

Designed to Empower: Community-Focused Healthcare Environments that Reinforce Identity and Purpose

PROJECT

Integrated Building, Changi General Hospital

ORGANIZATIONAL AFFILIATION

**B+H Architects in Joint Venture Partnership with
RDC Architects**

AUTHOR

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LOCATION

Singapore

SIZE

35,000 m²



Key Project Goals

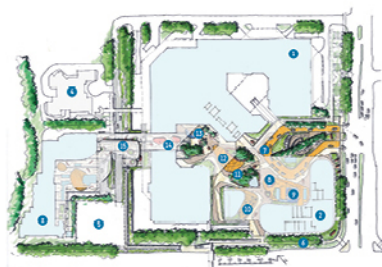
- Create a new paradigm for multi-acuity care for a growing elderly population.
- Provide the infrastructure for flexible and adaptable inpatient accommodations that actively integrate patient rehabilitation with a patient- and family-centered model of care
- Optimize operational efficiencies through a comprehensive functional planning approach that focused on key adjacencies, building linkages and opportunities for future expansion.

Executive Summary

As part of the Eastern Health Alliance's (EHA) long-term plan to address the needs of East Singapore's growing and aging population and high demand for new acute care beds, a major facility expansion program was launched to redevelop the Changi General Hospital (CGH) site. The existing CGH served as a medical clinic, staff administration building and inpatient acute care unit. Due to a shortage of sub-acute space, patients with less severe complaints – especially the elderly – were being kept in acute care for much longer periods of time.

As a solution to this growing concern, B+H Architects designed two new buildings to alleviate the strains that CGH was experiencing. Completed in 2015, the Integrated Building accommodates long-term elderly patients who have experienced a form of mobility impairment. Our second addition to the campus, the Annex Building, is currently under construction and will further alleviate pressure on the main CGH building when clinics and administrative offices are decanted into it.

The guiding vision was to create a healthcare campus that provided the infrastructure for flexible, acuity-adaptable inpatient accommodations which actively integrate patient rehabilitation with a patient- and family-centered model of care—all designed to improve healthcare outcomes and expedite the patient's return to the community.



- 1 CGH Acute Hospital
- 2 Medical Centre
- 3 IB Building
- 4 Singtel Care Centre & St. Andrew's Community Hospital
- 5 Orange Valley Nursing Home
- 6 Urban Tree Line Streetscape
- 7 Arrival & Drop-Offs
- 8 Reception
- 9 Water Garden
- 10 Outdoor Cafe
- 11 Tree Clusters with Seating Edge
- 12 Village Plaza
- 13 Fish Pond & Flowering Tree Pods
- 14 Retail Kiosk
- 15 IB Plaza



Arriving at CGH is intended to evoke a special sense of place defined by the urban design, building architecture and landscaped open space. Healing gardens can be found throughout the complex, serving as natural way finding elements connecting to patient destinations and public reception areas.

Concept of Wellness

Research revealed that the quality of the designed environment influences patient recovery in far more significant ways than previously imagined, suggesting that the patient's perception of their environment influences their response to nursing care, medication and their overall hospital experience.

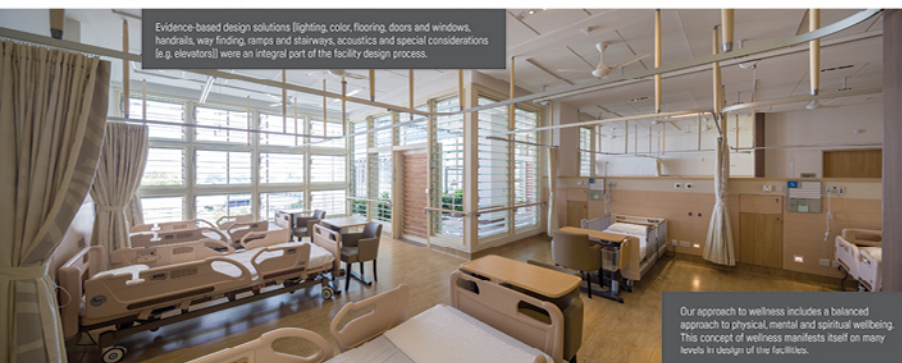
The theory of salutogenesis provides an understanding of how coping may be created, and through the quality of the environment, can improve perceptions of the care patients receive. Providing positive distractions and stimuli through the environment is critical to support the healing process.

