

NEXTDC S4

Sustainable Development Plan

NEXTDC

Reference: P521243

Revision: 6

04-July-2024



Document control record

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Document control		aurecon				
Report title		Sustainable Development Plan				
Document code		REP-ESD-0001	Project number		P521243	
File path		521243 - NEXTDC Shiraz 4 - SSDA Report - All Documents (sharepoint.com)				
Client		NEXTDC				
Client contact		James Cameron	Client reference		Technical Director	
Rev	Date	Revision details/status	Author	Reviewer	Verifier (if required)	Approver
1	2023-12-20	Draft	D. Robinson	R. Milagre		
2	2024-03-06	Final Issue for Adequacy Review	D. Robinson	R. Milagre		S. Sam
3	2024-04-19	Final Issue	T. Mukhia	R. Milagre		B. Morrow
4	2024-05-29	Updated Issue: added details to energy, GHG and water in Sections 5.1 and 10	T. Mukhia	R. Milagre		B. Morrow
5	2024-06-14	Detailed Project Description (Section 2.3) updated	T. Mukhia	R. Milagre		B. Morrow
6	2024-07-04	Estimated GHG emissions (Section 5.1) updated	T. Mukhia	R. Milagre		B. Morrow
Current revision		6				

Approval			
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1 Executive Summary

This S4 Sustainable Development Plan has been prepared by Aurecon on behalf of NEXTDC Limited to accompany a detailed State Significant Development Application (SSDA) for the S4 data centre development at 16 Johnston Crescent, Horsley Park. The site is legally described as Lot 305 in Deposited Plan 1275011.

This report has been prepared to address the Secretary's Environmental Assessment Requirements (SEARs) issued for the project (SSD-63741210) and includes Sustainable Buildings SEPP requirements. This report concludes that the proposed data centre development is suitable and warrants approval subject to the implementation of the following mitigation measures.

- Design strategies to ensure the energy performance exceed minimum NCC Section J requirements and reduce greenhouse gas emissions.
- Rainwater harvesting and cooling tower water reuse.
- Strategies to reduce embodied carbon.

Following the implementation of the above mitigation measures and operational strategies, the remaining impacts are appropriate.

2 Introduction

2.1 Purpose of this Report

This report has been prepared to accompany a detailed SSDA for the proposed S4 data centre development at 16 Johnston Crescent, Horsley Park (SSD-63741210).

The application seeks consent for construction and operation of a data centre development and includes site preparation works, bulk earthworks and infrastructure, and construction of the buildings, ancillary facilities, and associated site works.

The key features of the Proposal are summarised as follows:

- Site preparation works including bulk earthworks.
- Staged construction and operation of five data centre buildings comprising a total gross floor area (**GFA**) of 63,654m² including 52,916m² of technical data hall floor space and 10,738m² of ancillary office and innovation floor space, including 'front of house' meeting and function spaces, and a café.
- Associated and ancillary on-site facilities on-site parking for 200 cars, business identification signage (pylon and elevation signage), civil and stormwater works and 9,900m² of deep soil landscaping.
- Delivery of 232 megawatts of power, including a 330kV substation and a 33kV switching station, plus above ground diesel storage tanks and above ground water tanks for industrial water and fire water.

The Project will be delivered in three construction stages as follows:

- Stage 1 = Buildings A, B, C, and substation
- Stage 2 = Building D
- Stage 3 = Building E

This report has been prepared in response to the requirements contained within the Secretary's Environmental Assessment Requirements (SEARs) dated 27 October 2023 issued for the SSDA (SSD-63741210). Specifically, this report has been prepared to respond to the SEARS requirement issued below covered in Part 8. Ecologically Sustainable Development (ESD).

Refer to Table 1 for an overview of how this report addresses each ESD requirement.

Table 1 SEARs Compliance

Item	SEARs requirement	Reference
A	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.	Section 3
B	Demonstrate how the development will meet or exceed the relevant industry recognised building sustainability and environmental performance standards	Sections 5 to 10
C	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	Sections 5 to 7, 10

Table 2 Sustainable Buildings SEPP

Item	Sustainable Buildings SEPP	Reference
D	If Chapter 3 of SEPP (Sustainable Buildings) 2022 applies: <ul style="list-style-type: none"> • demonstrate how the development has been designed to address the provisions set out in Chapter 3.2(1)*. • 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. 	Sections 5 to 7 Refer to Appendix A for the NABERS Embodied Emissions Material Form, completed by Quantity Surveyors.

*Schedule 3 does not require a NABERS Energy target specific for Data Centre projects.

