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NATIONAL INTREPID CENTER OF EXCELLENCE

Traumatic Brain Injury Diagnostic and Research Facility

National Naval Medical Center, Bethesda, MD

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Mission

Traumatic Brain Trauma has become the “signature wound of the wars in Afganistan and Iraq.”

With a mission of Hope, Healing, Discovery and Learning, the NICoE accommodates TBI treatment and research programs, which are not available anywhere else in the world.

NICoE’s goal is to be the leader in advancing world-class psychological health and traumatic brain injury treatment, research, and education.

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“This is a place of hope and healing. It’s a place of inspiration, and it’s a place that will forever convey to those of us in uniform the unwavering gratitude of the citizens and the nation that we serve. ”

– Brigadier General Loree K. Sutton, Former Director, Defense Centers of Excellence

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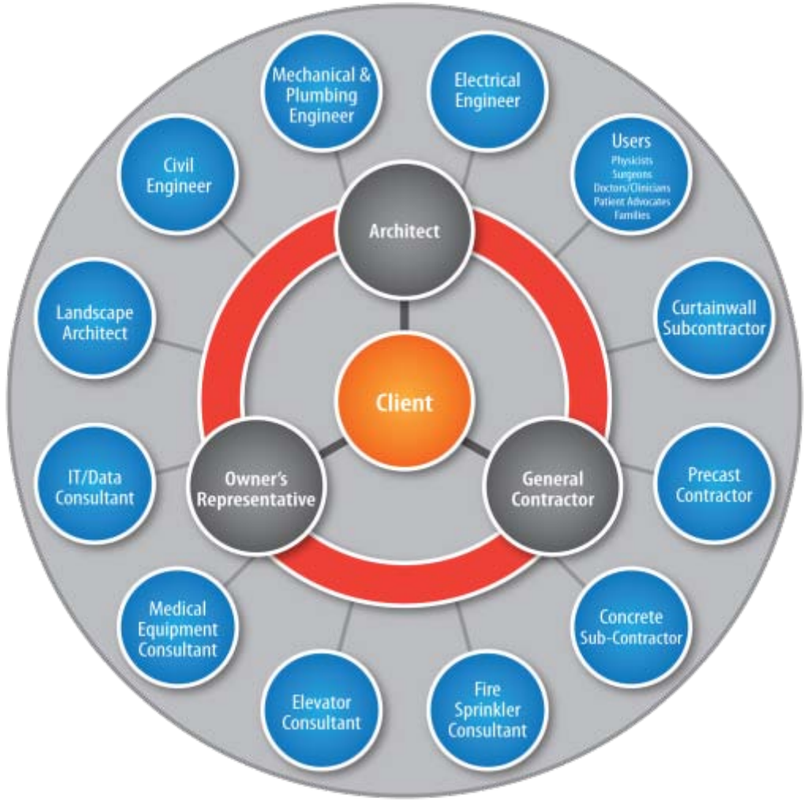
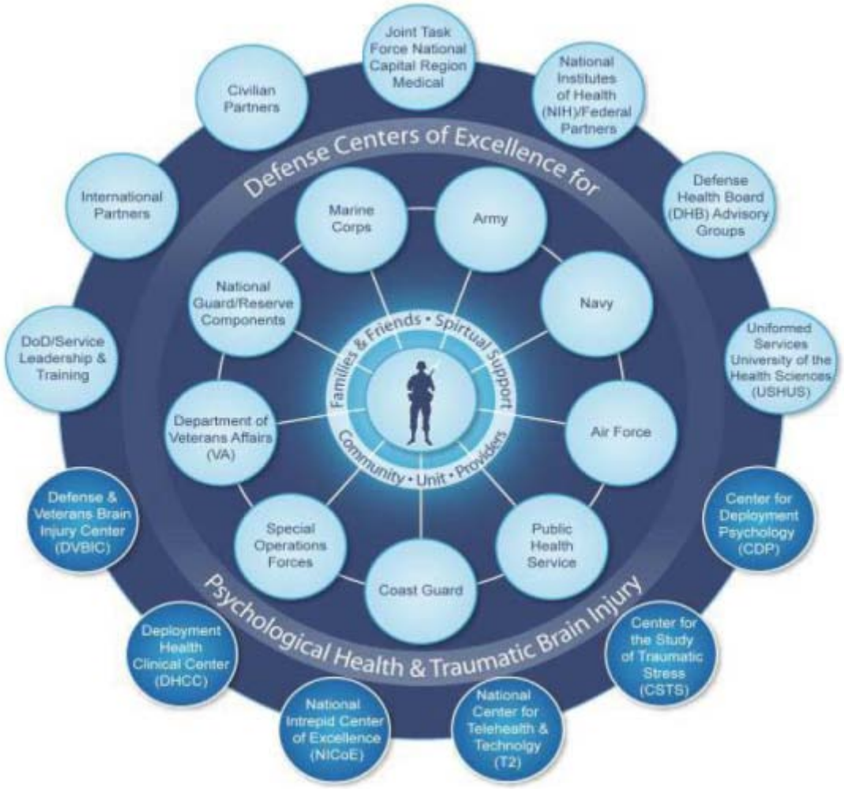
TEAM DYNAMIC

