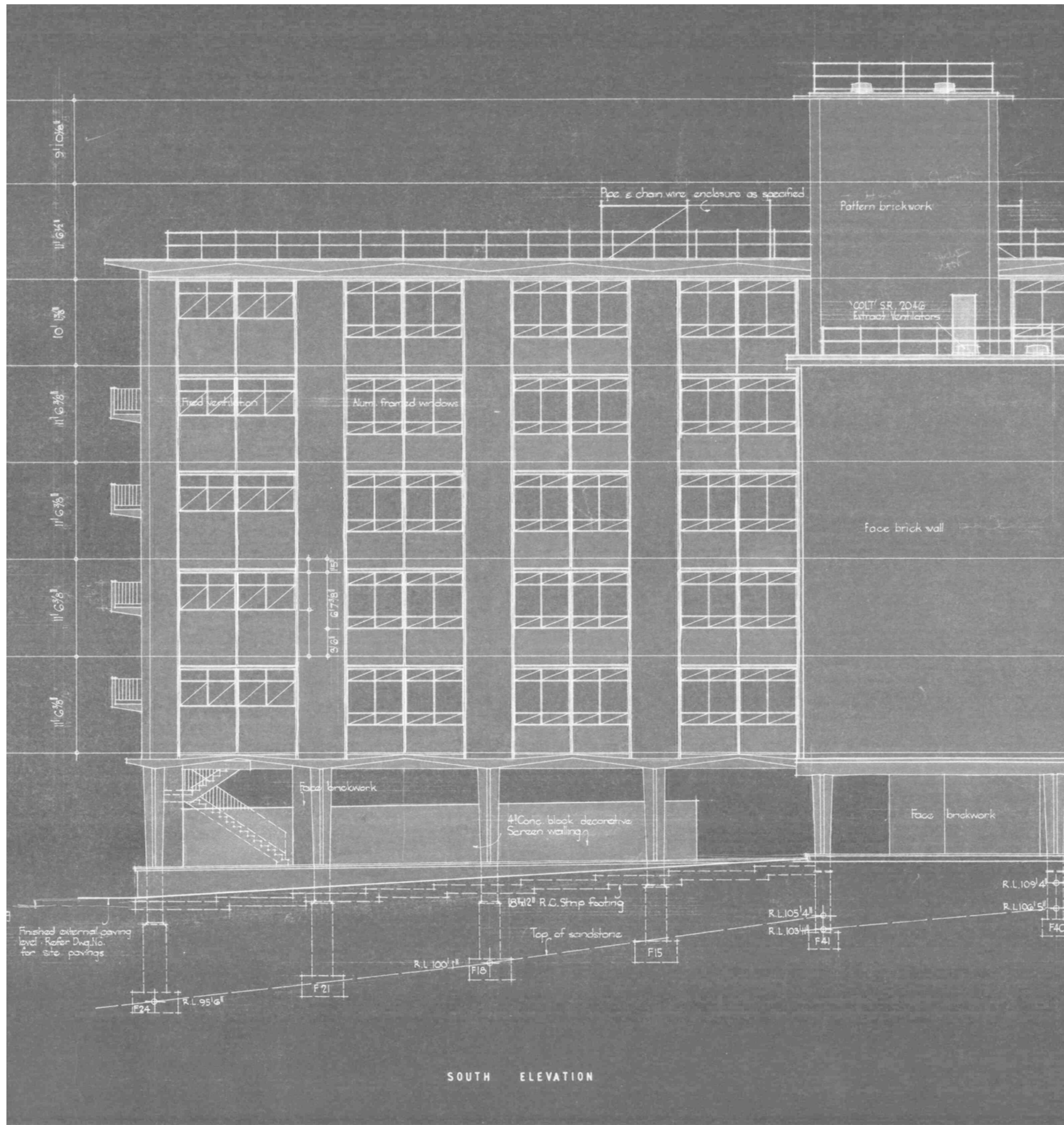




# 5.0 DESIGN APPROACH

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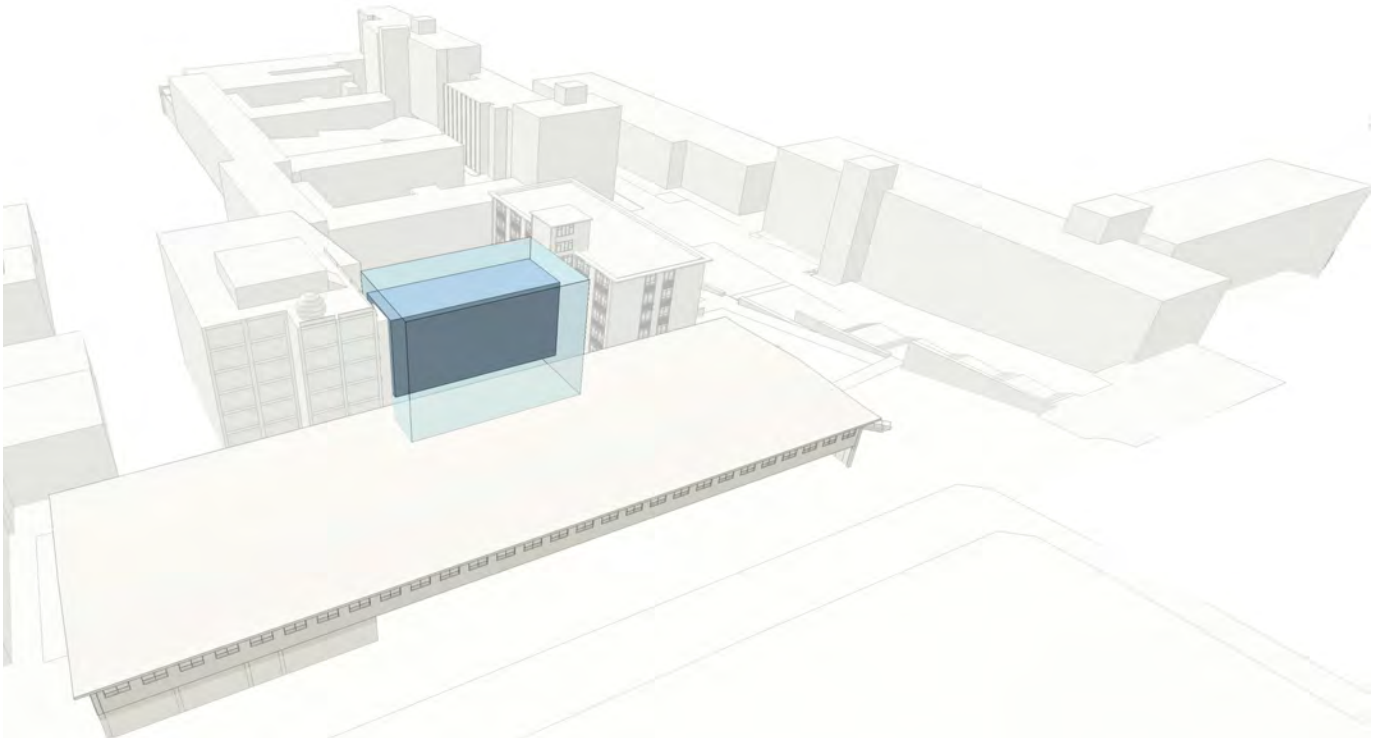
## 5.1 PROPOSED DEMOLITION

The southern wing of J17 is proposed for demolition, due to the narrow floor-plate size and small structural grid making it ineffective for contemporary learning environments. Options were studied to add a new structure to the existing, however the structural grid limited the effectiveness of this expanded floor-plate. The bridge link to J18 is also proposed for demolition.



