3.0 THE PROJECT

3.1 INTRODUCTION

The vision for Lifehouse is to provide an integrated cancer service for Sydney, uniting clinical treatment, cancer research and education under one roof. It will be building which delivers uncompromised care for patients and families affected by cancer.

The existing Sydney Cancer Centre will be relocated from its existing accommodation within Gloucester House on the eastern side of the RPA campus and merged with cancer facilities within RPA and research facilities from Sydney University.

The approximately 42,000m^2 facility will be located on the site of the previous Page Chest Pavilion and Brown Street General Outpatients Clinic, adjacent to the existing local heritage King George V, opposite St. Andrew's College and in proximity to the main RPA hospital.

The proposed development is a ten storey building (with upper two storeys set back from Missenden Road) incorporating three basement levels for car parking and support accommodation and its own loading dock.

The completed project will comprise:

- Stage A development of:
  - clinical services (including ambulatory care);
  - research space;
  - ground floor retail;
  - inpatient areas (shell accommodation for Stage B1);
  - plant/circulation areas; and
  - 100 car spaces to service the entire development.
- Stage B1 fit out accommodation providing:
  - inpatient areas (96 beds);
  - intensive care (18 beds);
  - 7 additional theatres; and
  - diagnostic imaging expansion.

The Lifehouse envelope will be built as one development, approximately 42,000m^2. Within the building, approximately 26,000m^2 will be fitted out (Stage A) with the approximate balance of 16,000m^2 remaining as 'shell' space.

FIGURE 16: Lifehouse looking south down Missenden Road *Source: Rice Daubney*

3.2 ARCHITECTURAL CONCEPT

Lifehouse will be composed of three major volumes aligned along the north south axis of the site. The central circulation spine reinforces the north south axis and defines the eastern and western volumes of the building.

A central glass roofed atrium through the full height of the building introduces a cone of light into the deepest parts of the building and signifies the visionary aspirations of the new centre. Highly visible public circulation routes around the central atrium will be afford users with coincidental exposure to various parts of the facility, expressing the concept of an integrated centre.

The courtyards at lower ground level will introduce natural light into the levels below and provide potential glimpses into the building from street level. The southern courtyard provides a major focal point within the planning of the open circulation areas on the lower floor levels.

Functionally, the building form places the staff and service areas to the west (such as support areas, plant and engineering) and the patient and administration areas to the east, including patient treatment and accommodation.