The design team for NICoE goes beyond the traditional structure of client, architect, contractor, and subconsultants and includes patient advocates, researchers and clinicians, the Department of Defense, and Veterans Affairs. Each member played an important part of designing and delivering this first-of-its kind building to the wounded warriors of our nation.

By bringing together the architect, construction manager, consultants, client, and client's representatives at project initiation through a Design Assist project delivery process, the entire team affected the project's design. The dedicated team worked on the project from inception to completion. The team made decisions collaboratively, which allowed them to consider best practices and construction methods before schematic design was complete.



DESIGN & CONSTRUCTION TEAM



CLIENT & OPERATIONAL TEAM

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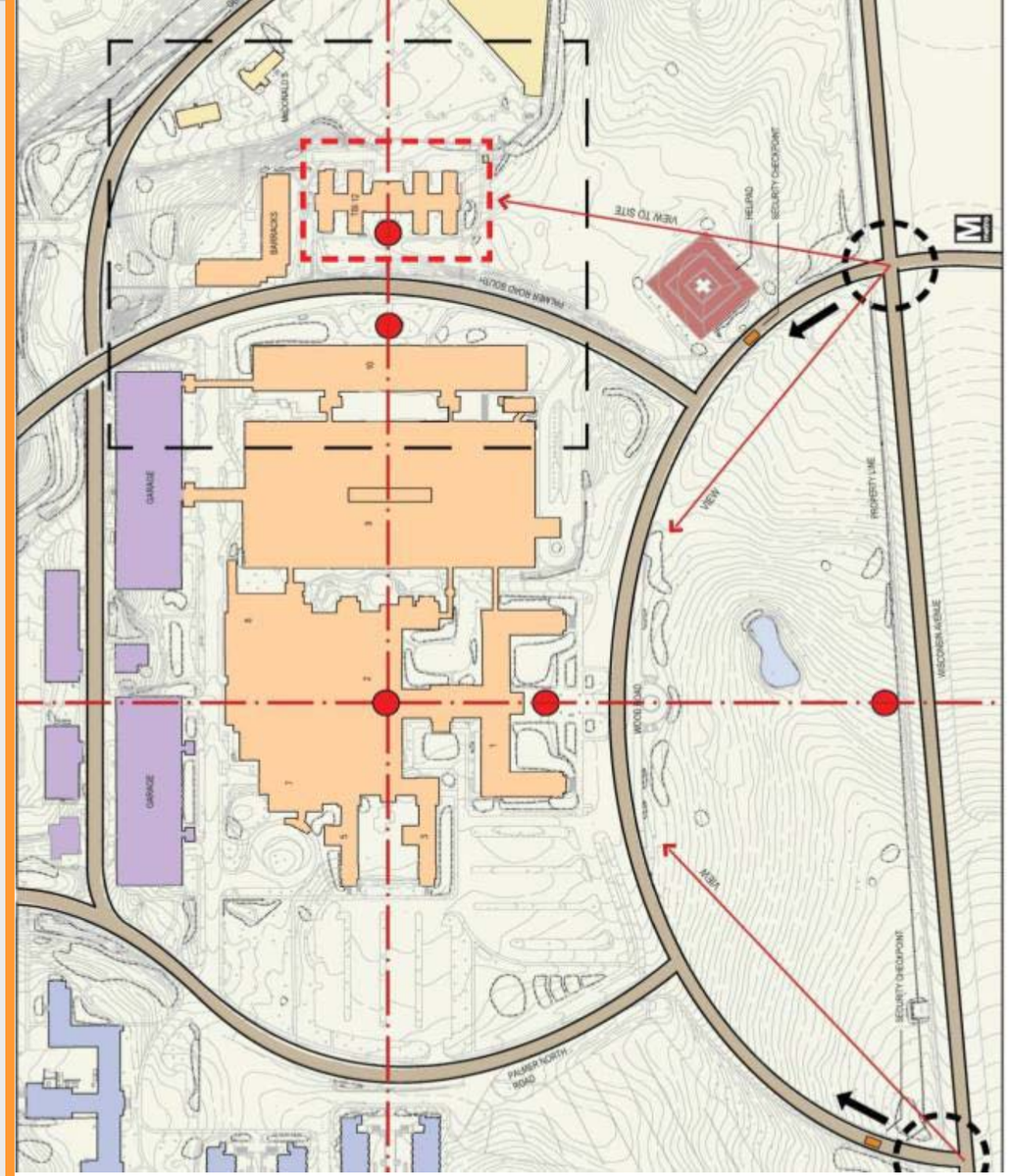
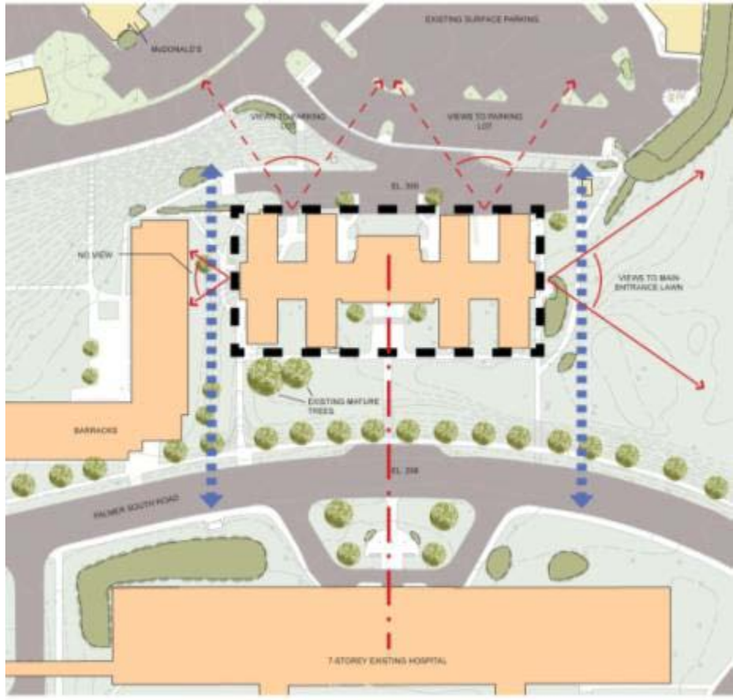
The new facility is located on National Naval Medical Center's campus, across the street and on axis with the main hospital entry. The campus is metro accessible and provides bus transportion on site as well as many tree covered pedestrian sidewalks.





