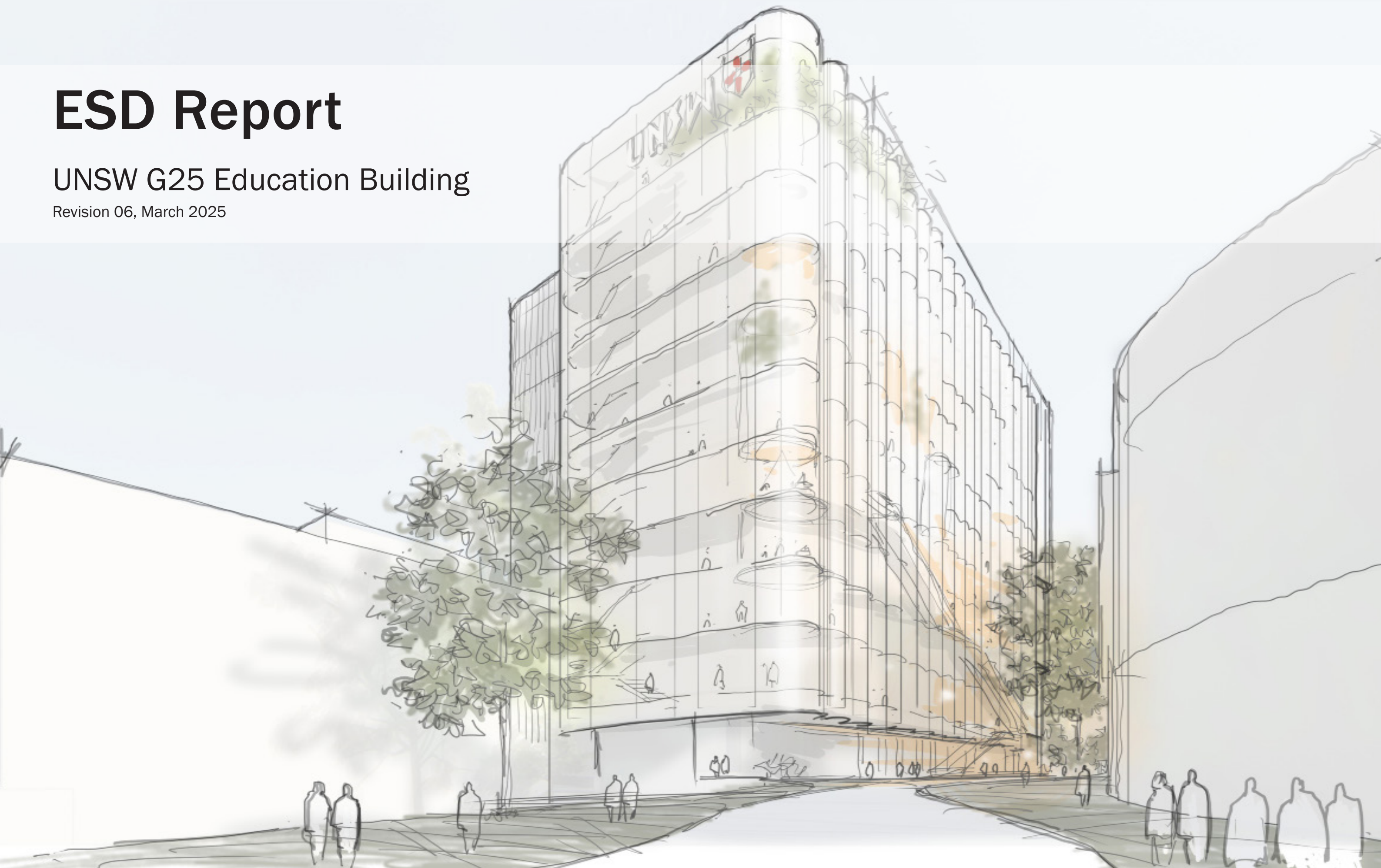


ESD Report

UNSW G25 Education Building

Revision 06, March 2025



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Consultant Declaration Form

Project Details	
Project Name	
Application number	SSD-74670005
Address of subject land	8 High Street, Kensington, NSW, 2033
Lot / DP	Lot 5 DP 1264171
Applicant Details	
Applicant name	University of NSW
Applicant address	Sydney NSW 2033
Report Details	
Name of report this declaration relates	UNSW G25 SSDA - ESD Report
Report reference no.	Revision 06
Report date	12/03/2025
Company name (inc. ABN / ACN)	Atelier Ten Australia PTY LTD (ACN: 165 367 519)
Author name	A.Mjaanes
Author qualifications	Sustainability Consultant
Author address	Level 6 100 Pacific Highway, North Sydney, NSW, 2060
Declaration by Consultant	
Name	Alison Adendorff
Registration no.	N/A
Organisation registered with	N/A
Declaration	The undersigned declares that ESD Report: - Has been prepared in accordance with the following policy, guidelines, or legislative requirements: Sustainability Building SEPP - Contains all available information relevant to the environmental assessment of the development, activity or infrastructure to which the [consultant report] relates; - Does not contain information that is false or misleading; - Identifies and addresses the relevant Planning Secretary's environmental assessment requirements (SEARs) for the project; - Identifies and addresses the relevant statutory requirements for the project, including any relevant matters for consideration in environmental planning instruments to which the [consultant report] relates; - Contains a consolidated summary of the proposed or necessary mitigation measures
Signature	<i>A. Adendorff</i>
Date	12/03/2025

1 Introduction

This ESD Report has been prepared by Atelier Ten on behalf of the University of New South Wales (UNSW) for construction and operation of a teaching and learning facility (the Proposal) to be known as the UNSW G25 Education Building, on land at 8 High Street, Kensington (the Site).

This report has been prepared to outline the specific ESD initiatives that the project must achieve, including SEARS requirements.

This report accompanies a State Significant Development Application (SSDA) that seeks approval for the construction and operation of a teaching and learning facility at the G25 site, within the Upper Campus of UNSW.

Specifically, the SSDA seeks consent for the following:

- Site preparation works including demolition of the existing at-grade car park, tree removal, and excavation works.
- Construction of an eleven (11) storey (plus roof plant) teaching and learning building with approximately 20,200m² of gross floor area. The building will comprise the following:
 - Basement including plant/services, Bike Storage, End of Trip facilities and staff amenities, ancillary service areas such as Mail and Print rooms.
 - Ground level Food and Beverage space and informal education spaces
 - Teaching and Learning spaces and workspaces for UNSW

Faculties for other levels (The internal fit-out will be subject to separate approval)

- Rooftop level including landscaped outdoor terrace, multifunction space, mechanical plant and services
- Associated landscaping, replacement trees and public domain embellishment works in and around the proposed building
- Extension and augmentation of infrastructure and services as required
- New lift core in the adjacent building, H25 Botany Street Carpark and associated access improvements.

The Proposal will seek to deliver improvements including:

- Providing new, purpose built learning and teaching spaces to support the University activities and strategic goals such as the development of the Randwick Health and Education Precinct
- Delivering an enhanced ground plane connection
- Providing flexible and adaptable teaching and learning spaces
- Creating a healthy, green, and welcoming place for students, staff and visitors
- Creating an experience that is an open, permeable, and connected public realm
- Creating pedestrian priority and inclusive shared public space

For a detailed project description refer to the Environmental Impact Statement prepared by Ethos Urban.



Figure 1.2 Site Aerial (approximate site area outlined in red), Ethos Urban (2024)

1.1 Site Analysis

1.1.1 Site Context

The site is situated within the UNSW Kensington upper campus, within the Randwick Local Government Area (LGA). The site address is 8 High Street, Kensington, which applies to the whole of the UNSW Kensington campus.

The UNSW campus forms part of the wider Randwick Health and Education Precinct, which has been strategically identified to provide a world-class coalition of education, research, innovation and healthcare organisations and to attract growth, investment and employment opportunities. This Precinct has been identified in the Greater Sydney Region Plan – A Metropolis of Three Cities and the Eastern City District Plan, for its strategic importance as a specialised centre providing for health and education research, innovation, teaching and learning.

The UNSW campus is located approximately 6km southeast of the Sydney CBD, immediately adjacent to the east is the Randwick Hospitals Complex which also forms part of the Randwick Health and Education Precinct. The UNSW site is within 600m of the Randwick Shopping Centre to the east and adjacent to Royal Randwick Racecourse to the north (refer Figure 1.1).

1.1.2 Site Description

The subject site known as the G25 site, is an existing on-grade carpark comprising of hardstand pavement with line-marked spaces, trees and landscaped areas. The site also includes the eastern portion of Library Walk and the loading dock area of the AGSM (Australian Graduate School of Management) Building (G27), with no other existing development on the site.

It is bounded to the north by the Samuels Building (F25) and Mathews Building (F23), to the west by the Solar Industrial Research Facility (SIRF) Building (G23), to the south by the multi-storey Botany Street Carpark Station (H25), and to the east by the Australian Graduate School of Management (AGSM) Building (G27) and the Gate 11 entrance to UNSW from Botany Street.

The broader UNSW Kensington Campus consists of five separate allotments. This site is situated within a single allotment legally described as Lot 5 DP 1264171. The UNSW Kensington campus is bounded by 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

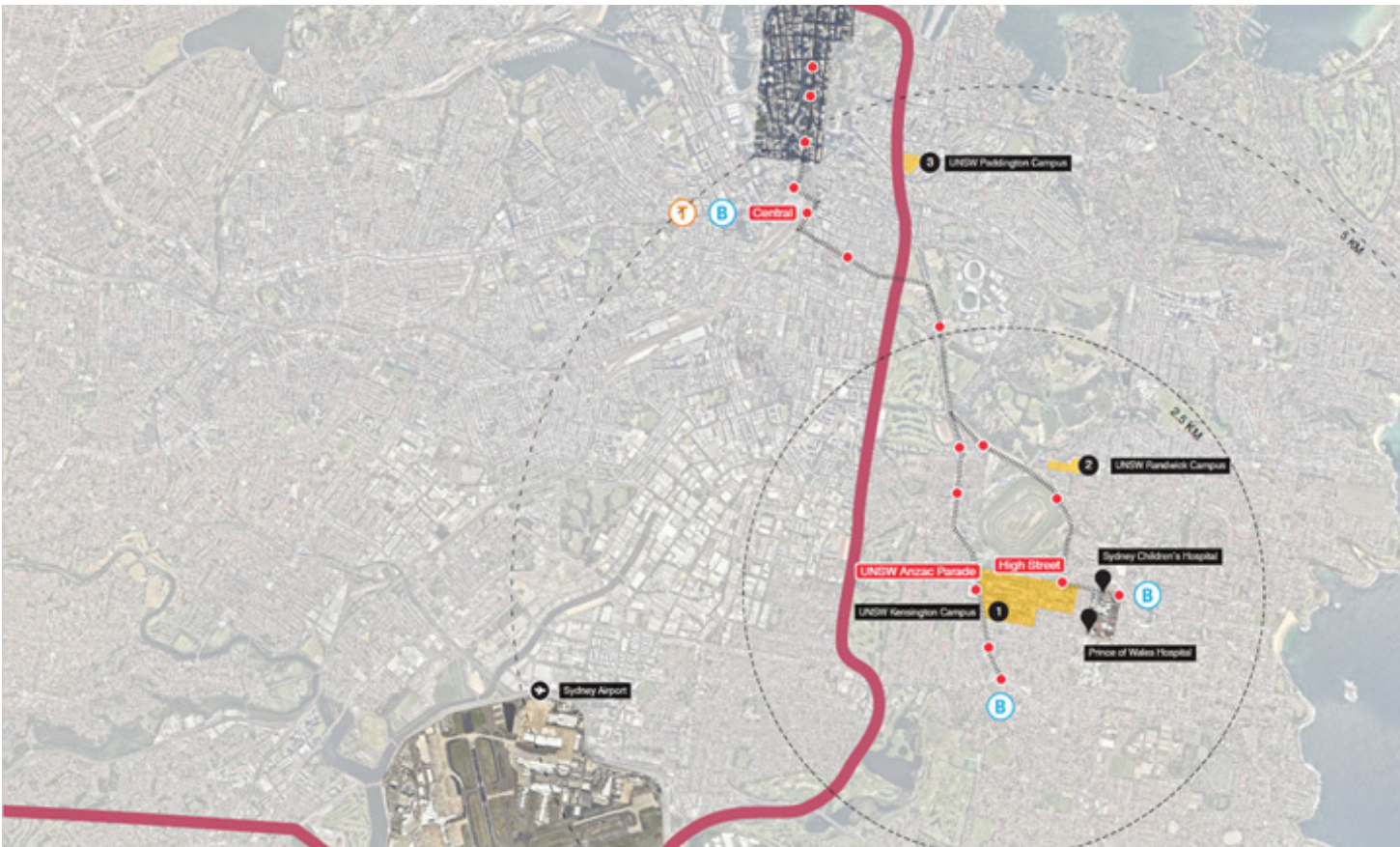


Figure 1.1 Site Context, Ethos Urban (2024)

Post-Graduate Village. The campus currently has approximately 60,000 student enrolments.

Figure 1.3 provides an aerial image of the site and its location relative to the UNSW upper campus boundaries.

