# Tyree Energy Technologies Building

University of New South Wales

fjmt

## Architectural Design Statement

Project Application, 1 December 2009

## Vision

The core objective of the University of New South Wales (UNSW) is to be a leading research-intensive university within the Asia-Pacific Region. It aspires to be the destination of choice for students and engage with the wider community. The importance of it's built environment and considered development cannot therefore be underestimated in facilitating a campus experience of excellence. The Tyree Energy Technologies Building (ETB) will accommodate and showcase state-of the-art leading edge research in clean energy including photovoltaics, carbon capture and storage. There is currently not a more important issue within contemporary society, and therefore the importance and primacy of the ETB and it's site will provide appropriate demonstration of UNSW's commitment to this fundamental issue.

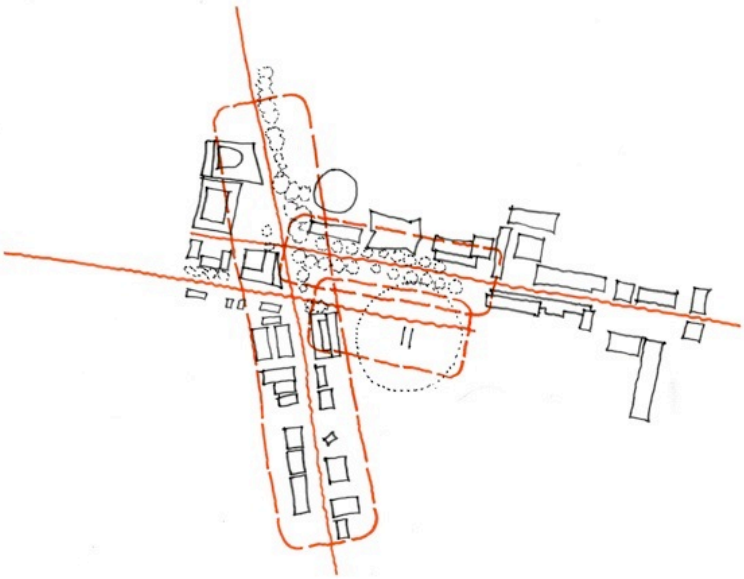
On the Kensington Campus, the ETB site is arguably the most important development since the completion of the Scientia. The proposed ETB site addressing both Anzac Parade and the University Mall is the most prominent remaining site on Campus, and accordingly requires an iconic building that will provide a gateway to the Faculty of Engineering, the Lower Campus, and the University as a whole. The new development seeks to address the University Mall through careful consideration of scale, height, setback and an understanding and respect for Spooner's landscape, the most significant landscape of the campus. The ETB should, above all , provide a welcoming embrace, encouraging public interaction and interest in the unique research that will be undertaken within the new complex.

Our design concept seeks a balance and resolution of the various aspects of the brief combining functionality and flexibility in the creation of best practice environments for teaching and learning, research and workplace, with the iconic aspiration of the University's strategic vision and goals and the potential of the important gateway site.