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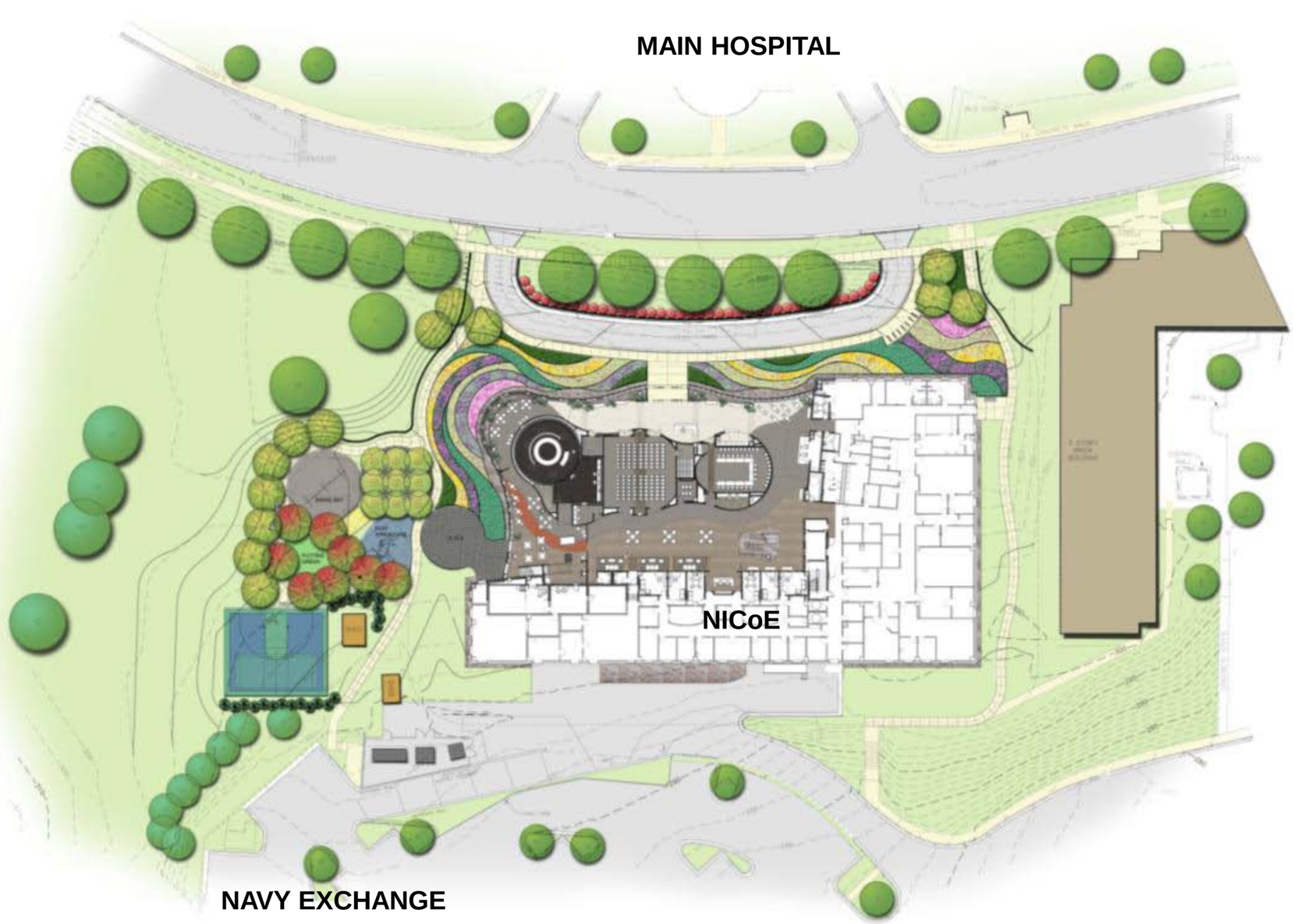
Site

The NICoE occupies approximately the same footprint and location as the original building. The design preserves a row of mature ceremonial trees along the frontage road. The building is sited across the main hospital to the north, adjacent to a barracks building on the east, Naval Exchange and parking to the south, and an elegant manicured lawn to the west.



