

# Healthcare Master Planning

EYP/®

EYP is the leading architecture and engineering firm developing new ideas and design solutions with mission-driven clients in higher education, government, healthcare, and science & technology.

Our clients are in the business of changing lives for the better: promoting peace and prosperity; educating the next generation; transforming the healthcare experience; driving discovery and innovation; and protecting the environment. They expect their buildings to have as profound an impact on human behavior and performance as they do on energy and the environment – that’s why they come to EYP.

We believe the built environment empowers our clients to succeed – as individuals and organizations – and that their success should be a key measure of building performance. Our interdisciplinary Total Impact Design™ approach helps clients achieve their mission.

We begin by understanding the “whys” driving every client’s vision, needs, and goals. We encourage our clients to be ambitious – to imagine a future where expectations are achieved and even surpassed. The design we co-create is realized through creative collaboration and an iterative process tested and informed by rigorous research. Long after project completion, we continue to partner with clients to measure and analyze how a building contributes to the ongoing success of their mission.

EYP design innovation is characterized by our dedication to:

**People** – *liberating potential to transform human performance*

**Purpose** – *actively helping clients advance their mission*

**Planet** – *maximizing available resources to advance sustainability*

Inspired by our clients, design is how we make a positive impact on the world.







# MASTER PLANNING

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For over 40 years, EYP has partnered with mission-driven healthcare institutions – from large, not-for-profit hospitals and academic medical centers to community-based systems – to help each client develop a strategic plan that advances its vision and supports future growth. The perspective we gain from exploring your unique goals, needs, and resources in relation to the evolving healthcare landscape, market competition, demographics, security, and sustainability enables us to identify and evaluate your most beneficial alternatives.

Successful master plans are accessible, clear, and adaptable to change, laying the foundation for good design. Through collaboration, consensus building, and creativity, we will partner with you to frame a forward-thinking yet practical plan with the power to guide transformation and shape the future you envision – whether for a single building or large campus on a constricted urban site.

## Recognition

#10 in Healthcare Design — Giants 300, *Building Design + Construction*

## Contact

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From master planning to interior design, and throughout all phases of construction... they showed they care as much about our organization, our customers, and our community as we do.

*Steve Littleton, President  
Jersey Shore University Medical Center*

# Stamford Hospital Stamford, CT

## Master Plan and New Hospital Pavilion





### 10+ Years of Partnership

2003: EYP completed a Comprehensive Master Plan for the Hospital's four major campuses including an existing conditions assessment; traffic and parking analysis; projection of future space needs; and development of facility options. The deliverable was a set of living documents that were integrated into Stamford's ongoing financial and operational planning.

2004: We developed a Five-Year Plan, and worked with the Hospital to progressively implement the projects identified.

2007: We assisted the Hospital in investigating the question of whether to "Stay or Replace." Our Due Diligence Study projected long-range space needs and values of construction and energy costs, and site suitability characteristics, informed by a review of published studies, organizational issues, possible community impact, and long-range costs.

The Study revealed multiple deficiencies in the existing facilities, leading the client to engage EYP on a Master Plan project which indicated the need for a 30-acre site for a new hospital facility. Stamford ultimately expanded its site to accommodate growth and renewal projects, including the construction of a new hospital pavilion.



- 1 New Stamford Hospital
- 2 In-Patient Drop-off
- 3 Emergency Drop-off
- 4 Green Roof
- 1 Existing, Main Building
- 2 Existing Hospital
- 3 Whittingham Pavilion