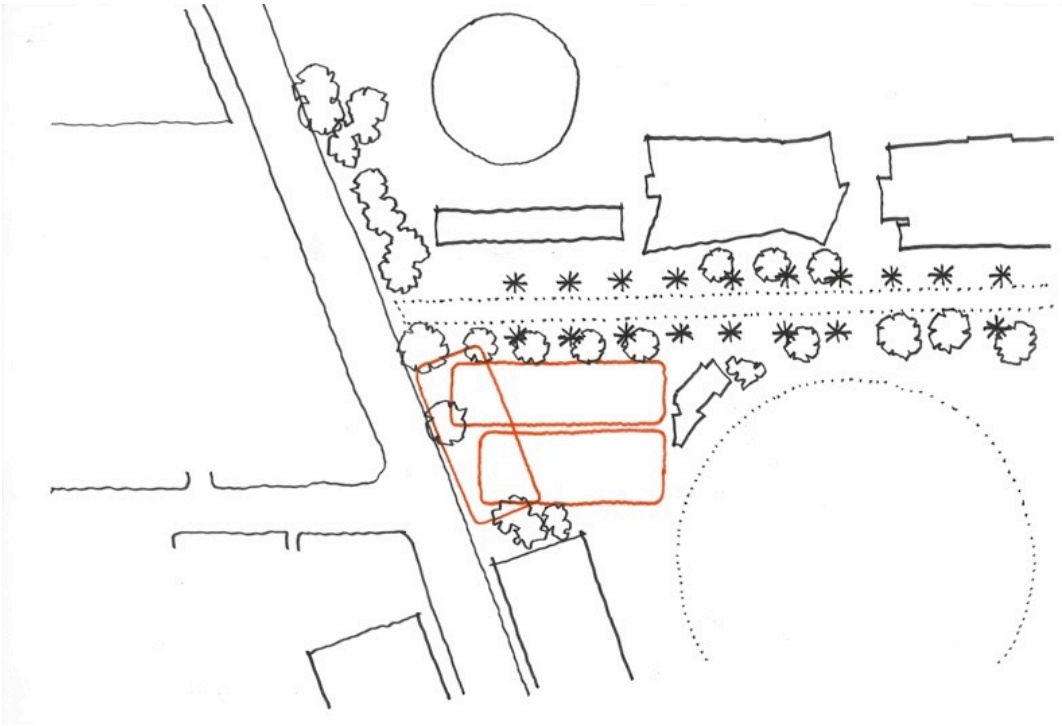
We have developed a proposal in direct response to the Masterplan/DCP Principles in order that a cohesive response will be achieved that accommodates the immediate needs of the ETB, and provides a strategic and flexible long-term vision that creates a memorable and distinctive address for the Campus. A sympathetic synthesis of architecture and landscape architecture is achieved that is both innovative and of unique character avoiding 'passing fashion' in order to strengthen the locale and create an appropriate and timeless long-term identity for UNSW.

# Design Principles

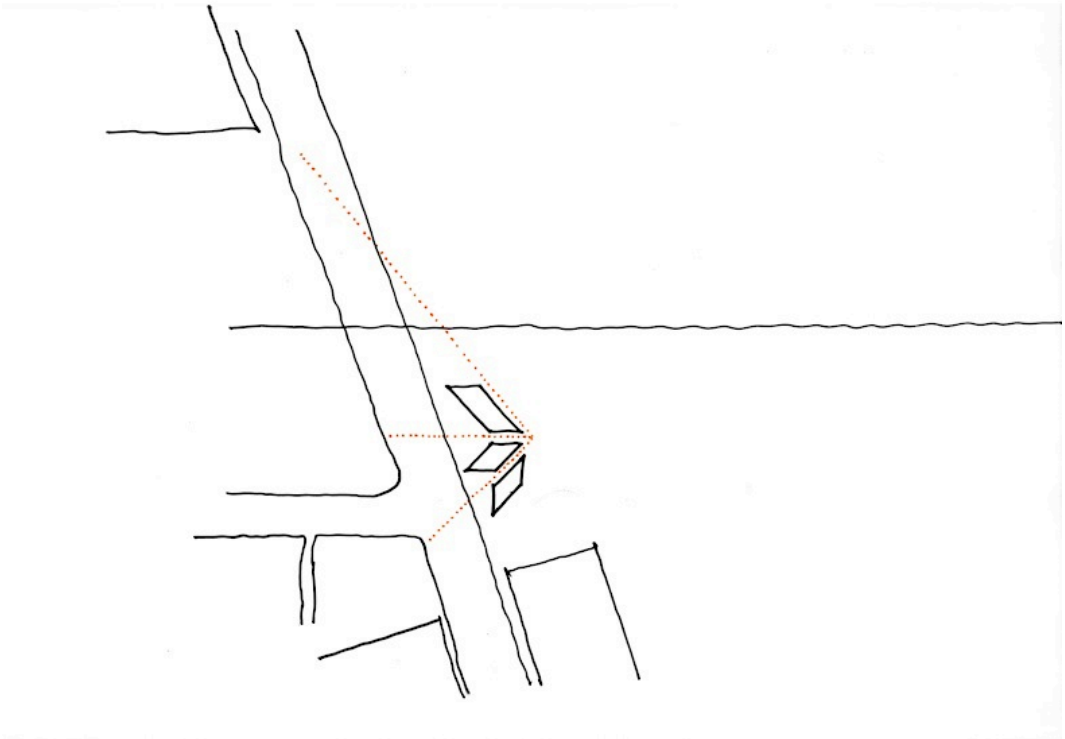
**Principle 1: Urban Zones**
This gateway site at the junction of The Mall and Anzac Parade is of considerable strategic importance as it occurs at the nexus of what can be considered as three interconnected ‘urban zones’. Each of these ‘urban zones’ has a particular landscape and built character that overlap and intersect and can be identified as: The Mall Zone, Anzac Parade Zone and the hybrid South Zone. The new building must respond in character and form to each of these zones.