1.1.3 Surrounding Development

The following development surrounds the site:

North | To the north and directly adjacent to the site across from the Library Walk are the Samuels (F25) Building and Mathews (F23) Building, which comprise up to 16-storeys. Further north within the campus are additional education, administration and library buildings. The wider context includes the UNSW High Street Light Rail stop, as well as low to medium density residential development north of High Street.

South | South of the site is the UNSW Botany Street Carpark Station (H25) (5 storeys), which is accessed internally within the UNSW campus. This location includes a pedestrian link from Oval Lane. The wider context includes low-medium density residential development south of Oval Lane.

East | The site directly abuts the ASGM Building (G27) to the east (5 storeys), which fronts Botany Street. To the east and also fronting Botany Street is the Randwick Hospitals Complex including the Prince of Wales Hospital, the Sydney Children’s Hospital, and the Royal Hospital for Women, as well as low-medium density residential development to the south-east.

West | The site directly adjoins the Solar Industrial Research Facility (SIRF) (G23) to the west, which also sits within the confines of Library Walk and Valentine Close. The western context of the subject site is primarily characterised by the wider UNSW campus (lower campus) as well as the Anzac Parade Light Rail stop.

2 SEARs Table

This ESD report has been prepared in response to the requirements contained within the Secretary's Environmental Assessment Requirements (SEARs) and issued for the SSDA. Specifically, this report has been prepared to respond to the SEARs requirements issued below, and has been structured in the standard form of an ESD report.

Table 1.1 SEARS Requirements

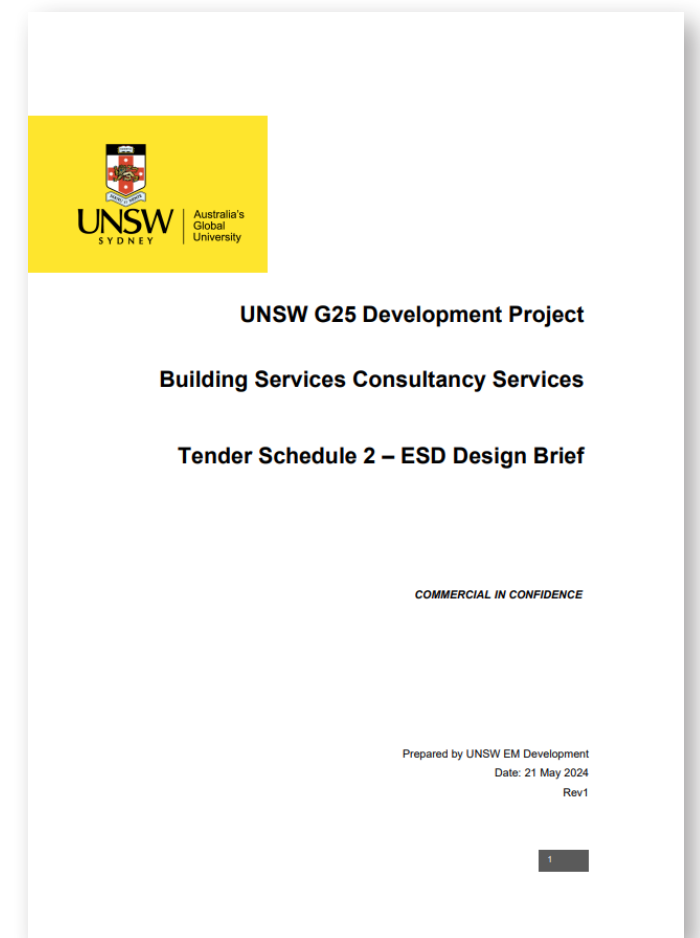
SEARS Section	Description of Requirement	Relevant Section in this Report
9. Ecologically Sustainable Development (ESD)	Identify how ESD principles (as defined in section 193 of the EP&A Regulation) are incorporated in the design and ongoing operation of the development.	See Section 5.1 on Page 13, within the ESD Report (this document).
	Demonstrate how the development will meet or exceed the relevant industry recognised building sustainability and environmental performance standards.	See Section 5.2 on Page 14, within the ESD Report (this document).
	Demonstrate how the development minimises greenhouse gas emissions (reflecting the Government's goal of net zero emissions by 2050) and consumption of energy, water (including water sensitive urban design) and material resources.	See Section 5.3 on Page 14, within the ESD Report (this document).
	If Chapter 3 of SEPP (Sustainable Buildings) 2022 applies: Demonstrate how the development has been designed to address the provisions set out in Chapter 3.2(1).	See Section 5.4 on Page 15, within the ESD Report (this document).
	Provide a NABERS Embodied Emissions Material Form to disclose the amount of embodied emissions attributable to the development in accordance with section 35B of the EP&A Regulation.	Appendix A - NABERS Embodied Emissions Material Form
	- Provide a net zero statement (as defined in section 35C of the EP&A Regulation) that includes: - Evidence of how the development will either be fossil fuel-free after the occupation of the development commences or transition to be fossil fuel-free by 1 January 2035. - Details of any renewable energy generation and storage infrastructure implemented and any passive and technical design features that minimise energy consumption. - Estimations of annual energy consumption for the building and amount of emissions relating to energy use in the building (if information is available).	Appendix B - Net Zero Statement

3 Sustainability at UNSW

These documents layout the environmental sustainability ambitions and priorities across the planning, constructing and operations at UNSW and the specific G25 site.

UNSW is committed to continuously improving environmental performance across all operations. The UNSW Capital Projects Sustainability Framework provides minimum sustainability standards and contributes towards creating 'outstanding campus environments and experiences'. The UNSW Capital Projects Sustainability Framework informs the Environmental Sustainability Plan, which provides actionable strategies that can be implemented to satisfy these minimum standards.

The Tender Schedule 2 - ESD Design Brief specifically provides ESD requirements for the G25 project to directly address.



3.1 Capital Projects Sustainability Framework, UNSW Sydney

The Sustainability Framework has been prepared in consultation by UNSW Estate Management to contribute to realising UNSW's vision: *'To improve lives globally, through innovative research, transformative education and commitment to a just society'*.

The Sustainability Framework is aligned with the overall vision of UNSW as outlined in the 2025 Strategy, and in the context of UNSW Estate Management team's role in the realisation of the vision: *'We are entrusted and empowered to create outstanding campus environments and experiences'*.

It is intended to provide guidance to projects for refurbishments, fitouts, new buildings and infrastructure at UNSW, based upon UNSW's approach for delivering this vision.

This Framework document links this vision to the Environmental Sustainability Plan 2022-24, establishing minimum requirements for projects to achieve and report against.

Key Focus areas include:

- Climate action
- Buildings and campus
- Energy and water efficiency
- Waste and recycling
- Travel and transport
- Goods and services
- Engagement and integration
- Learning and teaching
- Research and advocacy
- Beauty
- Spirit

Implications for the UNSW G25 Education Building:

- Support the development of individuals on campus
- Integrate with place e.g. ecology, history, larger community
- Expresses the character of UNSW and its location, linking past, present and future (design, operation and end-of-life)



3.2 Environmental Sustainability Plan 2022-24, UNSW Sydney

The Environmental Sustainability Plan 2022-24 deepens UNSW's commitment to environmental sustainability.

The sustainability approach has been streamlined by consolidating the previous ten focus areas into seven. In support of this, there has been a reduction to the number of targets, and key initiatives. The intent of these changes is to sharpen focus on our top priorities, improve agility and improve communication with stakeholders.

Key Environmental Sustainability Plan Themes:

- Climate action
- Living campuses
- Resource efficiency

The Sustainability Plan also includes 13 measurable targets and key initiatives for new projects to achieve, these including:

- Maintain **net zero operational** (scope 1 and 2) emissions
- Expand onsite **solar PV** capacity to **1.5MWp**
- **Reduce total (scope 1, 2 and 3) emissions** by 30% by 2025, 50% by 2030 and to **net zero by 2050**
- **Divest investments in fossil fuel companies**
- New build and refurbishment projects **achieve our minimum sustainability requirements**
- Kensington campus achieves a **net gain in biodiversity value**
- Increase student and staff **knowledge and awareness** of environmental sustainability issues
- At least **85% of students and staff travel to campus by sustainable travel modes**
- **Reduce energy intensity** by 5%
- **Reduce water intensity** by 5%
- At least **85% of general waste is diverted** from landfill
- **Reduce general waste** by 20%
- At least **80% of retailers achieve Plastic Free Dining gold award** status



3.3 UNSW Design Standards Section H - Energy and Water Efficiency

This standard nominates minimum utility targets, efficiency strategies and refrigerant selection hierarchy, among others.

Implications for the UNSW G25 Education Building:

- Energy Efficiency - focus on reducing energy consumption through efficient design, equipment selection and management practices
- Renewable Energy - Integrate renewable energy sources like solar PV to offset grid energy use
- Water conservation - employ water efficient fixtures and systems
- Monitoring and Reporting - implement systems to monitor, report, and assess energy and water performance.
- Maintenance - regular maintenance to sustain efficiency gains in energy and water usage.
- UNSW indicative operational targets:
 - Energy 189 kWh/m²/year
 - Water 0.9 kL/m²/year

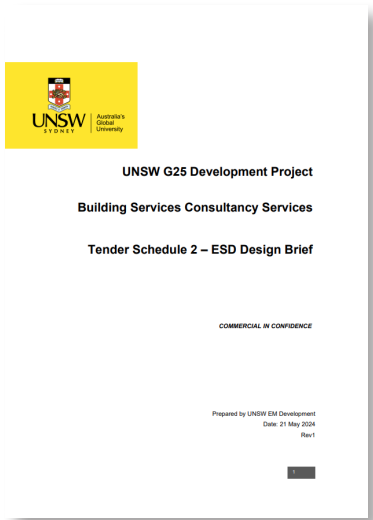
3.4 UNSW G25 Development Project: Tender Schedule 2 - ESD Design Brief, UNSW Sydney

The Tender Schedule 2 has been prepared to provide an outline of the engineering design requirements for the G25 Project, specifically ESD requirements.

The Report lists the required ESD principles and targets, certification, and regulation and authorities specifically for the UNSW G25 Education Building project.

Implications for the UNSW G25 Education Building:

- A whole-of-life approach should be adopted
- Ensure that the design enables it to flexible and adaptable to new technologies, future uses and climate change
- Provide an occupant environment that promotes learning, wellbeing, thriving and active lifestyles
- Utilise passive design principles to minimise energy demand
- Contribute to UNSW meeting its net zero greenhouse emissions target
- Consider provisions for the following beyond NCC compliance: Photovoltaics, Electric vehicles charging facilities, Energy storage, Metering and monitoring, Distribution boards
- Optimise water efficiency through efficient operational systems, water harvesting and reuse
- Select sustainable materials with consideration to place, whole-of life costs and environmental, social and health impacts
- Utilise regenerative design principles
- Inspire and elevate the spirit of occupants and the community and integrate with the local environment and cultural heritage
- Achieve Nature Value net gain across site
- UNSW indicative operational targets:
 - Energy 189 kWh/m²/year
 - Water 0.9 kL/m²/year
- Comply to Building Code of Australia NCC 2022
- Comply to Australian Standards



4 Sustainability Vision

The UNSW G25 Education Building is committed to exemplify innovative development by leading the shift towards carbon neutrality, embracing a holistic circular approach, integrating climate change mitigation strategies, connecting and ensuring the wellbeing of Country, and regenerating landscapes. The project will in particularly consistently work towards enhancing human comfort and well-being through fostering a vibrant, cohesive University environment, cultivating a strong sense of belonging, and fostering connections with nature.

4.1 Framework of Values and Themes

Within this framework, five distinct Sustainability Themes guide our path forward, each encapsulating a targeted area of focus:

- **Connecting with Country** | Embracing the profound cultural significance of this land, we honour its Indigenous heritage, fostering a deep-rooted relationship between people and place.
- **Climate Positive** | Championing net-zero carbon emissions, resource efficiency, and innovative sustainability measures to lead the charge toward a climate-resilient future.
- **Resilient** | Steadfast in the face of challenges, we fortify the future university community to withstand shocks and stresses, ensuring a resilient, adaptable, and future-ready precinct.
- **Place of Health & Wellbeing** | Nurturing public health and well-being through thoughtfully designed spaces that prioritise physical activity, mental health, and a holistic sense of vitality.
- **Nature and Biodiversity** | The design will restore native ecology of the area and enhance local biodiversity.

4.2 Sustainability Vision Axonometric

On the following page, an axonometric illutsrating the application of the sustainability vision is provided.

4.3 Assurance

The project is committed to achieving a broad range of sustainability outcomes, as outlined in this ESD Report, which currently benchmarks against Green Star Buildings at a 5-Star rating. If UNSW does not proceed with formal registration and certification with the GBCA, the project will instead formally track and report sustainability outcomes in alignment with the UNSW Environmental Sustainability Plan 2022–24.