Stamford Hospital, East View





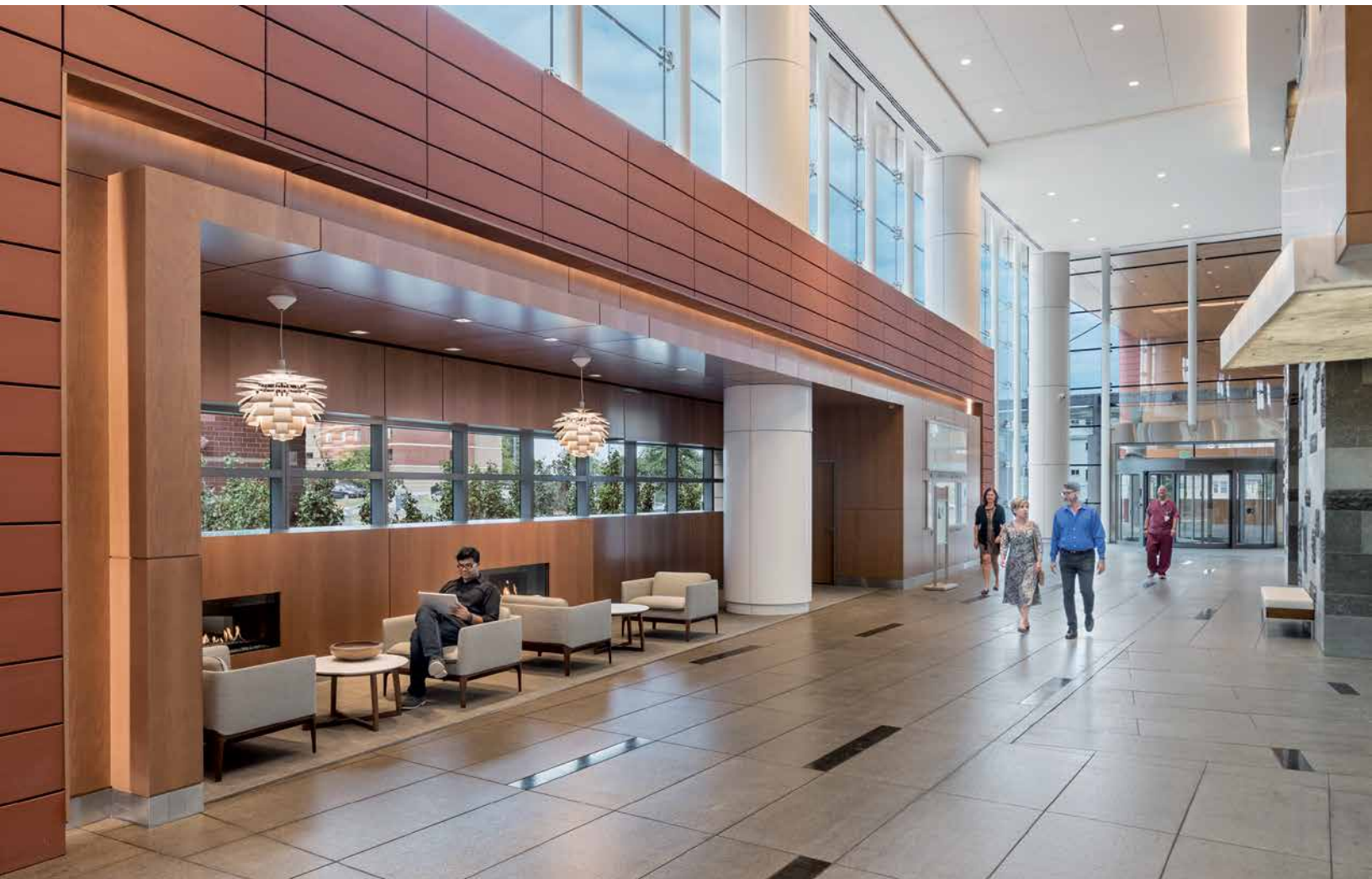
### New Hospital Pavilion

Showcasing Stamford's commitment to the Planetree philosophy of patient-centered care, the new pavilion elevates the healthcare experience of patients, visitors and staff. The new pavilion brings together invasive and non-invasive heart services – including 10 high-tech operating rooms and an expanded 24-bed ICU – for the Heart & Vascular Institute. The 11-story building, equipped with the latest technologies is connected via skyway to the new Integrated Care Pavilion.

The building program includes a 43,800 SF emergency department (ED) with 40 treatment areas to support the 65,000 annual patient visits. Specialized spaces include two triage rooms; six fast-track rooms; 16 urgent-care rooms; four cardiac rooms; eight rooms dedicated to pediatric care; and four trauma rooms, including one fitted out for pediatrics. In addition, the ED is designed to flex up and down to facilitate efficient operations between pediatrics and urgent care. The ED also includes two general radiology rooms and one CT dedicated solely to emergency patients, as well as a four-bay behavioral health holding area and a detox room.

The pavilion is designed to accommodate 180 all-private rooms, with three decentralized nursing units to facilitate greater flexibility in the delivery of patient care.

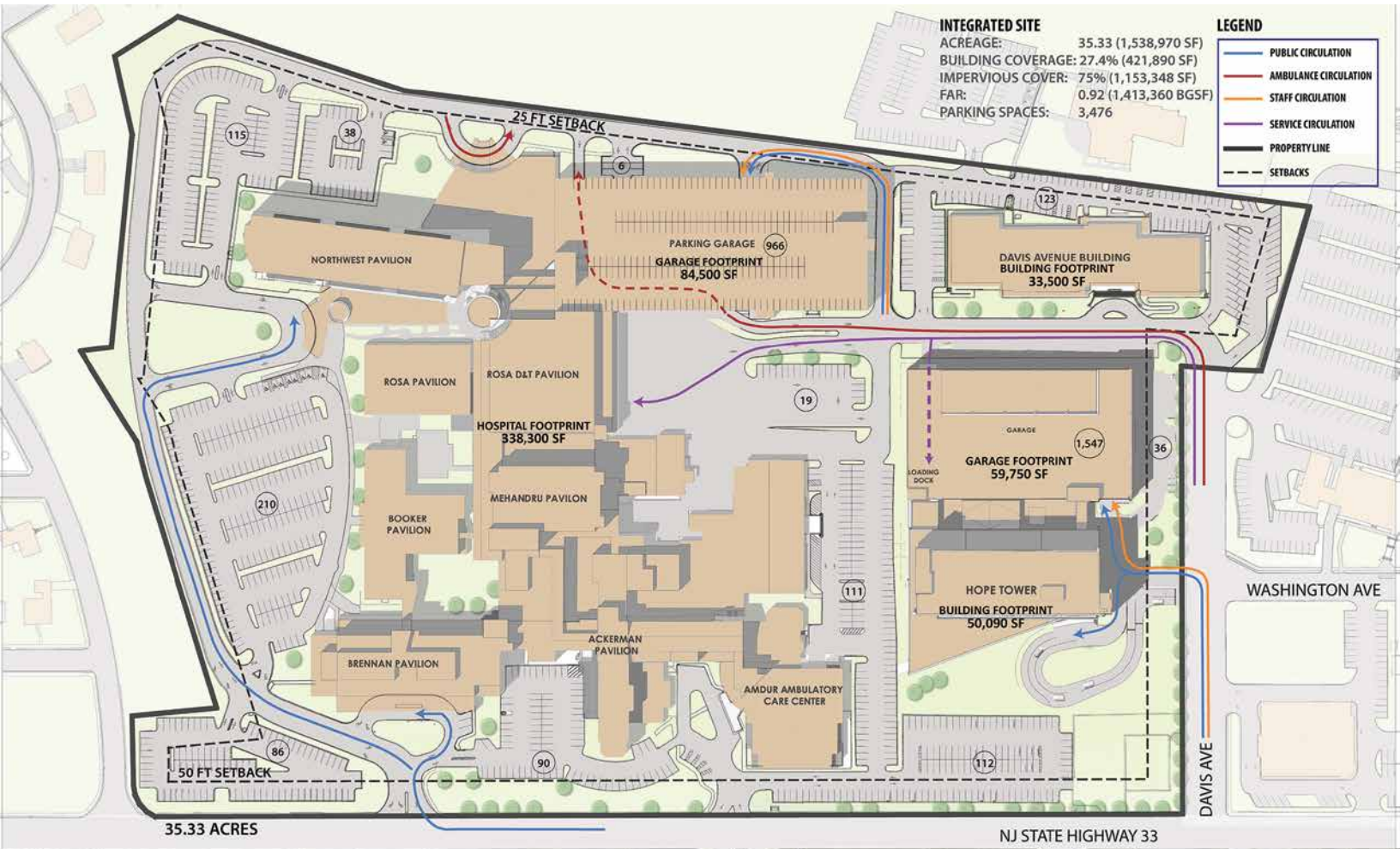
- 647,000 GSF new construction
- 235-bed capacity
- Architecture, Planning, Programming, Interior Design



