see problems immediately and make adjustments. This upfront coordination lasted 12 months, made a huge savings impact regarding the schedule and budget, and greatly reduced job site complications.

In the field, Southland employees were schooled on the project through pre-coordination – they didn't have to learn it on site. Everyone from the general contractor to the trade groups had already signed off on all documents. This made schedule compliance easier, as everyone knew and executed their role.

THE RESULT

We completed the hospital and central plant five months prior to the scheduled date, meaning the hospital was able to open a full five months early, providing acute patient care to thousands in need. Our use of ProPress fittings allowed us to create a unique design for virtually every mechanical systems application, reducing the cost of constructability. Additionally, all of our mechanical systems were designed to enhance owner usability and generate energy savings wherever possible for Kaiser Downey Hospital. In terms of finance, we were able to reign in an out-of-control budget that at one time was going to be the project's undoing. We lowered overhead costs so much that once the dust was settled, we came in under our adjusted budget forecast for the Design • Build of the hospital and central plant.