2.2 The Site

The site is located at 16 Johnston Crescent, Horsley Park within the Fairfield Local Government Area (LGA). The site is legally described as Lot 305 in Deposited Plan 1275011.

An aerial photograph of the site is provided at Figure 1. The site comprises vacant land which has been cleared of vegetation and does not contain any existing built form structures. Bulk earthworks approved under DA-893-201 are currently underway on the site.

The site will be well serviced by infrastructure. The signalised intersection of Lenore Drive and Old Wallgrove Road at Eastern Creek is approximately 2 kilometres to the north, providing access to Wallgrove Road and the Westlink M7 Motorway to the east and Erskine Park Road and Mamre Road to the west. Each of these roads provides access to the M4 Motorway to the north and M5 Motorway to the south. A utilities and site services report will accompany the EIS.

The site is located approximately 35 kilometres west of the Sydney Central Business District (CBD), 17 kilometres west of the Parramatta CBD and 10 kilometres north-east of the future Western Sydney International (WSI) airport.

The site is within a developing employment precinct, including the ESR Horsley Logistics Park, Oakdale Central, Oakdale South and Horsley Park Employment Precinct. It is also close to other established and emerging employment-generating precincts, including Eastern Creek to the north, Huntingwood to the north-east, Wetherill Park and Mamre Road West to the north-west and Wetherill Park to the east.

Figure 1 Site Aerial Photograph



Source: Nearmap (2023)

2.3 Detailed Project Description

The key components of the Project are listed in the following table.

Table 3 Project Details

Descriptor	Project Details
Project Area	The site has a total area of 8.206 hectares. The entire site will be disturbed by the Project.
Use and Activities	Data centre with ancillary office and innovation floor space and café
Project Summary	<ul style="list-style-type: none"> ▪ Site preparation works including bulk earthworks. ▪ Staged construction and operation of five data centre buildings comprising a total gross floor area (GFA) of 63,654m² including 52,916m² of technical data hall floor space and 10,738m² of ancillary office and innovation floor space, including 'front of house' meeting and function spaces, and a café. ▪ Ancillary development including on-site parking for 200 cars, business identification signage (pylon and elevation signage), civil and stormwater works. ▪ Delivery of 232 megawatts of power, including a 330kV substation and a 33kV switching station, plus above ground diesel storage tanks and above ground water tanks for industrial water and fire water.
Gross Floor Area (GFA)	<p>Total GFA of 63,654m², broken down as follows:</p> <ul style="list-style-type: none"> ▪ Data halls/technical: 52,916m². ▪ Mission critical (MCX) office, innovation and admin floor space: 10,738m². ▪ Total number of data houses: 34 data houses
Maximum Height	<ul style="list-style-type: none"> ▪ Building A – 32 metres over three storeys ▪ Buildings B, C, D and E – 39 metres over four storeys
Floor Space Ratio	0.78:1
Deep Soil Area	9,900m ² (12.1% of site area)
Car Parking	200 car spaces including 6 DDA spaces and 10 EV spaces
Motorbike Parking	5 spaces
Bicycle Parking	24 spaces

Descriptor	Project Details
Utilities	Provision of required utilities: <ul style="list-style-type: none"> ▪ Building A Utilities including: <ul style="list-style-type: none"> - Above ground diesel storage tanks (10 x 25kL each) - Above ground water tanks for industrial water (4 x 170kL each) ▪ Building B Utilities including: <ul style="list-style-type: none"> - Above ground diesel storage tanks (10 x 65kL each) - Above ground water tanks for industrial water (4 x 580kL each) ▪ Building C Utilities including: <ul style="list-style-type: none"> - Above ground diesel storage tanks (10 x 65kL each) - Above ground water tanks for industrial water (4 x 580kL each) ▪ Building D Utilities including: <ul style="list-style-type: none"> - Above ground diesel storage tanks (10 x 65kL each) - Above ground water tanks for industrial water (4 x 580kL each) ▪ Building E Utilities including: <ul style="list-style-type: none"> - Above ground diesel storage tanks (14 x 65kL each) - Above ground water tanks for industrial water (6 x 580kL each) Fire Water Storage Tanks: <ul style="list-style-type: none"> ▪ Above ground water tanks for fire water (6 x 340kL each) Substation: <ul style="list-style-type: none"> ▪ On site 330kV substation plus 33kV switching station
Power Consumption	232 megawatts
Operations and Management	The facility would be constructed and operated by NEXTDC. The site would be operated on a 24-hour, 7 day a week basis.
Existing Services and Infrastructure	Existing services and infrastructures will be extended, adapted and augmented to meet the demands of the Project.
Staging/Phasing	There will be 3 construction stages: <ul style="list-style-type: none"> ▪ Stage 1 = Buildings A, B, C, and Substation ▪ Stage 2 = Building D ▪ Stage 3 = Building E

3 Sustainable Development Principles

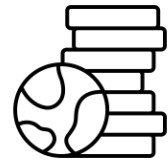
3.1 Holistic principles for Sustainability

Aurecon recommend a holistic view of sustainable development that considers conserving and enhancing human societies, along with ecological conservation and enhancement. Core principles should be drawn from federal and state legislation on Ecologically Sustainable Development (ESD) and the UN Sustainable Development Goals.

