



Senior Thesis Building Abstract

Building Statistics

Location: National Naval Medical Center, Bethesda, MD
Function: Facility for research, diagnosis, and treatment of military personnel and veterans suffering from traumatic brain injury and psychological health issues.
Size: 72,000 sq. ft.
Number of Stories: 2
Budget: \$65 million
Construction Dates: June 2008 – October 2009
Delivery Method: GMP Contract

Design Team

Owner: Plaza Construction
Construction Manager: Turner Construction Company
Soils Engineer: Schnabel Engineering, Inc.
Civil Engineer: A. Morton Thomas & Associates, Inc.
Landscape Architect: JJR
Architect: SmithGroup
Structural Engineer: Cagley & Associates, Inc.
MEP Engineer: SmithGroup
Lighting Designer: SmithGroup

Architecture

- Two distinct zonal areas of building:
 - "L" shaped "bar" zone contains spaces dedicated to the clinical functions of the facility.
 - Amorphous form houses the healing and public areas of the building.
- Indoor/outdoor spaces for patient relaxation and interaction.
- Exterior walls consist of curtainwall system around open areas, and pre-cast panels with punched window openings.
- Roof is composed of a concrete slab with TPO membrane system

Lighting

- Majority of lighting is general fluorescent with decorative fixtures in lobbies, waiting rooms, and other similar areas
- Exterior lighting at entrances, exits, pathways, recreation, and service spaces
- Switches, timers, occupancy sensors, and photosensors utilized for control
- Fluorescent and H.I.D. sources on 277/480V and incandescent on 120/208V

Electrical

- Serviced from existing 15 kV primary loop feeders
- Primary transformer rated 2500kVA with 3000A main switchboard
- Essential system divided into equipment and life safety branches
- Emergency power provided by a 400kW/500KVA diesel standby generator
- UPS rated at 225 kVA connected to two PDUs to distribute output

Mechanical

- Combination of VAV and constant volume control boxes are utilized
- Primary heating from high pressure campus steam
- Constant volume unitary air conditioning units
- Air handling unit is field-erected
- Equipment located in first and second floor mechanical rooms

Structural

- Foundation consists of slab on grade concrete system
- Remaining levels supported by two-way concrete slabs
- Reinforced concrete columns aligned on a primarily rectilinear grid
- Concrete columns support exterior curtainwall and architectural concrete panels