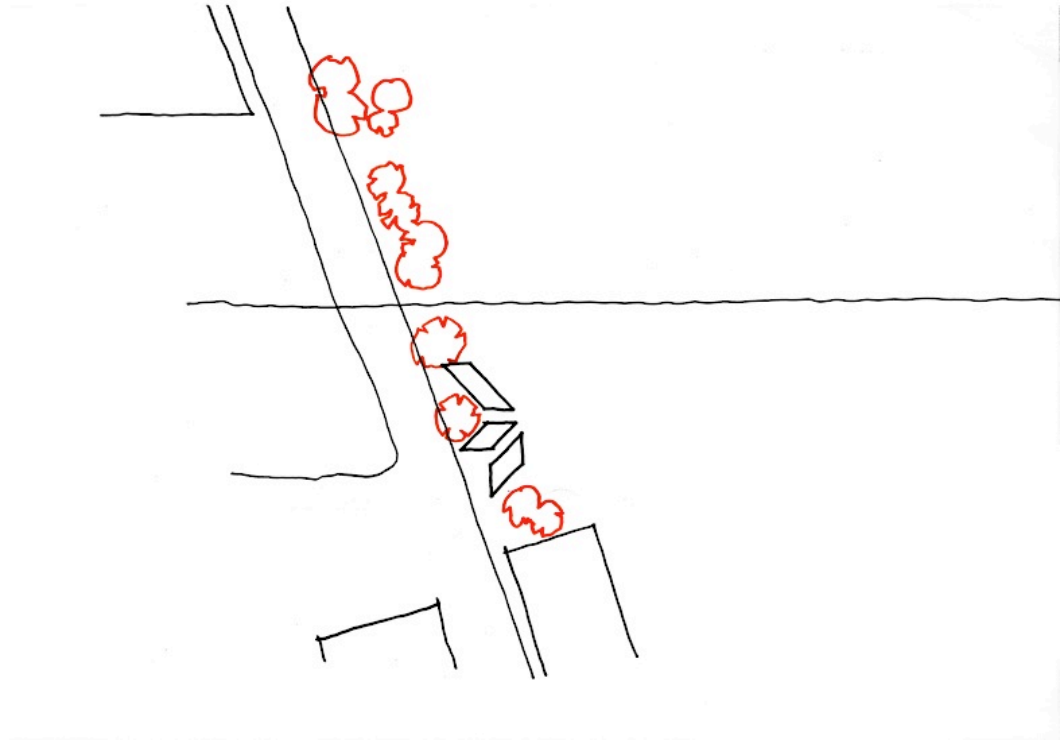
**Principle 2: Zone Character**
Each of the ‘urban zone’ characters have implications for the site. The new building needs to respond to each of the differing characters of these zones and resolves their intersection. Through this resolution the new building will achieve a unique character, avoid passing architectural fashion and strengthen the locale and identity of UNSW. Each of these urban zones requires a differentiated form, scale, complexity and height.