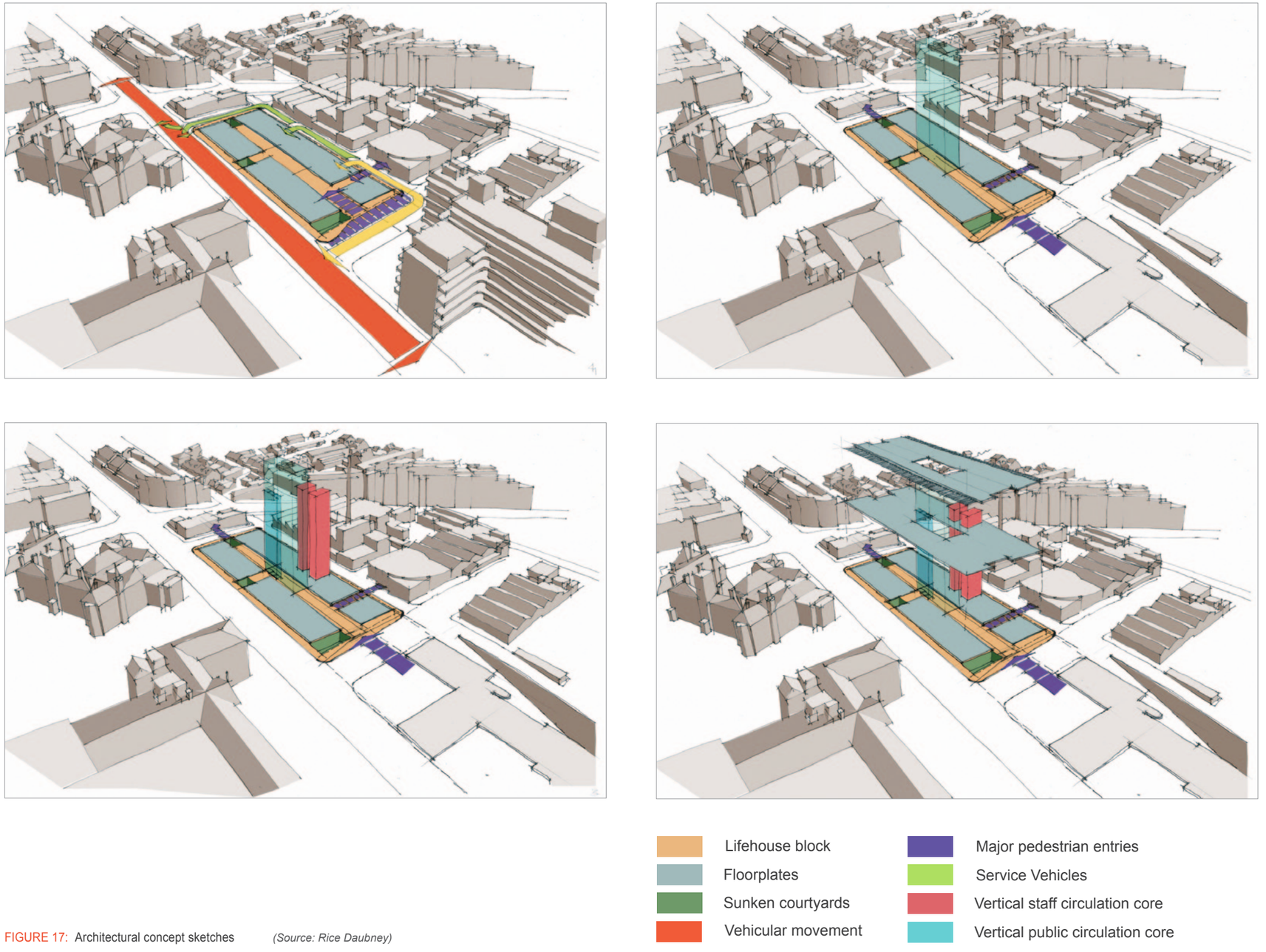


FIGURE 17: Architectural concept sketches *(Source: Rice Daubney)*

FIGURE 18: Ground floor plan

Source: Rice Daubney

3.3 SITE ACCESS, PLANNING AND DESIGN PRINCIPLES

Lifehouse will be situated on the site of the previous Page Chest Pavilion and General Outpatients' Building along Missenden Road. This location serves to emphasise the role of the Lifehouse by being part of the central core of the RPA campus.

The main pedestrian interface and entry to Lifehouse will be from Salisbury Road, away from the busy street environment of Missenden Road and oriented to the urban space defined between the new Lifehouse and the southern edge of the King George V building.
A secondary entry is provided opposite the existing Radiation Oncology building to the west. Independent entries into the retail component of Lifehouse are provided from Missenden Road to activate the street frontage.

Private vehicular access is to be provided by Missenden Road, Salisbury Road and Susan Street. Access to and egress from the basement car park is provided from the northern section of Susan Street. The car park provides for key members of staff and patients undergoing treatment.

The southern section of Susan Street will be reserved for the loading dock and service vehicles. Service access routes will maintain a forward direction, with trucks entering Susan Street from Salisbury Road, reversing into one of the three loading dock bays and exiting via Brown Street onto Missenden Road. It is proposed that access be provided from Brown Street to Missenden Road (exit only).