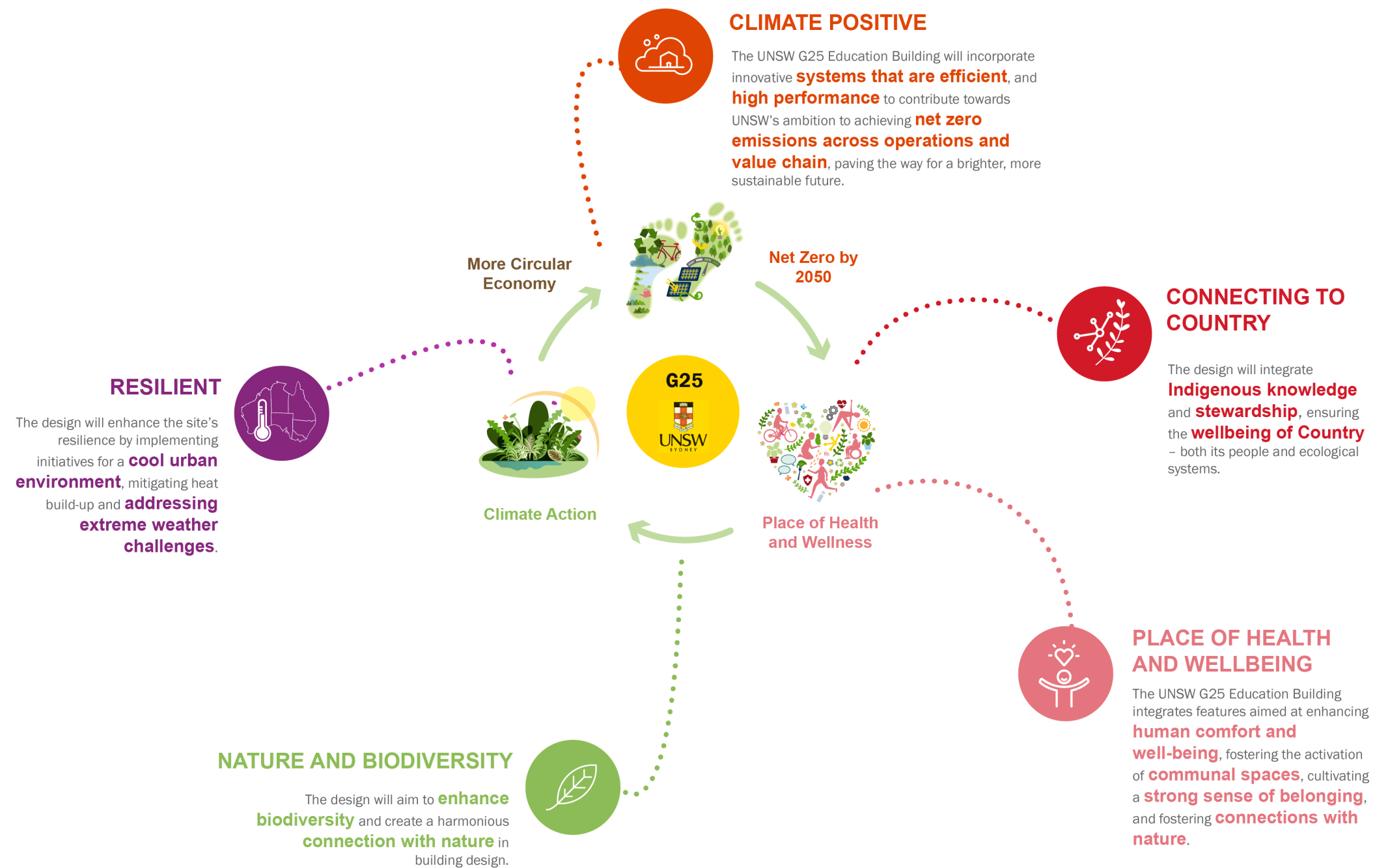


Figure 4.1 Sustainability Vision

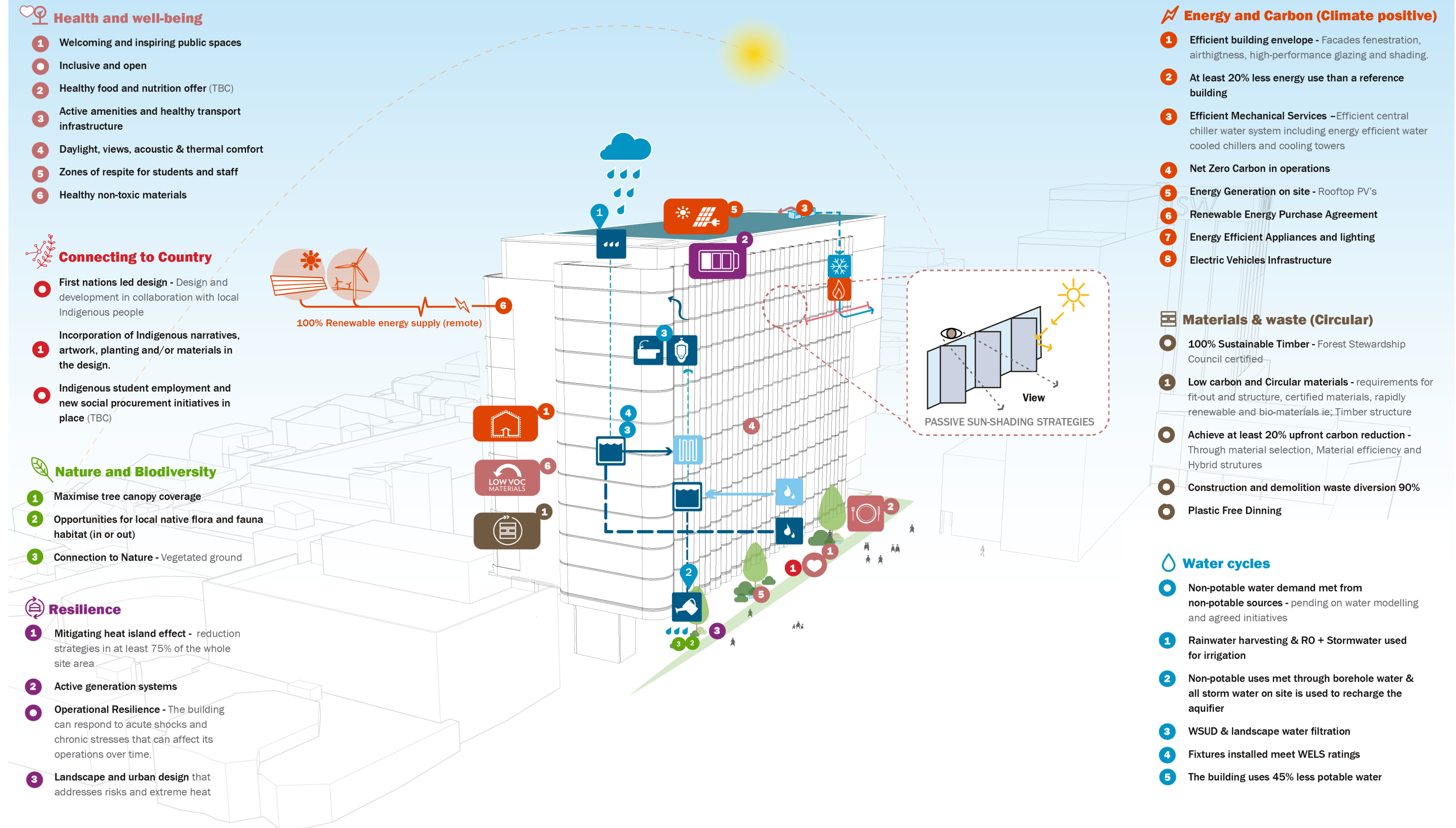


Figure 4.2 Sustainability Vision Axonometric

5 Mitigation Measures Table

5.1 SEARs ESD Principles

The Section 193 of the EP&A Regulation requires the development to address the following principles of ecologically sustainable development.

Table 5.1 SEARS ESD Principles

Principles	Requirements	Project Stage	Mitigation Measures	Relevant Section
Precautionary principle	- If there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. - Careful valuation to avoid irreversible damage to the environment. - An assessment of risk-weighted consequences.	Construction	Contractor will follow best practice and develop a site-specific construction environmental management plan.	Refer to: - Construction Management Plan by AW Edwards PTY Limited. - Construction Waste Management Plan by AW Edwards PTY Limited.
		Operation	Operations Environmental Management Plans will be developed by the operator to avoid irreversible damage to the environment.	Refer to the Preliminary Long Term Environmental Management Plan by Douglas Partners.
Inter-generational equity	The present generation should ensure the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations.	- Design - Operation	Foster community resilience through engagement with local stakeholders and participation in local community programs.	Refer to the Community Resilience Plan by Atelier Ten.
		- Design - Operation	Targeted rooftop PV arrays will be utilized to power basic systems during utility disruptions	Refer to Section 5.3, in the Greenhouse Gas Emissions and Energy Consumption category.
		Design	Permeable paving or landscape planting over areas of deep soil help to replenish the water table of the site.	Refer to Landscape SSDA Report by Arcadia.
Conservation of biological diversity and ecological integrity	The conservation of biological diversity and ecological integrity should be a fundamental consideration.	- Design - Operation	The existing site has very limited biological diversity. Therefore, proposed landscaping has minimum impact on local species or ecological integrity. The proposed landscaping schemes will improve biological diversity and provide better environments for local ecosystems.	Refer to the Biodiversity Development Assessment Report Waiver by Evolve Ecology.
		- Design - Construction	Major materials and products will be responsibly sourced for low environmental impact with third-party accreditation.	Refer to Section 5.3, in the Material Resources category.
		- Design - Operation	Chiller plant and all refrigeration systems will be selected on the basis of minimising environmental impacts through the selection of low ozone depletion potential (low ODP) and low global warming potential (low GWP) refrigerants and through implementing leak detection and management measures.	Refer to Section 5.3.
		Design	Landscaping around the building to promote green corridors, promote biodiversity and reduce urban heat island effects	Refer to Landscape SSDA Report by Arcadia.
Improved valuation, pricing and incentive mechanisms	Environmental factors should be included in the valuation of assets and services such as: the polluter pays, users of goods and services should pay prices based on life cycles, established ESD goals should be pursued in the most cost-effective ways.	Operation	During building operation, minimise waste-to-landfill through the provision of recyclable waste, organics, e-waste and non-recyclable waste storage at each level of the building as appropriate	Refer to Operational Waste Management Plan by Elephants Foot Consulting.
		- Design - Operation	Eliminate combustion and air pollution emission sources from regularly used building systems, including heating, cooling, and hot water generation.	Refer to: - Hydraulic Services Infrastructure Report by LCI. - Section 5.3.
		- Design - Operation	The buildings will be all electric and run on 100% renewable power, except for emergency generators.	Refer to Section 5.3, in the Energy Consumption category.

5.2 Sustainability and Environmental Performance Standards

5.2.1 SEARs Requirement

Demonstrate how the development will meet or exceed the relevant industry recognised building sustainability and environmental performance standards.

5.2.2 Project Response

The UNSW G25 Education Building will meet and exceed relevant industry recognised building sustainability and environmental performance standards by:

- Exceeding NCC Section J requirements by 10%
- Meeting the State Environmental Planning Policy (Sustainable Buildings) requirements

The project is committed to achieving a broad range of sustainability outcomes, as outlined in this ESD Report, which currently benchmarks against Green Star Buildings at a 5-Star rating. If UNSW does not proceed with formal registration and certification with the GBCA, the project will instead formally track and report sustainability outcomes in alignment with the UNSW Environmental Sustainability Plan 2022–24.

5.3 Energy, Water and Materials

Table 5.2 SEARS ESD Principles

Sustainability Category	Design Response (Mitigation Measures)
Greenhouse Gas Emissions	- Achieve at least 20% upfront carbon reduction through material selection, material efficiency and hybrid structures. - Minimise combustion in building systems to enable zero-carbon operations through renewable power purchase. - Solar PV panels will be installed to provide renewable energy that further reduces GHG emissions. At this stage, it is estimated that approximately 40kW could be accommodated. - Reduced Urban Heat-Island Effect through increased landscaping and lighter materiality in construction. - Provision for electric vehicle infrastructure to support EV vehicles as an alternative to fuel vehicles, contributing towards the reduction of exhaust emissions.
Energy Consumption	- Integrate passive design principles: sufficient well-insulated external wall, to minimise architectural and mechanical system complexity. This has been optimised through coordination between the architect, ESD consultant and façade engineer to achieve the following outcomes: - Façade and building openings designed to maximise natural ventilation and minimal mechanical HVAC use - Horizontal and vertical passive solar shades to reduce heat loads. High performance envelope that maximises solar control while maintaining great daylight. - Glazing and structure materiality has been catered to ensure both high visual comfort and comfortable levels of solar gain. Minimises electrical lighting needs. - Operate with minimal energy input to provide a low-carbon, low energy cost building. - Future proofing to enable net-zero carbon operations through 100% energy and electricity via renewable sources. - Provision of energy efficient appliances and lighting - Lower cost electricity by exploring lower cost electricity through an embedded network and extensive on-site renewable energy supply i.e. solar energy via PV panels. - Minimise additional peak resource loads upon local utilities.
Water Consumption	- Water conservation considerations include fixtures and fittings selected as appropriate to minimise water consumption, low water-use species for landscaping, rainwater harvesting and re-use. - Fixtures installed meet WELS ratings. - Non-potable water demand met from non-potable sources, and achieving the building to use at least 40% less potable water. - Stormwater used to recharge the aquifer, borehole water for all non-potable uses. - Water Sensitive Urban Design (WSUD) and landscape water filtration.
Material Resources	- The project will minimise embodied carbon and water in materials by sourcing products from sustainability certified manufacturers/suppliers, where possible. - Achieve at least 90% construction and demolition waste diversion. - The project will be prioritising healthy building materials, such as low-VOC products. - Use of low-carbon concrete and cements through material specification, including sourcing of sustainably certified materials or through sustainable procurement processes. - The project will select 100% Sustainable Timber that is Forest Stewardship Council certified.