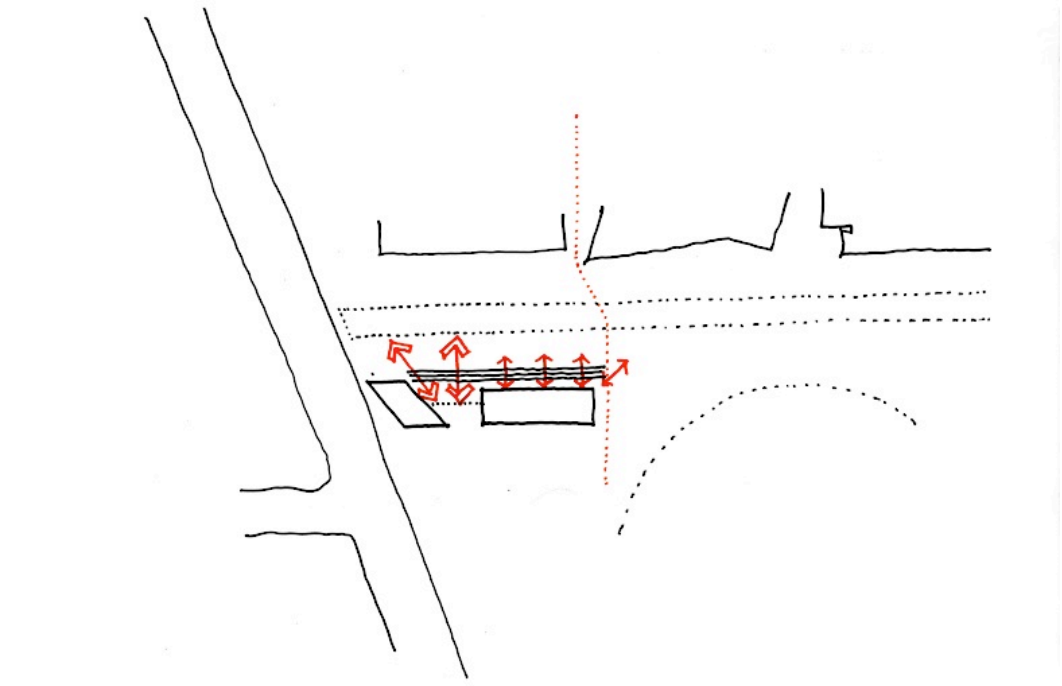
**Principle 3: Anzac Parade Zone: Openness, Engaging & Fragmentary**
A series of form fragments open and extend up and down Anzac Parade in a distinctive gesture of openness and welcoming, creating visual connectivity with the interior exhibition and foyers.



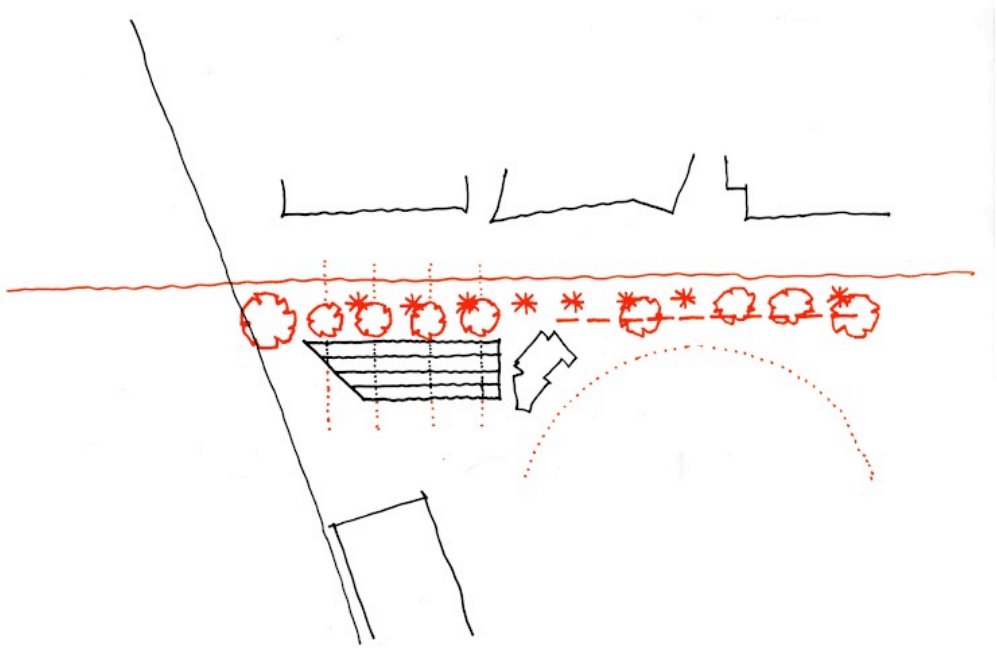
**Principle 4: Anzac Parade Zone: Transition**
The fragmented forms at Anzac Parade create an urban transition from the street-aligned block forms to the south and the landscape to the north. These forms are developed to create a symbiotic weave with the grand figs along Anzac Parade.