# Hackensack Meridian Health Brick, NJ

Jersey Shore University Medical Center

Master Plan & Transformation



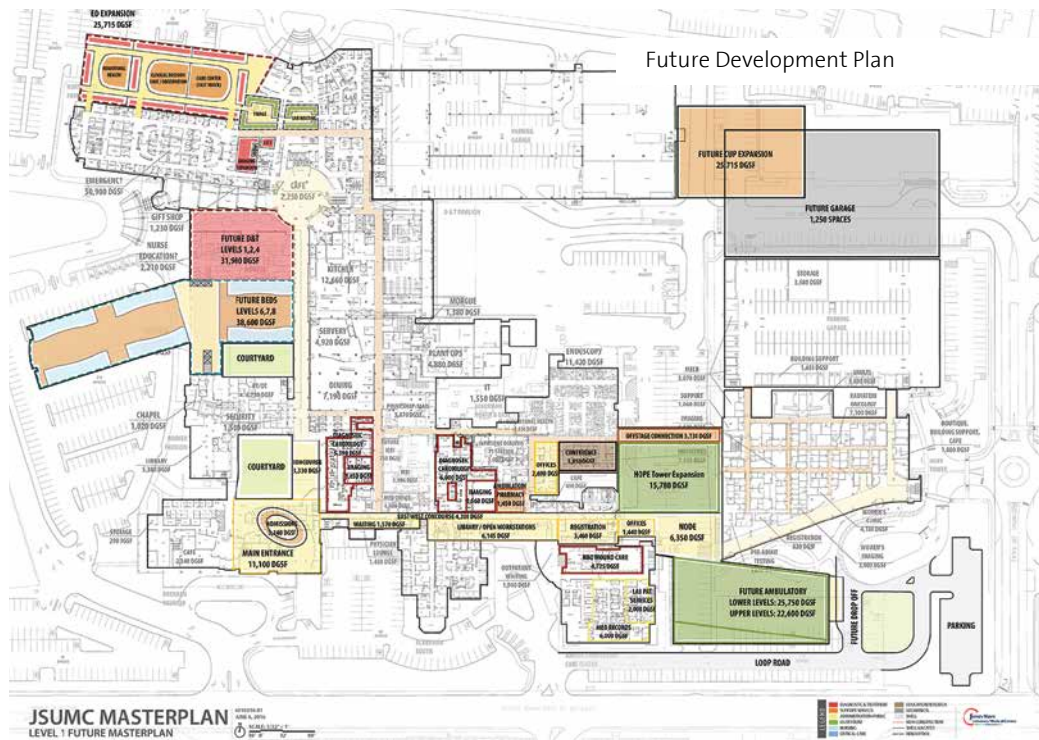
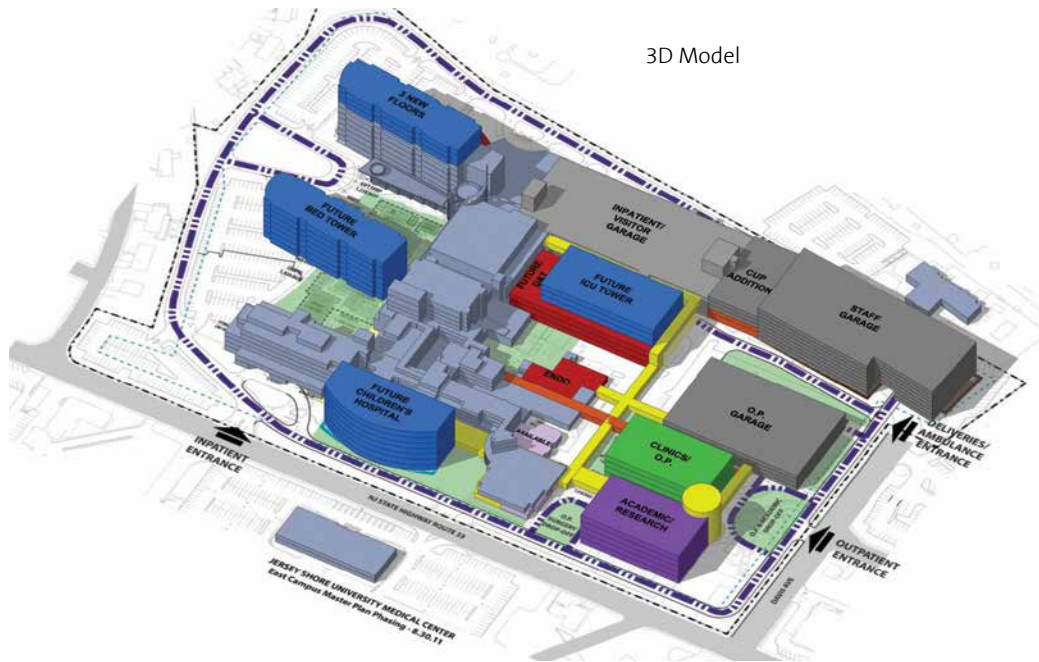


Over the course of 13+ years, EYP has provided Master Plans for three of the client's campuses: Jersey Shore, Riverview, and Ocean Medical Center.

The centerpiece of the \$300 million project is a new, 144-bed patient care pavilion featuring private rooms and an innovative model of nursing care, as well as a new emergency department and Level 1 trauma center with the capacity to annually treat more than 100,000 patients. The state-of-the-art building also offers the latest in diagnostic and surgical technology, as well as a new 12-bed cardiac care unit.

With the demand for nursing services exceeding projected availability and the average age of nurses increasing, we understood the need to improve the operational efficiency of nursing units and reduce travel distances to minimize caregiver fatigue. We conceived the design innovation of nursing neighborhoods, clustering groups of patient rooms and support spaces as close as possible to the staff station. This “round-table” configuration was designed to limit steps, enhance collaboration, reduce errors, and improve peer mentoring.

Now that the facility is operational, we are conducting research to understand the impact of the design on interdisciplinary communication, quality of care, and patient safety.





### Jersey Shore University Medical Center

Organized around the patient experience, the design of the new pavilion dramatically expands the hospital's capacity and capability, and has resulted in increased patient satisfaction. The geometry of the dramatic new entrance and curved, four-story atrium are inspired by the geometry of a sail at full mast, referencing the area's coastal heritage. Public spaces including multistory concourses, and healing gardens, provide positive distraction, promote social support, and offer patients, families, and staff access to education, art, and nature.

In addition to extensive renovations and a new central utility plant, project improvements include a new loop road; site development to organize vehicular traffic; and parking garage.

- Evidence-based Design Touchstone Award (Gold), Center for Health Design
- 410,000 GSF new
- 23,000 GSF modernization
- Center for Health Design Pebble Project\*
- LEED Gold certified

*\*The facility is a designated "Pebble Project", The partnership between The Center for Health Design and healthcare organizations throughout the US. The goal is to examine and document the effects of evidence-based design on financial performance and quality of care.*





# Texas Medical Center Houston, TX

Master Planning, New Construction, Renovations & Expansions







The Texas Medical Center (TMC) is the largest medical center in the world with one of the highest densities of clinical facilities for patient care, basic science, and translational research.

Located in Houston, the TMC comprises 50 medicine-related institutions, including 15 hospitals, two specialty institutions, two medical schools, and four nursing schools, as well as schools of dentistry, public health, pharmacy, and other health-related practices.

The total land area of the TMC is 1,345 acres — or 2.1 square miles — and it is estimated that the daytime “population” of the TMC is approximately 160,000 people.

EYP has designed over 11 million square feet for institutions in the TMC — more than any other architecture firm.