5.4 Sustainable Building SEPP

This policy sets statewide standards for sustainable building practices, focusing on reducing greenhouse gas emissions, minimising water consumption, and monitoring embodied carbon in construction materials. The policy ensures alignment with New South Wales’ climate goals and mandates consistent environmental assessments across all developments.

Table 5.3 State Environmental Planning Policy (Sustainable Buildings) 2023

State Environmental Planning Policy (Sustainable Buildings) 2023	Design Response (Mitigation Measures)
Chapter 3 Standards for Non-Residential Development	
Development consent for non-residential development. 1. In deciding whether to grant development consent to non-residential development, the consent authority must consider whether the development is designed to enable the following– a. The minimisation of waste from associated demolition and construction, including by the choice and reuse of building materials, b. A reduction in peak demand for electricity, including through the use of energy efficient technology, c. A reduction in the reliance on artificial lighting and mechanical heating and cooling through passive design, d. The generation and storage of renewable energy, e. The metering and monitoring of energy consumption, f. The minimisation of the consumption of potable water.	• The project is targeting 90% diversion of construction and demolition waste from landfill • Energy efficient lighting and mechanical plant will be designed to reduce the peak demand for electricity. • At least 40kW of PV will be installed on the roof, helping to reduce peak electricity demand. • Lighting will be controlled by movement and daylight sensors where suitable. • Facades have been designed to reduce reliance on mechanical heating and cooling systems through rationalised window to wall ratios, high performance glazing and rationalised shading to facades. • Accessible energy and water metering will be provided for all common uses, major uses and major sources. The meters will be connected to an automatic monitoring system that will provide continual information. • Non-potable water demand will be met from non-potable sources. Bore water will be used for landscape irrigation, whilst treated bore water is used for toilet flushing, cooling towers, and reverse osmosis systems. • All stormwater from the site will be used to recharge the aquifer. • Efficient fittings will meet WELS rating and will be specified and installed to reduce water demand.
2. Development consent must not be granted to non-residential development unless the consent authority is satisfied the embodied emissions attributable to the development have been quantified.	• The building has been designed to achieve 20% reduction in upfront carbon. • A NABERS Embodied Emissions Material Form has been completed.
Other considerations for large commercial development 1. In deciding whether to grant development consent to large commercial development, the consent authority must consider whether the development minimises the use of on-site fossil fuels, as part of the goal of achieving net zero emissions in New South Wales by 2050.	• The development will be 100% electric with a commitment from day one to purchase renewable energy for the base building energy use. • The building has been designed to be fossil fuel free, powered by renewables, highly efficient and built with lower upfront emissions.

6 Record of Stakeholder Engagement Activities

Table 6.1 Record of Stakeholder Engagement

Date	Stakeholder/s	Activity	Purpose of Activity	Feedback Detail	Project Response
12/09/2024	- Clients (UNSW) - Architects (Architectus) - Architects (BLIX Architecture)	Sustainability Visioning Workshop	Introducing the sustainability vision for the project through summarising the key principles and how they address sustainability commitments and policies.	Participating stakeholders suggested various sustainability design and operational ideas that could be implemented, and stated ideas that are currently impending	- Re-visit and refine sustainability goals - Development of an ESD Report
19/08/2024	- Clients (UNSW) - Architects (Architectus)	Climate Change Pre-Screening Workshop	Review scope and boundaries, and impart high level adaptation measures.	- Aim to get more visibility of who vulnerable stakeholders are through, for example, an equity group - Inclusion of stakeholders that represent one of the identified vulnerable groups	- Development of Climate Adaptation Plan - Acknowledgment and consideration of vulnerable stakeholders in Climate Adaptation Plan and Risk Matrix
06/09/2024	- Clients (UNSW) - Architects (Architectus) - Engineering Consultants (Arup)	Façade Performance Workshop 01	To finalise inputs for façade multiparameter analysis.	Façade preliminary inputs discussed and sent out to the respective design teams for their comments.	Inputs finalised and incorporated in the preliminary performance assesment.
23/09/2024	- Clients (UNSW) - Architects (Architectus) - Engineering Consultants (Arup)	Facade Performance Workshop 02	To discuss the results for the multiparameter analysis.	Findings of regrading the thermal comfort, energy efficiency and daylight relayed to the team for further detailing.	Design explorer tool with performance criteria provided to the team to be included in the proposed design.
30/09/2024	- Clients (UNSW) - Architects (Architectus) - Engineering Consultants (LCI Consultants) - Engineering Consultants (Arup)	Carbon Workshop 01 Workshop	Introduction to Upfront Carbon Emissions requirements.	- Agreement to consult across disciplines to compile a justified list of initiatives addressing carbon reduction - Discussion of how the location of stack joints in the facade could impact carbon savings and design choices - Emphasis on need to finalise the design approach and include a buffer in the base model for flexibility - Team discussed compiling collection of carbon-reducing initiatives - Consideration of alternative systems e.g. Capral window system - Internal sustainability schedules to be incorporated into planning - Focus on an efficient structural grid and a single basement design	- All disciplines documented design options and scenarios with associated carbon and reduction estimates - Compile list of carbon-saving initiatives from all disciplines for further review (RFI sent out) - Evidence of initiatives and opportunities tested, and a preliminary pathway was developed
21/10/2024	- Clients (UNSW) - Architects (Architectus) - Engineering Consultants (LCI Consultants) - Engineering Consultants (Arup)	Risk and Adaptation Workshop	Summarise climate projections with justifications of modelling scenario, and provide a comprehensive risk assessment for the project.	- Participating stakeholders recommending risk treatment options (adaptation measures) for the risk assessment - Stakeholders absent in workshop required follow-up for the completion of specific adaptation measures	Risk re-evaluation based upon stakeholder comments and confirmation of finalised risk assessment
28/11/2024	Clients (UNSW)	Adaptation Workshop	Review risks that still require addressing, and address risks with confirmed mitigation measures.	- Reviewed and re-evaluated risk categories e.g. high to medium - Mitigation measures were documented for the risks UNSW were responsible for	- Mitigation measures were applied to selected risks - Risks were re-evaluated

7 Conclusion

The UNSW G25 Education Building development will meet the sustainability targets based on the requirements of UNSW, government policies, standards and codes.

The sustainability performance of the project will be supported with the provision of a NABERS Embodied Emissions Material Form for assurance and demonstration of the project's commitment to the sustainability vision.

Implementation of the design responses will render the proposed development acceptable in addressing the ESD SEARS requirements.



Appendices

Appendix A Preliminary Green Star Buildings Pathway

 Green Star Buildings v1		
2198 UNSW G25		Issue Date: 30/01/2025
Registration Date	2024	
Climate Positive Pathway	Yes	
Min expectations met	Yes	
Target	5 Star	
Total points required	35	35 points required for 5 Star
Total points pursued	60	70 points required for 6 Star
Target met	Yes	

5 Star	Weighted for probability	Total pursued	Total available
Total	57	60	100
Responsible	7	7	17
Healthy	4.5	5	14
Resilient	4.5	5	8
Positive	23	23	30
Places	7	8	8
People	5	5	9
Nature	5	6	14
Leadership	1	1	0

			PRIMARY PATHWAY - 5 STAR							
Credit Category	#	Credit	All Requirements per Target Level 0 - Minimum Expectations (ME) 1 - Credit Achievement (CA) 2 - Exceptional Performance (EP)	Probability of Achievement	Target level	Weighted points	Total points pursued	Total points available2	Responsible Party	Contributing Parties
Responsible	1	Industry Development	1.1 Appoint a Green Star Accredited Professional; and 1.2 Disclose the cost of sustainable building practices to the GBCA; and 1.3 Market the building’s sustainability achievements.	HIGH	CA	1	1	1	Owner	ESD
Responsible	2	Responsible Construction	Contractor undertakes: 0.1 Environmental management system (EMS certified) 0.2 Environmental management plan (EMP) 0.3 Construction and demolition waste diversion of 80% 0.4 Sustainability training provided to 95% of all subcontractors for at least 3 days 1.1 Construction and demolition waste diversion of 90%	HIGH	CA	1	1	1	Contractor	
Responsible	3	Verification and Handover	0.1 Metering and monitoring for energy and water 0.2 Commissioning and tuning from prior to construction to after PC. 0.3 Building Information to be provided to building owner and relevant staff 1.1 Soft landing approach; and 1.2 Independent Commissioning Agent	HIGH	CA	1	1	1	Independent Commissioning Agent	Building services Owner Airtightness Consultant Façade Architect
Responsible	4	Operational Waste	0.1 Separation of waste streams at least 3 0.2 Dedicated easy to access waste storage area to account estimated waste and collection 0.3 Signoff by waste specialist and/or contractor	HIGH	ME	0	0	0	Architect	Waste consultant Owner
Responsible	5	Responsible Procurement	1.1 Risk and opportunity assessment of the supply chain for required issues; and 1.2 Responsible Procurement plan to mitigate and manage identified risks in accordance with ISO 20400	HIGH	CA	1	1	1	Owner	ESD Architect
Responsible	6	Responsible Structure	1.1 50% of all structural components (by cost) meet Resp. Products Value score ≥10 2.1 In addition to CA, either: 10% of all products in the structure (by cost) RPVS ≥15 OR, 2.2 80% of all products in the structure (by cost) meet Resp. Products Value score ≥10	HIGH	CA	3	3	5	Structural	Contractor
Responsible	7	Responsible Envelope	1.1 30% of all building envelope components (by cost) meet a RPVS ≥10 2.1 In addition to CA, either: 10% of all products in envelope (by cost) RPVS ≥15, OR, 2.2 60% of all products in the envelope (by cost) have an RPVS ≥10		(Not Pursued)	0	0	4	Façade	Contractor
Responsible	8	Responsible Systems	1.1 20% of all active building systems (by cost) meet RPVS ≥6 2.1 In addition to CA, either: 5% of all active systems (by cost) meet RPVS ≥11, OR, 2.2 35% of all active systems (by cost) have an RPVS of ≥6		(Not Pursued)	0	0	2	Building services	Contractor

Credit Category	#	Credit	All Requirements per Target Level 0 - Minimum Expectations (ME) 1 - Credit Achievement (CA) 2 - Exceptional Performance (EP)	PRIMARY PATHWAY - 5 STAR						
				Probability of Achievement	Target level	Weighted points	Total points pursued	Total points available2	Responsible Party	Contributing Parties
Responsible	9	Responsible Finishes	1.1 40% of all internal building finishes (by area) meet a RPVS ≥7 2.1 In addition to CA, either: 10% of all internal building finishes (by area) RPVS ≥12 OR, 2.2 60% of all internal building finishes (by area) have an RPVS of ≥7		(Not Pursued)	0	0	2	Architect	Contractor
Healthy	10	Clean Air	0.1 Ventilation systems attributes: Separation from pollutants-cleaning ductwork 0.2 Provision of outdoor air: 50% > min AS1668 OR maintain CO2 levels <800ppm 0.3 Exhaust or elimination of pollutants 1.1 Ventilation system attributes: access for maintenance; and 1.2 Provision of outdoor air: 100% > min AS1668 OR maintain CO2 levels ≤700ppm	HIGH	ME	0	0	2	Building Services	ESD
Healthy	11	Light Quality	0.1 Lighting comfort: Flicker-free, required CRI, illuminance, uniformity etc. 0.2 Glare addressed in nominated areas 0.3 Daylight access to building occupants 1.1 Artificial Lighting solution that addresses quality, contrast etc; OR 1.2 Daylight EP- Both Artificial Lighting Solutionthat addresses quality, contrast, etc AND Daylight	HIGH	CA	2	2	4	ESD	Architect
Healthy	12	Acoustic Comfort	0.1 Acoustic Comfort Strategy addressing how design delivers comfort to occupants 1.1 Internal noise levels limits as per standards; and 1.2 Acoustic separation between enclosed spaces; and 1.3 Impact noise transfer through floors; and 1.4 Reverberation control as per limit in standards (non-residential only)	HIGH	ME	0	0	2	Acoustic	ESD Architect
Healthy	13	Exposure to Toxins	0.1 Paints, adhesives, sealants, and carpets; 95% (volume) meet TVOC limits 0.2 Engineered wood products; 95% (area) meet formaldehyde limits 0.3 Lead, asbestos and PCBs; hazardous materials survey, best practice removal 1.1 Testing of TVOC and formaldehyde levels	HIGH	ME	0	0	2	Contractor	ESD Design Team
Healthy	14	Amenity and Comfort	1.1 Dedicated amenity rooms to promote inclusivity, mindfulness or exercise e.g. parent room, break-out room, prayer room or exercise room	HIGH	CA	2	2	2	Architect	Owner
Healthy	15	Connection to Nature	1.1 Views, indoor plants and incorporation of nature-inspired 2.1 5% of the building's floor area/ or site area (whichever is greater) is allocated to in which occupants can directly engage with.	MEDIUM	CA	0.5	1	2	Architect	Landscape
Resilient	16	Climate Change Resilience	0.1 Climate change pre-screening checklist and communication to stakeholders 1.1 Project-specific climate change risk and adaptation assessment.	HIGH	CA	1	1	1	Owner	ESD Project Team
Resilient	17	Operations Resilience	1.1 Comprehensive Risk Assessment; and 1.2 Managing risks; and 1.3 Addressing power loss	HIGH	CA	2	2	2	ESD	Building services Owner
Resilient	18	Community Resilience	1.1 Develop resilience plan; Impacts to building's ability to service the community	HIGH	CA	1	1	1	ESD	Owner
Resilient	19	Heat Resilience	1.1 Heat island effect reduction strategies in at least 75% of the whole site area	MEDIUM	CA	0.5	1	1	Architect	Landscape