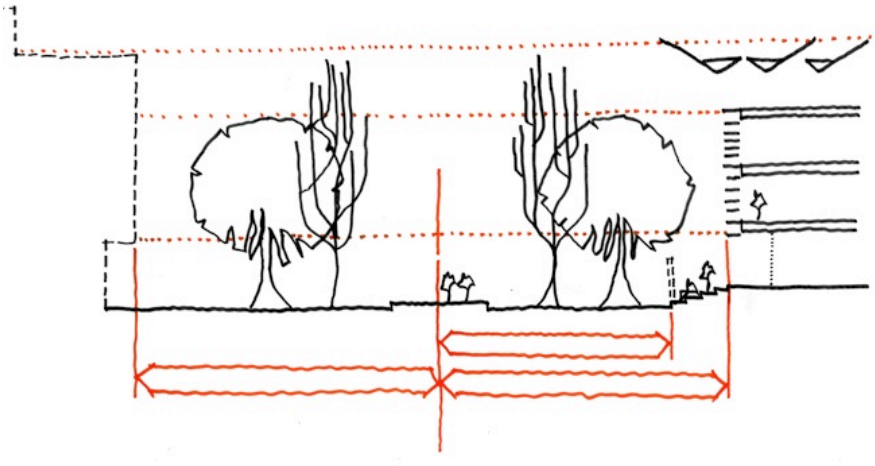
**Principle 5: Mall Zone: Address Activation & Continuity**
The Mall requires a sensitive approach to enhance the character of this significant landscape space, integral to the identity of UNSW. A continuous raised platform with north facing seating steps addresses the Mall, highlighting the intersection of the Anzac Parade and Mall zones with the entry in the form of an oversized porch.



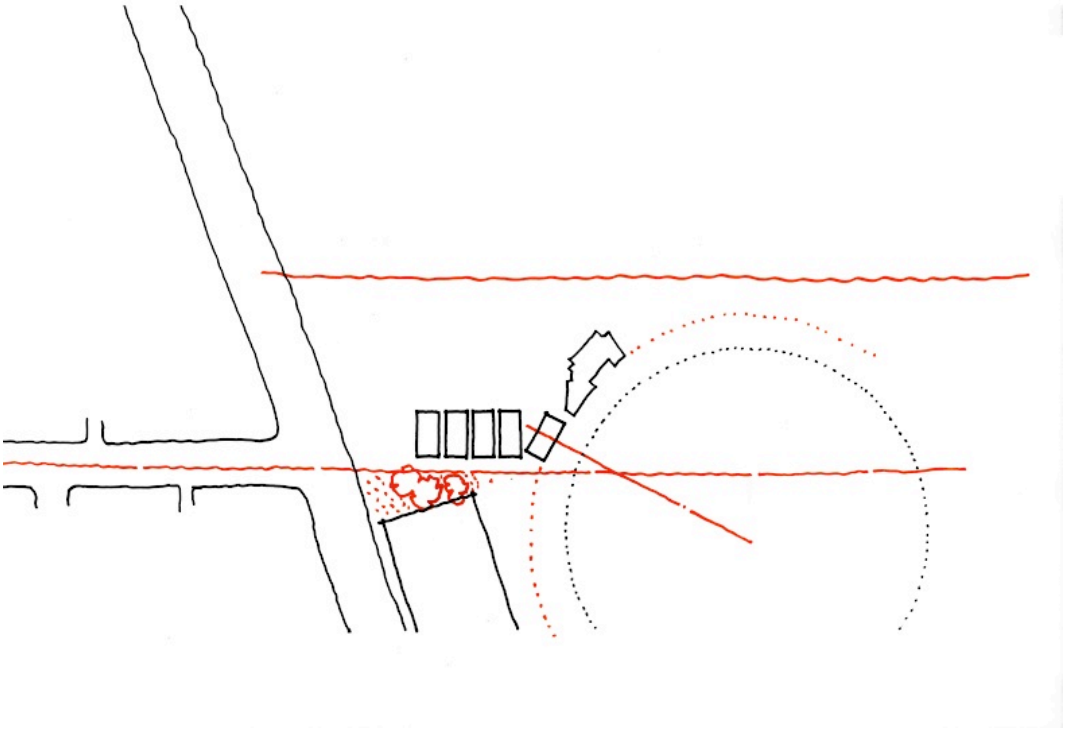
**Principle 6: Spooner's Walk: Module and Spacing & Canopy**
The important copse of planting integral to Spooner's landscape vision that modulates the Mall is to be preserved and reinforced through an architecture that it has inspired. The modular rhythm of tree shading informs the louvre shading pattern in the main elevation facing the Mall. A light roof-canopy is carefully scaled and modulated to float behind the natural canopy of these great trees.



