INCREASING EFFICIENCY
THE FUTURE OF HEALTHCARE
PLANNING AND DESIGN
HKS INTRODUCTION

4 Ranked the fourth largest healthcare design firm in the world
28 Offices worldwide
74 Years in the Architecture business
40 Years designing Healthcare facilities.
90 percent of our Healthcare business with repeat customers
470 Healthcare Design Awards
71,600 beds designed
13,500 unique projects
131 million square feet total
Ranked the fourth largest healthcare design firm in the world

Offices worldwide

Years in the Architecture business

Years designed Healthcare facilities

percent of our Healthcare business with repeat customers

Healthcare Design Awards
HKS has been ranked as one of the largest healthcare architects internationally, according to World Architecture

Healthcare Design Leaders

Dan Noble
President, Academy of Architecture for Health

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.
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.
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.
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.
FLEXIBILITY

Why do we need it?
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.
Adaptability
Does not result in a permanent change to the space
Planned Growth: Plug and Play

**Phasing**

- Future phase: New modules can be added or modified to accommodate changes in nursing practices.

- Original phase: Details of current bed units and renovation phases are shown.

**Sequencing Diagram**

- Inpatient bed unit growth module.
- Service chasiss growth module.
- Diagnostic and treatment horizontal growth module.
- Diagnostic and treatment "warehouse of flexible space".
- Physicians' lease space and clinic.
- Clinic horizontal growth module.
- Front door and service chasis are constant throughout all subsequent incremental expansions.
- Service and circulation chasis.
REDUCING COST

Cutting Square Footage

Increase Efficiency

Understand Rules & Regulations
ADDING VALUE

LEAN PROCESS

MEDICAL TECHNOLOGY

HEALTH MIRROR
HIPERFUSAL ELECTRONICS
INTEGRATED OR
ULTRASOUND
RAYA SCANNING
TELEPROFUSAL
MEASURE BLOOD PRESSURE
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

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

PROCESS

- 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

TRADITIONAL APPROACH

WANTS

NEEDS
Improved Ambulatory Surgery Process

1. **Non-Surgical Center**
   - **Patient Arrival at MDACC**
     - **MCC** (Surgery Received)
       - **Yes**
       - **Peri Procedural Centre**
       - **Yes**
       - **Periop Risk Screening**
         - **Yes**
         - **Consultation Room**
           - **Family Support & Waiting**
             - **Surgery Reception & Check In**
               - **Operating Room**
                 - **Procedure Room**
                   - **Stage 2 Recovery**
                     - **Inpatient Unit**
                       - **PACU**
                         - **Inpatient Unit**
                           - **Discharge**
                             - **Central Sterile Processing and Mat. Management**
                               - **Inpatient Unit**
                                 - **Operating Room**
                                   - **Procedure Room**
                                     - **Stage 2 Recovery**
                                       - **Inpatient Unit**
                                         - **PACU**
                                           - **Inpatient Unit**
                                             - **Discharge**
                                               - **Central Sterile Processing and Mat. Management**
                                                 - **Inpatient Unit**
                                                   - **Discharge**
                                                     - **Central Sterile Processing and Mat. Management**
                                                       - **Inpatient Unit**
                                                         - **Discharge**
INCREASE OPERATIONAL EFFICIENCY

EFFICIENT FLOW

Define Value from a Client Perspective

Continuous Process Flow

Make the Work Flow
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
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
Fu-Jen Catholic University Hospital, Taiwan
Tiantan Hospital, Beijing, China

PROJECT COST?
Royal Children's Hospital, Australia
Center for Health Design - American British Cowdray, Mexico

PROJECT COST?
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