Credit Category	#	Credit	All Requirements per Target Level 0 - Minimum Expectations (ME) 1 - Credit Achievement (CA) 2 - Exceptional Performance (EP)	PRIMARY PATHWAY - 5 STAR						
				Probability of Achievement	Target level	Weighted points	Total points pursued	Total points available2	Responsible Party	Contributing Parties
Resilient	20	Grid Resilience	Manage peak electricity demand for the building through 1 or a combination of: 1.1 Active generation and storage systems: 10% reduction for at leas 1hr; and/or 1.2 Demand response: 10% reduction without affecting comfort; and/or 1.3 Passive design solutions: 10% improvement in NCC Ref facade, apply to nat-vent		(Not Pursued)	0	0	3	Building Services	ESD
Positive	21	Upfront Carbon Emissions	0.1 Upfront carbon emissions are at least 10% less than reference building 1.1 Net Zero Path: Upfront carbon emissions are at least 20% less than reference building EP- Upfront carbon emissions are at least 40% less than reference building	HIGH	CA	3	3	6	ESD	Design team
Positive	22	Energy Use	0.1 Energy use is at least 10% less than reference. 1.1 Net Zero Path: Energy use is at least 20% less than a reference building; OR NABERS 5.5 Stars with 25% modelling margin; OR NatHERS target. EP- Energy use is at least 30% less than a reference building; OR NABERS 6 Stars	HIGH	EP	6	6	6	ESD	Building services Architect Façade
Positive	23	Energy Source	0.1 The building provides a Zero Carbon Action Plan 1.1 Net Zero Path: 100% of the building's electricity comes from renewable electricity EP- Net Zero Path: 100% of the building's energy comes from renewables	HIGH	EP	6	6	6	Owner	Building services
Positive	24	Other Carbon Emissions	1.1 Net Zero Path: The building owner eliminates/offsets emissions from refrigerants 2.1 All other emissions not captured in the Positive category are eliminated/offset	HIGH	CA	2	2	4	Building services	ESD
Positive	25	Water Use	0.1 Efficient water fixtures or 15% less potable water compared to a ref. building 1.1 45% less potable water compared to a reference building 2.1- 75% less potable water compared to a reference building	HIGH	EP	6	6	6	Architect	Civil Landscape Building Services
Positive	26	Life Cycle Impacts	1.1 30% reduction in life cycle impacts when compared to standard practice		(Not Pursued)	0	0	2	ESD	Project Team Contractor
Places	27	Movement and Place	0.1 Showers and changing facilities for building occupants 1.1 Design and location prioritises walking, cycling, and transport options: by Introducing cyclist facilities, developing a sustainable transport plan, reducing private vehicle use and encouraging walkability.	HIGH	CA	3	3	3	Transport	ESD Landscape Architect
Places	28	Enjoyable Places	1.1 Provide memorable, beautiful, vibrant communal or public places where people want to gather and participate. 0.25 m2/occupant or 2.5% of GFA, whichever greater; and 1.1 Activation Strategy to facilitate initiation placemaking activities	HIGH	CA	2	2	2	Architect	Owner Landscape
Places	29	Contribution to Place	1.1 Design contributes to the liveability of the wider urban context and enhances the public realm. Demonstrated through Urban Context Report and public realm interface design, OR 1.2 an Independent design review	MEDIUM	CA	1	2	2	Owner	Architect Landscape Community engagement

Credit Category			All Requirements per Target Level 0 - Minimum Expectations (ME) 1 - Credit Achievement (CA) 2 - Exceptional Performance (EP)	PRIMARY PATHWAY - 5 STAR						
#		Credit		Probability of Achievement	Target level	Weighted points	Total points pursued	Total points available2	Responsible Party	Contributing Parties
Places	30	Culture, Heritage and Identity	1.1Design reflects and celebrates local demographics and identities, the history of the place, and any hidden or minority entities. Demonstrated through local analysis that justifies design responses, OR 1.2 through Independent Design Review	HIGH	CA	1	1	1	Owner	Architect Landscape Community engagement
People	31	Inclusive Construction Practices	0.1 Gender inclusive facilities and protective equipment during construction. 0.2 Policies on-site to raise awareness, reduce discrimination, racism & bullying.. 1.1 High quality staff support on-site to reduce physical and mental health impacts.	HIGH	CA	1	1	1	Contractor	
People	32	Indigenous Inclusion	1.1 Building’s design and construction celebrates Aboriginal and Torres Strait Islander people, culture and heritage by either playing an active role in the organisational RAP; OR, 1.2 Incorporating design elements using the Indigenous Design & Planning principles.	HIGH	CA	2	2	2	Owner	Local indigenous representative
People	33	Procurement and Workforce Inclusion	1.1 Implement social procurement strategy, at least 2% of the building’s total contract value has been directed to generate employment opportunities for disadvantaged and under- represented groups 2.1 Implement social procurement strategy, at least 4% of the building’s total contract value has been directed to generate employment opportunities for disadvantaged and under- represented groups	(Not Pursued)		0	0	3	Owner	
People	34	Design for Inclusion	1.1The building is designed and constructed to be inclusive to a diverse range of people with different needs. 2.1 Engagement with target groups has informed the inclusive design	HIGH	CA	2	2	3	Architect	Owner
Nature	35	Impacts to Nature	0.1 Building was not built on, or significantly impacted, a site w/ high ecological value; and manages light pollution impacts and has a wetland management plan 1.1 The building’s design and construction conserves existing natural soil, hydrological flows and vegetation elements; and If deemed necessary by an Ecologist, at least 50% of existing site with high biodiversity value is retained.	HIGH	CA	2	2	2	Ecologist	Landscape
Nature	36	Biodiversity Enhancement	1.1 Site includes an appropriate landscape area either 15% of site area or at a ratio of 1:500 of the GFA, whichever is larger; and it includes a diversity of species and prioritises the use of climate-resilient and indigenous plants; and develop a site-specific Biodiversity Management Plan and provide it to the building owner. 2.1 Site includes an appropriate landscape area either 30% of site area or at a ratio of 1:500 of the GFA, whichever is larger; and it includes a diversity of species and prioritises the use of climate-resilient and indigenous plants; 2.2 Develop a site-specific Biodiversity Management Plan and provide it to the building owner. 2.3 Landscaping includes critically endangered and/or endangered plant species native to the bioregion.	MEDIUM	CA	1	2	4	Ecologist	Landscape
Nature	37	Nature Connectivity	1.1 Landscaping or Infrastructure is built to encourage species connectivity through the site, and to adjacent sites. In addition, if the project sits within a blue or green grid strategy it must contribute to the goals of the strategy	HIGH	CA	2	2	2	Ecologist	Landscape Architect
Nature	38	Nature Stewardship	1.1 The building owner undertakes activities that protects or restores biodiversity at scale beyond the development’s boundary.	(Not Pursued)		0	0	2	Owner	Landscape

Credit Category#Credit			PRIMARY PATHWAY - 5 STAR							
			All Requirements per Target Level 0 - Minimum Expectations (ME) 1 - Credit Achievement (CA) 2 - Exceptional Performance (EP)	Probability of Achievement	Target level	Weighted points	Total points pursued	Total points available2	Responsible Party	Contributing Parties
Nature	39	Waterway Protection	1.1 Annual average flow reduction (ML/yr) of 40% compared to pre-development levels and meets specified pollutants targets. 2.1 Annual average flow reduction (ML/yr) of 80% compared to pre-development levels and meets specified pollutants targets.		(Not Pursued)	0	0	4	Civil	Landscape
Leadership	40	Market Transformation	Justify a component of design/project ititative that transforms the property market. Manually enter pathway requirements and credit achievement points (1pt per initiative) 1.1 See Leadership Challenges on GBCA website		(Not Pursued)	0	0	0	Owner	ESD Architect
Leadership	41	Leadership Challenges	Circular Economy Responsible Products Fossil Free Construction Site Manually enter pathway requirements and credit achievement points (points vary for challenges) 1.1	HIGH	CA	1	1	0	Owner	ESD

Appendix B NABERS Embodied Carbon Emissions Material Form

NABERS Embodied emissions materials form

New non-residential developments must complete this form

From 1 October 2023, all new non-residential developments must report on embodied emissions using this form in NSW, where the NSW government's State Environmental Planning Policy (Sustainable Buildings SEPP) 2022 applies. You must disclose the amounts of key materials at the development application and construction certificate stages.

[More on the Sustainable Buildings SEPP](#)

Embodied carbon emissions are generated across the full life cycle of a building from "cradle to grave". Embodied carbon made up 16% of the whole-of-life carbon footprint of Australia's buildings in 2019 [1]. The purpose of this form is to report on material quantities only, to support project team discussions about potential reduction in emissions from key materials. The form does not include embodied emissions factors. This reporting form will be updated to reflect the NABERS Embodied Carbon tool when it's available in 2024.

Step 1: About the building

In the 'About the building' tab, you will add the location, function, and type of building you are planning to construct. You will also need to add information that describes the building, including gross floor area, number of floors, area of carpark, and more. Collecting this information will allow the NSW Government to compare similar buildings.

Step 2: Quantity of materials

In the 'Quantity of materials' tab, you will add the amounts of materials that you will use to construct your building. You only need to complete those fields relevant to your building. Leave fields that aren't relevant to your building blank. We recognise that there will be uncertainty, particularly at DA stage, so please use your best estimates where information is unknown (e.g., based on past projects).

How much do I need to include?

You must include all parts of the building delivered by the main contractor, covering at least 80% of the total materials bill. For example, if you spent \$100,000 on materials, you need to include the material amounts of at least \$80,000 of those materials in this form.

Wherever possible, consider materials costs only, not labour, plant or equipment. However, where you cannot split out the materials costs, please simply be consistent in the way the costs are reported throughout the spreadsheet.

Enter the **quantity of materials** (excluding labour, plant, equipment, margins and taxes) for:

- (1) Structure (substructure and superstructure) within the envelope of the building. Also include any ancillary buildings that are necessary for the main building to function (for example, plant that is in a separate building).
- (2) Envelope (cladding, curtain walls, roofing, windows, doors etc.)
- (3) Permanent internal walls and doors. At minimum, this should include all structural walls.
- (4) External works (hard landscaping, carparks, etc.) outside of the building envelope.

Enter the **cost of materials** (excluding labour, plant, equipment, margins and taxes) for:

- (5) Building services (mechanical, electrical, plumbing, vertical transport, etc.) required to run the core of the building. Exclude special equipment required by a particular tenant.

You must enter the amounts of materials in SI units (commonly known as the metric system). These are generally consistent across the various products on the market. However, you might need to convert the units of some materials (for example, convert volume to kg).

Step 3: Certifier details

In the 'Certifier' tab you will add the details of the person who has entered data, and the person who has certified the accuracy of the data. The certifier must be a quantity surveyor, designer, engineer or NABERS assessor.

Step 4: Attach to approval

Attach this Excel spreadsheet to your development application or construction certificate application.

The data collected in this form will be used by the NSW Government to inform future policy development.

Help!

If you have general questions about reporting on the embodied emissions of your building, you should contact your local council or consent authority.