## 5.2 NEW VOLUME

The southern wing of J17 is proposed to be replaced by a new and enlarged building. The building volume would extend from the current alignment of the façade with the courtyard to the edge of Willis Lane, as well as being a full floor higher than the existing volume.

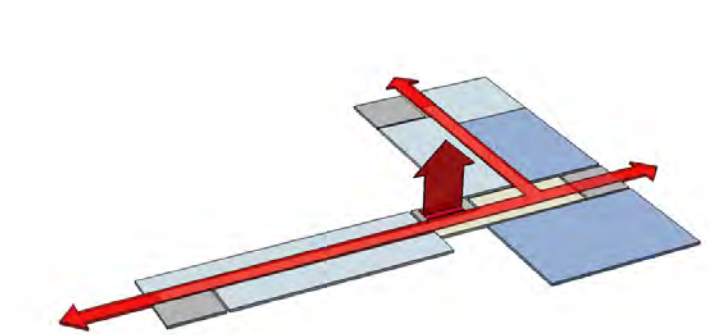


5.0 DESIGN APPROACH

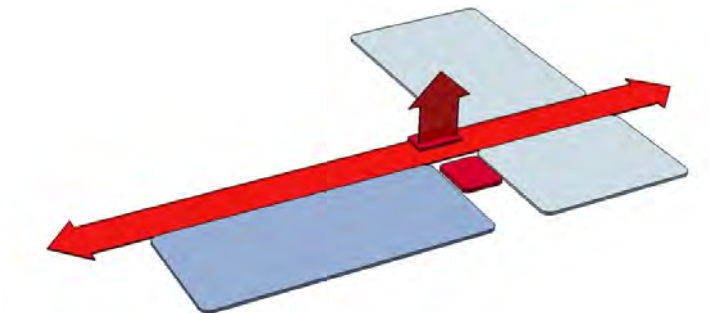
5.3 CIRCULATION TYPICAL FLOOR

The existing circulation consists of narrow (1.2m) corridors in an ‘L’ shaped configuration with no connection to natural light. The Corridor widths are insufficient to support social interaction, informal learning and student movement. The double loaded corridors result in a connection of disconnected rooms and inhibits collaboration.

With the proposed new volume replacing the southern wing the circulation is dramatically simplified to a north-south corridor connecting the existing north stair with the teaching and computer laboratories. The circulation path connects all vertical circulation and is substantially wider, being 4.5m, to support social interaction, informal learning and student movement.



Circulation – Existing



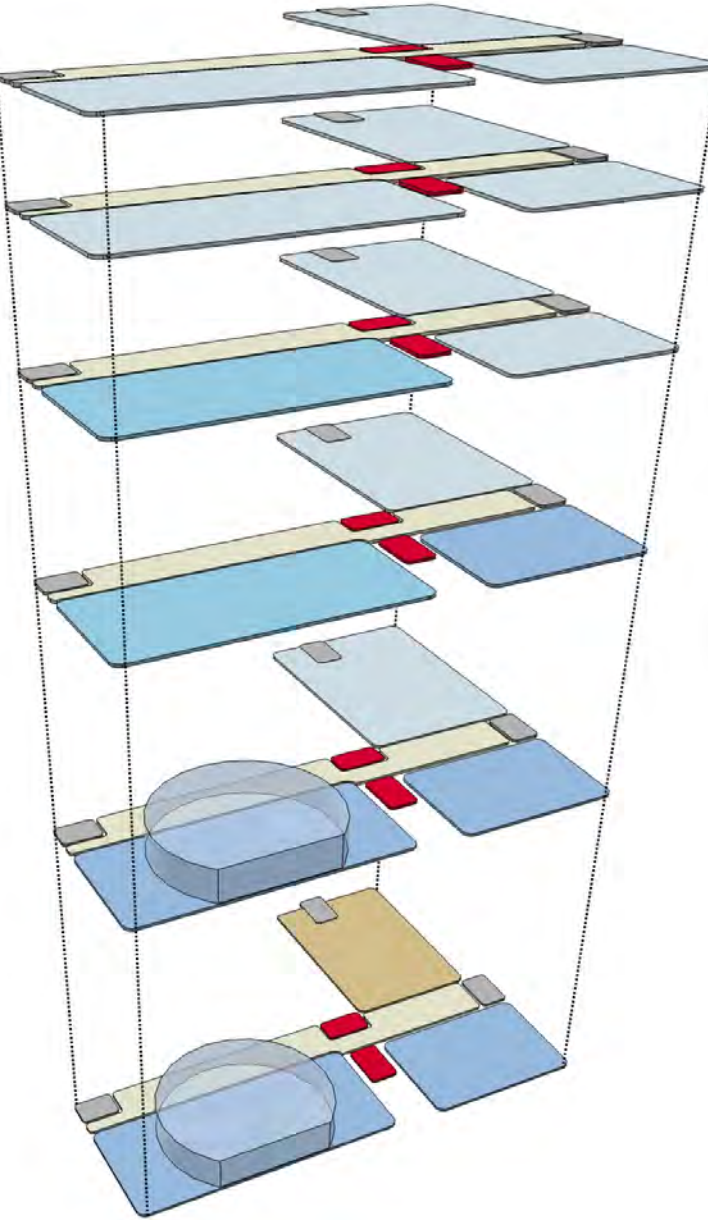
Circulation– Proposed

- Core + Circulation arrows
- CATS
- Theatre
- Computer Labs
- Academic, HDR, Staff & Faculty teaching
- Amenity and Fire stair
- Cafe
- Circulation spaces
- Courtyard

5.4 STACKED FLOORS

The proposed stacking of the J17 floorplates allocate the Cafe and the CATS areas to the lower levels, reserving the upper levels for the School and Faculty areas. This approach, in line with UNSW policy, promotes student activity and circulation at the lower levels while allocating the upper levels to quieter School based functions. The circulation path is repeated on each level.

The proposed stacking locates all teaching spaces along the eastern side of J17 North & South accessed by the central circulation spine. These spaces are in large flexible areas with long spans.

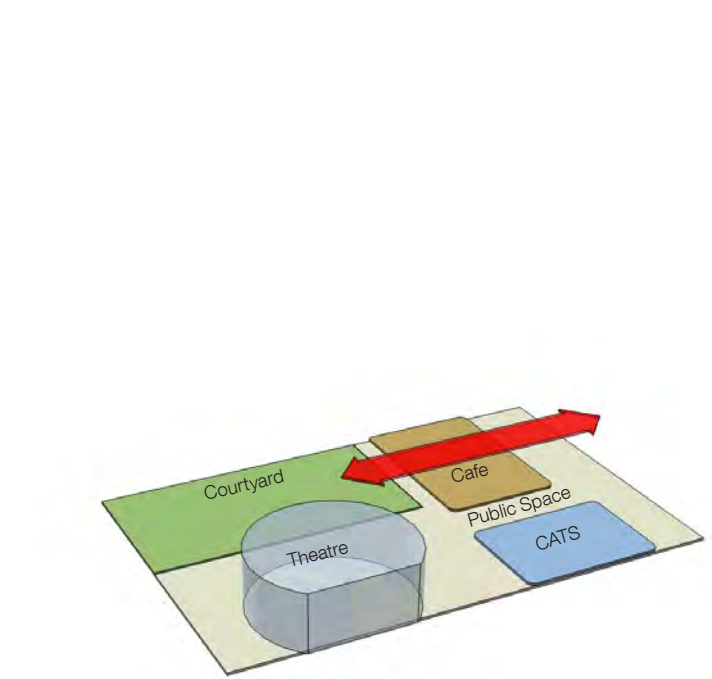


Typical Stacking

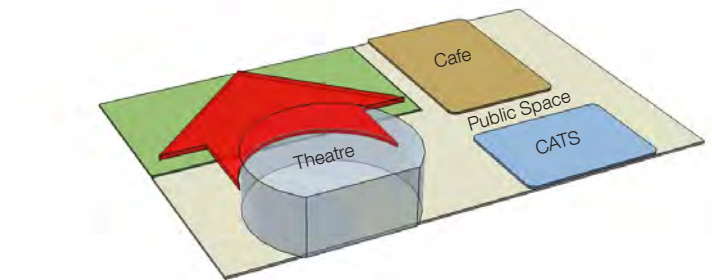
5.5 GROUND PLANE ACTIVATION

CAFE: The ground plane will be redesigned to provide activation to the mall and courtyard. The undercroft of J17 North Wing will have a café that opens onto the mall and the courtyard. Frameless glazing will be recessed from the column line re-exposing the original columns. The glazing will be designed to open up in acceptable weather conditions.

