

INCREASING EFFICIENCY

THE FUTURE OF HEALTHCARE
PLANNING AND DESIGN



HKS INTRODUCTION

At HKS, our global leaders create more than buildings. We protect our national resources. We create purposeful, functional architecture. And, we bring value to your bottom line.

Since the founding in 1959, HKS has executed architectural projects in over 100 countries. **250 offices** are currently active in North America, South America, Europe, Africa and Australia.

Employing more than **400 talented staff**, the firm thrives by combining local expertise, integrated design with innovation and responsiveness. Located in **30 offices worldwide**, our staff integrates our in-house R&D teams to create our clients' interests through insight, knowledge-based practice.



71,000 sq. ft. annual
1,000+ projects
1.8 Billion sq. ft. built
and under

- 4 Ranked the fourth largest healthcare design firm in the world
- 28 Offices worldwide
- 74 Years in the Architecture business
- 40 Years designed Healthcare facilities
- 90 percent of our Healthcare business with repeat customers
- 470 Healthcare Design Awards

HKS has been recognized as one of the largest healthcare architects in the world according to World Architecture.

Healthcare Design Leaders

Don Noble
President, Academy of Architecture for Health

Jim Sartore
Chairman, Facility Guidelines Institute for UCI, Johns Hopkins International

Dr. Debra (Patt) Pelt
Director of QAIBED Center for Advanced Design, Research and Evaluation

Angie Lee
American College of Healthcare Architects (ACHA)
American Institute of Architect, Planning Commission, Fellow Director (AIA)
Evidence-based Design Accreditation and Certification (EDAC)

716000 beds designed

1350 Unique projects

131 Million Square
feet total

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Joe Sprague

Chairman, Facility Guidelines Institute for (JCI) Joint Commission International

Dr. Debajyoti Pati

Director of (CADRE) Center for Advanced Design, Research and Evaluation

Angela Lee

American College of Healthcare Architects (ACHA)

American Institute of Architect Executive Committee, Dallas Chapter (AIA)

Evidence-based Design Accreditation and Certification(EDAC)

We are one. We believe that the value of talent, experience and knowledge is multiplied when shared. HKS is a worldwide network of professionals, strategically located and working seamlessly as one firm. We put together the best teams from around the globe to deliver exceptional value to our clients.



HKS Network

At HKS, our global leaders create more than building. We protect our natural resources. We create purposeful, inspired architecture. And, we bring value to your bottom line.

Since the founding in 1939, HKS has completed construction projects totaling more than **\$50 billion on six continents**: Asia, North America, South America, Europe, Africa and Australia.

Employing more than **900 talented staff**, the firm thrives by combining knowledgeable, time-tested design with innovation and inventiveness. Located in **30 offices worldwide**, our staff integrates our in-house R&D teams to grow our clients' interests through in-depth, knowledge-based practice.



ROYAL CHILDREN'S HOSPITAL

The Royal Children's Hospital is a specialist pediatric hospital providing a full range of clinical services, tertiary care and health promotion and prevention programs for children and adolescents.

The 1.3 million-square-foot hospital serves children from Tasmania, New South Wales and other states around Australia. Located on a greenfield site, the facility provides 272 inpatient beds including a cardiac IPU, 81 outpatient beds, 30 emergency cubicles and 15-room surgery suite.

This project followed the Public Private Partnership procurement model and aims to be Australia's first 5-star Green Star hospital.



Gleneagles Hong Kong Hospital is a 500-bed hospital which provides a comprehensive range of clinical services spanning more than 15 specialities, including general medicine, general surgery, orthopaedics and traumatology and gynaecology. The hospital is a collaboration among three parties: Parkway Pantai Limited, NWS Holdings Limited and the Li Ka Shing Faculty of Medicine of The University of Hong Kong. In association with PNT Architects.

GLENEAGLES HONG KONG HOSPITAL, HONG KONG



The National University Hospital (NUH) Centre for Oral Health was designed to be a unique place for healing, prevention, teaching and research. The 37,068-square-meter facility is patient- and student-centric to fulfil the clinical and research missions of NUH and NUHS. Clinical research space is embedded within clinical areas, to encourage synergy among clinical services, education and research activities. In association with Jurong Consultants.

NATIONAL UNIVERSITY HOSPITAL CENTRE FOR ORAL
HEALTH DESIGN, SINGAPORE

FLEXIBILITY

Why do we need it?

ore HDB ADL units.



Slow Stream Rehab to S



- To create and adapt to change
- To maximise the use of space

Types of Change:

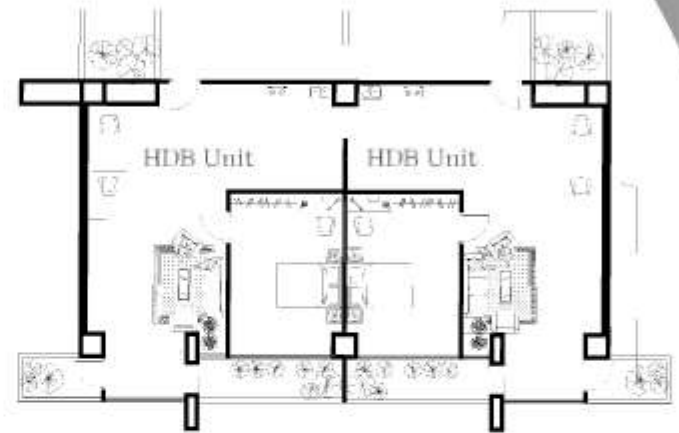
- Volume
- Service Lines
- Patient Mix
- Standard of Care
- Size
- Medical Discovery



Adding 8th floor or adding more HDB ADL units.