In Singapore, elderly individuals recovering from a stroke, a fall or some other mobility-impairing event are traditionally cared for at home. In the recent shift to two-career households, this model has become increasingly untenable. CGH's Integrated Building creates a care environment for the recovering elderly that is as homelike as possible. At the same time, it ensures that people just beginning their recovery have ample privacy, while those whose condition is improving are able to transition to increasingly social, independence-promoting settings.

The typical, six-bed model for wards in Singapore is straightforwardly institutional: three beds along one wall facing three beds along the opposite wall. Our model for the Integrated Building is instead a five-bed 'house' incorporating the equivalent of a back yard and a front porch. In most cases, three five-bed houses cluster onto a shared 'back yard': a sheltered exterior courtyard. In a conventional ward, there is no mediating space between the main corridor point of entry and the patients' beds. In the Integrated Building, however, we have inserted a semi-public 'front porch'. In this kitchenette-style space, patients can begin to regain their independence by tasks such as preparing tea for visiting family members. Houses also contain large dining areas where families can eat together, as opposed to having patients eat their meals in bed. Patients who have regained sufficient mobility begin to use shared rehabilitation areas on their floor, and when they are nearly ready to return home, they can practice independent living skills in a model apartment located in the podium below the inpatient floors.

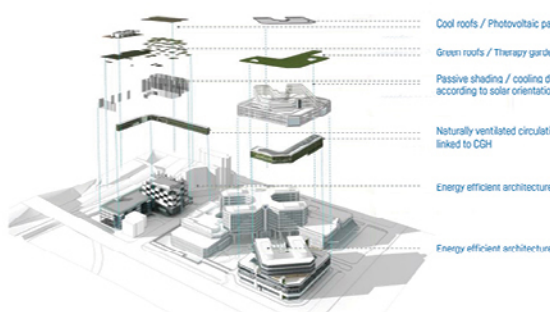


The center portion of the Changi General Hospital site has been re-purposed as a landscaped open space framed by the existing Changi General Hospital and new Annex buildings. Similarly, the Integrated Building site has been developed with an emphasis on ground level open space consistent with the shared public usage and social care / community services focus of these areas.



Evidence-based design solutions (lighting, color, flooring, doors and windows, handrails, way finding, ramps and stairways, acoustics and special considerations (e.g. elevators)) were an integral part of the facility design process.

Our approach to wellness includes a balanced approach to physical, mental and spiritual wellbeing. This concept of wellness manifests itself on many levels in design of the facilities.



- Cool roofs / Photovoltaic panels
- Green roofs / Therapy gardens
- Passive shading / cooling designed according to solar orientation
- Naturally ventilated circulation spine linked to CGH
- Energy efficient architecture
- Energy efficient architecture



We approached the campus design as a whole, working towards optimizing operational efficiencies through a comprehensive functional planning approach that focused on key adjacencies, building linkages and opportunities for future expansion.

Solutions to Enhance Healing Environments

Our design team was committed to the principles that thoughtfully designed space and access to natural light and outdoor gardens can contribute to the well-being of individuals and promote healing. The following approaches were used in the design:

- Inpatient rooms and corridors were enhanced with natural light
- Natural ventilation strategies integrated throughout the design
- Large interior public spaces offer artful design and well-lit voluminous space with natural and tactile materials
- Windows in the inpatient rooms were located to afford views of gardens while maintaining a sense of privacy. Windows allow the patient to see outside directly from their bed
- Healing Gardens were located throughout the campus
- Courtyards, shade trellis structures, bench seating, landscape lighting, trees, shrubs and ground cover planting were used to complement the garden space. These elements offer calming environments and promote patient healing by enhancing their relationship with nature, daylight, and the temperate climate and fresh air of the region



Physical wellness was addressed throughout the entire design by creating a healing environment while simultaneously maximizing healthcare efficiencies.