THEATRE: A large 350 seat lecture theatre will located on ground floor and level 1 of the new southern wing. This space is designed to support public lectures as well as teaching. The foyer areas will open onto the courtyard though large glass counter weight doors, thus creating and indoor/outdoor social space for the university and school.



Cafe: Ground plane activation



Theatre: Ground plane activation

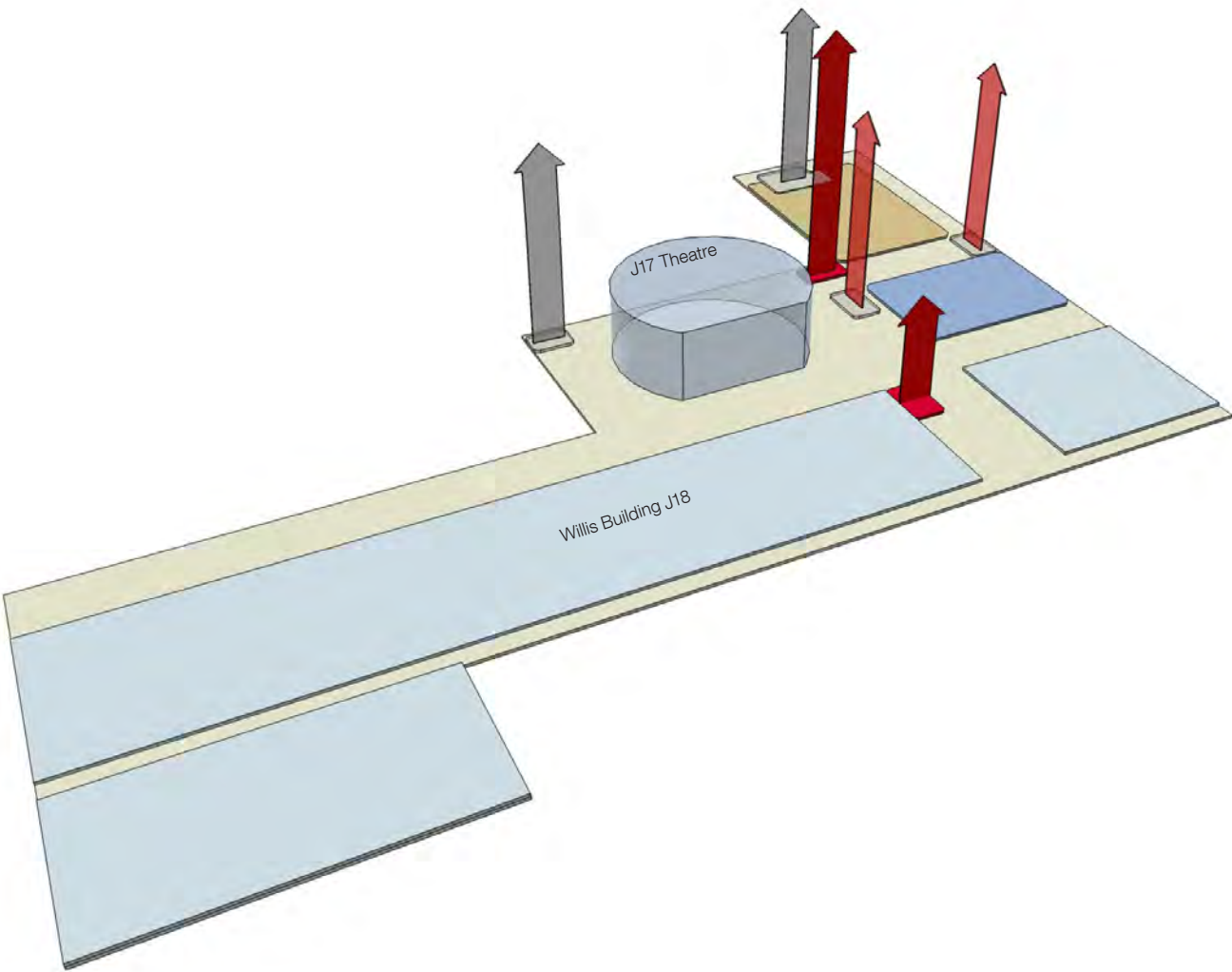
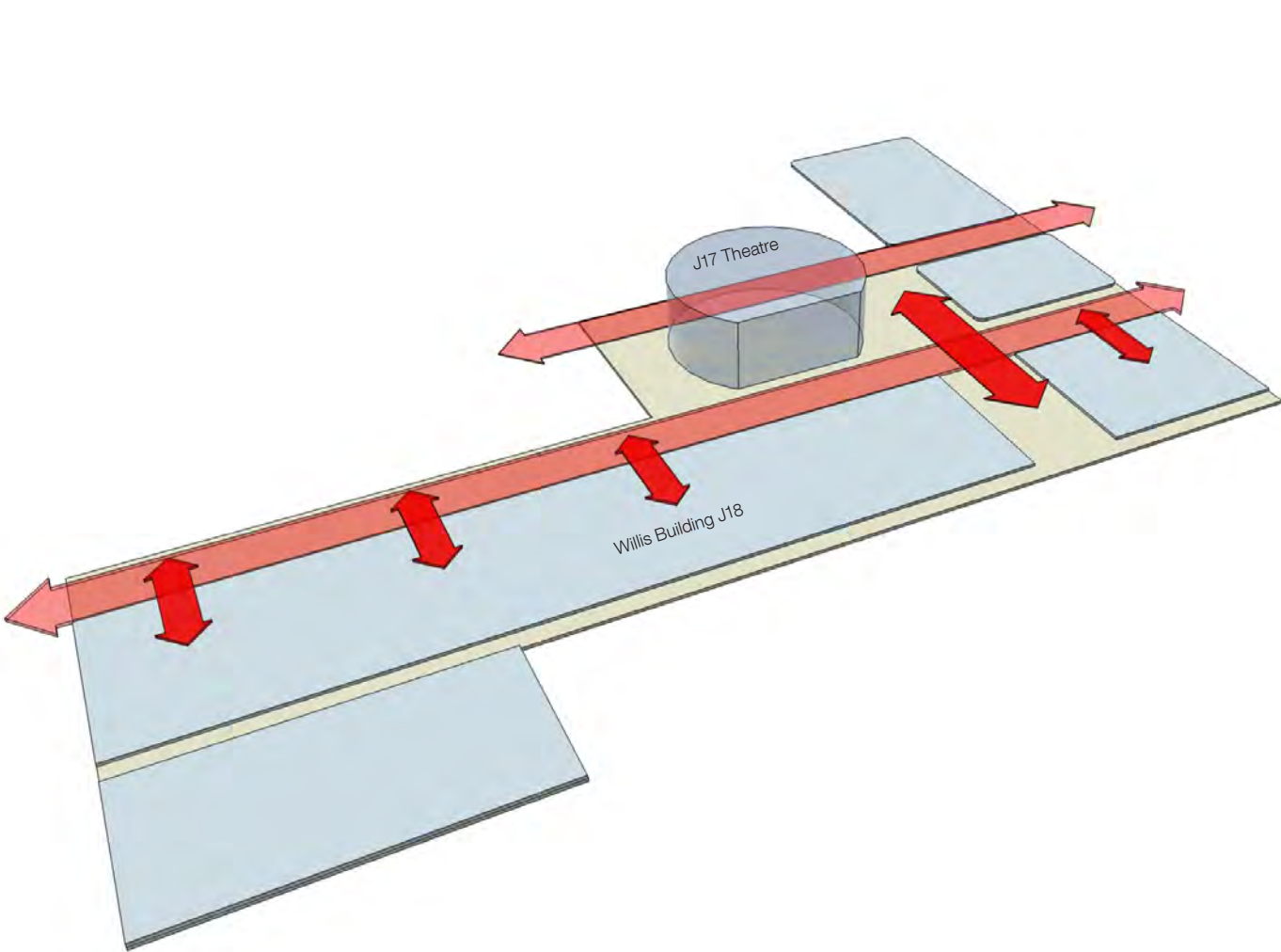
5.0 DESIGN APPROACH

