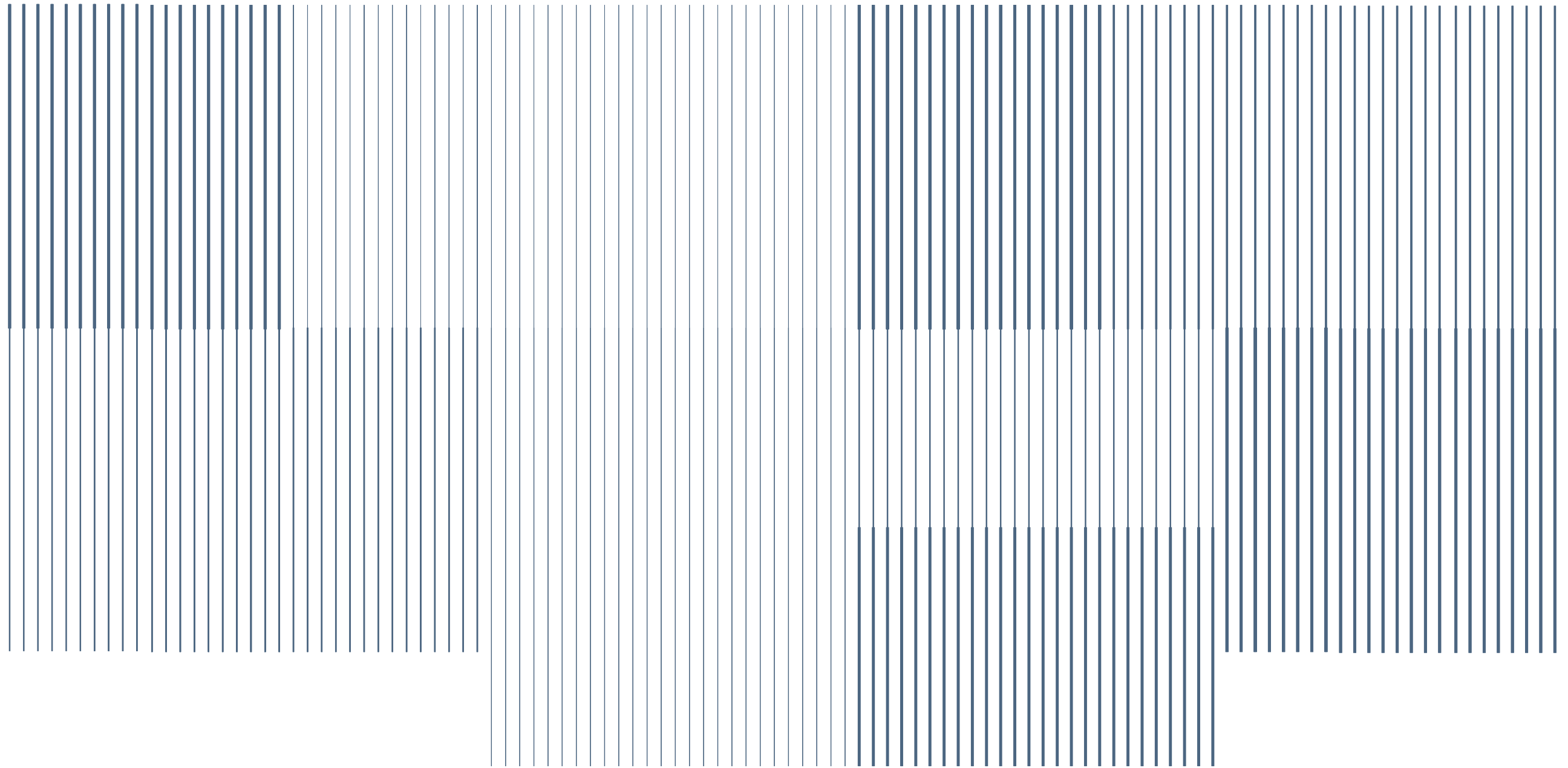


UNSW

Science and Engineering
Building



State Significant Development Application Report
July 2016

GRIMSHAW

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Executive Summary

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0.0 Executive Summary

Executive Summary

The proposed Sciene and Engineering Building is a further addition to the new Physical Sciences precinct that was established with the construction of the Material Sciences and Engineering Building that was completed in March 2015. As part of the schematic design planning for MSEB opportunities for an adjacent Stage 2 building were already considered, both buildings conjunctly providing a homogenous building ensemble.