#### Notable Projects Designed by EYP in the TMC

##### Baylor College of Medicine

- A** Specialty Care Center  
200,000 SF build-out

##### Houston Methodist

- B** Research Institute  
440,000 SF
- C** North Campus Expansion  
960,000 SF
- D** Outpatient Center  
1,600,000 sf

##### Memorial Hermann

- E** The Institute for Rehabilitation & Research (TIRR)  
100,000 SF
- F** Hermann Pavilion 1 (HP1)  
850,000 SF
- G** Hermann Pavilion 2 (HP2)  
1,340,000 SF
- H** Ambulatory Care Center Sports Institute  
55,000 SF

##### Prairie View A&M University

- I** College of Nursing  
545,000 SF

##### Texas Children’s Hospital

- J** 8080 North Stadium Drive  
18,500 SF
- K** Critical Care Center  
9,612 SF

##### UT MD Anderson Cancer Center

- L** Mid Campus Building 1 (1MC)  
1,400,000 SF
- M** Mid-Campus Garage  
1,000,000 SF

##### Faculty Center

- N** 325,000 SF

##### UTHealth

- O** Research Park Complex  
485,000 SF / 4 Building Complex
- P** Medical School Expansion  
200,000 SF



# Houston Methodist Hospital Texas Medical Center, Houston, TX

## Master Planning & Implementation



## Change is the Only Constant

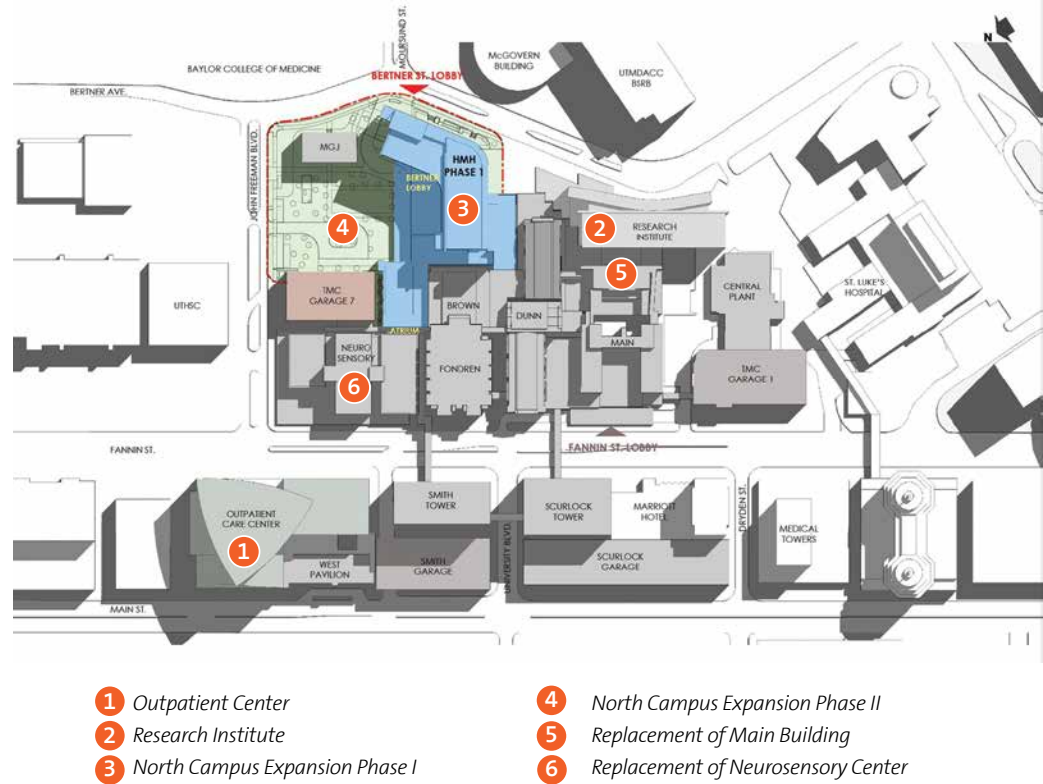
At the time of its relocation from downtown Houston to the then-new Texas Medical Center in the early 1950s, open land was readily available for growth and expansion. Seventy years later, TMC has become the largest medical center in the world – and Houston Methodist has grown with it to encompass more than 5 million square feet. EYP is privileged to have been a trusted advisor to Methodist for over 20 years, helping the hospital remain at the forefront of healthcare delivery as “leading-edge” technologies, protocols, and practice models have continuously evolved.

EYP is helping Methodist advance its mission as it responds to the end of its long-standing academic relationship with Baylor College of Medicine, and as it faces significant challenges shared by all healthcare systems:

- Implementation of the Affordable Care Act
- Aging infrastructure
- Changing demographics,
- Need to adopt a more flexible and adaptable approach to capital projects.

As Lead Architect for 3 million square feet of new projects – including the Outpatient Center, Research Institute, and the North Tower – we are ensuring Methodist has innovative and adaptable workspaces for clinical, research, and teaching.

After EYP completed the 2004 Campus Master Plan, Methodist set out to remove barriers to growth and adaptation. Like most aging healthcare campuses, absent an overarching plan, “organic” growth of piecemeal implementation of successive facility improvement initiatives had created inefficiencies, compromised flexibility, and constrained growth.





Recognizing that research, patient care, and academic requirements grow at different rates, Methodist created new zones for inpatient services, outpatient services, and research, establishing a more rational framework for growth over time. They also established new primary academic relationships with Weill Cornell Medical College and New York Presbyterian Hospital.

With a clear plan to guide development, Methodist proceeded with the design and implementation of the 1.6-million GSF Outpatient Center and 480,000 GSF Research Institute. The implementation of these projects freed up space within the existing campus buildings and allowed for a more grounded assessment of space availability and future needs. Those projected needs ultimately defined the program for the first phase of the North Tower project.

As Lead Architect for these 3 million GSF of new projects, EYP has helped Methodist shift to a growth strategy founded on lessons learned, adaptability, awareness of its overall campus context, and anticipation of where growth might happen next – utilizing design concepts that maximize flexibility for the long term.