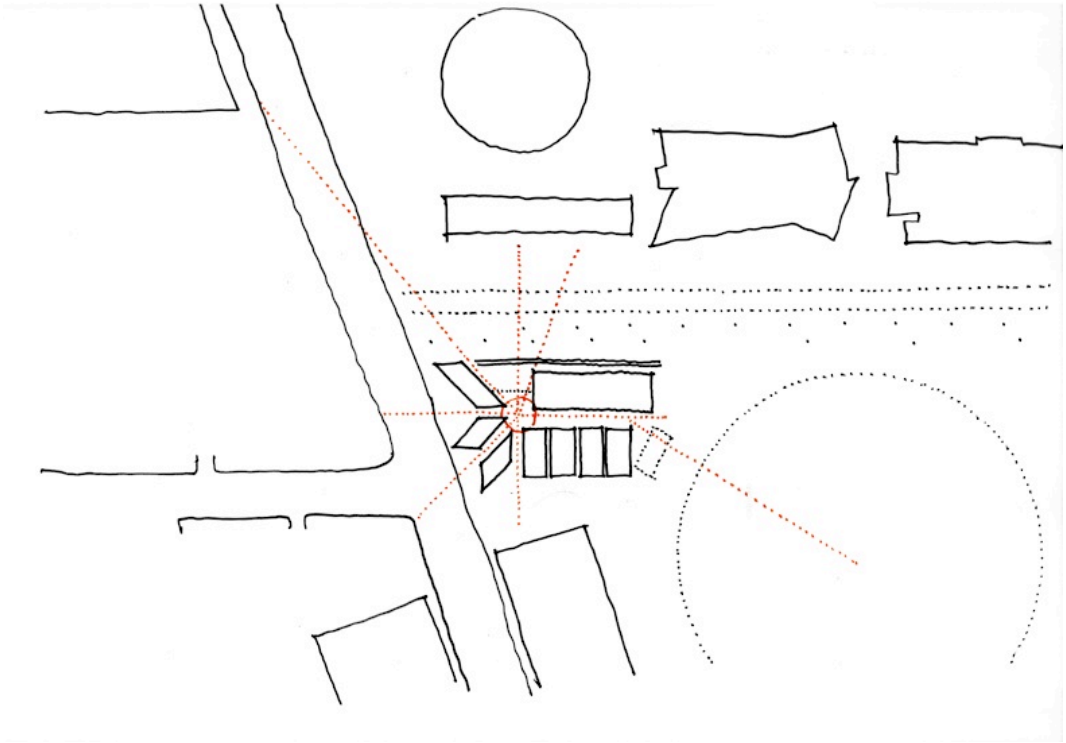
**Principle 7: Spooner's Walk: Landscape Form & Scale**
The distinctive paring of Fig and deciduous Cottonwood give the landscape of the Mall a varying scale. This is directly responded to in the new architecture, which reflects the typical mature height of each species as a horizontal datum.



**Principle 8: South Zone: Day Avenue, New College & Village Green**
A series of articulated rectilinear forms march to the alignment of Day Avenue, extending the street vista into the site. These forms are set back from Anzac Parade to allow a landscape garden.