Mocked HDB unit for Assisted Living within 1 structural bay

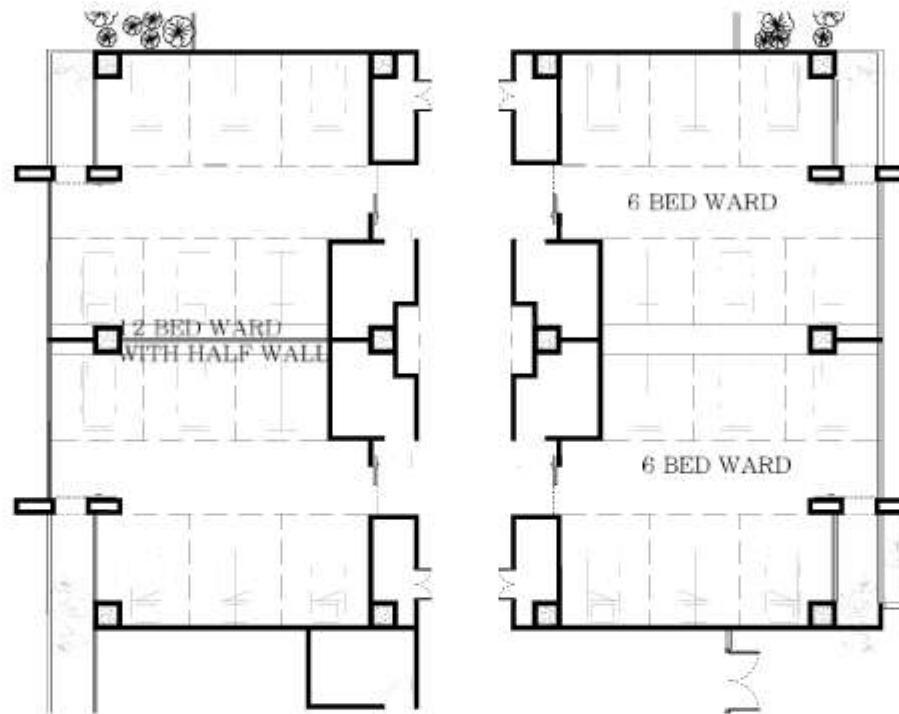


Structural Bays designed for easy convertibility to provide maximum flexibility

Convertibility

Changing function through
a certain amount of
construction

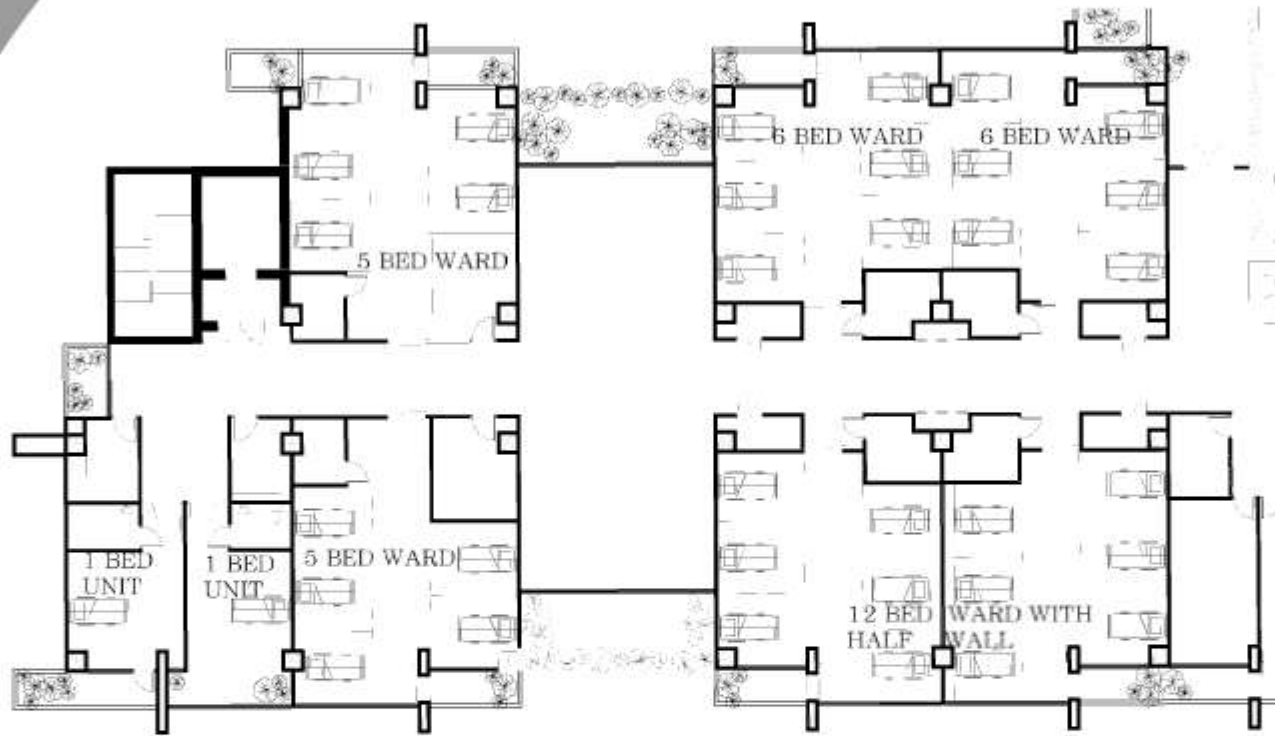
Opening up 6 bed ward to 12 bed ward, when desired.



Transformability

Movable structures being repositioned, no construction required.

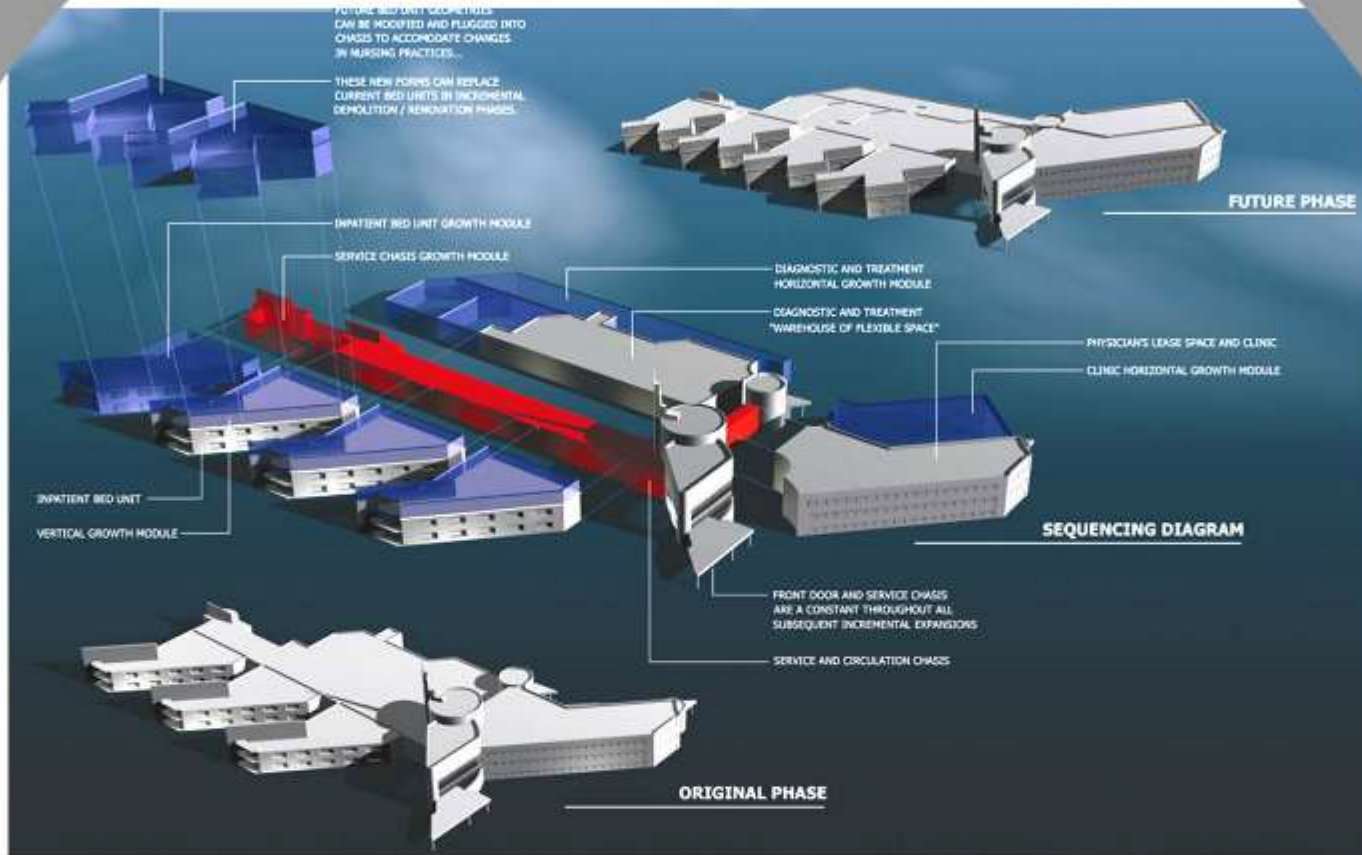
Slow Stream Rehab to Specialist Rehab without construction or movable structures



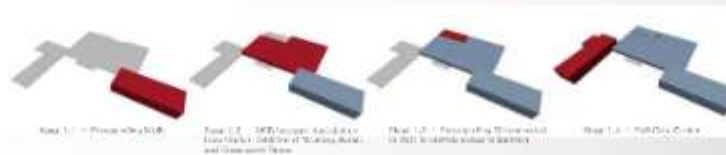
Adaptability

Does not result in a permanent change to the space

Planned Growth: Plug and Play



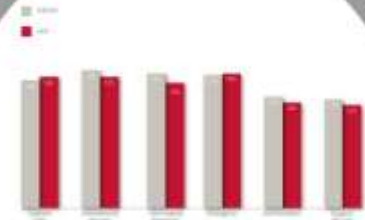
Phasing



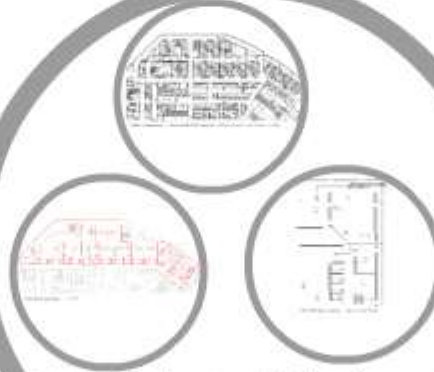
REDUCING COST



Cutting Square Footage



Increase Efficiency



Understand Rules & Regulations

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ADDING VALUE

MEDICAL TECHNOLOGY



HEALTH MEDICOR



BIOMEDICAL ELECTRONICS



INTEGRATED OR



ULTRASOUND



WAVEFORMING



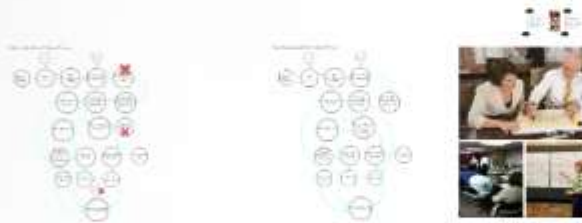
THERMIDOCK



MEASURE BLOOD PRESSURE

measure
assess
track

LEAN PROCESS



TRADITIONAL DESIGN PROCESS

Design Focus

Starts with programming

User groups are made up of staff leaders within a department or services

Each user group provides feedback to designers about their departments or services

Floor plan diagrams are adjusted to accommodate existing operations and processes

LEAN DRIVEN DESIGN PROCESS

Focus on processes that add value for the patient, staff and family members

Starts with observation of operational process

Value-stream focused teams include key stakeholders who are involved across the whole process of delivering the service to the patient are used to analyze the process