Associated with the refurbishment and decanting of the F10 Chemical Science Building UNSW proposes a new building that will provide world-class research and teaching facilities for the School of Chemical Engineering and the School of Chemistry. The project brief identifies needs not just for Chemical Engineering and Chemistry but for other areas which will benefit the Physical Science Precinct and UNSW as a whole. These include centrally allocated teaching spaces (CAT), the Lower Campus Precinct Store, new research infrastructure facilities for the Marc Wainwright Analytical Centre (MWAC) as well as two new multi-function dance and performance studios for the School of Arts & Media.

Set within an updated strategic plan for the lower campus, the new development addresses both an emerging future context and the strengthening of the future College Walk that will connect from the future Lightrail Stop on Anzac Parade to the upper campus while sitting as the backdrop to the future Alumni Park. The terraced landscape at the western end of Alumni Park provides a clear start point to Alumni Park and establishes a new destination for students on the lower campus.

Strategically, the building reflects the order of more public spaces on the lower levels to more secure functions on the upper levels. The covered walkway along Race Course Walk as well as the colonnade to the North of the Science and Engineering building provides valuable public amenity and allows visual links into the building. Activation to these edges will be provided by centrally allocated teaching

spaces (CAT) and the entry to the lower ground floor which is occupied by teaching and learning spaces, bespoke sensitive instrument laboratories for the Marc Wainwright Analytical Centre (MWAC) as well as two multi-function performance spaces. A clearly defined circular vehicular access route services the Precinct Chemical Store and loading area defining a dedicated loading zone in the South of the building. The Precinct Store will be split between basement level and ground floor while chemical stores and bulk gases tanks are located on the ground floor and dry stores in the basement. Level 1 will be used as a Chemical Engineering teaching floor, collaborative teaching and learning spaces will enhance interaction between staff and students. Levels 2 to 4 will accommodate Chemical Engineering research laboratories and associated office space while Level 5 will provide a shared research floor for biology laboratories that will be partly managed by the Marc Wainwright Analytical Centre (MWAC). Chemistry research will be allocated on Level 6 and 7. Level 8 is a rooftop plant room, set back from the façade edges in order to reduce the visual impact.

The SEB design and function will be integrated with the Material Sciences and Engineering building and will take advantage of beneficial adjacencies, providing interconnection between the two buildings to enable sharing of infrastructure and spaces. Our proposal achieves a highly efficient planning layout, through careful consideration of adjacencies and selectively ‘stacking’ similar spaces, the central service corridor typology provides a dedicated inter-laboratory access path without leaving the laboratory zone. The basic laboratory module is proportioned to suit requirements of Chemical Engineering and Chemistry and working in a flexible, fume cupboard intensive research environment. Backing onto the services corridor allows individual laboratories to separate out specialist support equipment and services. The typical module is repeated out to the maximum practical length which is constrained by the short site and horizontal services lengths. The lab zone is then sandwiched by

services risers, escape stairs and the goods lift. This creates a maximized contiguous zone providing the highest possible degree of serviceability, in a rational, modular structure. This laboratory zone is then enveloped by the offices, meeting rooms, and breakout spaces, providing an environmental layer around the laboratories. The zone of the offices surrounding the laboratories is deliberately narrow to ensure that everyone is accessible and proximate to common paths of travel.

The architectural design concept implies a replication of the building façade of MSEB on the new building, providing an integrated homogenous built form across both buildings.



Introduction

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Background	1.1

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1.1 Background

UNSW is a teaching and research institution of international, national and state significance. It is ranked 46th worldwide in the QS World University Rankings (2015) and is a member of the Group of Eight (Go8), a coalition of Australia's leading universities. It is renowned for the quality of its graduates and its commitment to new and creative approaches to education and research. Notably, it is also the largest employer within the Randwick LGA.