If you have technical questions about this spreadsheet, please contact NABERS:
nabers@environment.nsw.gov.au

[1] Green Building Council of Australia, 2021, <https://new.gbca.org.au/news/gbca-news/gbca-and-thinkstep-release-embodied-carbon-report/>

Step 1: About the building

Fill out blue cells

Building location and site data	Value	Unit	Note	Comment
Building address	UNSW G25			
Postcode	2033		Required	Postcode of building
Town/city	KENSINGTON		Town/city/suburb/region automated from postcode (may not give exact town name)	Town/city/suburb/region of the building site.
Distance to nearest major city/town		km	Enter for rural/regional locations only	Declare the shortest route by road to your site from the centre of your nearest major city (>100,000 people). The route must be traversable by a semitrailer truck.
Project stage	Development Application		Required	Stage of development
New build or major renovation?	New build		Required	
Brownfield or greenfield site?	Brownfield		Required	

Floor area by NCC building classification	Gross (GFA)	Net (NLA/NSA/UFA)	Unit	Note	
Please enter all floor areas relevant to your building. Leave areas blank if not applicable. Please enter Gross Floor Area (GFA) for all building classifications. Please also enter the corresponding net area (Net Lettable Area, Net Sellable Area or Usable Floor Area) where it is commonly used for that building classification.					
Class 1a: Detached residential buildings			m²	Required for Class 1a: Detached residential houses, townhouses	Gross Floor Area (GFA), as defined by the AIQS Australian Cost Management Manual
Class 1b: Boarding houses and hostels			m²	Required for Class 1b: Boarding house, guest house, hostel	Net area (Net Lettable Area, Net Sellable Area, Usable Floor Area), as defined by the PCA's Method of Measurement
Class 2: Multi-unit residential buildings			m²	Required for Class 2: Multi-unit residential, including apartment buildings	
Class 3: Other residential buildings			m²	Required for Class 3: Other residential buildings	
Class 4: Residential inside non-residential			m²	Required for Class 4: Residential building inside a non-residential building, e.g., caretaker residence	
Class 5: Office buildings			m²	Required for Class 5: Office building	
Class 6: Retail buildings			m²	Required for Class 6: Retail building, e.g., shop, restaurant, café	
Class 7a: Carparks			m²	Required for Class 7a: Carparks	
Class 7b: Warehouse-type buildings			m²	Required for Class 7b: Warehouses, wholesalers and storage facilities	
Class 8: Industrial buildings			m²	Required for Class 8: Industrial buildings, e.g., factories and workshops	
Class 9a: Healthcare buildings			m²	Required for Class 9a: Healthcare, e.g., hospitals, clinics, day surgeries	
Class 9b: Civic buildings	21,709		m²	Required for Class 9b: Civic buildings, e.g., theatres, civic centres, train stations	
Class 9c: Aged care and personal care buildings			m²	Required for Class 9c: Aged care and personal care	
Class 10a: Non-habitable buildings			m²	Required for Class 10a: Non-habitable buildings including sheds, carports and private garages	
Class 10b: Miscellaneous structures			m²	Required for Class 10b: Miscellaneous structures, including fences, masts, antennas, retaining walls and swimming pools	
Class 10c: Bushfire shelters			m²	Required for Class 10c: Bushfire shelters not attached to a Class 1a building	
Total	21,709	0	m²	Required: Sum of m² inputs must be more than 0.	

Project information	Value	Unit	Note	
Total cost of project	125,000,000	AUD excl. GST	Required	Include labour, materials, transport, plant, equipment and professional fees. Exclude GST, land, finance, escalation and other costs.
Building design life	50	years	Required	If uncertain, enter 50 years
Estimated envelope life		years	Optional	
Estimated replacement cycle for mechanical services		years	Optional	
Estimated replacement cycle for vertical transportation		years	Optional	

Dimensions of the building and the site	Value	Unit	Note	
Site area	5,123	m²	Required	Total area of site to external boundary.
Shared services or infrastructure	No		Required	Indicate if there are shared services that the building utilises, or shared foundations, basement or podium
Building footprint area	2,400	m²	Required	Total floor area of the ground floor measured to the outside edge of the floorplate.
Typical floor area (if different to building footprint area)		m²	Only needed if different to row above	
Typical floor perimeter	236	m	Required	
Area of external carpark (not included in GFA)	0	m²	Required. Enter 0 if not applicable.	
Area of external hardstand (not included in GFA)	0	m²	Required. Enter 0 if not applicable.	
Area of other hard landscaping (not included in GFA)	2,723	m²	Required. Enter 0 if not applicable.	Include all other impervious areas. For example, patios, paths and driveways (not already included in carparks and hardstands above).
Number of floors/storeys above ground, including ground floor	11	no.	Required	
Number of floors/storeys below ground	1	no.	Required. Enter 0 if not applicable.	
Number of floors/storeys of car parking	0	no.	Required. Enter 0 if not applicable.	
Total height above ground	50	m	Required	Measured from the average finished grade to the highest point of the building, excluding protrusions (lighting rods, masts, chimneys, etc.)

Structural material choices	Value	Unit	Note	
Foundation type	Piles		Required	
Frame type (dominant)	Reinforced concrete		Required	
Suspended floor type (typical)	Post-tensioned concrete		Only needed for multi-storey buildings	
Describe low carbon materials specified in your building (e.g. green concrete, low carbon bricks)	Low carbon concrete, recycled steel reinforcing and low carbon structural steel, to be confirmed during design development		Required	

Describe recycled content specified in your building (e.g. recycled steel)	To be confirmed during Design Development		Required	
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Step 2: Quantity of materials

Complete all blue cells that are applicable to the building. Leave items that aren't

Fill out blue cells

Material category	Value	Unit of measure	Comment	AIQS ACMM Code	ICMS3 (Level 3 Codes Construction)
Structure					
Coverage of structural material spend		%	Required. Coverage of <u>spend</u> for structural elements entered below. Minimum requirement = 80%. Exclude head contractor preliminaries and margins.		
Concrete in-situ		m³	Please enter reinforcing steel as part of "Reinforcing steel" below	01_SB or 02-11	02 or 03
Concrete in-situ		m³	Please enter reinforcing steel as part of "Reinforcing steel" below	01_SB or 02-11	02 or 03
Concrete in-situ		m³	Please enter reinforcing steel as part of "Reinforcing steel" below	01_SB or 02-11	02 or 03
Concrete in-situ		m³	Please enter reinforcing steel as part of "Reinforcing steel" below	01_SB or 02-11	02 or 03
Concrete in-situ	10,064.0	m³	Please enter reinforcing steel as part of "Reinforcing steel" below	01_SB or 02-11	02 or 03
Concrete in-situ		m³	Please enter reinforcing steel as part of "Reinforcing steel" below	01_SB or 02-11	02 or 03
Concrete in-situ		m³	Please enter reinforcing steel as part of "Reinforcing steel" below	01_SB or 02-11	02 or 03
Concrete in-situ		m³	Please enter reinforcing steel as part of "Reinforcing steel" below	01_SB or 02-11	02 or 03
Concrete in-situ		m³	Please enter reinforcing steel as part of "Reinforcing steel" below	01_SB or 02-11	02 or 03
Concrete pre-cast panel		m³	Please enter reinforcing steel in relevant line items below. If not known at DA stage, please make your best estimate. If not known at CC stage, please ask your supplier.	01_SB or 02-11	02 or 03
Concrete block	463.0	m³	Enter as <u>cubic metres</u> , calculated as (area in m²) * (thickness in mm / 1000). Please include all block fill concrete and all reinforcing steel in relevant line items above/below.	01_SB	02 or 03
Concrete block/brick		m³	Enter as <u>cubic metres</u> , calculated as (area in m²) * (thickness in mm / 1000)	01_SB	02 or 03
Concrete block/brick		m³	Solid Aerated Autoclaved Concrete (AAC) block. Enter as <u>cubic metres</u> , calculated as (area in m²) * (thickness in mm / 1000).	01_SB	02 or 03
Mortar		kg		01_SB	02 or 03
Reinforcing steel	1,827,000	kg	Include all reinforcing steel bar/mesh in the building's structure in this row. Usually this is calculated as kg/m³ per concrete element and then summed. Example: 10 m³ of 40 MPa concrete @ 100 kg/m³ + 5 m³ of 50 MPa concrete @ 150 kg/m³ = 1,750 kg reinforcing steel.	01_SB or 02-11	02 or 03
Reinforcing steel		kg	Include all steel fibre reinforcing and steel strand in the building's structure in this row.	01_SB or 02-11	02 or 03
Structural steel	58,000	t	Examples include universal beams, universal columns and welded beams	01_SB	02 or 03
Structural steel		t	Examples include C purlins, Z purlins and all light gauge steel framing	01_SB	02 or 03
Structural steel		t		01_SB	02 or 03
Structural steel		t	Include any allowance for connections here	01_SB	02 or 03
Structural steel		t		01_SB	02 or 03
Stainless steel		t	Primarily for engineered timber structure connections	02_11	02 or 03
Reinforced concrete piles	1,235	m³	Please enter reinforcing steel in the line below. If not known at DA stage, please make your best estimate. If not known at CC stage, please ask your supplier.	01_SB	02 or 03
Reinforced concrete piles	124,000	kg	If not known at DA stage, please make your best estimate. If not known at CC stage, please ask your supplier.	01_SB	02 or 03
Steel piles		t	Where concrete and reinforcing steel are also used, enter these in the rows above.	01_SB	02 or 03
Timber poles/piles		m³	Where concrete and reinforcing steel are also used, enter these in the rows above.	01_SB	02 or 03
Timber (solid)		m³		02_11	02 or 03
Timber (solid)		m³		02_11	02 or 03
Timber (engineered)		m³		02_11	02 or 03
Timber (engineered)		m³		02_11	02 or 03
Timber (engineered)		m³		02_11	02 or 03
Timber (engineered)		m³	Enter as <u>cubic metres</u> , calculated as (area of wall in m²) * (thickness in mm / 1000)	02_11	02 or 03
Brick		m³	Enter as <u>cubic metres</u> , calculated as (area of wall in m²) * (thickness in mm / 1000)	02_11	02 or 03
Structural Insulated Panel (SIP)		m²		01_SB	02 or 03
Structural Insulated Panel (SIP)		m²		01_SB	02 or 03

Structural Insulated Panel (SIP)		m²		01_SB	02 or 03
Fill		t	Include purchased material only. Exclude site-won material.	01_SB	01
Sand & gravel		t	Include purchased material only. Exclude site-won material and sand/gravel in concrete.	01_SB	01
Waterproofing membrane		m²		01_SB	01 or 02 or 03
Waterproofing membrane		m²		01_SB	01 or 02 or 03
Other structural (Describe and add unit >>)			Please enter a description for any structural material that does not fit a predefined classification		
Other structural (Describe and add unit >>)			Please enter a description for any structural material that does not fit a predefined classification		
Other structural (Describe and add unit >>)			Please enter a description for any structural material that does not fit a predefined classification		

Envelope

Coverage of envelope material spend		%	Required. Coverage of <u>spend</u> for the envelope items you have entered below. Minimum requirement = 80%. Exclude head contractor preliminaries and margins.		
Roof cladding	1,104	m²	Enter as m² of roof area. Exclude allowances for overlap in the roofing sheets. This row includes all metal-coated and pre-painted steel sheets where steel is the base metal. Examples include: galvanised steel, zinc-aluminium (zincalume) coated steel and zinc-aluminium-magnesium (ZAM) coated steel, whether painted or unpainted.	05_RF	03 or 04
Roof cladding		m²	Enter as m² of roof area. Exclude allowances for overlap in the roofing sheets. This row also includes pre-painted aluminium sheets.	05_RF	03 or 04
Roof cladding		m²	Enter as m² of roof area. Exclude allowances for overlap in the roofing sheets. This row also includes pre-painted zinc sheets.	05_RF	03 or 04
Roof cladding	3,371	m²	Enter as m² of roof area. Exclude allowances for overlap in the membrane sheets.	05_RF	03 or 04
Roof cladding		m²	Enter as m² of roof area. Exclude allowances for overlap between the tiles.	05_RF	03 or 04
Roof cladding		m²	Enter as m² of roof area. Exclude allowances for overlap between the tiles.	05_RF	03 or 04
Roof cladding		m²	Please enter a description for any roofing that does not fit a predefined classification	05_RF	03 or 04
Wall cladding		m²	Enter as m² of wall area. Heat-cured bricks use a kiln or furnace to raise the brick temperature above ambient temperature during curing process.	06_EW	03 or 04
Wall cladding		m²	Enter as m² of wall area. Air-dried bricks are cured using ambient temperature.	06_EW	03 or 04
Wall cladding		m²	Enter as m² of wall area.	06_EW	03 or 04
Wall cladding		m²	Enter as m² of wall area	06_EW	03 or 04
Wall cladding		kg		06_EW	03 or 04
Wall cladding		m²	Enter as m² of wall area. Exclude allowances for overlap in the cladding sheets, offcuts, etc. This row includes all metal-coated and pre-painted steel sheets where steel is the base metal. Examples include: galvanised steel, zinc-aluminium (zincalume) coated steel and zinc-aluminium-magnesium (ZAM) coated steel, whether painted or unpainted.	06_EW	03 or 04
Wall cladding		m²	Enter as m² of wall area. Exclude allowances for overlap in the cladding sheets, offcuts, etc. This row also includes pre-painted aluminium sheets.	06_EW	03 or 04
Wall cladding		m²	Enter as m² of wall area. Exclude allowances for overlap in the cladding sheets, offcuts, etc. This row also includes pre-painted zinc sheets.	06_EW	03 or 04
Wall cladding		m²	Enter as m² of wall area. GRC = Glass Reinforced Concrete.	06_EW	03 or 04
Wall cladding		m²	Enter as m² of wall area. Exclude allowances for overlap between weatherboards, offcuts, etc.	06_EW	03 or 04
Wall cladding		m²	Enter as m² of wall area. Exclude allowances for offcuts, etc.	06_EW	03 or 04
Wall cladding		m²	Enter as m² of wall area. Exclude allowances for offcuts, etc.	06_EW	03 or 04
Wall cladding		m²	Enter as m² of wall area. Exclude allowances for offcuts, etc.	06_EW	03 or 04
Wall cladding		m²	Enter as m² of wall area. Exclude allowances for offcuts, etc. Include both external wall linings and internal wall linings for envelope walls.	12_WF or 06_EW	03 or 04
Wall cladding		m²	Enter as m² of wall area. Exclude allowances for offcuts, etc. Include both external wall linings and internal wall linings for envelope walls.	12_WF or 06_EW	03 or 04
Wall cladding		m²	Please enter a description for any wall cladding that does not fit a predefined classification	06_EW or 12_WF	03 or 04
Windows & doors		m²	Include all single glazing, including standard, toughened, laminated and low-E	07_WW or 08_ED	03 or 04
Windows & doors		m²	Include all double glazing, including standard, toughened, laminated and low-E	07_WW or 08_ED	03 or 04
Windows & doors		m²	Include all triple glazing, including standard, toughened, laminated and low-E	07_WW or 08_ED	03 or 04