Multidisciplinary consensus based, future-state processes drive the development of the floor plan

Floor plan diagrams are used to validate the value stream, optimize future improvements

USER GROUPS

TRADITIONAL
APPROACH

- Departmentally focused
- Optimizes only departmental operations
- Tends to replicate status quo only larger
- May reflect an individual's bias without regard for future flexibility

WANTS



ADMINISTRATORS



HEALTH PROFESSIONALS



PATIENTS AND FAMILIES

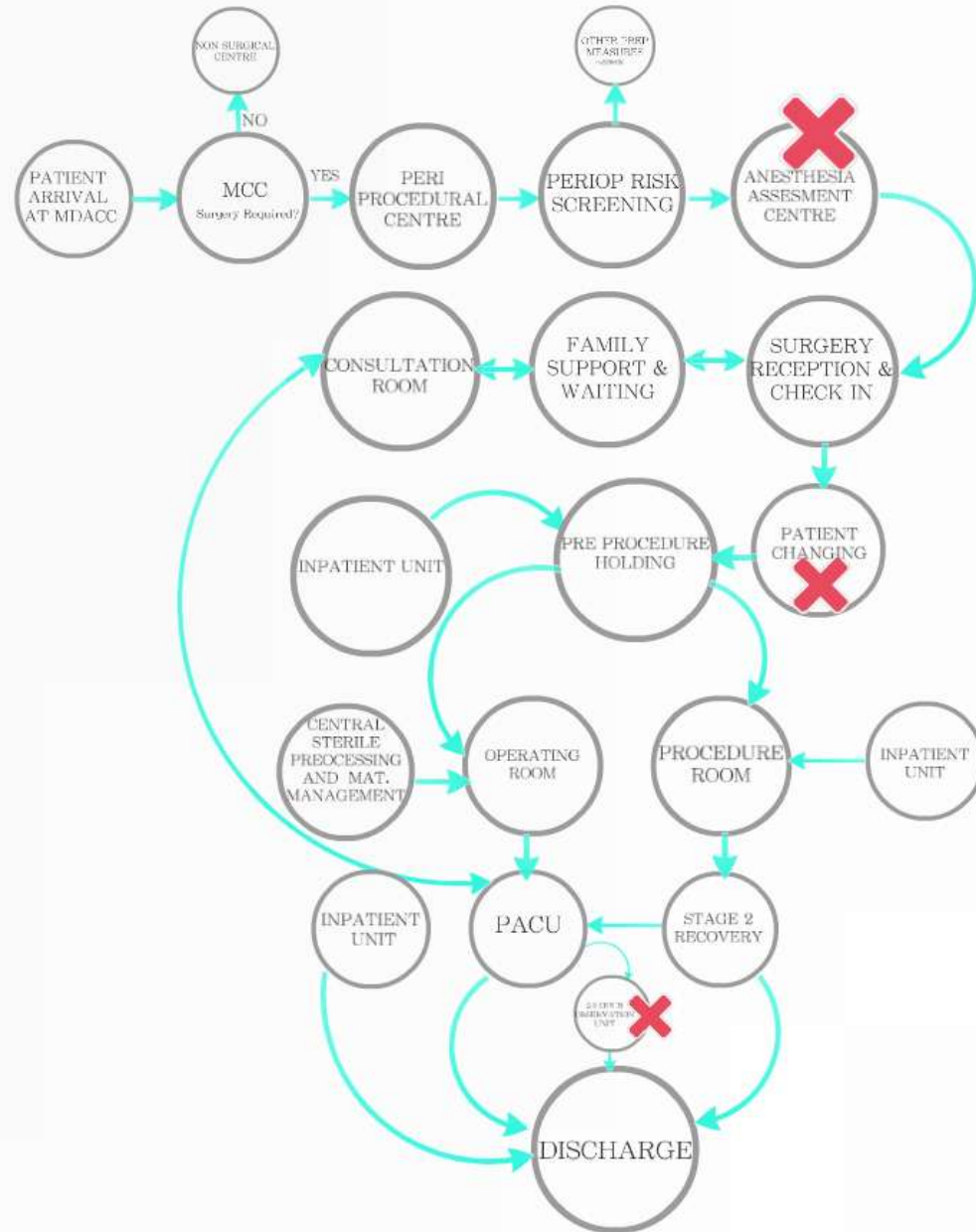
PROCESS

HKS
APPROACH

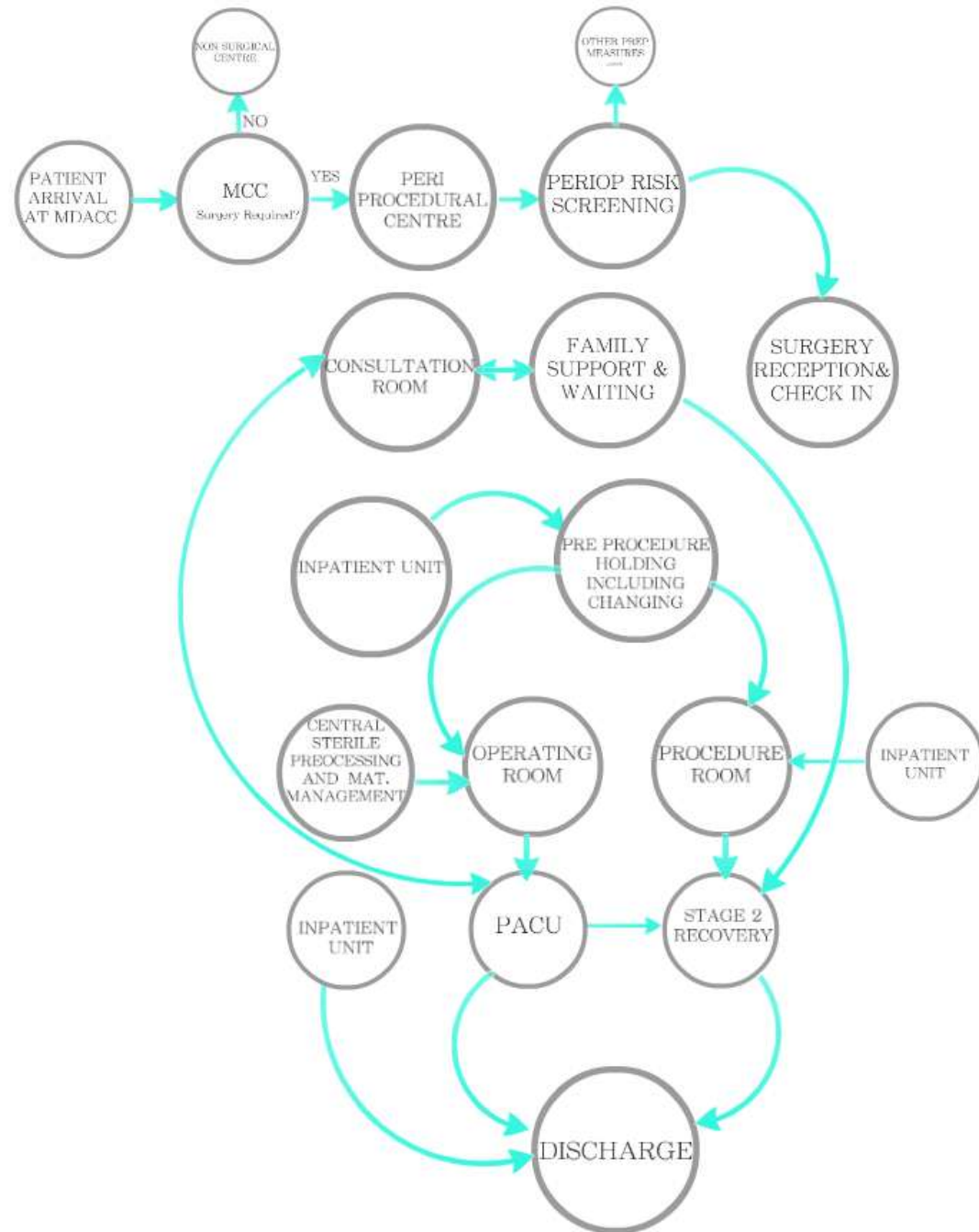
- Goal is efficient, effective operations
- Crosses departmental boundaries
- Broad knowledge base of participants/innovators
- Challenges status quo
- Employs Benchmarks
- Holistic focus: patient, staff, and facility

NEEDS

Original Ambulatory Surgery Process



Improved Ambulatory Surgery Process



MEDICAL TECHNOLOGY



HEALTH MIRROR



EPIDERMAL ELECTRONICS



INTEGRATED OR



ULTRASOUND



WAYFINDING



THERMODOCK



MEASURE BLOOD
PRESSURE

measure
assess
track

INCREASE OPERATIONAL EFFICIENCY

EFFICIENT FLOW

Define Value from
a Client Perspective

• Identify customer's expectations
• Determine the value of the customer's expectations