The Campus was established in 1949 and has grown to a dynamic urban environment of more than 50,000 enrolled students, over 6,000 staff and 140 buildings over the Kensington Campus' 38 hectares. The SEB will be a new laboratory building for research and teaching in the physical sciences, adding capacity to the lower campus Physical Sciences Precinct.

The new building will be Phase 2 of the Materials Science and Engineering Building (MSEB), which is adjacent and which will directly connect in the basement and on Level 01-07 by bridge links. Its occupants will include high-performing teams from the Schools of Chemistry and Chemical Engineering, currently housed in the 50-year old F10 (Chemical Sciences Building) nearby on the lower campus.

These two Schools' existing accommodation, constructed in the 1960s, has failed to respond to a maturing teaching and research environment and is now inadequate and out-dated with consequent impact on the Schools' operation and capability. Operational inefficiencies are impacting outputs and their ability to attract research funding, academics and students. A new building has therefore been a growing priority for the University as part of the need to extend physical sciences on the lower campus and to meet the Schools' future growth projections.

The SEB will contribute to the delivery of the UNSW 2025 Strategy. This Strategy will establish UNSW as Australia's global university and a leading research-intensive and teaching-intensive university, delivering:

1. World-leading research, of the highest ethical standards and integrity.
2. Research impact, through the generation of new knowledge applied to solve complex problems, deliver social benefits and drive economic prosperity.
3. Exemplary education for every student, through integrating the most innovative developments in digital and face-to-face learning.
4. In-demand graduates, optimally prepared for the opportunities and challenges of the 21st century global workplace.

5. Equality of opportunity, for all our students, staff and the wider UNSW community.
6. Thought leadership, harnessing UNSW's intellectual capacity to deliver expert contributions to lead and inform debate, policy making and global issues.
7. A significant contribution to national and global prosperity, through innovative and transformative partnerships.
8. Excellence in international education, leading the world in educating students from overseas, through an innovative and flexible educational platform.
9. Partnerships, with other great institutions in Australia and across the globe.
10. Social justice achievements, built on UNSW's work with disadvantaged and marginalised communities in Australia, the Asia-Pacific and globally.

The SEB will also contribute the capability of the Randwick Education and Health Specialised Centre, which fosters collaboration, innovation and distinction in education, health and research through its provision of world class, contemporary education and research facilities. The Randwick Education and Health Specialised Centre is one of several centres designated in the NSW government's 2005 City of Cities - Strategy for Sydney. The government's key objective is to consolidate and strengthen the Centre as a place for biomedical and bioengineering research and development, employment and business.



Context

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2.1 Site in Context

KENSINGTON CAMPUS

The UNSW Kensington Campus is located within the Randwick LGA and is located some 8km from the Sydney CBD (to the north) and approximately 6km from Sydney Airport (to the west). The Campus includes the developments that sit within the main Campus boundaries of Anzac Parade (to the west), High Street (to the north), Botany Street (to the east), and Barker Street (to the south). It also includes developments to the west of Anzac Parade and north of Day Avenue, such as NIDA, the University Regiment, and the New College Post-Graduate Village.

PHYSICAL SCIENCES PRECINCT

The Physical Sciences Precinct is one of two key infrastructure precincts on the Kensington Campus. It comprises the following buildings and research centres:

- Tyree Building
- G11/ Mark Wainwright Analytical Centre
- Dalton Building
- Materials Science and Engineering building and the
- new Sciences and Engineering Building

This precinct comprises critical research and teaching facilities for the campus and infrastructure facilities that are shared precinct-wide and are not easily replicated elsewhere including controlled laboratories, gases, chemical stores and loading docks. The precinct shares these facilities reducing duplication and cost. Additionally, the precinct hosts a number of nationally significant and Commonwealth funded facilities including:

- Nuclear Magnetic Resonance Facility
- Electron Microscope Unit
- Solid State & Elemental Analysis Unit
- Australian Nano – Fabrication Facility

The first three of these facilities are housed within the Mark Wainwright Analytical Centre which is a first in Australia. At this centre expensive and specialised equipment from around the university has been brought together breaking down the concept of individual researcher or centre ownership, increasing utilisation, reducing costs and attracting Commonwealth support for nationally significant infrastructure.



ORTHOPHOTO KENSINGTON CAMPUS