5.6 LEVEL 01 ACTIVATION - WILLIS LANE

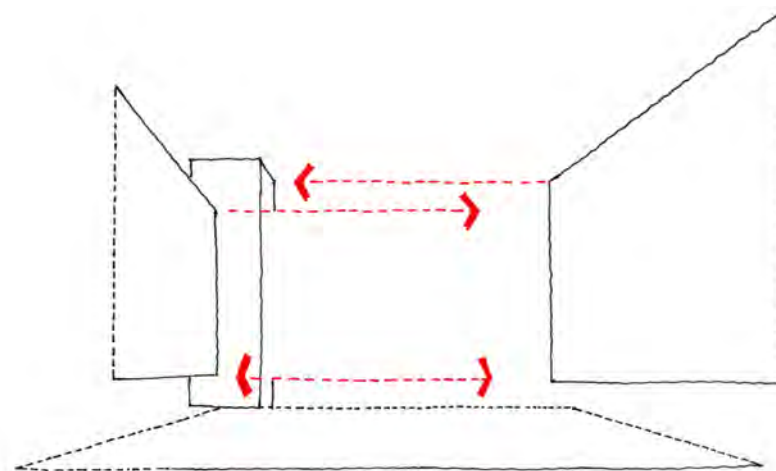
The proposed design will activate Willis Lane, making it a new social heart for the school. A new entry to J17 South off Willis Lane provides a direct connection to the relocated core of J18. The upper level of the lecture theatre is accessed from this level. The laboratories along Willis Lane are design to be visually, and in some cases physically accessible and activated from Willis Lane. In particular the Undergraduate Studio on the corner of Willis Lane and International Square is located to activate this area.

5.7 VERTICAL CIRCULATION

The vertical circulation strategy has been simplified and designed to reinforce social interaction and ease of movement. In the original J17 the lift and stairs were separated. The new plan retains the original stairs on the north elevation, while a new stair is created opposite the existing lifts to encourage stairs as an alternative form of circulation. Escape stairs are located at the west end of J17 North, and the south end of J17 South. The relocated core in J18 will have a lift and open stair, in addition to the stairs at the north and south end of the building.

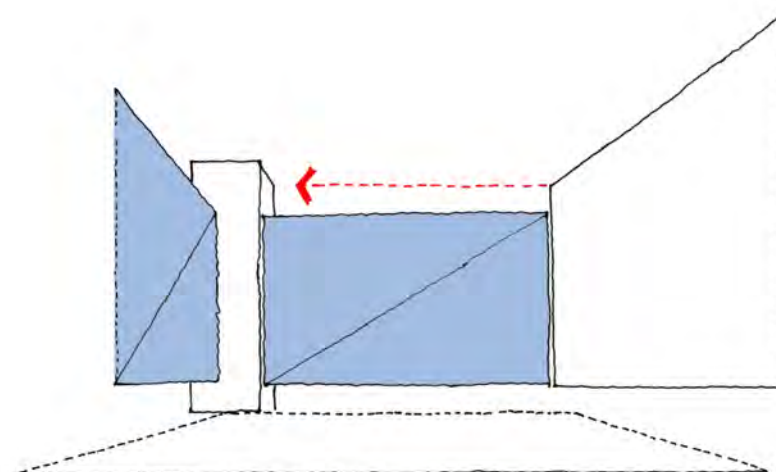


# 5.8 MASSING



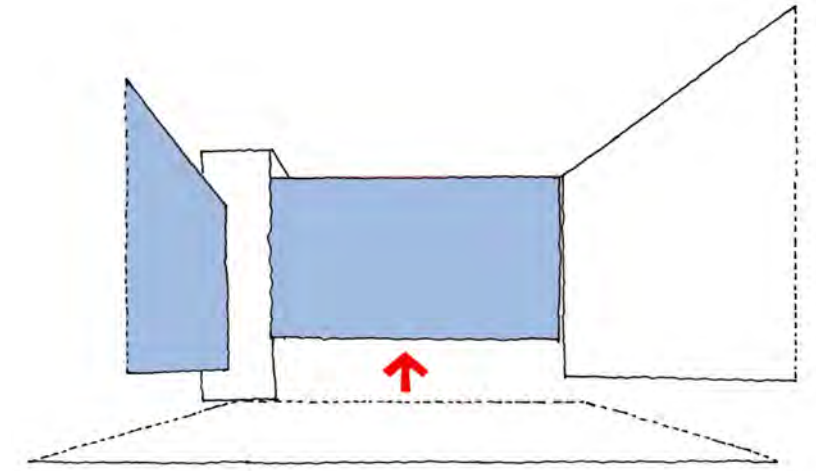
## 5.8 COURTYARD DATUMS

The new façade is seen as a link / connector between the courtyard facades of J17 & K17.



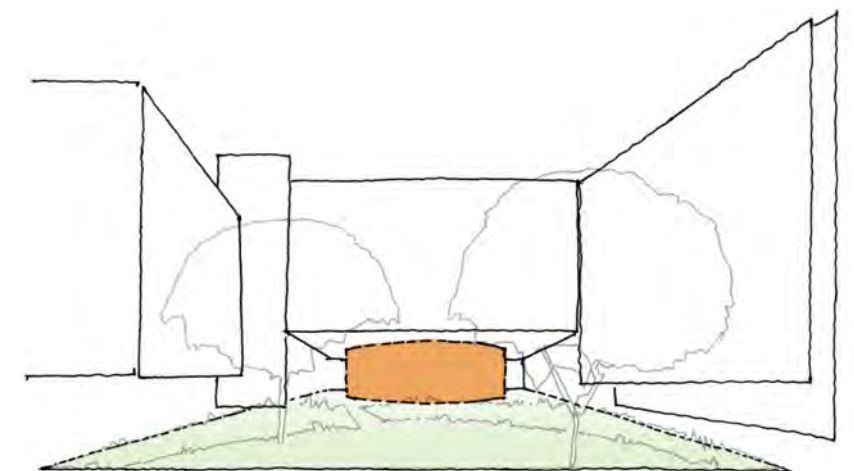
## 5.10 CONNECTION TO K17

The elements of the new courtyard façade are driven by the proportions of courtyard façade of J17.