**Principle 9: Synthesis: Opening and Embracing**
The integration and synthesis of these urban zone responses is a rich interplay of form and space that opens out and embraces The Mall and Anzac Parade with a porous, transparent and exciting identity and address.



**Principle 10: Synthesis: Landscape & Built Form**
A sympathetic synthesis of architecture and landscape is achieved: a rich interweave of built form and landscape form, spatial modulation and light.

**Principle 11: Flexibility**
Create laboratory spaces as adaptable modules and flexible offices that can adapt according to demand, enabling the University to adjust spaces over time according to need or funding. Workplace areas that afford amenity, access to natural light and view, and enable a variety of fitout options to accommodate immediate and long-term requirements.

**Principle 12: Sustainability**
The development of a concept that embraces and communicates a strong commitment to sustainability. Such measures are integrated and fundamental to the architectural response, with flexibility to incorporate emerging technologies and research as it becomes available.

**Principle 13: Transparency**
Openness of the building function (use) through varying levels transparency, in both the facade and interior design. Maximising glazing within, and into, laboratories which also enhances occupant safety.

**Principle 14: Interaction**
Encourage occupant interaction by generous building circulation paths, social hubs, meeting rooms, oversized stairs and interconnecting labs. These moves increase the potential for ‘bump and spark’ encounters between staff.

# Area Schedule

| Level | Current (sqm GFA) | Comment |
|---|---|---|
| Lower Ground | 2,645 | |
| Ground Floor | 1,905 | |
| Level 1 | 2,550 | |
| Level 2 | 2,488 | |
| Level 3 | 2,425 | |
| Level 4 | 1,086 | |
| Level 5 (Plant) | - | Enclosed plant rooms form Level 5 |
| TOTAL | 13,100 | sqm GFA |

Areas measured using Randwick City Council LEP Gross Floor Area Definition.

# External Materials & Finishes

The façade design for the ETB responds to the character and orientation of the site. The entire building is lifted up from The Mall groundplane on a plinth, with the ground floor proposed to be a transparent glazing system on the north and west elevations.

On the upper floors of the offices, the North elevation is shaded with a proprietary terracotta louvre system to reduce heat gain and daylight glare. The central atrium is exposed to the North through a shopfront-style glazed wall animated with casual seating areas on the interior. Additional shading on the North elevation is provided by a dramatic roof overhang.

The West elevation upper floor offices are enclosed with a proprietary terracotta tile cladding system, which also acts as sun shades to glazed areas. The tile cladding system is repeated on the East elevation. The South elevation of the laboratory block is enclosed with a aluminium composite panel or panelised curtain wall system with minimal glazed areas to limit daylighting to sensitive laboratory support spaces as well as minimise overlooking to New College. It is envisaged that these panels would be a brushed metallic finish to reflect diffuse light into the landscape space bewteen the building and New College as well as reflect the patterns of the tree canopies.

The facade systems have been selected to provide a timeless natural appearance to complement the character of Spooner's landscape and the University context.

Key external materials and finishes are listed in the following schedule.

| **Facade** | |
|---|---|
| Facade system, type 1 | Proprietary terracotta tile facade system over a lightweight waterproof backing wall |
| Facade system, type 2 | Proprietary terracotta profiled vertical louvres over aluminium-framed windows |
| Facade system, type 3 | Proprietary terracotta profiled horizontal louvres over aluminium-framed operable windows |
| Facade system, type 4 | Aluminium or steel framed glazed shopfront system with glazed windows |
| Facade system, type 5 | Aluminium glazed curtain wall or floor-to-floor system with glazing |
| Facade system, type 6 | Composite metal cladding panel system over lightweight waterproof backing wall |
| Facade system, type 7 | Precast concrete panel system |
| Facade system, type 8 | Frameless aluminium horizontal louvre system |
| External soffits (South) | Composite metal cladding panel system |
| External soffits (typical, excluding u/side roof) | Set fibre cement sheet |

| **Roof** | |
|---|---|
| Roof system, type 1 | Conceal fixed metal deck sawtooth-style system with glazed windows on actuators for natural ventilation (night purge) and smoke ventilation. |
| Roof system, type 1 external soffit | Curved metal cladding panel system (eg. Alpolic or Alucobond) |
| Roof system, type 2 (experimentation area) | Concrete slab |
| Roof system, type 3 (Level 3 only) | Concrete with gravel |

