Braced for Action

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Exposed HSS chevron braces add interest to the interiors of the VA Outpatient Clinic at Travis Air Force Base, Fairfield, CA.

The VA Outpatient Clinic in Fairfield, CA is a model for how steel can effectively combine function and aesthetics in a single-story, state-funded structure. Located at the former Travis Air Force Base and managed by the Department of Veteran Affairs, the $8-million project architecturally reflects its surroundings, while accommodating the climatic and seismic requirements of the zone and the functional needs of doctors and patients.

CLINICAL FLEXIBILITY

The 38,000-square-foot outpatient clinic was designed in two zones that are unified by a central lobby. The first zone is a modular clinical block, which is built as a primary care section with patient examination rooms and doctors' offices. The second is an ancillary support block, where a radiology lab, a pharmacy, a stat lab, and physical

Left and above: Braced frames were left exposed in the central lobby. In the office wings on either side of the lobby, moment frames were used in the longitudinal direction to accommodate the window arrangement. Braced frames were used in the transverse direction where there are no windows.

and occupational therapy centers are located.

"The intention was to make it flexible to change, and easy to get around for older patients and patients with disabilities," said Bill Rostenberg, a vice president of SmithGroup architects in San Francisco, CA.

Flexibility is one of the reasons that steel was chosen for the structure, he said. "With steel, it's easy to achieve spans with very few load-bearing partitions in between," he said. "That's desirable in a health-care facility where you will have changes and modifications over time. To be able to make those changes within the floor plan, without any structural changes, and to avoid being restricted by load-bearing walls makes for a much more flexible organization of space."

AESTHETIC CLARITY

Steel was also chosen to meet the aesthetic goals of the clinic. "We're mandated by the survey master plan of materials and colors that are used on the air force base," said Rostenberg. "On the exterior, we used the same materials as the other buildings. But because this was an air force base, we chose to use steel to convey an aeronautic image."

The steel screens on the roof and the exposed steel canopy over the entrance are designed to represent a bird or an airplane landing from flight. "The architectural expression of the steel couldn't have been achieved with other materials," said project manager Patrick Ryan, of Rutherford and Chekene Structural Engineers in Oakland, CA. "It creates an industrial image that fits the industrial architecture at the airport. It is not glamorous, but it looks sleek."

The exterior canopies over the entrances are designed with beam members cut from standard wide-flange beams to create the tapered shape. The roof is made of steel decking.

The canopy and screens also provide an effective means of managing the region's harsh sunlight. To provide a bright and comfortable waiting area, the raised roof in the center of the building permits daylight to filter through the lobby through clerestories. At the same time, the canopy roof and sun shades on the building's south side provide screening to prevent exposure to direct sun.

SEISMIC SAFETY

The use of steel also helped meet California's seismic requirements. The structure utilized reduced-beam-section (RBS) moment connections in accordance with FEMA 350. Moment frames were used in the longitudinal direction to accommodate the window

pattern, and braced frames were used in the transverse direction where there were no windows. “Part of our approach was to express the braced frames that provide seismic stability,” Rostenberg said. “The braced frames identify the main entrance and the entrances to the different zones.”

Seismic separation joints between the lobby and the separate sides of the building also work to prevent seismic problems. “The central lobby is higher than the two sides, and doesn’t align with them,” Ryan said. “The seismic separation joints on both sides of the lobby are separated in one building direction and connected in the other.”

On the interior, braces are 5” HSS. Columns are 8” W-shapes, and the beams are 21” W-shapes. A total of 310,000 tons of steel was used on the project.

“We determined from the outset that steel was the preferable material for this building due to schedule and cost concerns,” Ryan said. “If we had used a concrete building with a concrete shear wall, it would have been more expensive since erection and construction would have taken longer.”

The erection was done in two pieces, and it took less than a week to install each side. Ryan says that the speed of construction with steel was key to the success of the project. “The owners wanted it to be up and for the doors to open on schedule, because of political pressure and funding concerns,” he said. “The number one cost advantage was getting it up fast so you could bring in the other trades and get them working,” he said.

Ryan says the detailing work also went smoothly. “Because we were going for that industrial look, we kept the detailing fairly simple. In some exposed-steel structures, you might spend more time welding in cut plates to get a certain look. Here we didn’t have to do that — we paid attention to brace connections, but there weren’t a lot of added pieces welded on just for looks.”

Using steel as a simple, swift and sleek solution, the Travis V.A. outpatient center was able to meet its schedule and budget requirements while adhering to functional and aesthetic goals.

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