## 5.9 PROPORTIONAL RELATIONSHIP TO J17

Having related to the existing façade of J17 the new façade is lifted up to align with the top of K17.



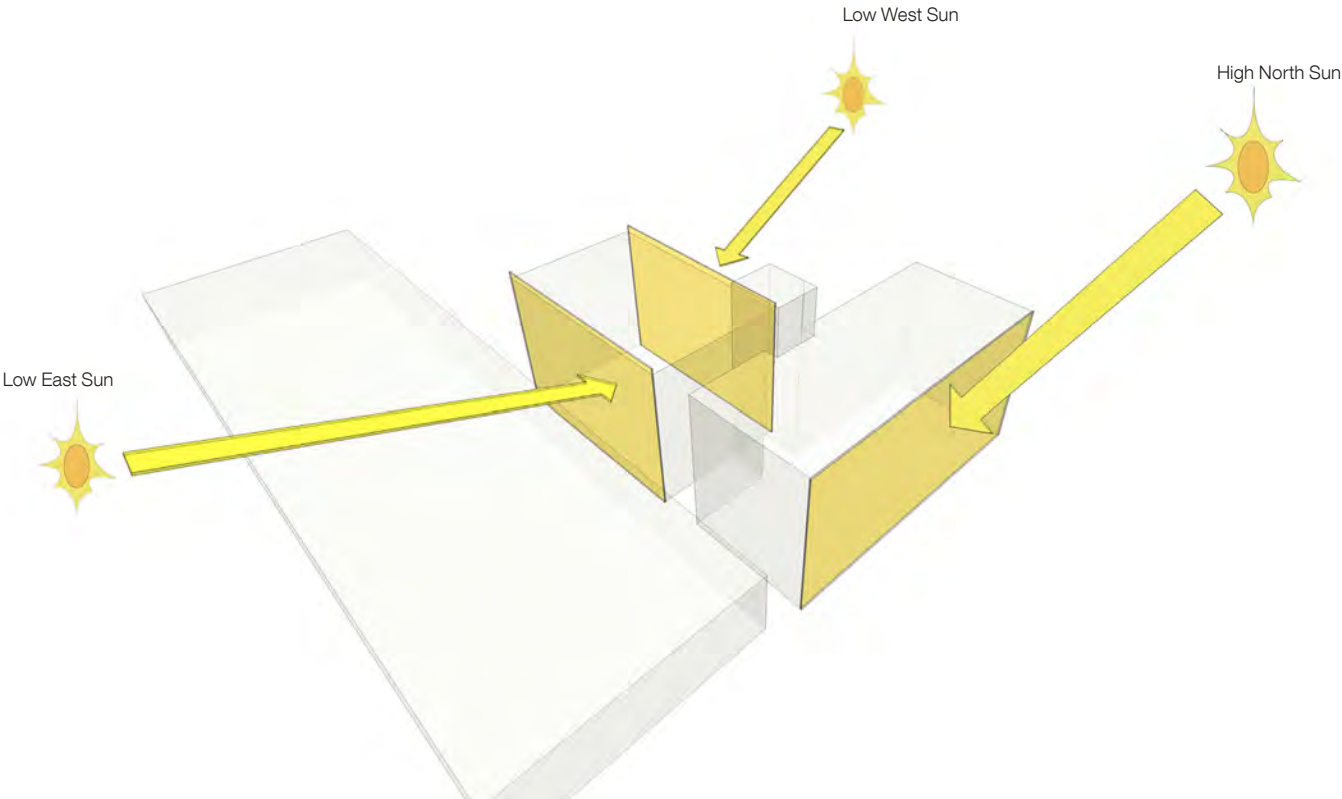
## 5.12 COURTYARD FRAMING LECTURE THEATRE

By lifting up the new façade the underbelly of the building is exposed. This allows for the auditorium and terraces to be part of the courtyard. Tall doors slide up to seamlessly connect the interior with exterior.

# 6.0 FACADE

## 6.1 SOLAR EXPOSURE

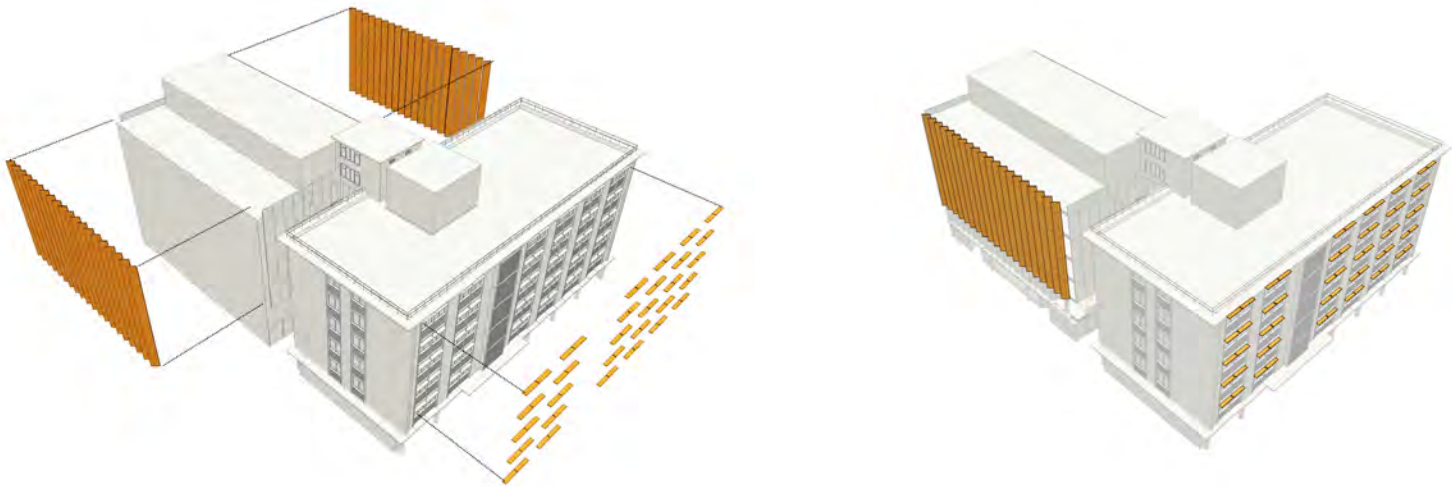
The east and west elevations of J17 South are exposed to high intensity low angle east and west sun, creating both solar heat gain and glare issues for these spaces. The north elevation of J17 North is exposed to high angle north sun.



## 6.2 SHADING CONCEPT

The north façade can be easily dealt with by incorporating simple horizontal sunshades in the windows. The proposal is to retain the existing mullion division and incorporate a sunshade/light shelf on the first transom below the window head.