Windows & doors		m²	Include all single glazing, including standard, toughened, laminated and low-E	07_WW or 08_ED	03 or 04
Windows & doors		m²	Include all double glazing, including standard, toughened, laminated and low-E	07_WW or 08_ED	03 or 04
Windows & doors		m²	Include all triple glazing, including standard, toughened, laminated and low-E	07_WW or 08_ED	03 or 04
Windows & doors		m²	Include all single glazing, including standard, toughened, laminated and low-E	07_WW or 08_ED	03 or 04
Windows & doors		m²	Include all double glazing, including standard, toughened, laminated and low-E	07_WW or 08_ED	03 or 04
Windows & doors		m²	Include all triple glazing, including standard, toughened, laminated and low-E	07_WW or 08_ED	03 or 04
Windows & doors		m²	Include all single glazing, including standard, toughened, laminated and low-E	07_WW or 08_ED	03 or 04
Windows & doors		m²	Include all double glazing, including standard, toughened, laminated and low-E	07_WW or 08_ED	03 or 04
Windows & doors		m²	Include all triple glazing, including standard, toughened, laminated and low-E	07_WW or 08_ED	03 or 04
Windows & doors		m²	Please enter a description for any windows or doors that do not fit a predefined classification	07_WW or 08_ED	03 or 04
Curtain wall		m²	Please declare all single-skin façade area in this section. All double-skin façade area should be entered in the next section. Include all single glazing, including standard, toughened, laminated and low-E	06_EW	03 or 04
Curtain wall		m²	Include all double glazing, including standard, toughened, laminated and low-E	06_EW	03 or 04
Curtain wall		m²	Include all triple glazing, including standard, toughened, laminated and low-E	06_EW	03 or 04
Curtain wall		m²		06_EW	03 or 04
Curtain wall		m²	GRC = Glass-fibre Reinforced Concrete	06_EW	03 or 04
Curtain wall		m²		06_EW	03 or 04
Curtain wall		m²		06_EW	03 or 04
Curtain wall		m²		06_EW	03 or 04
Curtain wall	12,006	m²	Please declare all double-skin façade area in this section. Please declare as the area of the curtain wall and do not enter the inner and outer skins twice. Include all single glazing, including standard, toughened, laminated and low-E.	06_EW	03 or 04
Curtain wall		m²	The type of glazing refers to the building's envelope wall, not including the outer skin	06_EW	03 or 04
Curtain wall		m²	The type of glazing refers to the building's envelope wall, not including the outer skin	06_EW	03 or 04
Curtain wall		m²		06_EW	03 or 04
Curtain wall		m²	GRC = Glass-fibre Reinforced Concrete	06_EW	03 or 04
Curtain wall		m²		06_EW	03 or 04
Curtain wall		m²		06_EW	03 or 04
Curtain wall		m²		06_EW	03 or 04
Curtain wall		m²	Please enter a description for any curtain wall that does not fit a predefined classification	06_EW	03 or 04
Stick-framed wall system		m²	Include all single glazing, including standard, toughened, laminated and low-E	06_EW	03 or 04
Stick-framed wall system		m²	Include all double glazing, including standard, toughened, laminated and low-E	06_EW	03 or 04
Stick-framed wall system		m²	Include all triple glazing, including standard, toughened, laminated and low-E	06_EW	03 or 04
Stick-framed wall system		m²		06_EW	03 or 04
Stick-framed wall system		m²	GRC = Glass-fibre Reinforced Concrete	06_EW	03 or 04
Stick-framed wall system		m²		06_EW	03 or 04
Stick-framed wall system		m²		06_EW	03 or 04
Stick-framed wall system		m²		06_EW	03 or 04
Stick-framed wall system		m²	Include all single glazing, including standard, toughened, laminated and low-E	06_EW	03 or 04
Stick-framed wall system		m²	Include all double glazing, including standard, toughened, laminated and low-E	06_EW	03 or 04
Stick-framed wall system		m²	Include all triple glazing, including standard, toughened, laminated and low-E	06_EW	03 or 04
Stick-framed wall system		m²		06_EW	03 or 04
Stick-framed wall system		m²	GRC = Glass-fibre Reinforced Concrete	06_EW	03 or 04
Stick-framed wall system		m²		06_EW	03 or 04
Stick-framed wall system		m²		06_EW	03 or 04
Stick-framed wall system		m²		06_EW	03 or 04
Stick-framed wall system		m²	Please enter a description for any wall system that does not fit a predefined classification	06_EW	03 or 04
Wall louvre system		m²		06_EW	03 or 04

External shading system		m²	Please enter as m² of shaded area = linear metres * (width in mm / 1000)	06_EW	03 or 04
External shading system		m²	Please enter as m² of shaded area = linear metres * (width in mm / 1000). GRC = Glass-fibre Reinforced Concrete.	06_EW	03 or 04
External shading system		m²	Please enter as m² of shaded area = linear metres * (width in mm / 1000)	06_EW	03 or 04
External shading system		m²	Please enter as m² of shaded area = linear metres * (width in mm / 1000)	06_EW	03 or 04
External shading system		m²	Please enter as m² of shaded area = linear metres * (width in mm / 1000)	06_EW	03 or 04
External shading system		m²	Please enter as m² of shaded area = linear metres * (width in mm / 1000)	06_EW	03 or 04
External shading system		m²	Please enter as m² of shaded area = linear metres * (width in mm / 1000)	06_EW	03 or 04
External shading system		m²	Please enter as m² of shaded area = linear metres * (width in mm / 1000)	06_EW	03 or 04
External shading system		m²	Please enter as m² of shaded area = linear metres * (width in mm / 1000)	06_EW	03 or 04
Roller doors		m²	Please note unit is <u>square metres</u> , not quantity	08_ED	03 or 04
Roller doors		m²	Please note unit is <u>square metres</u> , not quantity	08_ED	03 or 04
Roller doors		m²	Please note unit is <u>square metres</u> , not quantity	08_ED	03 or 04
Revolving doors		no.		08_ED	03 or 04
Fire-rated doors		no.	Please enter as single-leaf equivalent. For double-leaf doors, multiply the quantity by 2.	08_ED	03 or 04
Fire-rated doors	4	no.	Please enter as single-leaf equivalent. For double-leaf doors, multiply the quantity by 2.	08_ED	03 or 04
Fire-rated doors		no.	Please enter as single-leaf equivalent. For double-leaf doors, multiply the quantity by 2.	08_ED	03 or 04
Insulation		m²	Please include both wall and ceiling insulation	05_RF or 06_EW	03 or 04
Insulation		m²	Please include both wall and ceiling insulation	05_RF or 06_EW	03 or 04
Insulation		m²	Please include both wall and ceiling insulation	05_RF or 06_EW	03 or 04
Insulation		m²	Please include both wall and ceiling insulation	05_RF or 06_EW	03 or 04
Insulation		m²	Please include both wall and ceiling insulation	05_RF or 06_EW	03 or 04
Other (Please describe and add unit >>)			Please enter a description for any envelope material that does not fit a predefined classification		
Other (Please describe and add unit >>)			Please enter a description for any envelope material that does not fit a predefined classification		
Other (Please describe and add unit >>)			Please enter a description for any envelope material that does not fit a predefined classification		

Permanent internal walls and doors

walls and doors within the building that are either structural or designed to be permanent.

Coverage of material spend on permanent interior walls and doors		%	Enter the % coverage of <u>spend</u> for the items you have entered below. There is no minimum requirement: enter what you know. This should include all structural walls. Exclude head contractor preliminaries and margins.		
Interior wall (permanent)		t		09_NW	03 or 04
Interior wall (permanent)		m³		09_NW	03 or 04
Interior wall (permanent)		m²	Panels of autoclaved aerated concrete (AAC) with reinforcing steel. E.g., Hebel.	09_NW or 12_WF	03 or 04
Interior wall (permanent)		m²	Panels made from a steel sheet outer with an aerated concrete core. E.g., Speedpanel.	09_NW or 12_WF	03 or 04
Interior wall (permanent)	12,110	m²	Enter as single-layer equivalent. If using 2 layers, multiply the area by 2.	09_NW or 12_WF	03 or 04
Interior wall (permanent)		m²	Enter as single-layer equivalent. If using 2 layers, multiply the area by 2.	09_NW or 12_WF	03 or 04
Interior wall (permanent)		m²	Enter as single-layer equivalent. If using 2 layers, multiply the area by 2.	09_NW or 12_WF	03 or 04
Interior wall (permanent)		m²		09_NW or 12_WF	03 or 04
Interior wall (permanent)		m²		09_NW or 12_WF	03 or 04
Interior wall (permanent)		m²	Please enter a description for any internal wall that does not fit a predefined classification	09_NW or 12_WF	03 or 04
Internal door (permanent)		no.	Please enter as single-leaf equivalent. For double-leaf doors, multiply the quantity by 2.	11_ND	03 or 04
Internal door (permanent)	88	no.	Please enter as single-leaf equivalent. For double-leaf doors, multiply the quantity by 2.	11_ND	03 or 04
Internal door (permanent)		no.	Please enter as single-leaf equivalent. For double-leaf doors, multiply the quantity by 2.	11_ND	03 or 04
Internal door (permanent)	132	no.	Please enter as single-leaf equivalent. For double-leaf doors, multiply the quantity by 2.	11_ND	03 or 04
Internal door (permanent)		no.	Please enter as single-leaf equivalent. For double-leaf doors, multiply the quantity by 2.	11_ND	03 or 04
Internal door (permanent)		no.	Please enter a description for any internal door that does not fit a predefined classification	11_ND	03 or 04
Other (Please describe and add unit >>)			Please enter a description for any material that does not fit a predefined classification		

Other (Please describe and add unit >>)

Other (Please describe and add unit >>)

Please enter a description for any material that does not fit a predefined classification

Please enter a description for any material that does not fit a predefined classification

Services

Unit of measure

Building services included within the main building contract. If the building components that are the subject of the development application or the construction certificate are base building only, then only enter these items. If you cannot split

Mechanical services	1,800,000	AUD excl. GST	Where possible, enter material costs excluding labour, plant, equipment, margins and taxes	28_SS	05
Vertical transportation	4,400,000	AUD excl. GST	Where possible, enter material costs excluding labour, plant, equipment, margins and taxes	28_SS	05
Electrical services	2,100,000	AUD excl. GST	Electrical services including the main power supply, backup generators, security and communications. Excluding solar installations. Where possible, enter material costs excluding labour, plant, equipment, margins and taxes.	26_LP	05
Solar photovoltaic installations		AUD excl. GST	Where possible, enter material costs excluding labour, plant, equipment, margins and taxes	26_LP_LP GP	05
Plumbing/hydraulic services	1,300,000	AUD excl. GST	Where possible, enter material costs excluding labour, plant, equipment, margins and taxes	18_PD and 19_WS	05 or 06
Fire services	2,700,000	AUD excl. GST	Where possible, enter material costs excluding labour, plant, equipment, margins and taxes	25_FPSS04 or 39_XWAW_03 or 41_XF	05
Other services (Please describe)		AUD excl. GST	Please group all other services here, meaning that coverage will always be 100% for services. Enter only the material costs (excluding labour, plant, equipment, margins and taxes).	29_SS or multiple	