Bus stops on Missenden Road as well as a taxi rank directly outside will facilitate public transport access. The signalised intersection at Missenden and Salisbury Roads will facilitate safe pedestrian access.

3.4 BUILT FORM AND SPATIAL DESIGN PRINCIPLES

The built form of Lifehouse is characterised by its block-edge building envelope, full height central atrium, horizontal articulation, differentiated street façade, recessed upper floors and its use of contemporary materials, making it distinct from the surrounding historic buildings along the Missenden Road streetscape.

The table below summarises the key built form and spatial design principles which have informed the design of Lifehouse. A floor-by-floor overview of the facility is provided further in Part 3.5, whilst a detailed description of the architectural concept and architectural form of Lifehouse is provided in Appendix C.

Design Principles	Purpose
Maintain north-south axis	To align with the adjacent King George V building and continue Missenden Road streetscape
Articulate horizontal mass of the building	
	To minimise the appearance of bulk and scale on the street, the building envelope will sit on a ground storey plinth and the upper two storeys will be set back from Missenden Road.
Provide a central atrium	To define the circulation core of the building and permit daylight into the building
Provide 'green outlook'	Three sunken landscaped courtyards and a rooftop garden will be provided for outlook from adjacent hospital rooms as well as for 'passive' breakout space. Sunken courtyards will also permit daylight to penetrate to the basement level below.
Create 'Open' floorplates for the lower levels (Ground to Level 2)	To maximise visual links and way finding to the ambulatory care clinics and day therapy areas. Link bridges connect east and west floorplates and waiting areas and/or meeting spaces span the atrium for improved visual connectivity.
Create 'Closed' floorplates for the upper levels (Level 3 and above)	To delineate departmental functionality and clinical uses.
Employ a variety of façade systems	To articulate the building into a number of volumes, thereby reducing the visual impact of bulk and scale
Use contemporary materials	To avoid competing with the nearby heritage-listed buildings which have solid masonry or concrete facades.