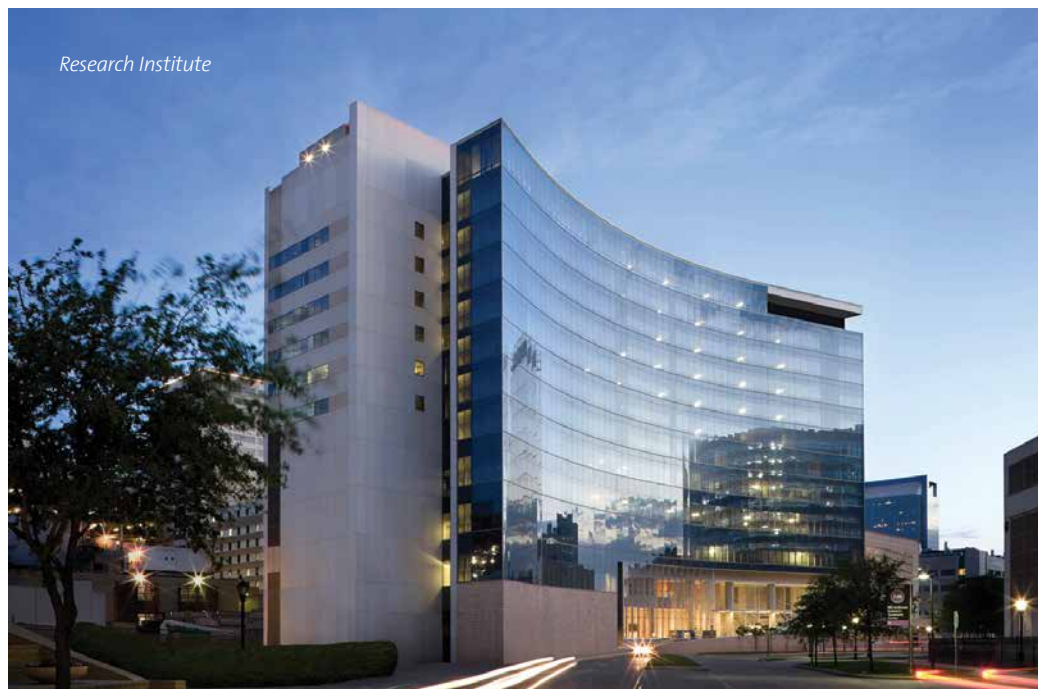
*North Campus Expansion*



*North Campus Expansion*



*Research Institute*



# Memorial Hermann Healthcare System Texas Medical Center Houston, TX Multiple Master Plans & Implementations







1 Hermann Pavilion 1     
 2 Hermann Pavilion 2     
 3 Existing, Main Hospital

**Two Partners, One Healthcare Giant**

The 1997 merger of two prominent EYP clients – the Memorial Hospital System (1907) and Hermann Hospital (1925) – created one of the nation’s Top 5 Large Health Systems and the leading Accountable Care Organization. The healthcare giant Memorial Hermann today comprises over 16 hospitals and numerous clinics and specialty centers throughout the Houston region. Much of our early work was for Hermann Hospital, which many consider the cornerstone of the Texas Medical Center (TMC). As the most prominent charity hospital in Houston when TMC was founded in 1945 to create a “hospital district,” Hermann’s presence undoubtedly influenced the choice of site.

In 1987, EYP prepared the first of a succession of master plans for several of the campuses in what is now the Memorial Hermann Healthcare System. The 1987 Master Plan focused on the main Tertiary Care facility, the Memorial Hermann Hospital located in the TMC, to determine how best to utilize the limited land available for expansion and replacement facilities.

The plan created a methodology not only for locating a new 850,000 GSF patient tower to house Women and Children’s services, expanded surgery, and a replacement Trauma Center, but also for a series of steps that could be taken to progressively replace each existing component on the campus. We were engaged to design the tower and subsequently update the Master Plan over ensuing years.

The 1997 merger led to a new, long-range strategic plan to capitalize on Memorial’s existing presence in the suburbs and to expand the new system’s presence with new satellite hospitals. We have since then produced master plans for:

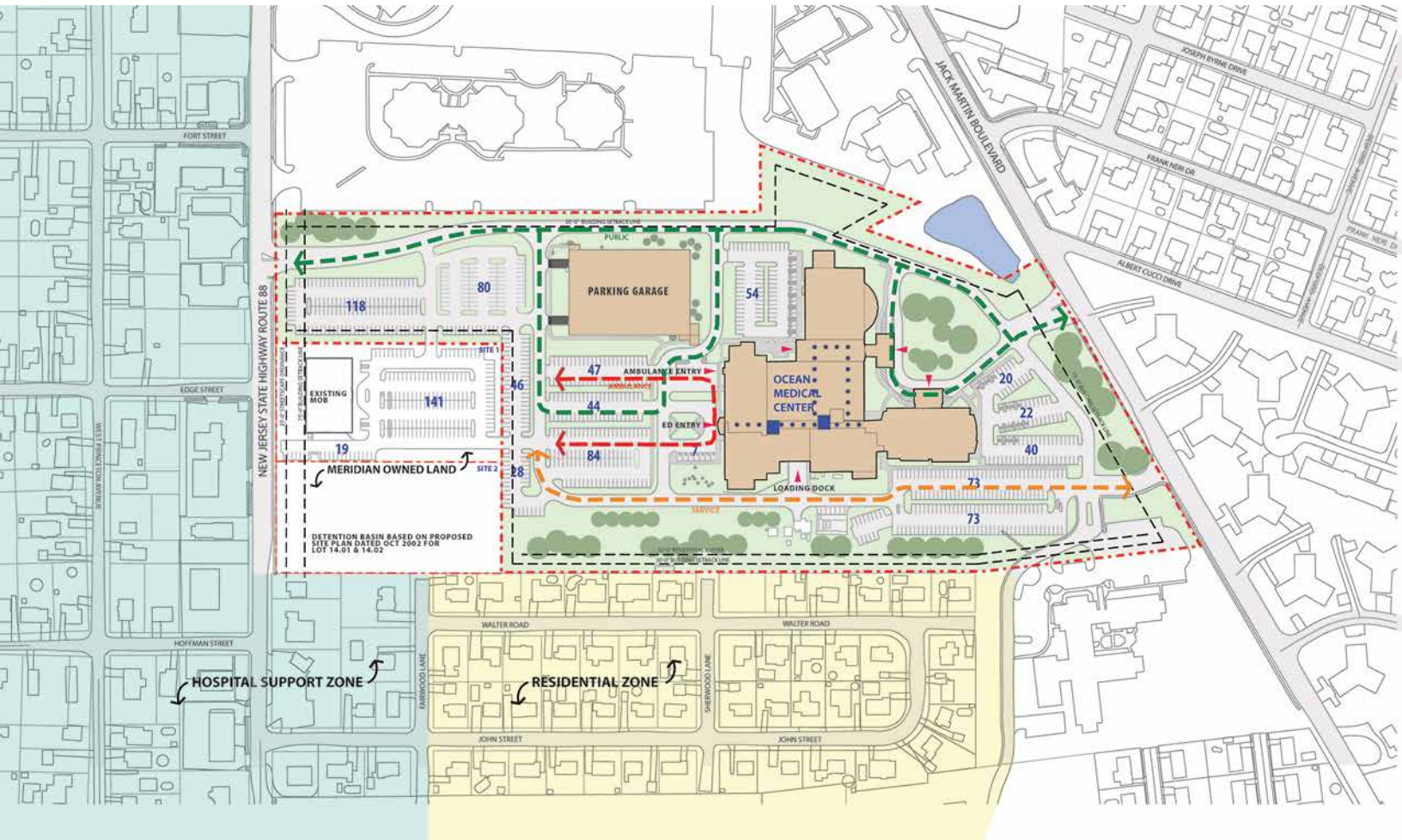
- Memorial Hermann Southwest, a 200,000 GSF expansion to house surgery, cardiac care, a breast center and community support facilities
- TIRR (The Institute for Rehabilitation and Research), a 102,000 GSF facility in the Texas Medical Center
- Memorial Hermann Hospital in The Woodlands (with several surgical, emergency, and patient unit expansions)
- Master plans for two greenfield community hospitals in Sugar Land and Katy, which we subsequently designed (completed in 2007).