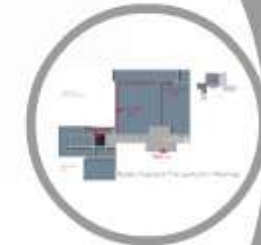
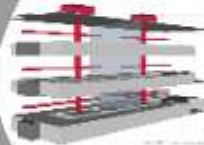
Continuous
Process Flow

• Sequence of process activities
• Order of process activities
• Number of process activities
• Nature of process activities
• Location of process activities

Make the Work Flow

• Identify the work flow
• Identify the work flow activities
• Identify the work flow steps
• Identify the work flow sequence

OPERATIONAL EFFICIENCY IN UNDER-LAYMENT



Define Value from a Client Perspective

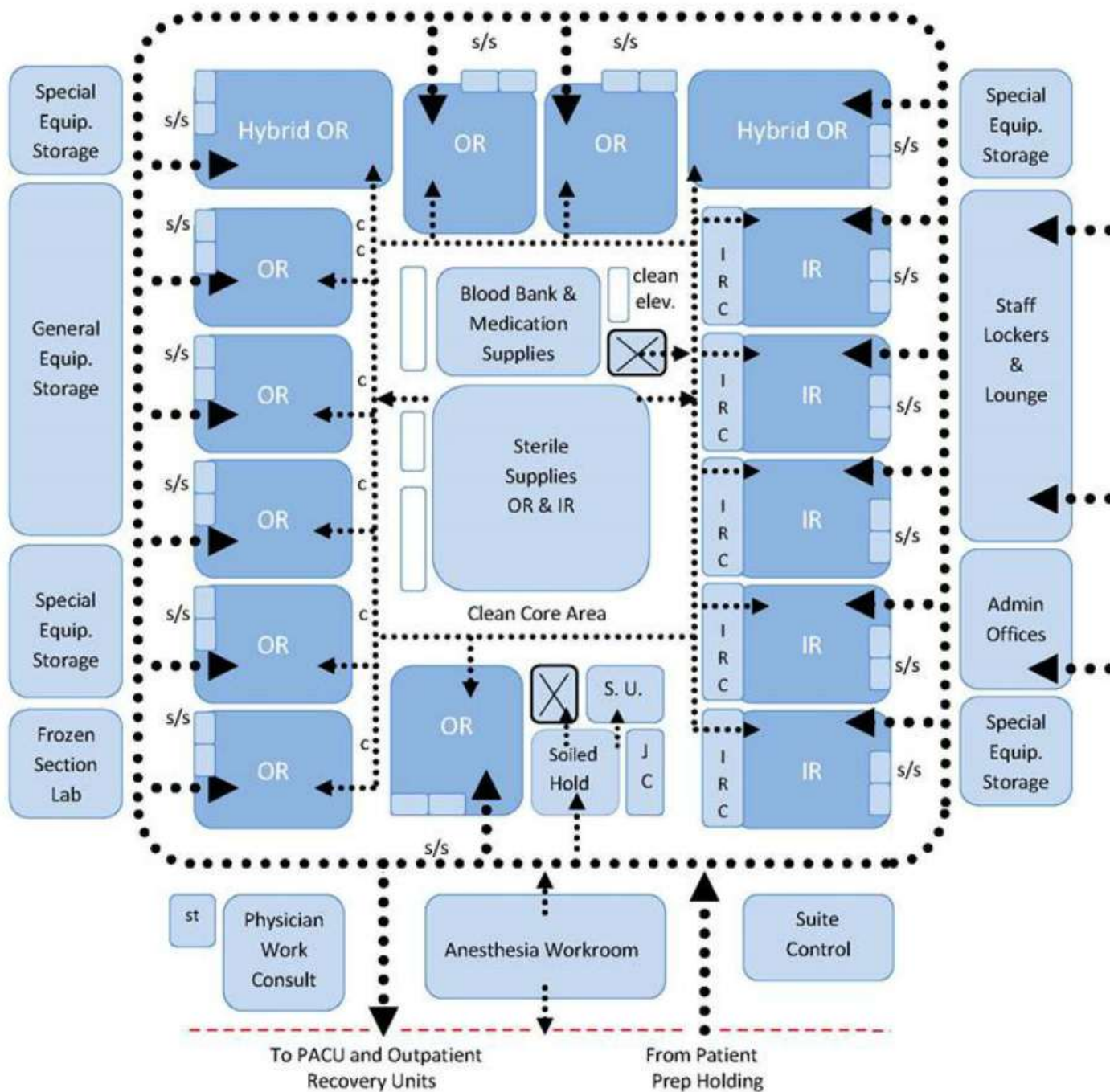
- Establish Conditions of Satisfaction
- Base management decisions on a long term philosophy.

Continuous Process Flow

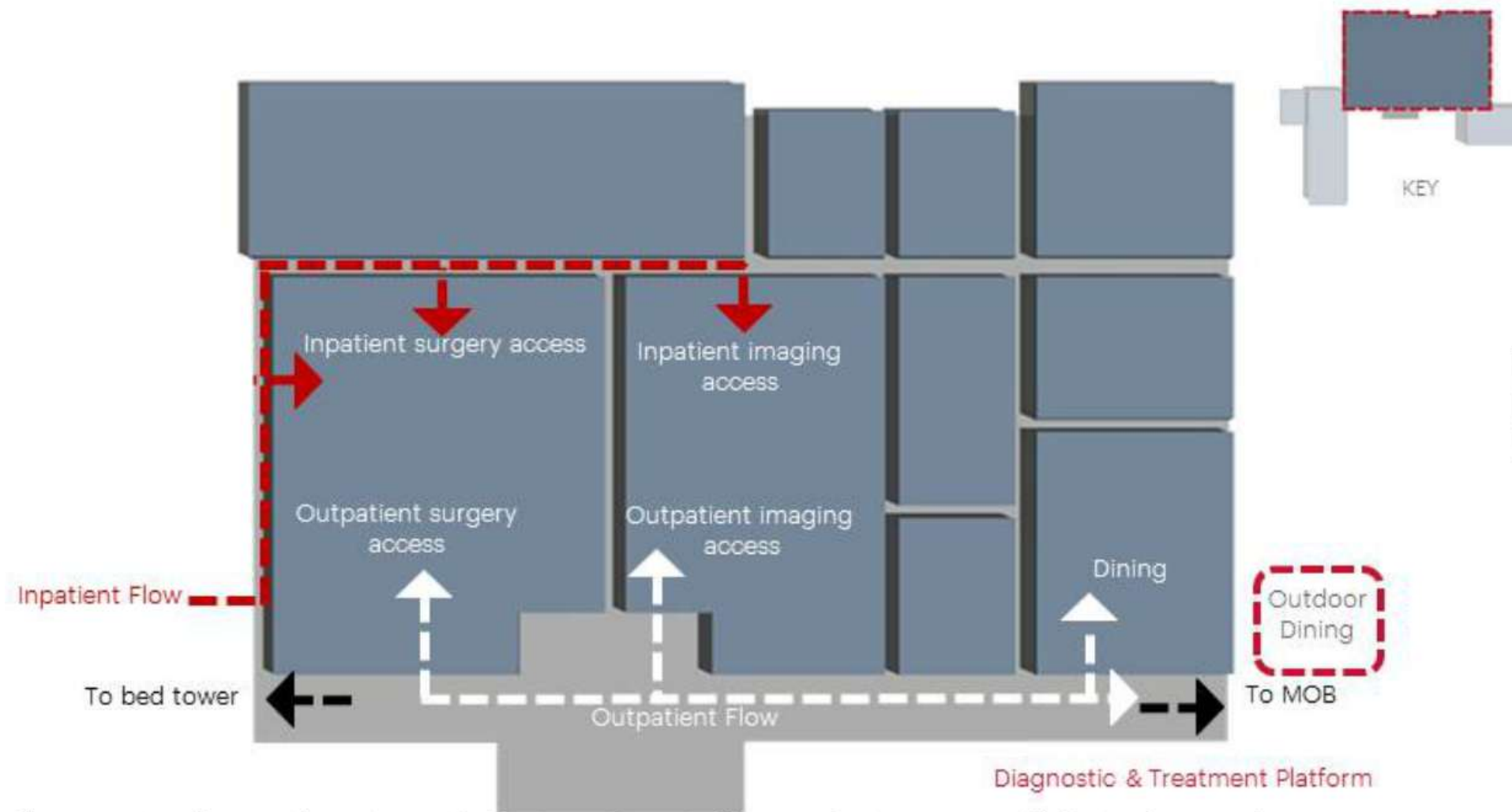
- Reduce waiting and inventory
- Do not work ahead of other team members
- Reduce number of moves for patients
- Reduce number of trips for nurses
- Eliminate overproduction