TABLE 04: Built form and spatial design principles

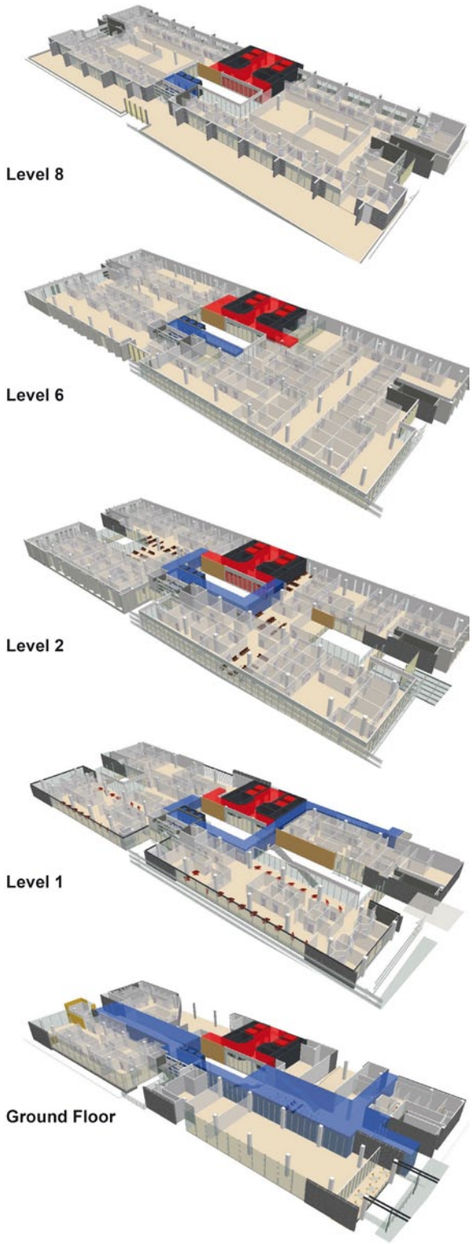


FIGURE 19: Internal circulation pattern *Source: Rice Daubney*

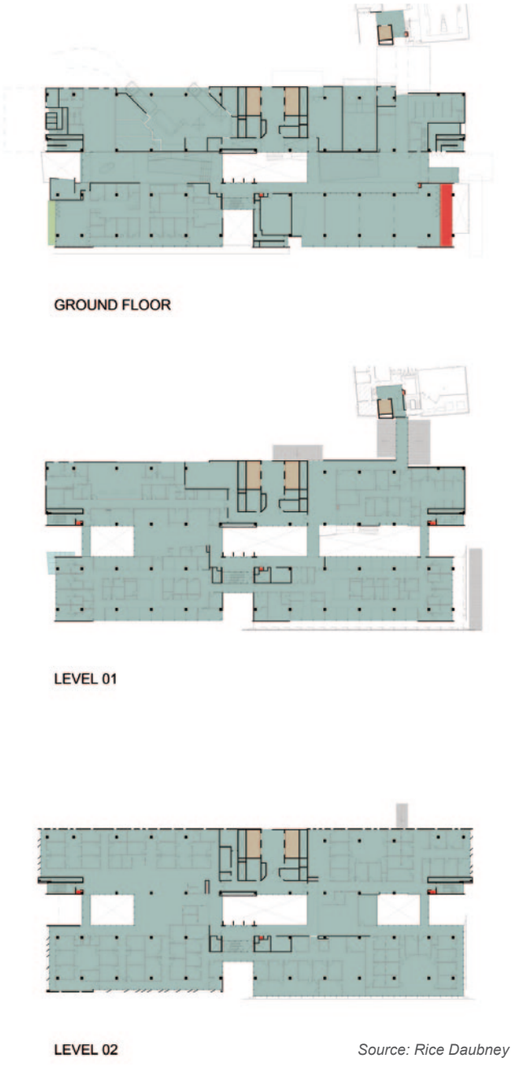


FIGURE 20: Floorplates for Ground Floor and Levels 1 and 2 *Source: Rice Daubney*

3.5 FACILITY DESCRIPTION

The following is a description of the internal circulation pattern of the building and a summary of the building functionality on a floor by floor basis. Full details are described in Appendix C.

Internal circulation pattern

The internal circulation pattern is concentrated around the central atrium and separates freely accessible public routes from the controlled staff and patient zones, both horizontally and vertically.

Public corridors are located on the eastern side, serviced by public glass lifts which provide visual links to differing activities on each level and direct access to basement car parking.

Staff and controlled patient corridors are located on the western side and are serviced by a separate lift core which provides discrete links to critical clinical zones and direct access to the loading dock, basement level support and service zones and car parking.

Ground Floor

The ground floor features the main entry, integrated medicine (or 'Wellness Centre"), retail tenancies as well as a secondary entry link to the Radiation Oncology building. Voids on the north, south and eastern side overlook sunken landscape courtyards at Basement 1 Level.

The ground floor has been set on two levels. The main entrance, Radiation Oncology link, public reception space and Wellness Centre are located on the northern side at street level for ease of access. Quieter open plan seating and waiting areas are located on the southern side at an elevated level, which affords greater head clearance for the diagnostic imaging department below and also provides for a raised platform within the loading dock for truck deliveries.

Other functions provided on this level include transit lounge, security and patient services.

Level 1

Level 1 features the Day Therapy Centre, Phlebotomy, Pharmacy and Tissue Bank as well as a new link to the Radiation Oncology building.

The Day Therapy Centre will facilitate chemotherapy treatment, clinical trials treatments and day medical services.

Phlebotomy is co-located with Day Therapy, enabling chemotherapy patients to have their blood taken immediately prior to attending the Day Therapy Centre. Direct access from ground level is provided by an open stair. Phlebotomy will also include a vertical hoist connected to the Interventional Suite to enable samples to be processed and analysed on-site.