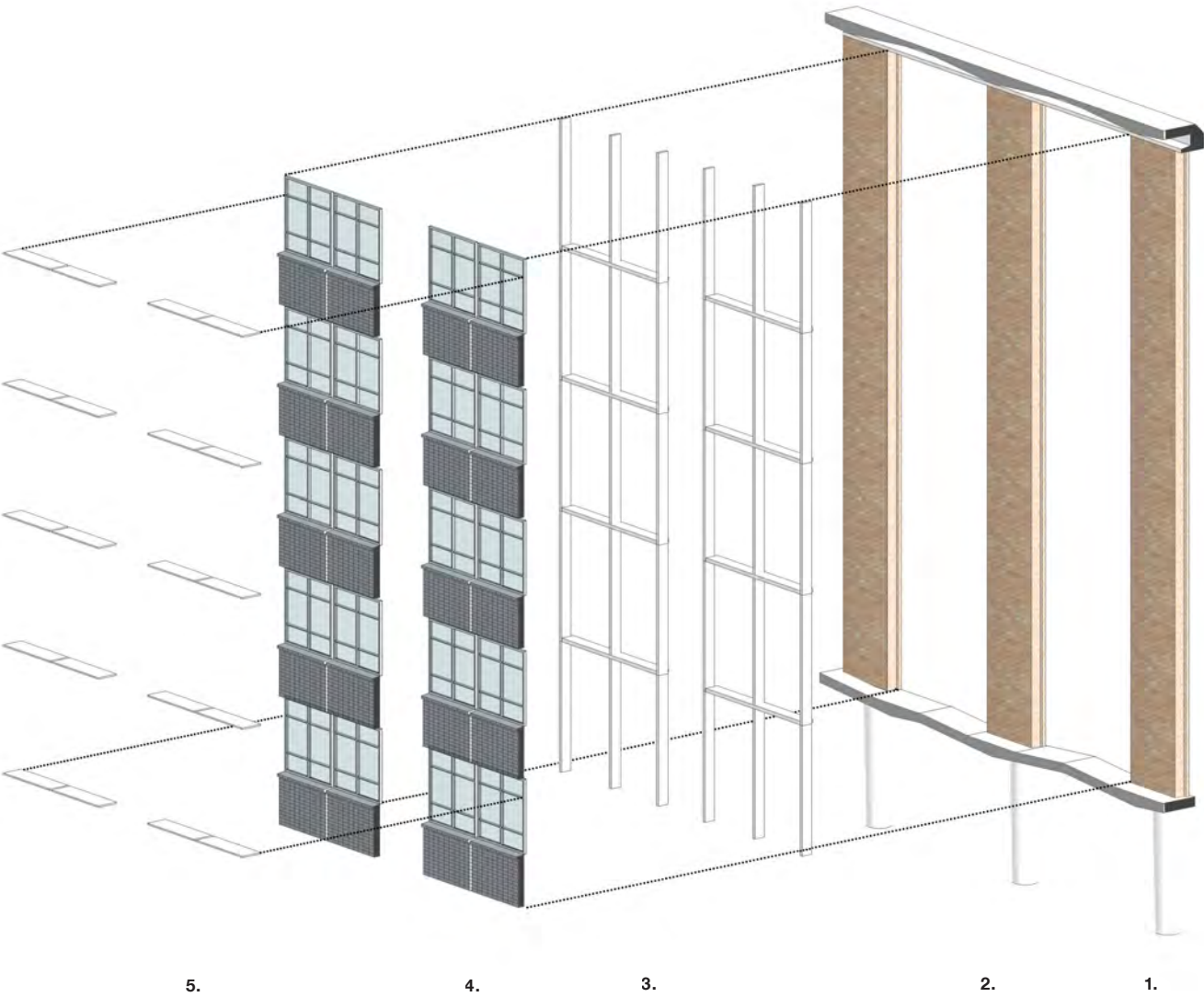
The east and west facades are proposed to use vertical shades angled at 45 degrees to the south to protect the glass from the low angle sun. These vertical shades relate to the vertical masonry bays of the original buildings, while also creating a crenellated façade that reinterprets the original buildings crenellated features.



6.3 NORTH FACADE ANALYSIS

The original building façade can be separated into four hierarchical layers; a primary layer consisting of

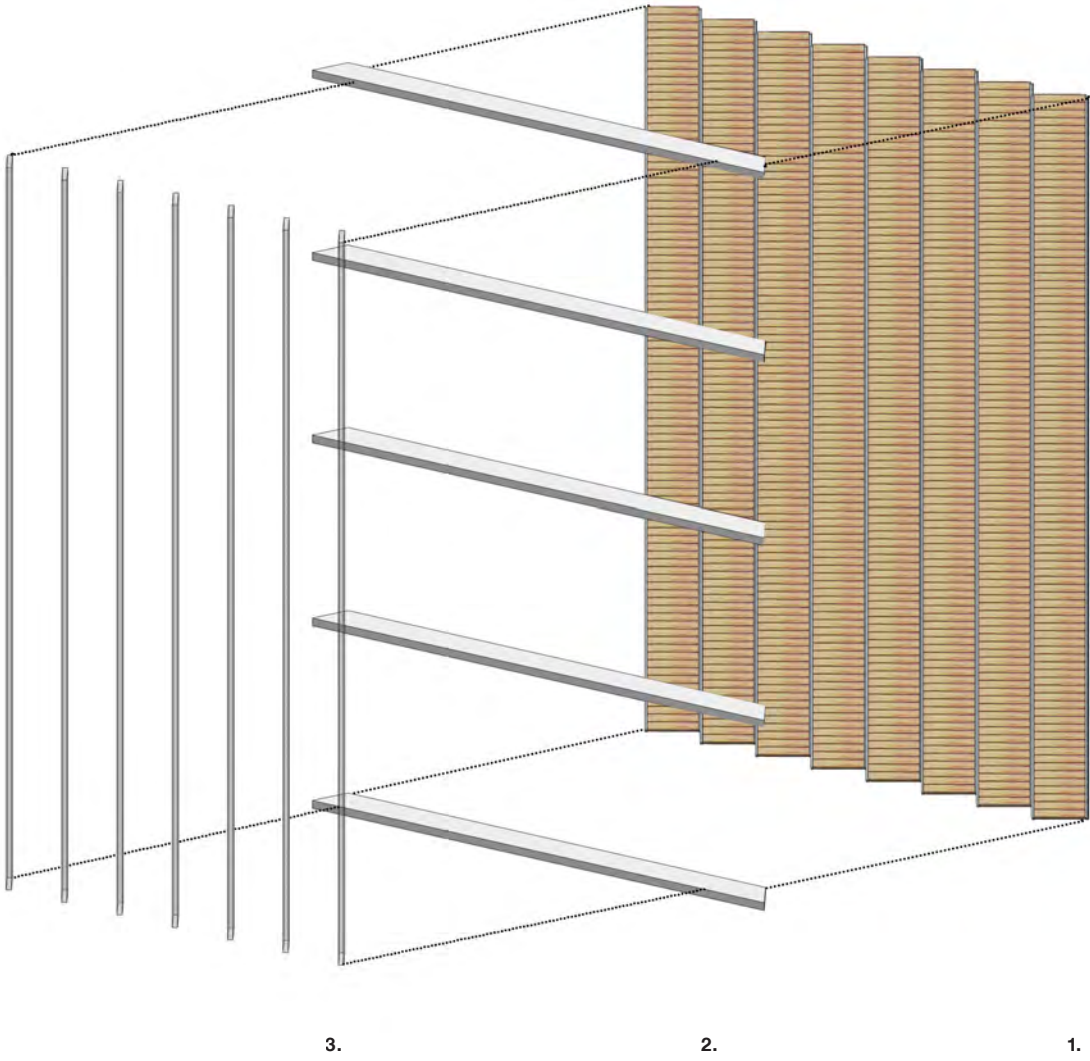
- 1. Crenellated Slab and Structure
- 2. Vertical Brick panels
- 3. Concrete Sub-structure
- 4. Glazed brick Spandrel + Fenestration
- 5. New horizontal Shading



6.4 NEW FACADE ANALYSIS

The proposed building façade can be separated into three hierarchical layers; a primary layer consisting of