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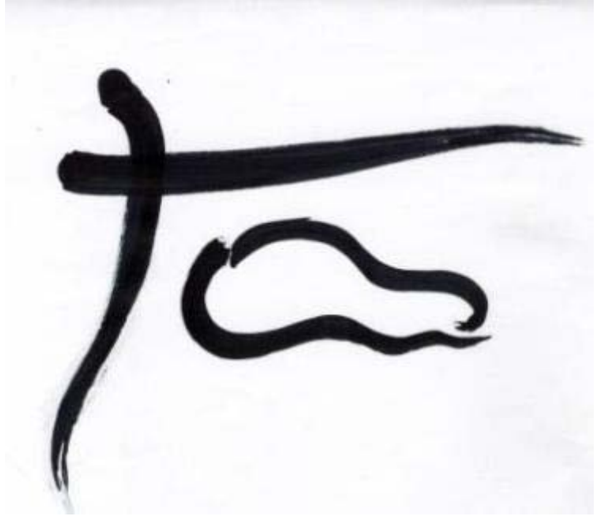
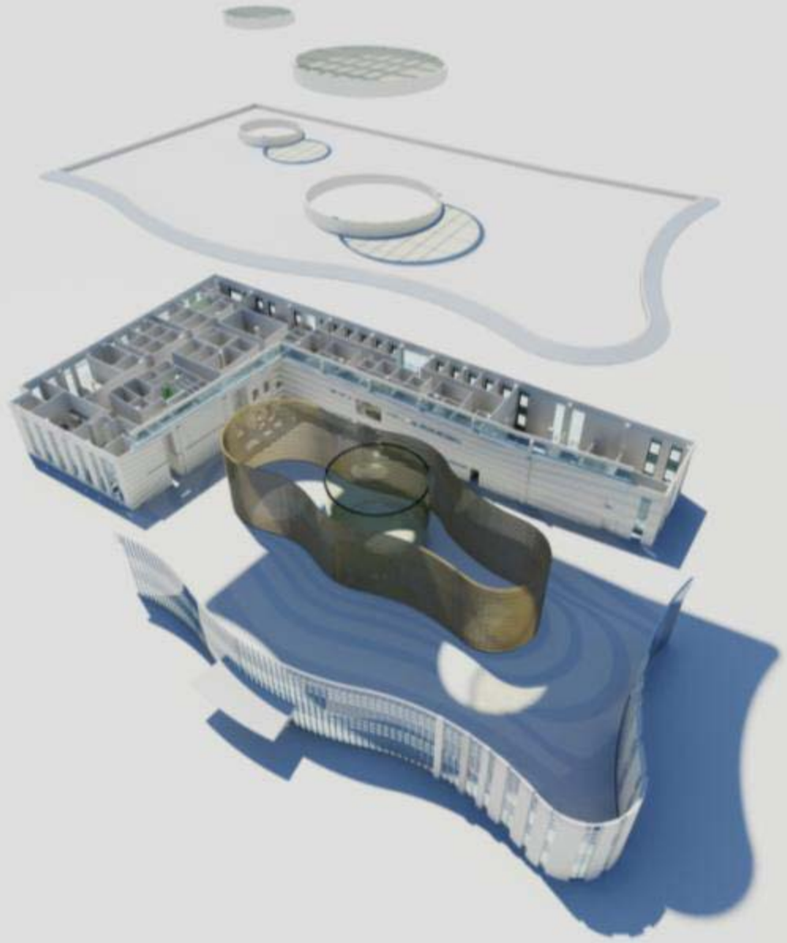
Concept Diagram

The building's layout is anchored by an L-shaped bar (analogous to the left side of the brain) designed to accommodate multiple diagnostic, treatment and support spaces. A serpentine glass curtainwall, mirrored by a wood-clad wall that runs along the main lobby, encloses educational and therapy spaces as well as public areas. Contrary to the left side of the brain, this amebia shape became analogous of the right side (creative side) of the brain.

The free-form spaces created within the undulating walls are meant to evoke feelings of hope and confidence without the overlay of traditional bureaucracy that often accompany such facilities.





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"Why would we want our government to do that which we could do ourselves in half the time, at half the cost and twice the quality?"
-Arnold Fisher
Intrepid Fallen Heroes Fund Chairman

Project Schedule

12/01/07 Project Start
12/03/07 User Meetings Begin
01/01/08 Design Begins
06/20/08 Demolition of Existing Building
08/15/08 Ground Breaking
10/07/08 Construction Documents (6 early packages)

02/23/09 Construction Begins
06/24/10 Dedication Ceremony
06/31/10 Operational

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North Entrance

The curved curtain wall provides a welcoming sense of transparency to the patients and visitors while aiding with wayfinding. The use of simple and nurturing finishes will provide a sense stability and permanence, while the landscape seamlessly connects the inside and outside with the use of natural materials.