Level 2

Ambulatory Care Clinics will provide consultation and diagnostic services aiming to provide same day diagnosis and treatment advice and will be clustered into the following groups:

- Haematology and Palliative Care;
- Thoracic, Head and Neck;
- Upper Gastrointestinal and Colorectal;
- Urology, Dermatology and Melanoma;
- Breast, Bone and Soft Tissue Sarcoma; and
- Gynaecology.

These clinics will be supported by the Ambulatory Care Clinical Offices on Level 7 and Lifehouse Clinical Trials on Level 6 and will be linked by both the public and staff lifts.

Level 3

Level 3 provides accommodation for the Peri-operative unit and the Interventional Suite.

The Peri-operative Suite accommodates a reception and waiting area for patients and family and a restricted pre and post operative care area.

The theatre zone provides three operating room to be fitted out in Stage A with a further seven operating rooms provided under the Stage B1 fit out for 2016.

Clean and dirty hoist connections to sterile supply have been provided under Stage A fit out work.

Level 4

Theatre change and staff support accommodation is provided at this level. Access to the theatre change is provided off the staff corridor. An open stair has been provided with direct access to the Interventional floor below.

Accommodation for patients' family is located on this floor and Level 5.

The remainder of this floor is designated plant located centrally to feed accommodation above and below.

Level 5

The Sterile Supply Unit is vertically connected to the Interventional Suite on Level 3 via the clean and dirty hoists.

The public corridor allows access to the centrally located administration hub of Lifehouse and is co-located with the Education Centre. The Education Centre incorporates multi-purpose meeting and flexible function space to accommodate education programmes and conferences. This will include a function room for 80 people which can be subdivided into either two seminar rooms or one seminar and two meeting rooms.

Level 6

Level 6 is the designated Research floor, which is divided into pods for each research group. The layout will be flexible to accommodate the needs and development of the research programmes.

The Lifehouse Clinical Trials department is located on this level with direct links to the Ambulatory Care Clinics on Level 2.

Level 7

Level 7 accommodates the Ambulatory Care Clinical offices and the 18 bed Intensive Care Unit. Ambulatory Care Clinical Offices have vertical links to the Ambulatory Care Clinics on Level 2.

The fit-out of the Intensive Care Unit is to be completed under the Stage B1 fit-out currently programmed for 2016.

Level 8

Level 8 accommodates two in-patient units, configured around the centrally located staff support facilities, with a single larger suite or VIP room provided in the south east wing.

Each unit will contain 24 single patient rooms with ensuites. Full height glazing will enable natural light and views from the patient's bed and chair.

A rooftop landscape zone will be provided in the setback area. These healing gardens will be visually accessible from a large portion of the patient rooms and will be directly accessible to a secured landscaped patient garden on Level 8 only.

The in-patient bedrooms will be shell space only in Stage A and will be fitted out in the Stage B1 works. During Stage A Lifehouse will use in-patient facilities within the main RPA hospital.