- 1. Vertical Terracotta tile Cladding
- 2. Concrete Spandrel
- 3. Vertical Glazing



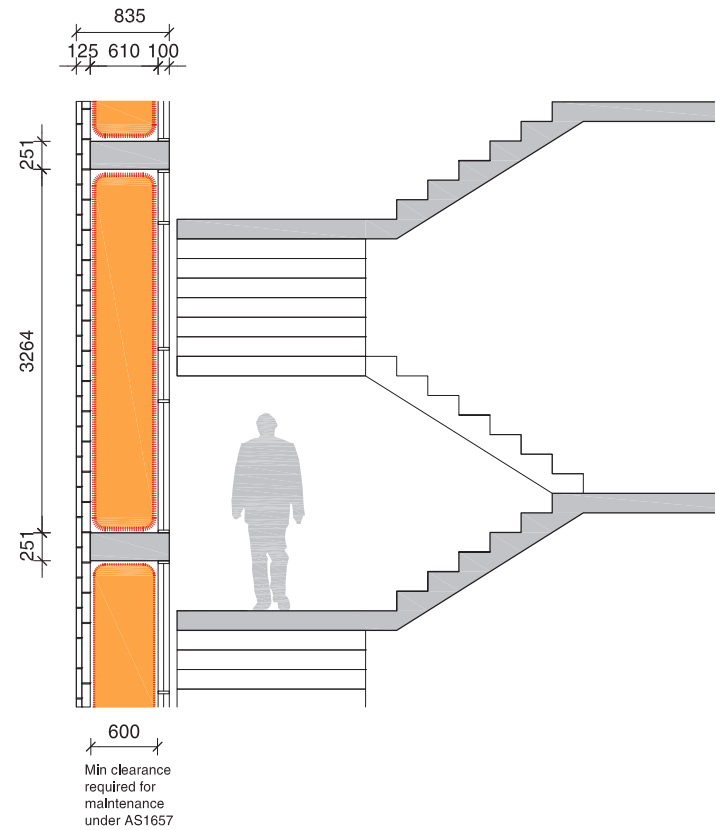
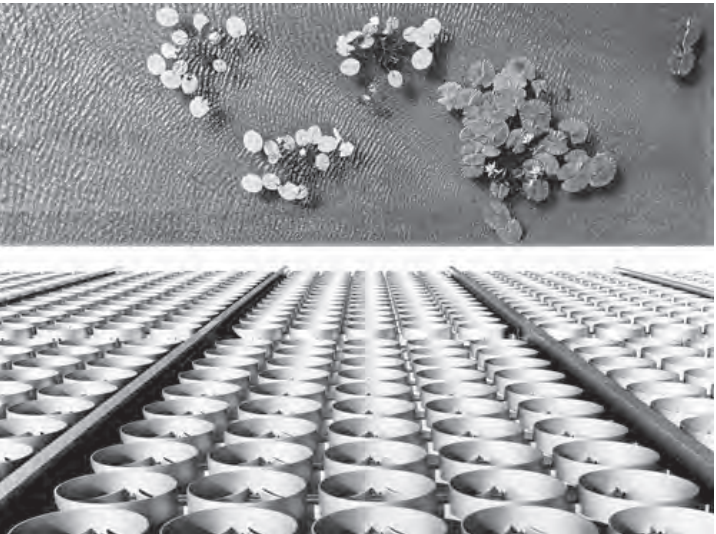
# 6.5 ENTRANCE SCREEN

The original concrete entrance screen is hard to maintain and clean. Access to the grass is also problematic. An alternative screen treatment has been developed to address these issues.

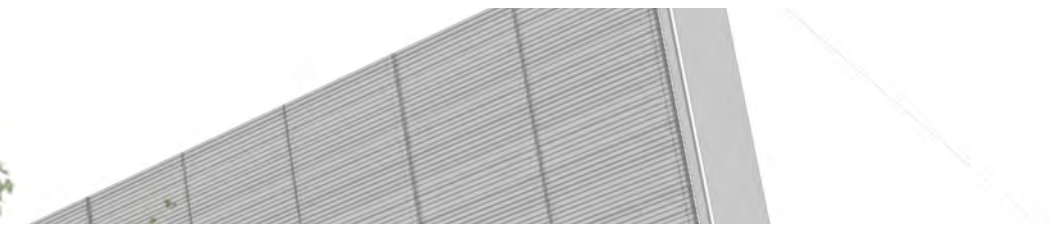
The existing entrance screens on the north facade of J17 and north and south facades of J18 are proposed to be replaced with a new screen treatment. The proposed screen treatment is sympathetic to the original, and respectful to the New Formalist heritage of these legacy buildings.

The new screen treatment maintains a circular motif on a rectilinear grid, utilising light weight aluminium. This treatment helps to introduce additional light into existing northern stairs, while providing appropriate passive solar shading.

The maintenance walkway between the new screen and glazing has additional clearance to allow for maintenance and cleaning of these elements.



1/ 3D model image of North facade screen option  
2/ Minoru Yamasaki building detail  
3/ Section Diagram of North facade screen option