Make the Work Flow

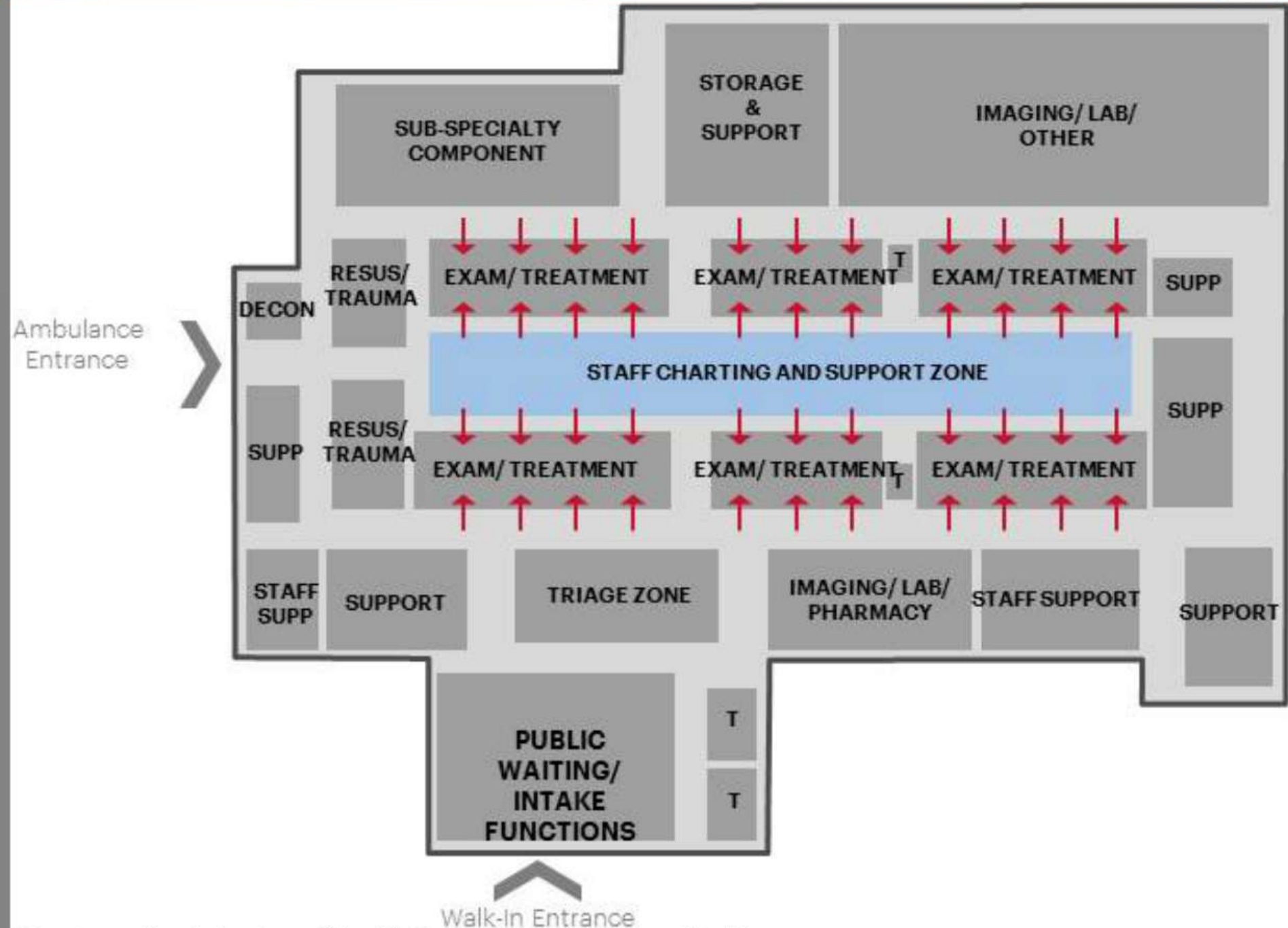
- Get quality right the first time
- Use stable repeatable methods for design where applicable
- Make all team members work transparent.
- Reduce any reports to one piece of paper when possible.