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West Recreation Area

The views and amenities to the west have been preserved, while additional trees and landscaping enhance the natural existing landscape. The plaza is designed for patient and family use, and features a playground for children, putting green and basketball court to promote family interaction. Other plaza areas are paved with natural stone and include benches and tables for outdoor meals.

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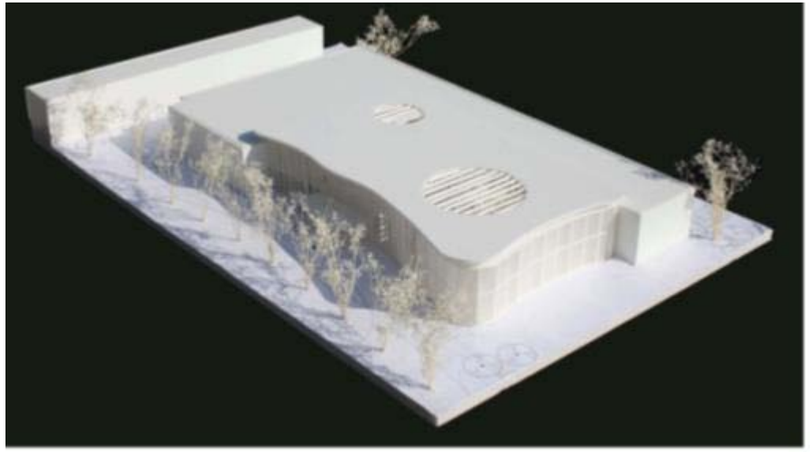
Materials and Elevations

The project achieved and unprecedented first round approval by the National Capital Planning Commission (NCPC). Through a series of site diagrams, plans, elevations and models, the team was able to tell the story of the NICoE and the design behind the building. A series of models were made to express the form and transparency of the building at key areas in the design, such as the northwest corner. The palate of materials selected conformed to the existing campus while at the same time, allowed the NICoE to form to its function.

NCPC STAFF WORKSHOP OPTION - PRECAST BOX SCHEME - SYMMETRY

NCPC STAFF WORKSHOP OPTION - METAL FENESTRATION WALL - BALANCE



NCPC STAFF WORKSHOP OPTION - METAL SCREEN WALL - BALANCE

STONE SCREEN WALL - BALANCE

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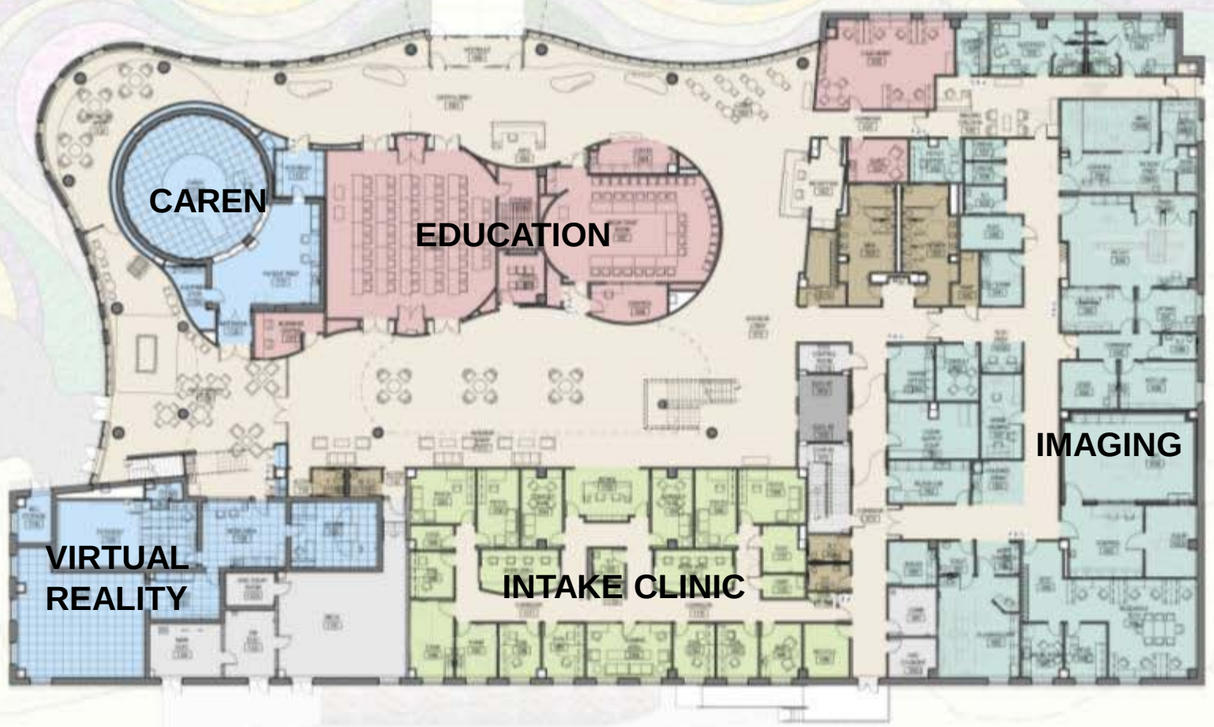
1st Floor Plan

