



Timothy Hursley

SmithGroup's

Center for the Intrepid

The aptly named "Center for the Intrepid", inaugurated in January, is a striking four-story 65,000 square-foot facility adjacent to the Brooke Army Medical Center in San Antonio, TX. It was designed to be a supportive and healing environment in which to provide military patients and veterans with severe extremity injuries, amputations and burns the best opportunity to regain their pre-injury abilities.



"From its imposing monumental image to its first-of-its-kind all-terrain modeler and gait laboratory, we believe this facility will accelerate the U.S. leadership in rehabilitative treatment, and provide the best possible care for the men and women of our armed services."

*Philip Tobey,
Senior Vice-President, SmithGroup*

As a prototype for similar military and civilian centers of excellence worldwide, the center supports innovation and technological advances in military medicine. The building's unique, four-story elliptical shape is clad in rose-colored granite and rests atop a black granite base, lending a feeling of permanence and a monumental quality. Vertical, three story, glazed openings penetrate the façade and provide a sense of transparency as they bring light into the interior. A single, horizontal glass band wraps the entire ellipse at the fourth floor, allowing the roof to "float." Most of the patient activities are placed intentionally along the outer edge of the building. The generous use of glass affords patients, who often spend the entire day in rehabilitation, plenty of natural daylight and views to the outside.

A two-story light-filled space houses a key facility, the rehabilitation training and exercise center, symbolizing the heart of the complex. It spans the entire front of the building on the two upper floors, borrowing light from the central atrium. Within it are a dramatically cantilevered running track; a treadwall and 21-foot climbing tower with auto-delay; custom-designed elevating parallel bars; and other advanced equipment to promote strength, balance, agility and aerobic conditioning. Because of its elongated form, multiple rehabilitation activities can be conducted concurrently within and adjacent to it, facilitating visibility and interaction for patients, families and caregivers.

utilize a team approach to provide state-of-the-art, on-site fabrication of artificial limbs, using computer-assisted technology for design, milling, production and fitting of prosthetic devices, including unique specialty limbs for sports and other activities.

The Center's lounges and outdoor recreation areas - including a custom-designed basketball court - were designed with input from patients and staff. SmithGroup wanted to enable patients and family members to have a place to relax between treatments as well as provide emotional and spiritual support to one another.

The Center pays homage to its occupants in numerous ways. From the subtle red, white and blue color scheme of its major spaces to the art program throughout, SmithGroup designers introduced materials such as limestone, stainless steel and fritted glass. A granite inscription wall in the main lobby recognizes the over 600,000 Americans who made donations to help fund the Center's construction.

The choice of flooring material and color for the rehabilitation center and the Gait Lab was important to enhance the architecture without visually distracting the patient in any way. Ease of maintenance was also critical. The floors had to provide the proper impact resistance required for amputee rehabilitation. SmithGroup was grateful for Mondo's technical assistance throughout the flooring installation, contributing to this facility's ability to bring the highest level of care to the wounded as they work to regain capability and mobility.



Computer Assisted Rehabilitation Environment (CAREN) - Members of the design team traveled to Israel, where the technology was still in research development, to learn how to best integrate the \$1.5 million dome into the architectural design. This simulator is a first of its kind in the U.S., and holds tremendous promise for the successful rehabilitation of the patients, and is central to the research mission of the Center.



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The state-of-the-art Gait Laboratory, located on the ground floor, can be seen from the main lobby through full-height glass walls. The Gait Lab is fitted with 24 cameras on an automated truss that use infrared light to analyze human motion, with particular emphasis on amputee gait (walking). Force plates in the floor, parallel bars and treadmills measure ground reaction forces in three directions to determine the torque that muscles or prosthetic components produce. Electromyography (EMG) is used to assess the electrical activity that is given off during muscular contraction, detecting both the timing and intensity of muscular contractions.

The Computer Assisted Rehabilitation Environment (CAREN). The CAREN is a 21-foot simulator dome with a 300-degree screen that can display a variety of "virtual realities". Patients are immersed in a fully reactive virtual and physical environment that reacts to their movements through sensors, high-speed infrared cameras and a moving platform. Patients are encouraged to use atrophied muscles and relearn skills necessary in the real world, from walking on different terrains to driving a car. It offers tremendous promise for the successful rehabilitation of the patients, and is central to the research mission of the Center.

SmithGroup chose to integrate the unique programmatic requirements of the project in highly visible ways throughout the facility. The prosthetics fitting and factory, located on the second and third floors, is fully integrated into the Center and can be viewed from the atrium. Here, prosthetists and technicians

- SmithGroup Key Achievements**
- Shanghai Traditional Chinese Medical University, Shuguang Hospital Replacement Shanghai, China*
 - Sutter Health, California Pacific Medical Center, Cathedral Hill Campus San Francisco, CA*
 - George Washington University Hospital Replacement Washington, DC*
 - UCSF Mount Zion Comprehensive Cancer Center San Francisco, CA*
 - University of Virginia Health Sciences Center Bed Expansion Charlottesville, VA*
 - Kaiser Permanente Los Angeles Medical Center Los Angeles, CA*
 - The University of Chicago, Comer 2 Children's Hospital, Pediatric Emergency Department Chicago, IL*
 - The Barbara Ann Karmanos Institute Detroit, MI*
 - Saint John's Health Center Santa Monica, CA*

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