Most recently, EYP has been engaged in developing a Master Plan update for the MHHS Main Campus in the Texas Medical Center to create a location for a new Trauma Institute totaling 958,000 GSF and a Logistics and Support Building totaling an additional 485,000 GSF, which will free up approximately 340,000 GSF in the existing Robertson Pavilion.

# Hackensack Meridian Health Brick, NJ

Ocean Medical Center (OMC) Hirair and Anna Hovnanian

Emergency Care Center Facility Master Plan & Expansion



Illustrative Site Plan



## Reinforcing Connections

In 2009, EYP partnered with OMC, a 281-bed community hospital, to develop a Facility Master Plan that would guide the institution through 2020. The plan reinforces connections with adjacent primary care practices, creating community space on the campus.

Our design for the new Hirair and Anna Hovnanian Emergency Care Center implemented Phase I of the Master Plan. The transformational project added Cath Labs and a 36-bed nursing floor as well as a new expanded dock. Approximately 6,100 GSF of renovations were done on the first level of the existing hospital to accommodate the administration space of the new building. For the long term, the structural capacity of the building is designed to accommodate three additional bed floors, which would add 108 new private patient rooms in the future.

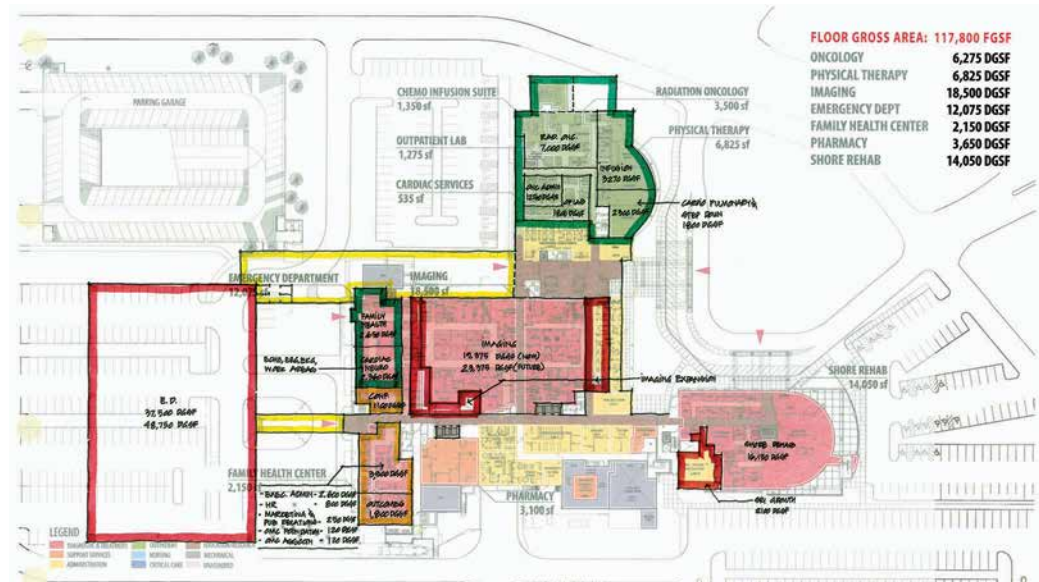
The building program greatly influenced the massing and form of our design. The bed tower hovers above the ED and shell space to create new ambulatory and ambulance entrances.

Our evidence-based approach utilized data from the post-occupancy evaluation of OMC's sister hospital, Jersey Shore University Medical Center (which EYP also designed), to inform and improve unit design. For example, some shared spaces at Jersey Shore – e.g., clean and soiled utility rooms, an equipment storage room, and a nourishment room – were added to each inpatient “neighborhood”, making it more convenient for nurses to more efficiently manage patient care.

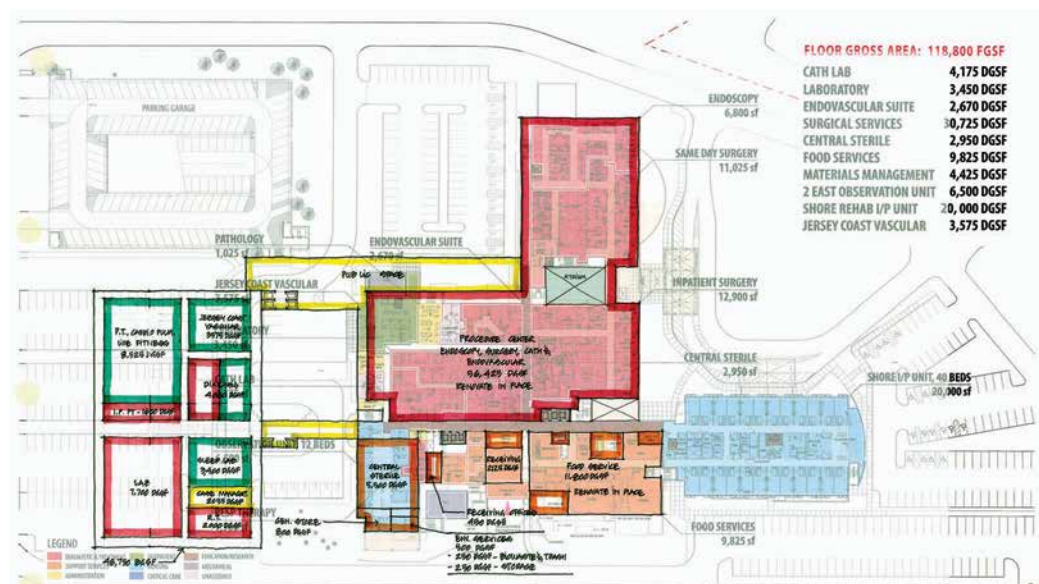
- 140,000 SF new construction
- 108-bed capacity