Separate Circulation for Staff, Patients & Materials

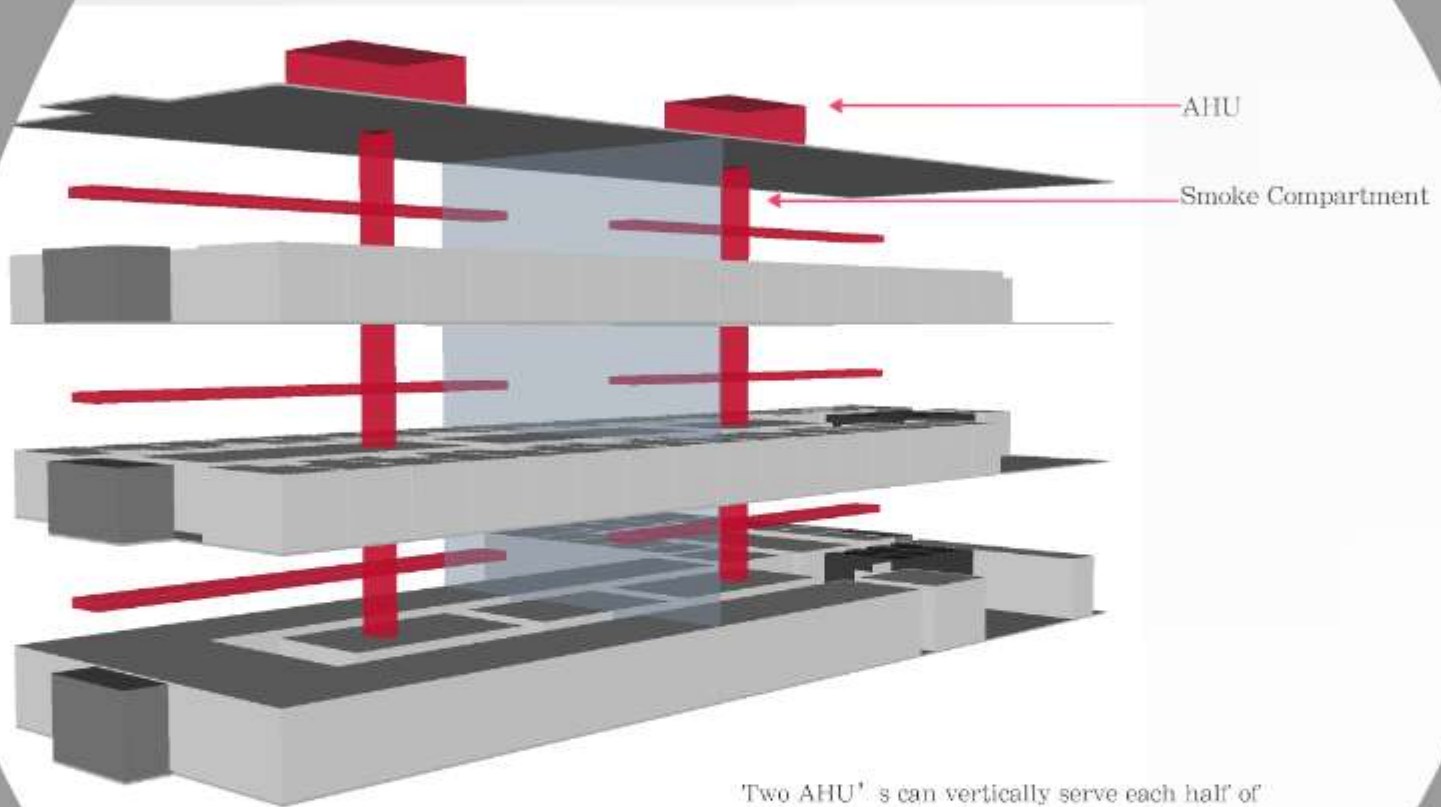


Separate Inpatient and Outpatient flows into consolidated services

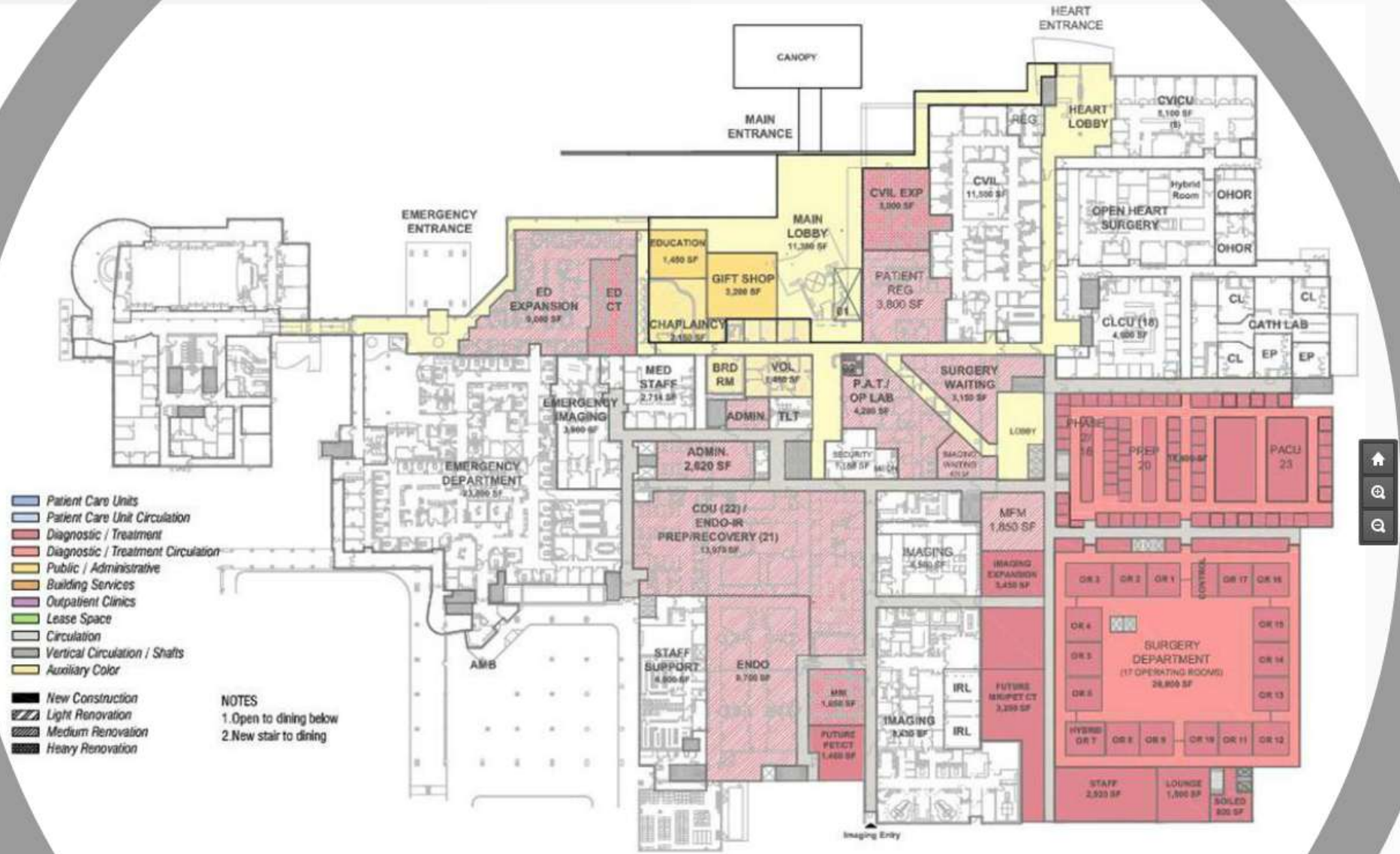


Design that helps Staff Focus on Productivity

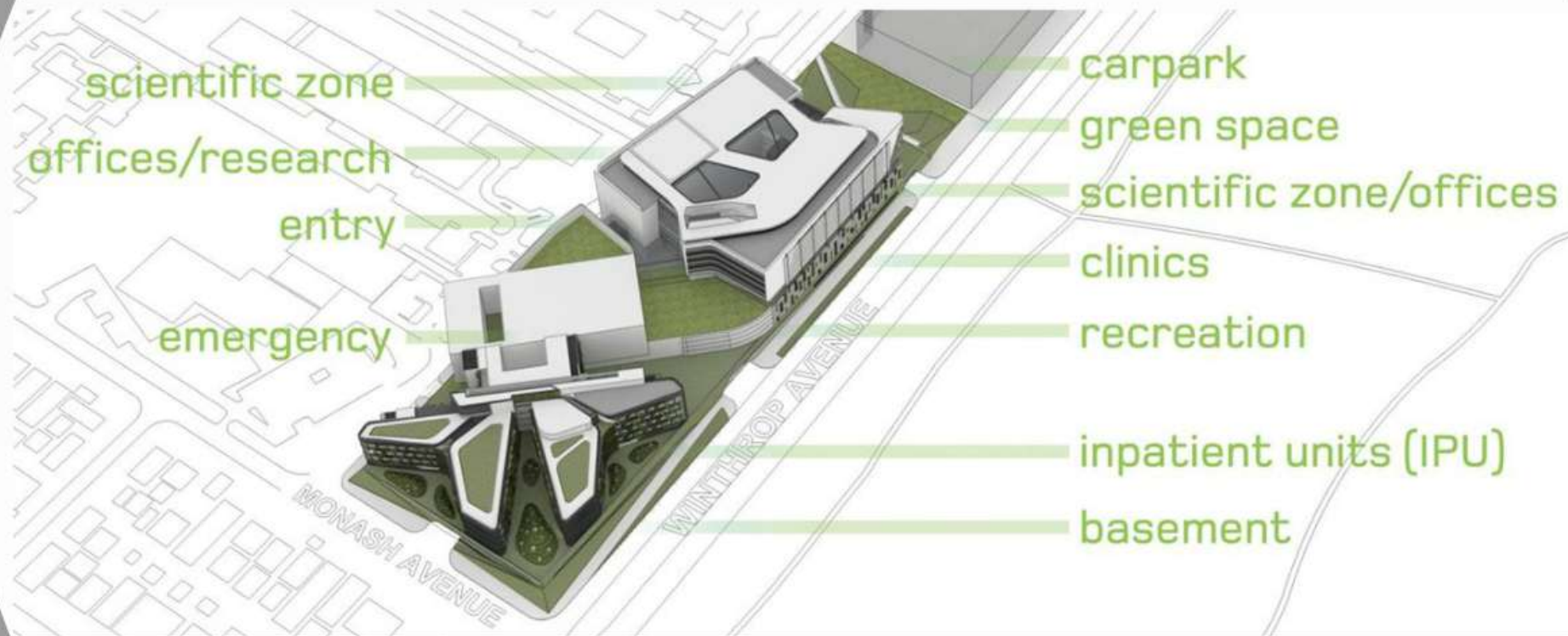
UTILIZE VERTICAL AHU DISTRIBUTION BY SMOKE COMPARTMENT



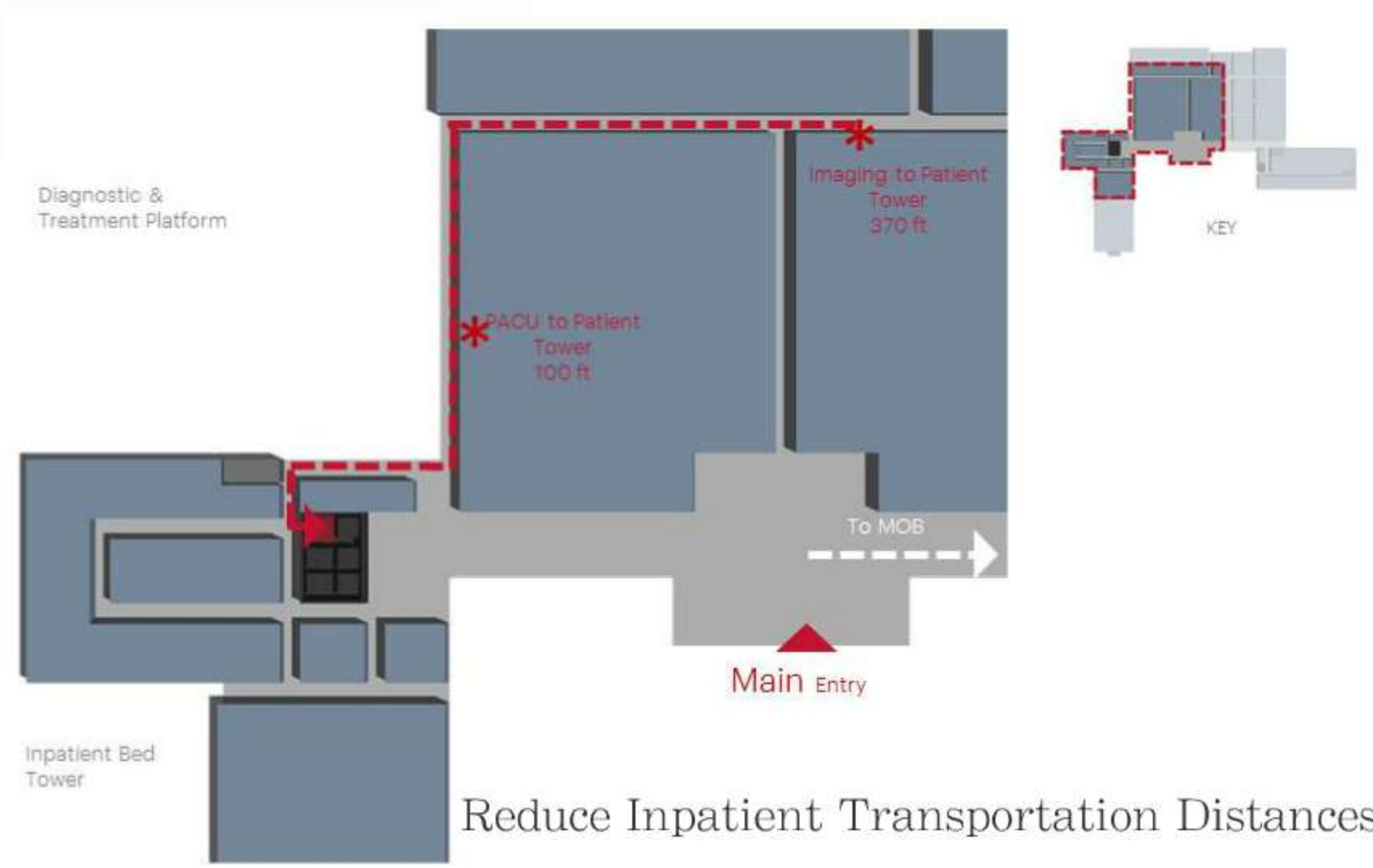
- Two AHU's can vertically serve each half of all floors resulting in:
- Ductwork serves only one smoke compartment zone
 - Reduces duct runs saving sheet metal cost
 - Reduces the number of fire/smoke dampers
 - Saves on both capital and operational costs (reduced air pressure drop)
 - Saves on long term maintenance due to reduced number of dampers