- ADMIN
- BUILDING SERVICE
- CIRCULATION
- CLINICS
- IMAGING
- PHYSICAL THERAPY
- PUBLIC SUPPORT SERVICE
- SUPPORT
- VERTICAL CIRCULATION



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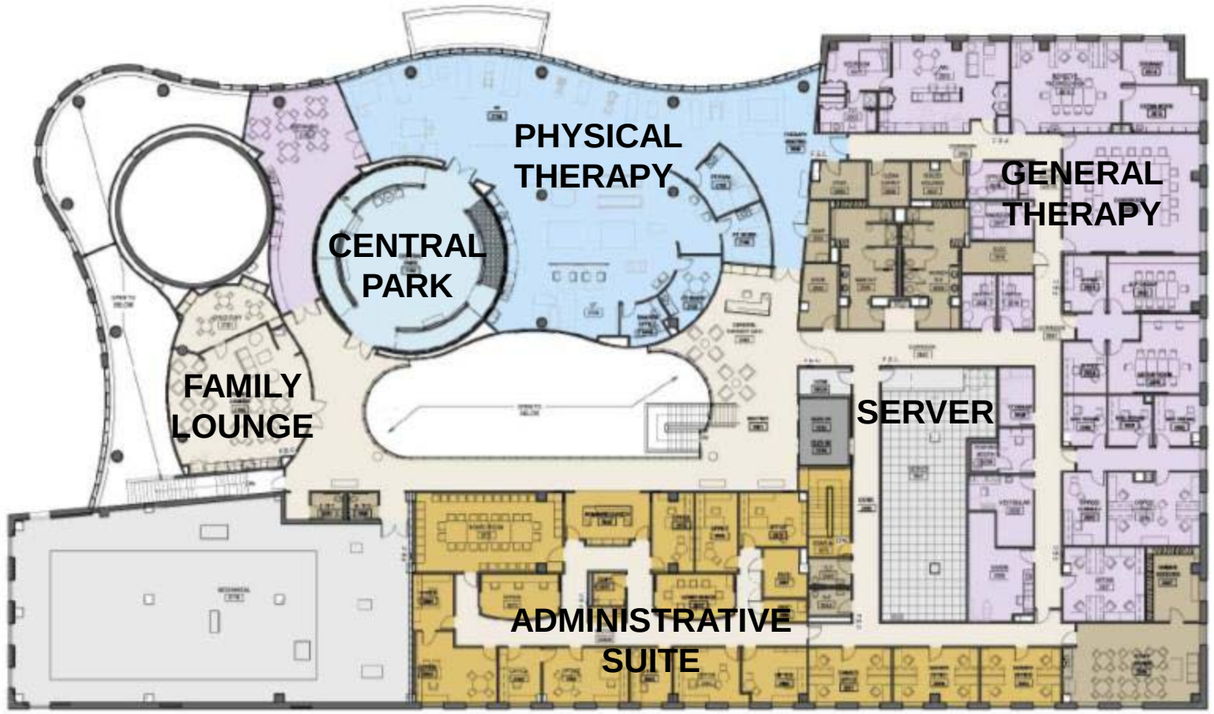
2nd Floor Plan

- ADMIN
- BUILDING SERVICE
- CIRCULATION
- CLINICS
- IMAGING
- PHYSICAL THERAPY
- PUBLIC SUPPORT SERVICE
- SUPPORT
- VERTICAL CIRCULATION



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Interior Lobby

A variety of ceiling heights, widths and numerous cut-outs and overlooks provide a rich spatial experience and the opportunity for natural light and views to the exterior from any vantage point in the space.