LEVEL 03

LEVEL 06

LEVEL 04

LEVEL 07

LEVEL 05 *Source: Rice Daubney*

FIGURE 21: Floorplates for Levels 3,4 and 5

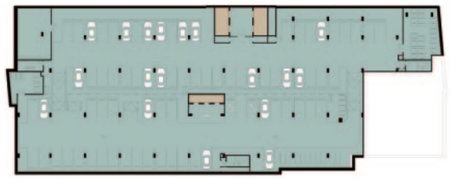
LEVEL 08 *Source: Rice Daubney*

FIGURE 22: Floorplates for Levels 6,7 and 8

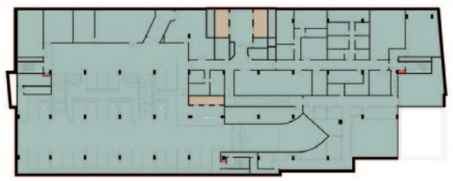
LEVEL 09

Source: Rice Daubney

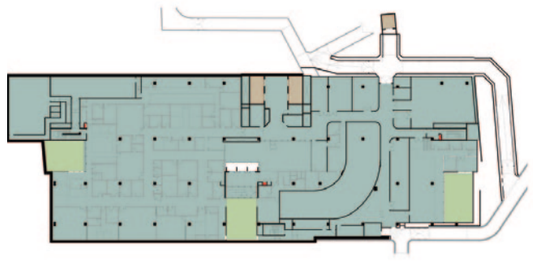
FIGURE 23: Floorplate for Level 9



BASEMENT 3



BASEMENT 2



BASEMENT 1

Source: Rice Daubney

FIGURE 24: Floorplate for Basement Levels

Level 9

Level 9 houses two in-patient units each with 24 single rooms with ensuites. The layout is similar to the units on Level 8, but centralised recessed plant areas are provided for the cooling towers in the central support zone.

Visual access to the landscaped zones only is provided from a number of the patient rooms.

Basement Levels

Basement 1

Basement 1 houses diagnostic imaging and hotel and waste management services. Staff Support areas for patient services are also provided on this level with an internal stair link direct to the department above.

Lifehouse connects into the existing RPA service tunnel connecting the eastern and western campuses of RPA. This tunnel is primarily used for services, however on occasion it is used to transfer patients from RPA to Radiation Oncology. Works to this tunnel area are part of a separate approval process.

A new substation will be located partially under Brown Street allowing access hatches for maintenance beyond the building footprint.

Basement 2

This level contains car parking for 24 cars split over two levels, served by both the public and staff lifts.

Four of the 24 spaces are accessible parking spaces with easy access to the public lifts.

Three courier spaces/contractor bays have been provided at Basement 2B level, with oversight by the dock manager.

This level also contains various back of house functions. As such, public access to this level is limited to the car park.

Basement 3

This level contains car parking for 76 cars over two split levels, served by both the public and staff lifts.

Two of the 76 spaces are accessible parking spaces with easy access to the public lifts.

Lockable bicycle storage has been provided for staff, with open bicycle parking for visitors.

Radiation Oncology

Minor refurbishment and new building works will occur within the existing Radiation Oncology building to provide a new link (to Lifehouse) and lift, replacing the existing ramps. Within this reconfiguration, replacement offices and meeting rooms will be provided.

Structure

All floor slabs are proposed to be post-tensioned and/or reinforced concrete, supported on reinforced concrete columns and life cores.

The location of the concrete columns for the typical floors has been dictated by and co-ordinated with the internal layout of the functional spaces and the ancillary areas. Generally these columns suit the car parking arrangement at Basement Levels 2 and 3. The slab and beam sizes will be optimised to give structural efficiencies in the floor slab system. Some minor transfer of columns will occur at Level 1, Ground and Basement Level 1. The building has been planned so that the column grid is continuous throughout the building thus minimising costs associated with transfer structures.

Excavation for the basement floors will incorporate a shoring wall system that will reflect the site conditions set out in the geotechnical report (refer to Appendix E). The shoring wall system will support the surrounding ground and associated surcharges but will not provide vertical support for the building structure.

The concrete floor slab and associated columns will support the building façade, which is not intended to be loadbearing. The floor slabs will be independently checked for the effect of earthquake loads and floor vibrations. The structural framing and orientation of the floor beams within the floor slab system will take into account the needs of mechanical air conditioning ducts, building cantilevers and the required fire resistance.

The lateral stability of the building is to be provided by a combination of frame action between the floor slabs, the building columns and the concrete walls surrounding the stair and lift shafts. Earthquake and wind resisting lift and stair cores are to be strategically located.

The function of the existing services tunnel traversing the site will need to remain operational for the duration of construction. Accordingly, it is proposed that the tunnel be diverted externally to the Lifehouse site as part of a separate works package.