Site Growth



Level 1 Plan



Level 2 Plan







# UNC Rex Healthcare Raleigh, NC

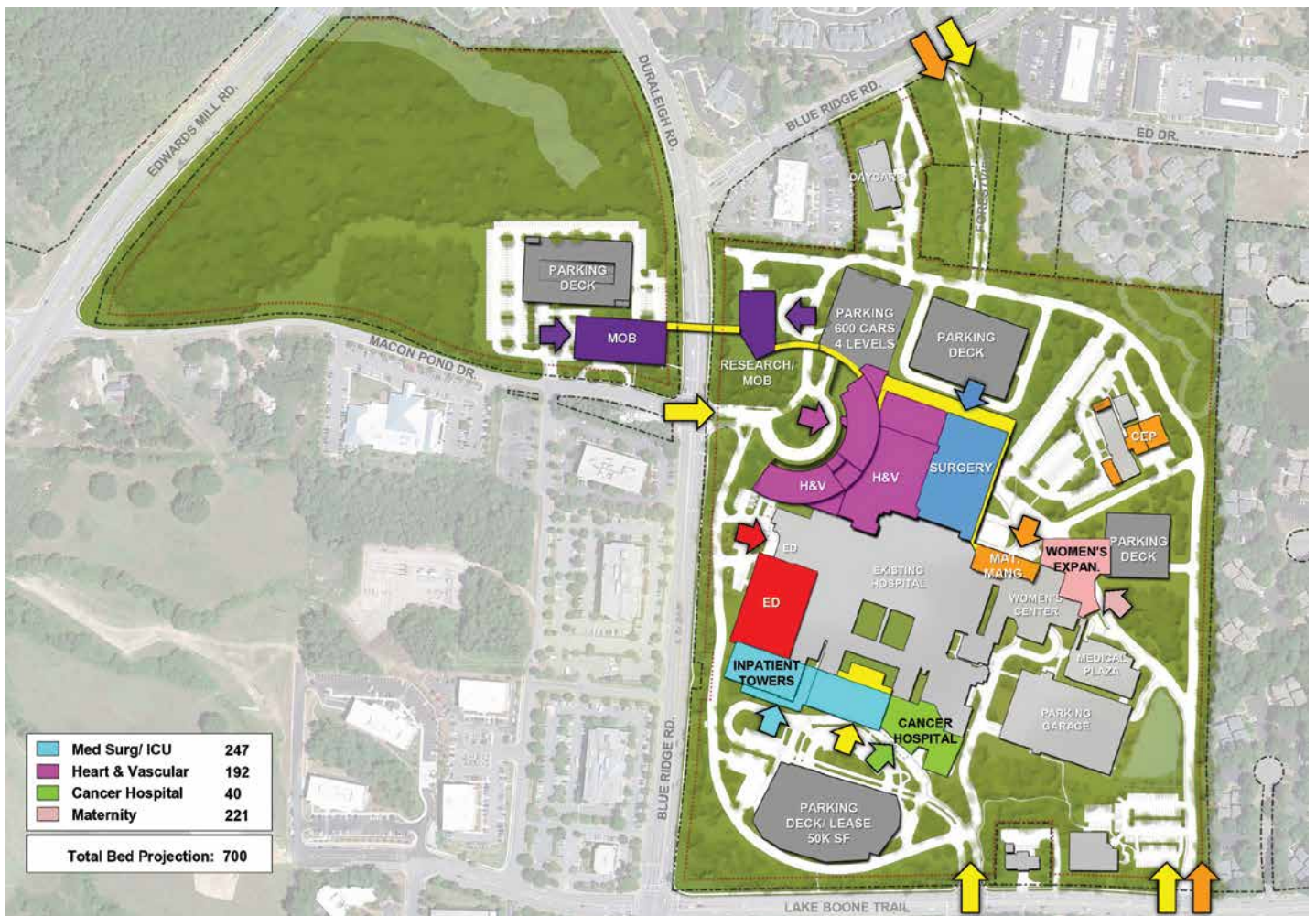
## Vision 2030 Master Plan

- 1 | VISITOR PARKING DECK
- 2 | HEART AND VASCULAR HOSPITAL
- 3 | VISITOR PARKING DECK
- 4 | HISTORIC MOB
- 5 | EMERGENCY DEPARTMENT
- 6 | DAY SURGERY
- 7 | INPATIENT TOWER
- 8 | CANCER CENTER
- 9 | WOMEN'S CENTER
- 10 | REHAB AND NURSING CARE CENTER



- |   |  |
|---|--|
| 1. Cancer Hospital<br>(new addition and renovation) | 6. Surgery Consolidation<br>(renovation and expansion) |
| 2. South Public Concourse<br>(new addition)         | 7. Inpatient Bed Towers<br>(new 550-bed expansion)     |
| 3. Heart and Vascular Hospital<br>(new expansion)   | 8. Clinical Lab (renovation)                           |
| 4. Imaging<br>(renovation and expansion)            | 9. Medical Office Building<br>(new expansion)          |
| 5. Emergency Department<br>(new expansion)          | 10. Expansion of the above.                            |





### Envisioning the Future

The Vision 2030 Master Plan that EYP partnered on with UNC Rex recommended planning for growth from 400 to 750 beds, with 1+ million GSF of development over a 15-year span. Key service lines identified for growth potential or substantial renovation were:

- Surgical Services
- Clinical Laboratory
- Imaging
- Heart and Vascular Services
- Cancer Services

### North Carolina Heart & Vascular Hospital

This world-class facility is an urban oasis whose linked paths and courtyards serve as outdoor “living rooms” for patients and staff. The project realizes the client’s vision to assure a patient-centered health and healing experience within a high-volume, academic teaching hospital.

To assure the capacity to support current and projected population growth, REX aligned its H&V services with multiple cardiology practices in the area. Lean design principles informed a plan that right-sizes patient care spaces and clinical work areas to best-practice benchmarks. Each nursing unit is comprised of two, 10-bed neighborhoods with staff support spaces that minimize caregiver steps, maximizing time spent with patients.

Multiple evidence-based design strategies, informed by our healthcare and workplace experts’ research, are already positively impacting the experience of all who work in, visit, or are treated in the new hospital.