External works

Coverage of spend on external works

Asphalt		%	Required. Coverage of <u>spend</u> for external works (excluding soft landscaping) entered below. Minimum requirement = 80%. Exclude head contractor preliminaries and margins.		
Concrete in-situ		t		33_XR	07
Concrete in-situ		m³	Please enter reinforcing steel as part of "Reinforcing steel" below	33_XR or 34_XN or 35_XB or 36_XL	07
Concrete in-situ		m³	Please enter reinforcing steel as part of "Reinforcing steel" below	33_XR or 34_XN or 35_XB or 36_XL	07
Concrete in-situ	588	m³	Please enter reinforcing steel as part of "Reinforcing steel" below	33_XR or 34_XN or 35_XB or 36_XL	07
Concrete in-situ		m³	Please enter reinforcing steel as part of "Reinforcing steel" below	33_XR or 34_XN or 35_XB or 36_XL	07
Concrete in-situ		m³	Please enter reinforcing steel as part of "Reinforcing steel" below	33_XR or 34_XN or 35_XB or 36_XL	07
Concrete in-situ		m³	Please enter reinforcing steel as part of "Reinforcing steel" below	33_XR or 34_XN or 35_XB or 36_XL	07
Pavers, bricks and blocks	2,600	m²		33_XR	07
Pavers, bricks and blocks		m²		33_XR	07
Reinforcing steel	60	kg	Include all reinforcing steel bar/mesh in the external works in this row. Usually this is calculated as kg/m³ per concrete element and then summed. Example: 10 m³ of 40 MPa concrete @ 100 kg/m³ + 5 m³ of 50 MPa concrete @ 150 kg/m³ = 1,750 kg reinforcing steel.	33_XR or 34_XN or 35_XB or 36_XL	07
Reinforcing steel		kg	Include all steel fibre reinforcing and steel strand in the external works in this row.	33_XR or 34_XN or 35_XB or 36_XL	07
Structural steel		t		02_11	07
Structural aluminium		t	Includes structures, louvre systems, etc.	35_XB	07
External roof/wall cladding		m²	Enter as profiled polycarbonate sheet that would ordered, including allowance for overlap	35_XB	07
External roof/wall cladding		m²	Enter as profiled PVC sheet that would ordered, including allowance for overlap	35_XB	07
External roof/wall cladding		m²	Enter as bituminous sheet that would ordered, including allowance for overlap	35_XB	07
External roof/wall cladding		m²	Enter as profiled steel sheet that would ordered, including allowance for overlap	35_XB	07
Fill		t	Include purchased material only. Exclude site-won material.	33_XR or 34_XN or 35_XB or 36_XL	07
Sand & gravel		t	Include purchased material only. Exclude site-won material and sand/gravel in concrete.	33_XR or 34_XN or 35_XB or 36_XL	07
Timber (solid)		m³		33_XR or 34_XN or 35_XB or 36_XL	07
Timber (solid)		m³		33_XR or 34_XN or 35_XB or 36_XL	07
Timber (engineered)		m³		33_XR or 34_XN or 35_XB or 36_XL	07
Timber (engineered)		m³		33_XR or 34_XN or 35_XB or 36_XL	07
Timber (engineered)		m³		33_XR or 34_XN or 35_XB or 36_XL	07
Timber (engineered)		m³		33_XR or 34_XN or 35_XB or 36_XL	07
Fabric (awning/sunshade)		m²		35_XB or 36_XL	07
Other (Please describe and add unit >>)			Please enter a description for any external works that does not fit a predefined classification		

Other (Please describe and add unit >>)

Please enter a description for any external works that does not fit a predefined classification

Other (Please describe and add unit >>)

Please enter a description for any external works that does not fit a predefined classification

Step 3: Certifier details

Fill out blue cells

The material quantities must be determined through an itemised list of building materials (such as a bill of quantities) and certified by a quantity surveyor, designer, engineer or NABERS Assessor.

Person that completed this form	Value	Note
Name	Nathan Towill	Required
Company	Wilde and Woolard	Required
ABN	69081162496	
Profession	Quantity Surveyor	Required
Qualification or registration	AAIQS Reg # 6530, CQS	Required

Person that certified the details in this form	Value	Note
Name	Alison Adendorff	Required
Company	Atelier Ten	Required
ABN	29165367519	
Profession	Environemental Designer	Required
Qualification or registration	M.Arch (Prof)	Required

Confirmation of certification	Value	Note
Are 80% of material costs captured for the building's structure, envelope and external works?	No	Required
If no - why not?	Level of detail of documentation not available at this time.	

Additional comments from data provider

Additional comments of certifier

Attach this Excel spreadsheet to your development application or construction certificate application.

Appendix C Net Zero Statement

Net Zero Statement

The proposed UNSW G25 Education Building development aims to provide a transformative teaching and learning facility leading the path to net zero emissions from practical completion.

This statement is dedicated to outlining the method in achieving net zero emissions, and to address the requirements defined in 35C of the EP&A Regulation which includes:

13) Net Zero Statement	
a.	Evidence of how the development will either be fossil fuel-free after the occupation of the development commences or transition to be fossil fuel free by 1 January 2035.
b.	Details of any renewable energy generation and storage infrastructure implemented and any passive and technical design features that minimise energy consumption.
c.	Estimations of annual energy consumption for the building and amount of emissions relating to energy use in the building (if information is available).

C.1 (a) Evidence of Achieving Fossil Fuel-Free

The building has been designed to be all-electric, adopting a plethora of infrastructure and design features to minimise energy consumption, eliminate usage of fossil-fuels from day one and lead a shift towards carbon neutrality. Some interventions include:

- Minimising combustion in building systems through the installation of fully electric building services
- Reducing off-site carbon emissions by purchasing 100% renewable power
- Solar PV panels to provide renewable energy and support zero-carbon operations
- Features to minimise energy consumption, as seen in C.2, in order to lower energy demand
- Provision of electrical vehicle infrastructure to support EV vehicles as an alternative to fuel vehicles, reducing exhaust emissions
- No fossil-fuels will be used on site for space heating or domestic hot water

C.2 (b) Details of Features to Minimise Energy Consumption

C.2.1 Renewable Energy Generation & Storage

- At this stage, approximately 40kW of photovoltaic panels is estimated to be included, with a minimum 5-degree tilt and minimum 6 hours of non-shaded sun throughout all seasons.

C.2.2 Passive Design Features

- Integrate passive design principles:
 - Facade and building openings designed to maximise natural ventilation and minimal mechanical HVAC usage
 - Passive solar shades to reduce heat loads
 - Optimised window to wall ratio to provide adequate lighting and minimise electrical lighting needs
 - Glazing materiality has been catered to ensure both comfortable levels of solar gain for high visual and thermal comfort
- Building fabric will be improved by minimum 10% beyond DTS requirements

C.2.3 Technical Design Features

- Building heating will be provided via a central heat pump system comprising air-source electrical heat pumps (COP to 3.2 at full load)
- Building cooling will be provided by a central chilled water system. (EER to 7.0 at full load)
- Interior Lighting Power Density reduction by 10% against NCC2022
- Air-conditioning efficiency fans minimum duty point efficiency of 60%
- Mechanical ventilation fans minimum duty point efficiency of 60%
- Domestic hot water consumption reduction through efficient fixture and fittings specifications by 15%
- Domestic hot water COP of 3.0
- Solar PV panels with an efficiency of 21%
- Provision of energy efficient appliances

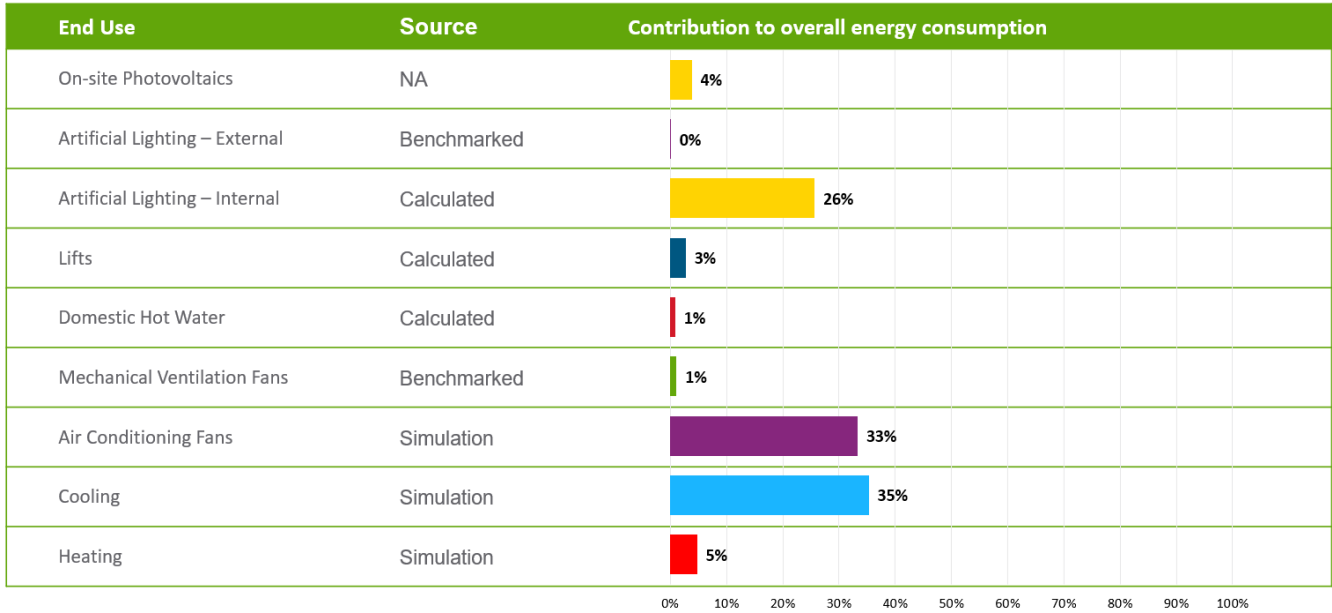


Figure C.1 Reference Building Energy End-Use Breakdown

C.3 (c) Annual Energy Consumption & Emissions

C.3.1 Preliminary Energy Pathway

The Preliminary Energy Pathway Report developed by Atelier Ten demonstrates and represents a realistic view of the projected operational patterns for the UNSW G25 Education Building. This pathway is intended to specify the reduction in predicted energy consumption of the proposed building.

The energy consumption reduction is calculated based on the comparison of the Reference, and Proposed building annual energy consumption data

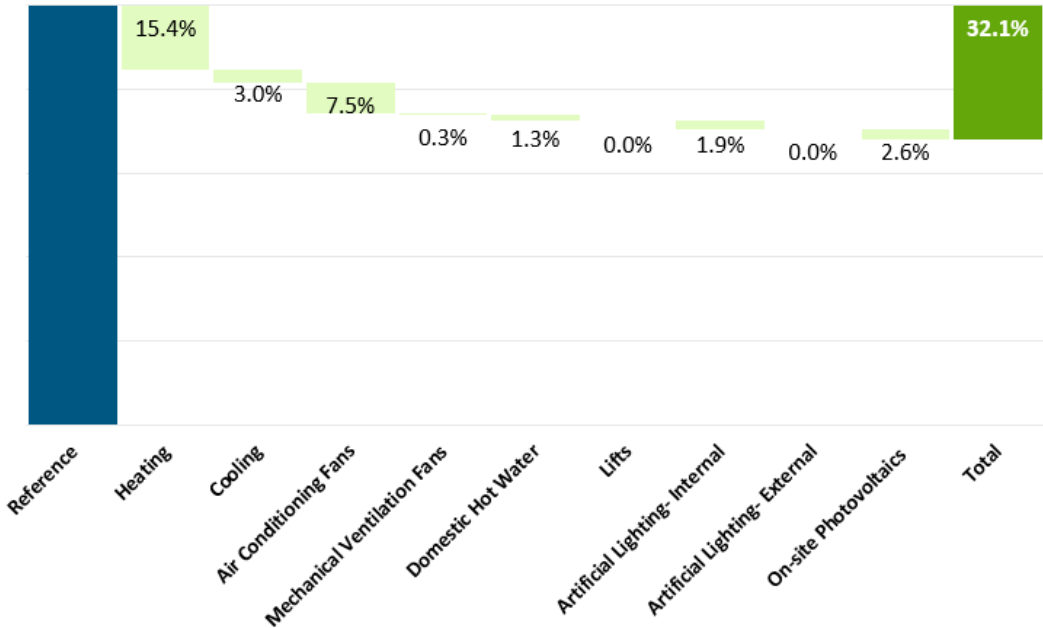


Figure C.2 Project Energy Saving Initiatives, Atelier Ten

Energy Breakdown	Reference Building	Proposed Building	Source	% Improvement	% end use (prop)
HVAC					
Heating (kWh)	309,940.34	53,510.25	Simulation	83%	5%
Cooling (kWh)	448,473.57	398,244.16	Simulation	11%	35%
Air Conditioning Fans (kWh)	500,253.00	375,839.79	Simulation	25%	33%
Mechanical Ventilation Fans (kWh)	18,028.22	12,619.76	Benchmark	30%	1%
Building Services (kWh)					
Domestic Hot Water (kWh)	32,199.53	9,815.81	Hand Calc	70%	1%
Lifts (kWh)	30,876.45	30,876.45	Hand Calc	0%	3%
Artificial Lighting- Internal (kWh)	321,508.08	289,357.27	Hand Calc	10%	26%
Artificial Lighting- External (kWh)	955.40	955.40	Benchmark	0%	0%
On-site Photovoltaics (kWh)	-	43,111.00	PV Watts (calculation)	-	4%
TOTAL (MWh)	1,662.23	1,128.11		32.1%	
Energy intensity (kWh/m2 GFA)	59.93	40.67			
% Improvement	0%	32%			

Figure C.3 Preliminary Energy End-Use Breakdown