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Virtual Reality

The NICoE is home to unique virtual reality environments as well, including the Computer Assisted Rehabilitation Environment (CAREN), a 180-degree simulator designed to immerse patients into virtual settings to address physical rehabilitation as well as post traumatic stress. A 900-square-foot Virtual Reality Environment Laboratory (VR Lab) is dedicated to exploring virtual reality as a tool to help patients overcome post traumatic stress and improve cognitive abilities. The use of VR technology is used to allow multiple patients to interact virtually in multiple scenarios.

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Imaging

The Center includes the most advanced technology available for medical care. To more precisely diagnose complex brain injuries, the building houses powerful imaging technologies, including a 3 Tesla MRI; 64-Slice PET/CT scanner; an Elekta Neuromag MEG (magnetoencephalography) scanner—one of only nine in clinical use in the U.S.; and Functional Transcranial Doppler Spectroscopy (fTCDS).

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Clinical Intake

The facility is distinguished by the large number of programs co-located under one roof (virtual reality, imaging, physical and occupational therapy, clinic, case management, education, and research), thereby enabling a more comprehensive care approach.

Teaming spaces, or “beehives,” are strategically located within each department to allow patient interaction with their team, and staff collaboration for each patient’s needs. Multipurpose areas help to bridge the gap between clinical and family zones.

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Physical & Occupational Therapy

Focused on restoring independence, the center houses an array of physical, occupational and recreational therapy spaces, advanced training equipment to promote strength, balance, agility and aerobic conditioning. The plan allows multiple rehabilitation activities to be conducted concurrently within and adjacent to it, facilitating visibility and interaction for patients, families and caregivers creating a sense of well-being and healing.

Patients experience the beauty of northern exposed, full height curtainwall glass while still achieving privacy due to its location on the second floor.

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Telehealth / Education

Conference rooms are all equipped with audiovisual technology allow patient care via telehealth consultations.

This allows patients to be evaluated and meet virtually with healthcare providers anywhere in the world giving soldiers and their families access to the best medical care regardless of the provider's location. It also enables soldiers to return home without relinquishing the relationship they have with healthcare providers from NICoE.

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Central Park

Multipurpose areas help to bridge the gap between clinical and family zones. Central park, a calming, skylit multipurpose room designed for every occupant of the building, is equipped with ambient therapy music, a labyrinth pattern carved in the wood flooring, as well as rehabilitation terrain paths around the perimeter.

During user group meetings, clinicians stated research had proven that labyrinths have been instrumental in helping calm patients, which inspired the floor pattern in Central Park

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Family Spaces

Throughout the facility there are a variety of comprehensive support spaces to help patients and their families maximize their potential for recovery. The spaces enable patients and family members to have a place to relax between treatments and provide emotional and spiritual support to one another. Support spaces include a patient lounge/coffee bar; a business center; a family lounge and child play area; and a central, multi-purpose skylit space designed to accommodate theater performances; meditative activities; music programs; and recreational play for families. There are art therapy rooms and acupuncture clinics.

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Sarah Wade, patient advocate and wife of wounded warrior, Army Sergeant Ted Wade, told us “On behalf of Ted and other wounded warriors, I just want to have to tell Ted’s story once.” From her simple statement not to have to repeat her husband’s physical and psychological concerns, not to have to endure multiple tests for the same issues, and not to have wellness regimens that contradict each other, came NICoE’s program and design.

Comments like these, drove the design of a collaborative care, holistic environment.

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“When I walk into this building, I feel like someone cares about me.”

– OEF/OIF Veteran, September 2010
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