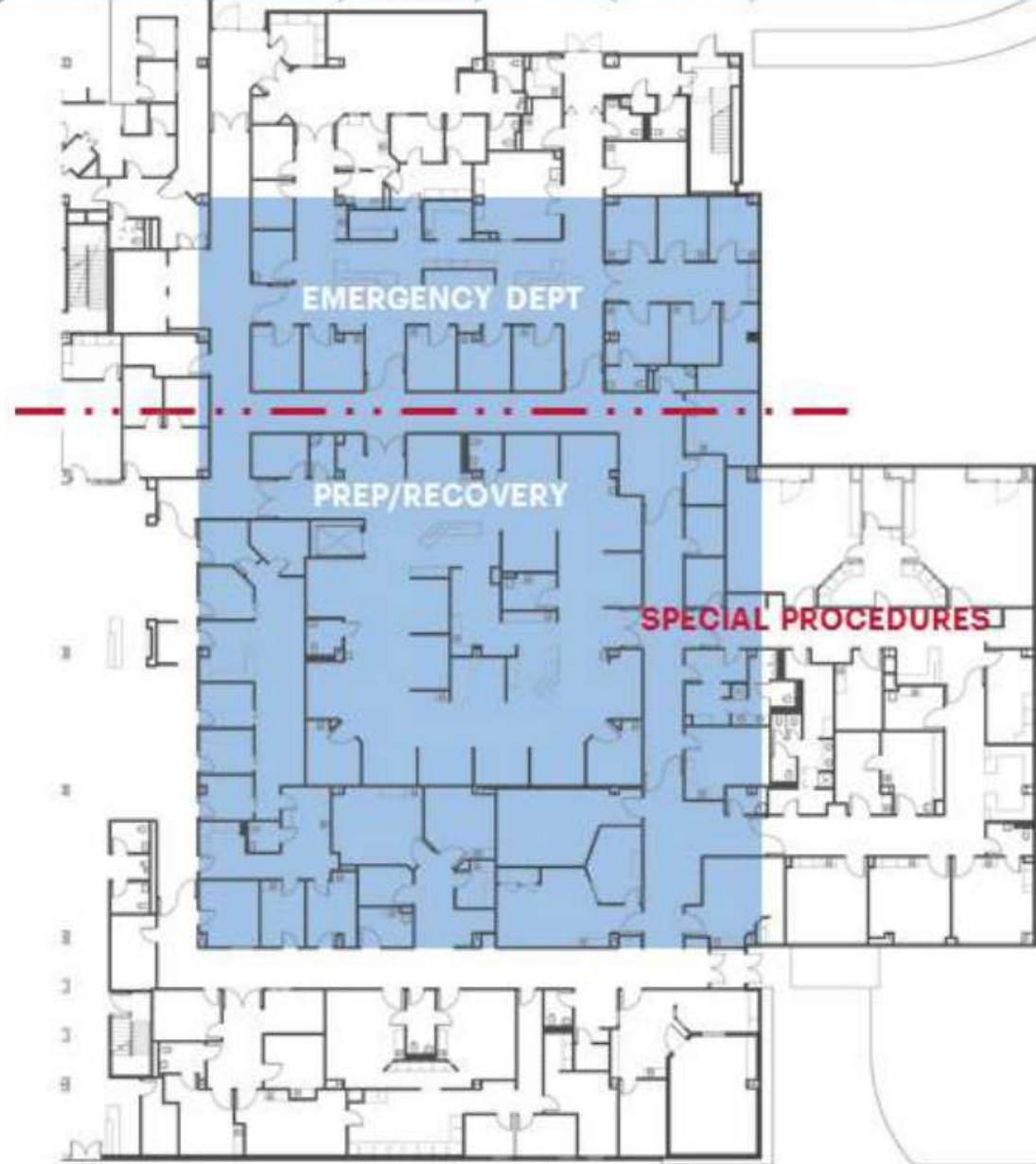
Facility Design And Planning: Schematic Design



Facility Design And Planning: Develop Overall Concept



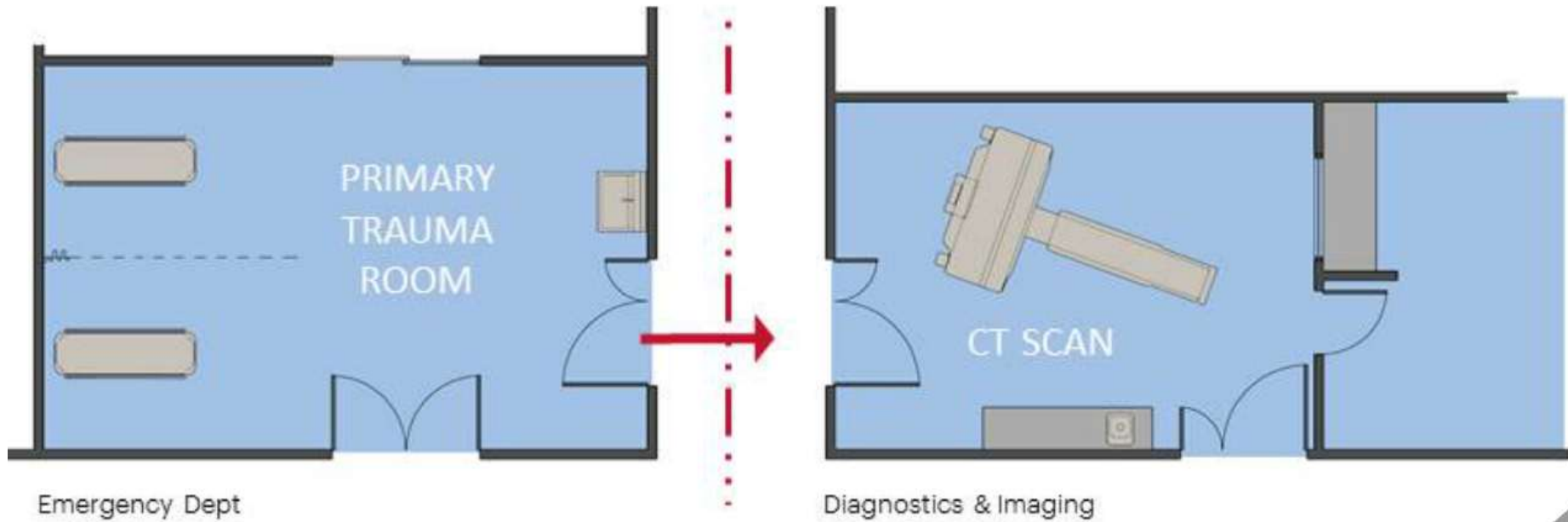
Reduce Inpatient Transportation Distances