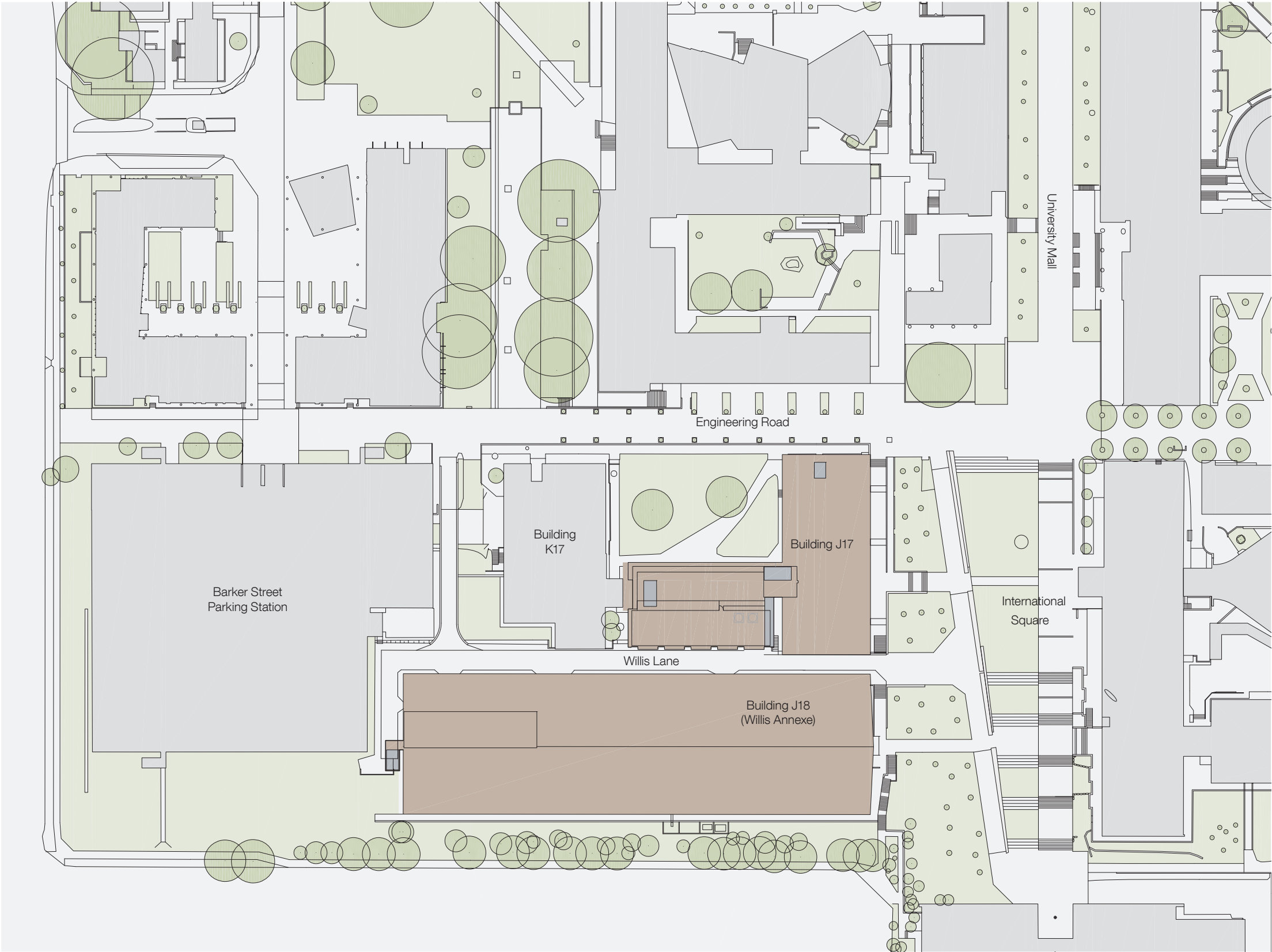
# 7.0 DESIGN DESCRIPTION

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## 7.1 SITE PLAN

The site is in the south-eastern part of the UNSW Kensington Campus which is bound by High Street to the north, Botany Street to the east, Anzac Parade to the west and Barker Street to the south. The University is divided into upper and lower campuses with 16m level difference. The western lower campus is relatively flat terrain rising steeply to the eastern upper campus. The Buildings, J17 and the Willis Annexe, are located at this transition and consequently the project site has a fall of two full-floor levels from east to west.

Building J17, housing The School of Mechanical and Manufacturing Engineering administration, office and teaching facilities, lies to the south of International Square (an extension of University Mall) and is bound on the east by Willis Lane and on the west by Engineering Road. The Willis Annexe is situated to the east of Building J17 across Willis Lane, also with frontage to International Square. Building K17, housing the School of Computer Science Engineering, is linked to the south Building J17.



## PROPOSED SITE PLAN



7.0 DESIGN DESCRIPTION

7.2 GROUND LEVEL

With direct, level access from International Square, the ground level serves as the primary point of entry for Building J17 and the School.

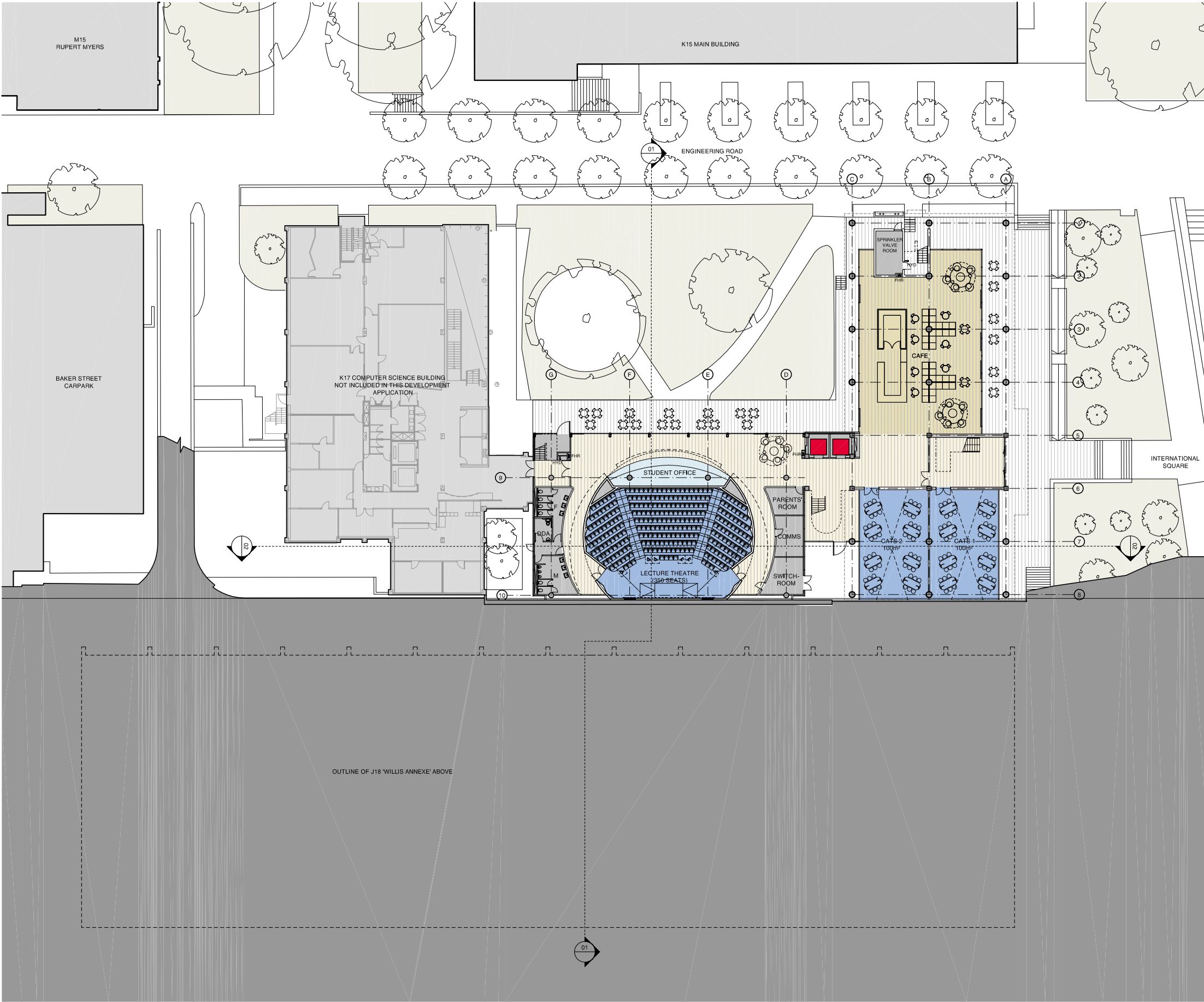
The proposal recesses the glazing line to reveal the underside of the original raked slab soffit in the north-wing and to create additional outdoor space. This provides a smooth transition between the external public areas and the interior of the building, and activates the ground plane with pedestrian activity. Transparent glazing is used extensively in the ground level to provide a highly visible interior housing the relocated cafe adjacent International Square and a student common overlooking the John Lions Gardens to the west.

The existing south wing is demolished and replaced with a new south wing to provide for a significant increase in useable floor area and to introduce a larger spanning structural system than the existing building grid afforded. This is intended to provide for column free space to house large teaching areas, and ensure flexibility for future refurbishment as the University’s needs change over time.

The centre-piece of the new south wing extension is a 350 seat circular lecture theatre, one of the largest on campus, further activating the ground level with student activity. The theatre is surrounded by circulation and student breakout space, which directly connect to the John Lions Garden through large operable doors.

A new, glazed, central stair, opposite the existing lifts, complements the existing northern stair and connects all levels of the new south wing with the existing north wing.

The existing toilet facilities and services in the north-eastern corner are removed to provide for new CATS areas, with glazed frontage to International Square and views through to the new internal courtyard opposite the existing lifts.



PROPOSED GROUND FLOOR PLAN

