



Kaiserslautern Military Community Medical Center (KMCMC)

A world-class medical center for the stabilization of wounded warriors and the larger military community for the U.S. Air Force and U.S. Army near the Ramstein Air Force Base.

Architect

HOK

Owner
US Army Corps of Engineers
European District

Location
Kaiserslautern, Germany

Construction Cost
\$1 billion

Completion
2017

Project Highlights

- Federal work for USACE
- BIM/Revit
- Progressive Collapse and Anti-Terrorism Force Protection Design
- German Sustainable Design Standards



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**Rick Flansburg, KMC Medical Facilities
Senior Project Manager, US Army Corps of
Engineers, Europe**

Crosby Group Designs Innovative Structural Solutions for World-Class Medical Facility in Germany

The structural engineering firm selected to design a new, million-square-foot Army medical center in Germany would face such challenges as reconciling international building codes, accommodating local building practices, and providing a structural design that works for a facility with multiple, unique building prerequisites. An additional requirement would be to collaborate with a German structural engineering counterpart to develop the design up through 20 percent completion, then step back and provide a supporting role for the remainder of the project.

The first hurdle, though, for the team assembled by the architect—which included Crosby Group—would be to win the competition for the project.

Contributing to a Winning Bid

To select a design firm for the Kaiserslautern Military Community Medical Center (KMCMC) project, the U.S. Army Corps of Engineers (USACE) reviewed submissions from a range of leading international design teams. Crosby Group was part of a joint venture formed by HOK and its German counterpart, HWP. The HOK team had some 20 firms, comprising both American and German firms.

Structural engineering was one of the key elements in the submissions, and USACE evaluated firms on such criteria as specialized experience and technical

competence, personnel qualifications, design quality management plan, past performance on similar projects, knowledge of locality, and capacity to accomplish the work.

After reviewing submissions and qualifications, USACE selected HOK along with Crosby Group to design and provide structural engineering services for the new billion-dollar medical facility in Kaiserslautern that would comprise an eight-story office tower, a six-story serpentine clinical wing, and a two-story diagnostics/surgery wing.

Proposing Innovative, Cost-Effective Design Solutions

Providing structural engineering services for such a large project in a foreign country required Crosby Group to interact with a diverse set of stakeholders, such as Army and Air Force healthcare providers and users, as well as the architects, German contractors, MEP firms and others. “Crosby Group representatives were outstanding in all those meetings,” says Rick Flansburg, KMC Medical Facilities Senior Project Manager, US Army Corps of Engineers, Europe. “They were well spoken, well liked and well received by all the stakeholder groups we met with.”

Crosby Group also had to be exceptionally detail-oriented. “This project has a unique acquisition strategy, necessitated by our agreements with the German government,”

says Flansburg. "As a result, all the engineering disciplines had to be very thorough in their evaluation of alternatives, and very thorough in their documentation of assumptions, in order to deliver a 20 percent design with engineering and technical solutions that couldn't be questioned. Crosby Group did a very good job on that score."

In addition, as design work on the project progressed, everyone involved had to continuously adapt to changing requirements and circumstances. "Crosby did a superb job of evaluating different courses of action and proposing ones that were constructible and cost-effective for this project," says Flansburg. "For example, if a building configuration needed to change, they would quickly adjust their models and provide a revised structural solution. That's what happened with the administration building, which got reworked late in the schematic design. Crosby Group was able to very quickly adjust the structural engineering and other building systems and come back with a new solution."

Reconciling Codes to Deliver Practical Designs

One of the key challenges on the project was reconciling the applicable building codes, which included the Unified Facilities Criteria (UFC) Guidelines, International Building Code (IBC) and codes from the German Institute for Standardization (DIN). "Code analysis isn't an apples-to-apples exercise," says Flansburg. "And reconciling codes isn't a matter of simply using the most stringent requirement. The right approach, which Crosby took, is to find a solution that represents a balance among the codes."

Flansburg adds that "Crosby Group worked well with their structural engineering counterpart on the German side to deliver solutions that were well researched and readily available here in Germany. For instance, they needed to factor in the German approach that uses less steel construction and more concrete. I recall many after-hours meetings with German builders to ensure that what was being proposed was constructible and cost-effective."

Understanding the Architect's Intent

Flansburg says Crosby Group performed a valuable service in understanding the intent of the architects and carrying it out in the structural engineering solutions: "Their thought process often had to be along these lines: 'Should we plan for an open, mostly glass façade or a blast-protective type of façade? Do users want very few columns inside to allow for flexibility or more columns for strength?' Crosby had to take those parameters into account, then engineer structural systems that would meet them and be cost-effective."

SUCCESS STORY



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Flansburg adds that being flexible and cooperative is vital, but so is being an advocate for the users and remaining true to the original design intent when changes are proposed. "We had a separate firm do a value-engineering analysis," says Flansburg, "and they made some suggestions about adding columns to the design to reduce cost. Crosby Group examined the suggestions and acknowledged that while more columns might make the construction cheaper, it would also be less functional and not meet the mission requirements. They did an excellent job of representing the users' interests and keeping in mind that what's important is not just getting the cheapest building, it's getting the building that works best for the client."

Providing Expertise and Experience

In his overall assessment, Flansburg says that "the caliber of the American and German structural engineering and architecture teams on this joint venture is one of the highest I've seen. The expertise and experience of Crosby Group representatives really brought a lot to the team. They've experienced many of these issues before and knew how to design creative solutions that are also practical. They're quick on their feet, and came through with what they were asked for. I've been very impressed with the entire joint venture and Crosby Group in particular."



Crosby Group is an award-winning innovator in structural engineering and advanced seismic solutions—we go beyond convention to offer creative alternatives to design challenges. Our comprehensive design services include new/renovation design, seismic evaluation/retrofit, constructability/peer review, BIM modeling and LEED partnering for public and private clients. We have collaborated on over \$3 billion worth of design-build construction work, making us a leader in this project delivery method. Established in 1992, Crosby Group has experience in education, mission-critical, healthcare, justice, industrial, commercial, laboratory, and correctional sectors. We have worked on projects across the United States, and in the Middle East, Asia, Eastern Europe and Mexico.

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