**Doors**

| | |
|---|---|
| Main entry doors (Ground) | Frameless glazed automatic sliding doors |
| Other entry doors (Ground) | Frameless glazed pivot doors |
| Doors to Southern facade (Ground) | Solid core doors, paint finish |
| Service doors (Ground, typical) | Solid core doors, paint finish |

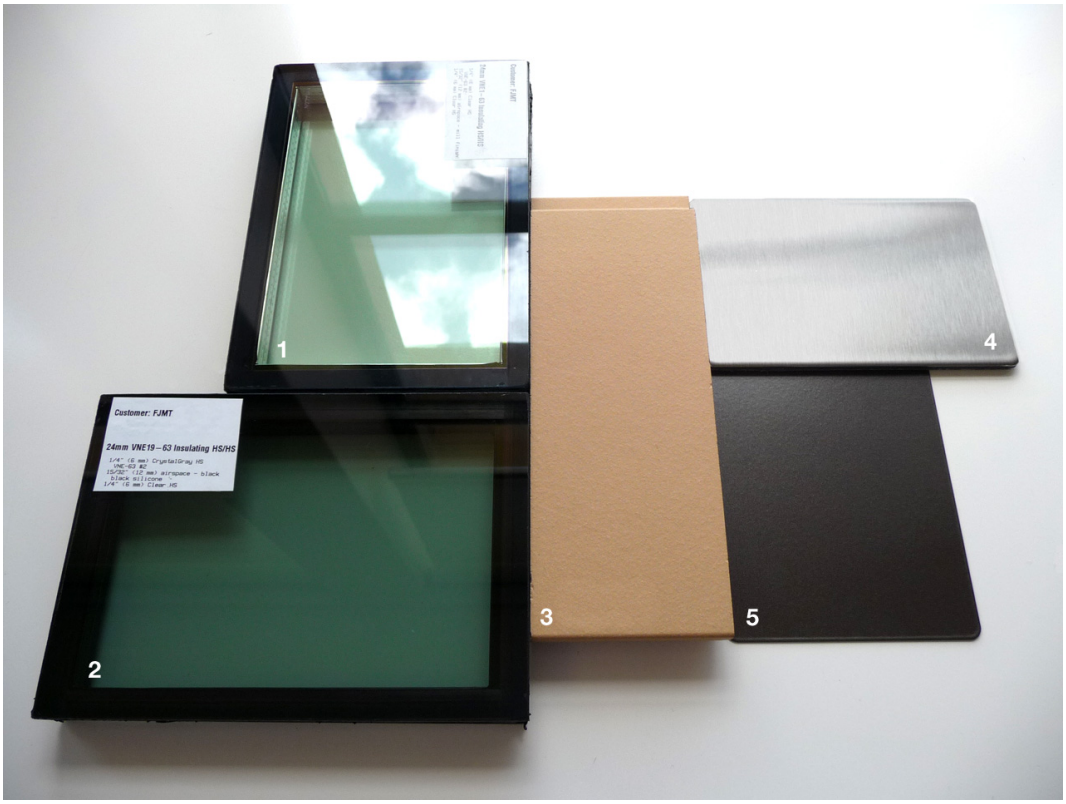
**Metalwork**

| | |
|---|---|
| Fencing & gates (to rear service area) | Flat bar palisade or powder coated closed space mesh system with matching automated sliding gate |
| Handrails, balustrades (where required) and bicycle racks | Stainless steel |

**External Works**

| | |
|---|---|
| Podium stairs | Precast concrete or stone flag paving |
| Podium walls | Precast concrete panels. Refer facade system, type 6. |
| Landscape walls | Insitu concrete |
| Main pedestrian entry and side paths | Permeable paving system |
| Service area & loading | Insitu concrete |

# Sample Board




**Legend**

| | |
|---|---|
| 1 | Clear glazing (eg. Ground floor) |
| 2 | Tinted glazing (selected areas) |
| 3 | Terracotta tile system and louvres |
| 4 | Composite metal panels |
| 5 | Aluminium framing |