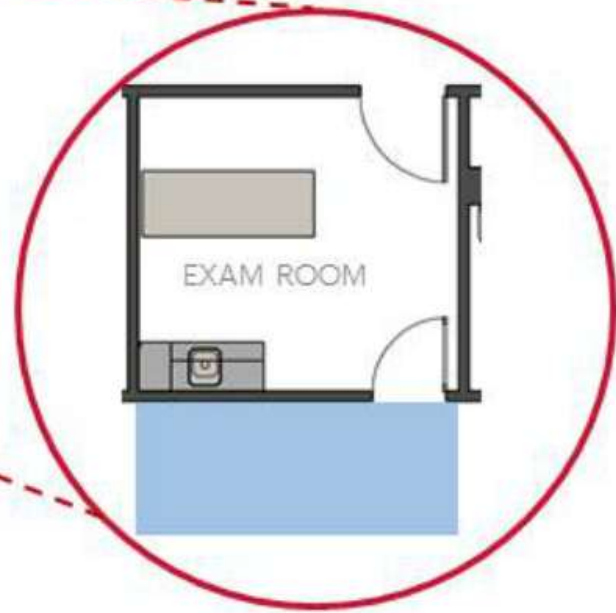
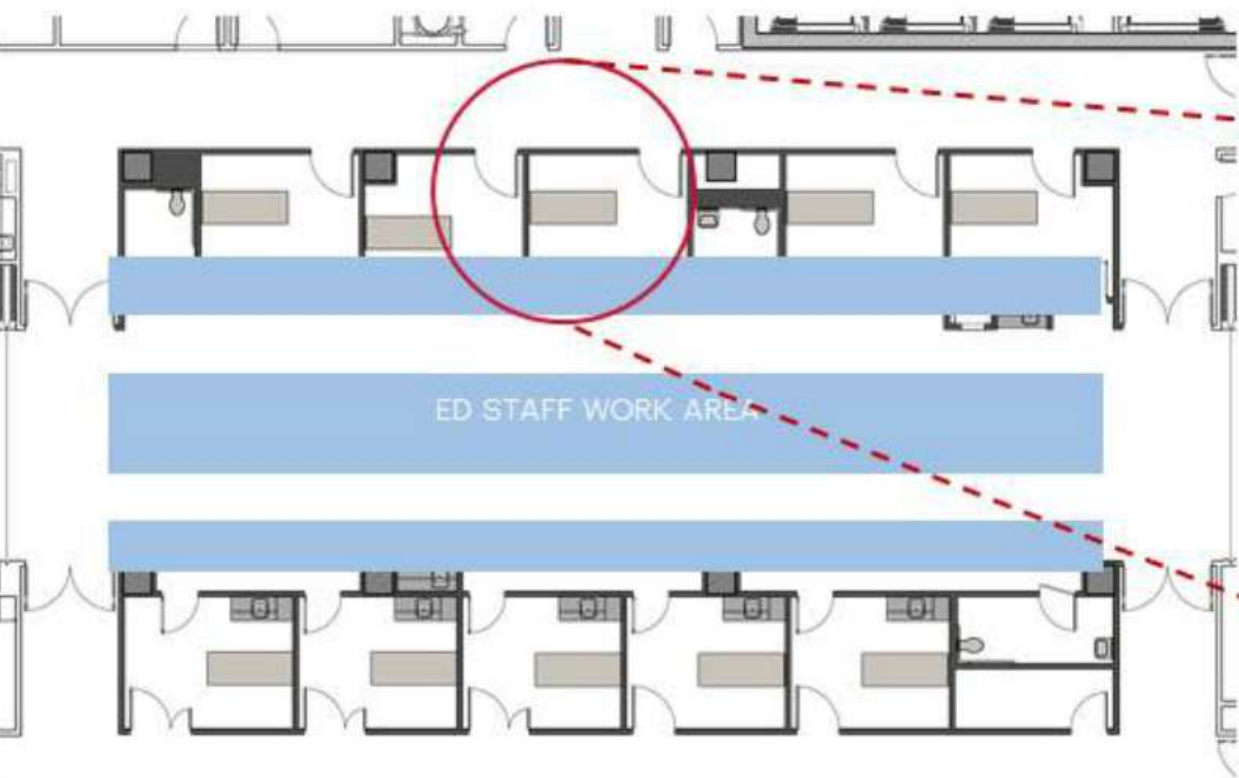
Beneficial Adjacencies

Program and Plan for Swing Use of Space During Opposing Peak Hours

Planned capability for occasional overflow, swing-use, or future re-assignment

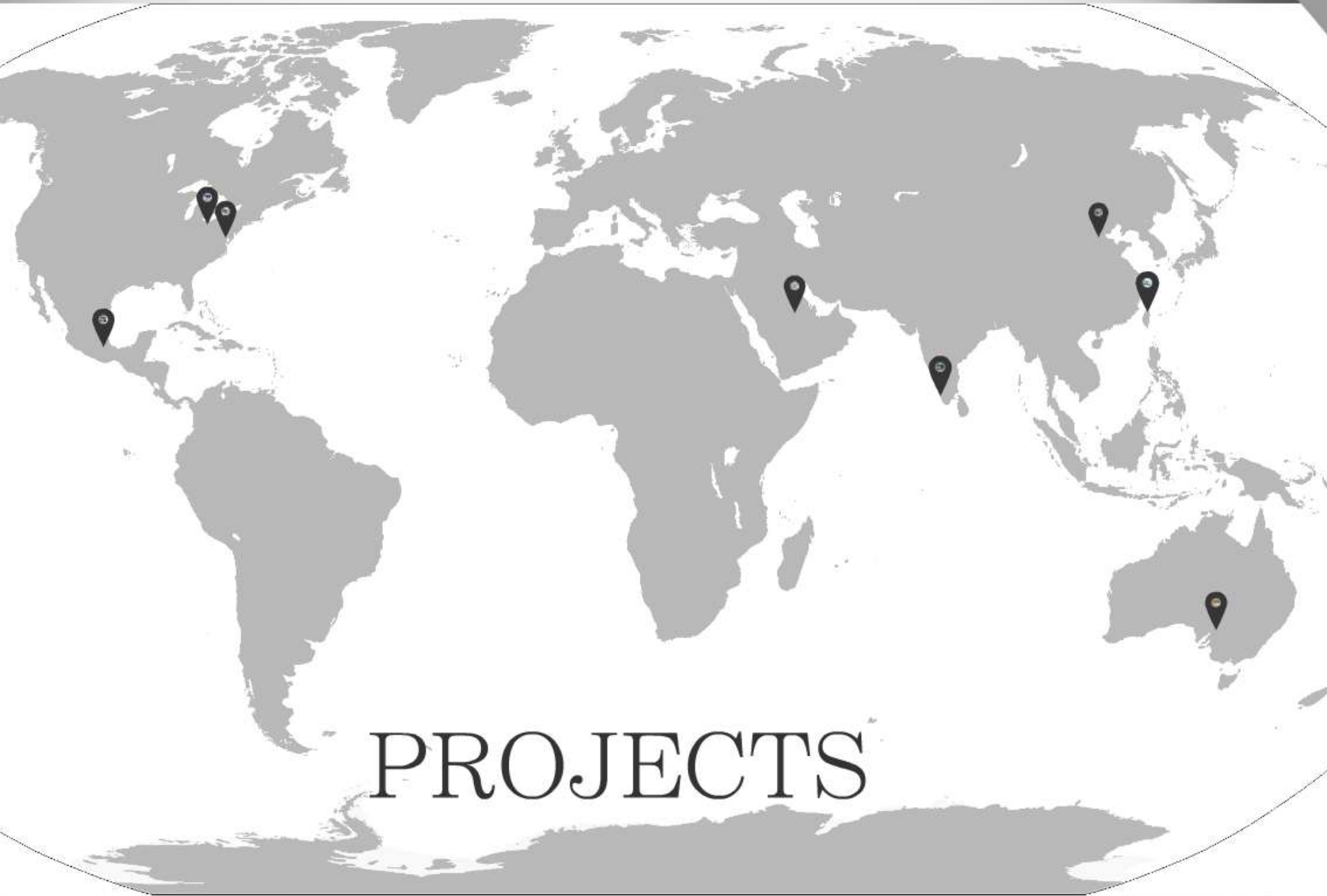


Beneficial adjacencies:
Thoughtful Adjacencies, Room Orientation & Door Location



Scalability

Surge Capacity & Scalability for Seasonal or Disaster Flexibility



PROJECTS

AIA Honor - King Fahad Medical City, Saudi Arabia



PROJECT COST?



DM Aster Hospital, Kerala, India, LEED Gold



PROJECT COST?



Fu-Jen Catholic University Hospital, Taiwan



PROJECT COST?



Tiantan Hospital, Beijing, China



PROJECT COST?



Royal Children's Hospital, Australia



Center for Health Design - American British Cowdray, Mexico



PROJECT COST?



Healthcare Design - George Washington University Hospital, USA



PROJECT COST?



AIA Modern Healthcare - University Hospital Ahuja, USA



PROJECT COST?



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www.HKSTracePaper.com