*BBH Design was Associate Architect.*

- Best Project: Healthcare in Southeast, *Engineering News-Record*
- Sir Walter Raleigh Award (Commercial), City of Raleigh
- Best in City Center, IIDA Texas-Oklahoma Chapter

- 306,400 GSF new
- 3,480 GSF modernization
- 72 Telemetry beds
- 22-bed Cardiovascular ICU
- 20-bed Acuity adaptable unit
- 10-bed PACU
- 2 Hybrid ORs
- 6 Cath labs
- 2 Electrophysiology labs
- 2 Interventional radiology labs
- 40 Prep/recovery beds





# FIRM OVERVIEW

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## Disciplines

Architecture, Engineering, Energy, Environmental Graphic Design, Interior Design, Master Planning

## Integrated Design Expertise

- Academic Innovation
- Diplomatic Facilities
- Energy & Sustainability
- Health Education
- Healthcare
- Historic Preservation
- Libraries
- Master Planning
- Mission Critical Facilities
- Modernization
- Science & Technology
- STEM
- Student Life
- Workplace

## Research

- Building Science
- Healthcare Design
- STEM
- Energy
- Living-Learning
- Workplace

## Recognition

- 2018 Top 25 Architecture Firms, *Architectural Record*
- 2018 Giants 300, Architecture/Engineering Firms, *Building Design + Construction*
- 2018 Top 500 Design Firms, *Engineering News-Record*
- 2018 Healthcare Giants, *Interior Design*
- 2017 Architect 50, *Architect Magazine*
- 2017 MEP Giants, *Consulting-Specifying Engineer*
- 2017 Top Architects, #1 for Healthcare Renovation, *Health Facilities Construction Quarterly*



# SERVICES

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## Architecture

- Design
- Planning
- Programming
- Interior Design
- Life Safety
- Environmental Graphic Design
- Workplace Strategy & Design
- Master Planning

## Energy

- Energy Data Analysis
  - Energy modeling
  - Benchmarking
- DSM Programs for Utilities
- Building Performance Optimization
  - Energy Audits
  - Energy Master Plans
  - Retro-commissioning

## Software

- B3 Benchmarking
- NEO Net Energy Optimizer®
- Custom tools with WeidtSim®

## Engineering

- Electrical
- Fire Protection
- Mechanical
- Plumbing
- Security
- Structural
- Telecommunications

## Consulting

- Graphic Design
- Marketing Communications
- Public Relations

# HEALTHCARE CLIENTS

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Al Dupont for Children	Greenville Hospital Systems
Advocate Children's Hospital	Gwinnett Investment Group Cardiology Center
Advocate Christ Medical Center	Greenwood Leflore Hospital
AFLAC Cancer Center at Eggleston	Hackensack-Meridian Health System
A.O. Fox Memorial Hospital	Halifax Memorial Hospital
Albany Medical Center	Harbor Hospital
Amsterdam Memorial Hospital	Harlem Hospital Center
Anson County Hospital	Houston Methodist Hospital System
Atlanta Medical Center	Jacobi Medical Center
Baptist Medical Center	Joe Dimaggio Children's Hospital
Baylor College of Medicine	Johnston Memorial Hospital
Billings Clinic	Kennedy Krieger Institute
Brazosport Memorial Hospital	Lenoir Memorial Hospital
Camden Medical Park	Littleton Adventist Hospital
Central Manchester & Manchester University Hospitals	Lutheran General Hospital
Centura Health	Maria Parham Medical Center
Charlotte Kimelman Cancer Center	Marquette General Hospital
Children's Healthcare of Atlanta	Martin General Hospital
Children's Hospital of New Orleans	Mary Imogene Bassett Hospital
Children's Hospital of Philadelphia	May Clinic
Children's Hospital of San Antonio	Medical College of Virginia
Children's Medical Center of Dallas	Medical University of South Carolina
Chowan Hospital	Memorial Hermann Health System
CHRISTUS Health	Mission Hospitals
CHRISTUS Mother Frances - Sulphur Springs	Montgomery College
CHRISTUS Santa Rosa	Morristown Memorial Hospital
CHRISTUS St. Frances Cabrini	Nash Health Care System
CHRISTUS Trinity Mother Frances Health	NC Correctional Institution for Women
Columbus Regional Health System	Nemours Children's Hospital
Comanche County Memorial Hospital	New Hanover Regional Medical Center
Craven Regional Medical Center	New York Medical College at Westchester Medical Center
CUNY Sophie Davis School of Biomedical Education	North Oaks Medical Center
Duke University Medical Center	Northwell Health
East Texas Physician's Alliance	Northern Health Authority of British Columbia
ECU Brody School of Medicine	NYU Polytechnic
ECU School of Dental Medicine	NYU School of Dentistry
Ellis Hospital	NYU School of Nursing
Exempla Healthcare	Obstetrical Gynecological Associates (OGA)
FirstHealth Richmond Memorial Hospital	Ocean Medical Center
Fort Bragg Medical Clinic (USACE)	Oklahoma Heart Hospital System
Fort Dix Hospital (USACE)	Onslow Memorial Hospital
Four Winds Hospital, Saratoga	OSF/Children's Hospital of Illinois
Georgia Regents University Children's Medical Center	Palmetto Health Richland Children's Hospital
Georgia Regional Hospital	Piedmont Hospital
Grady Health System	Pitt County Hospital



# HEALTHCARE CLIENTS

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Platte Valley Medical Center  
Radiology Complex & Women's Imaging Center  
Randolph Hospital  
Rex UNC Health Care  
Riverview Hospital  
Robert Wood Johnson University Hospital  
Ronald McDonald House of Charities  
Roosevelt Warm Springs Institute for Rehabilitation  
Rowan Regional Medical Center  
Saint Elizabeth's Hospital, DCDMH  
Sarasota Memorial Hospital Center for Women & Children  
Sitrin Health Center  
St. Clare's Hospital  
St. Joseph Regional Health System  
St. Jude Children's Research Hospital  
St. Luke's Episcopal Hospital  
St. Mary's Hospital  
St. Mary's Hospital for Women  
St. Peter's Hospital  
Stamford Health  
Stanly Regional Medical Center  
Suburban Hospital/Johns Hopkins Medicine  
SUNY Stonybrook School of Dental Medicine  
SUNY Upstate Medical University  
Swedish Medical Center  
Texoma Medical Center  
The Institute for Rehabilitation and Research  
The University of Iowa Hospitals  
The University of Texas Health Science Center  
MD Anderson Cancer Center  
Tidewater Community College  
Trinity Medical Center  
UNC Hospitals  
UNC School of Medicine  
University at Albany  
University Hospital  
University of Chicago Hospitals  
University of Colorado Health  
University of Louisville  
University of New England  
University of New Mexico Medical Group  
University of Pennsylvania  
University of Texas Medical Branch at Galveston  
University of Virginia

US Coast Guard  
Veteran's Administration  
Valley View Medical Center  
Virginia Commonwealth University  
Wake Forest Baptist Health  
Wake Forest University  
Waterstone Medical Office Building  
Watson Army Hospital (USACE)  
Wayne Memorial Hospital  
Wellstar Health System  
West Central Regional Hospital  
White Plains Hospital  
William Beaumont Hospital  
Winship Cancer Institute



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*people, purpose, planet*

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