The Precautionary Principle

Taking preventive action in the face of uncertainty

- From the early schematic design phase, the project has considered environmental and social impacts in decision making processes. This includes a strategy to mitigate climate change through energy efficiency.



Inter-Generational Equity and Conservation of Biological and socio-cultural Diversity and Ecological and socio-cultural Integrity

Meeting the needs of the present without compromising the ability of future generations to meet their needs

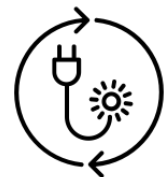
- Design of the data centre and accompanying office areas will seek to optimise environmental, social, and cultural performance.



Improved valuation, pricing, and incentive mechanisms

Considering the whole of project benefits to determine the expected return on investment for investment in sustainability.

- The design acknowledges that expenditure in sustainability initiatives will provide return on investment over the life of the building. The expected payback will be factored into plant selection which may mean selecting plant that has higher up-front cost but delivers energy efficiency savings through the life of the project.



3.2 Sustainability Benchmarking

S4 will demonstrate alignment with 'National Best practice' measures for sustainability.

The design achieves this through:

✓ Alignment with NABERS Energy for data centres

This sets a benchmark for energy efficiency of data centres and will help to drive energy efficiency and sustainable outcomes.

✓ Alignment with key State planning policies

Alignment with NSW Planning legislation and guidelines that promote a best practice approach to sustainability and climate change.

✓ Early integration of sustainability and ongoing involvement

Sustainability impact has been used to inform decision making in the design of the facility from the early stages, to take advantage of opportunities to make simple changes to promote sustainability, particularly for energy efficiency.

4 Other Sustainability References

NSW Climate Change Policy Framework

This Policy sets in place the NSW Government's objective is for NSW to be more resilient to a changing climate. This includes a specific direction to Reduce risks and damage to public and private assets in NSW arising from climate change



National Construction Code Section J 2022

Section J includes mandatory energy efficiency requirements for new and refurbished buildings. This report covers concept stage considerations for the deemed to satisfy (DtS) for Parts 1-3 of Section J. The facility will be designed to exceed the energy efficiency requirements of Section J

Fairfield City Council

While no specific sustainability controls are in place for data centres within the Fairfield DCP, Fairfield City Council identifies Environmental Sustainability as a key theme within its Operational Plan 2023-2024. This includes a focus on a sustainable natural environment, an environmentally aware and active community and ensuring that environmental compliance standards are met.



4.1 Other Reference Documents

- Preliminary Schematic Design Plans
- Landscape Design package
- SEARs Infrastructure Requirements Report
- Engineering 50% Design Drawings

5 Energy and Carbon

Key points:

- The facility will be designed to align with Stage 1 of the NSW Government Net Zero Plan
- Energy performance will seek to reduce demand for operational energy through design strategies for building services and, where applicable, exceed minimum NCC Section J requirements.
- In line with a transition away from fossil fuels the facility will operate as all electric (excluding emergency power)

5.1 Towards Net Zero

In March 2020, the NSW Government announced its Net Zero Plan Stage 1: 2020–2030, which establishes key steps to NSW's action on climate change and addresses strategies to achieve the goal of net zero emissions by 2050.

Recognising the contribution of the built environment to carbon emissions the facility is implementing several key sustainability initiatives in line with this goal.

These are summarised below:

1. Designing the facility to minimise operational energy usage

→ The mechanical system utilises high efficiency chillers supplying high temperature chilled water to data hall cooling plant to maximise energy efficiency when chillers run, reducing energy consumption. In addition, the system is designed to maximise free cooling, further reducing energy consumption.

2. Eliminating on site fossil fuels for heating and hot water

→ S4 services are to be all electric except the backup power.

3. Commitment to other sustainability opportunities to minimise embodied carbon

→ Refer to chapters on Integrated Water Management and Resources.

Implementing these strategies will enable NEXTDC to achieve vastly reduced emissions for the S4 facility in the future through *renewable electricity procurement* and nature-based offsets (Climate Active certified or other accepted alternatives in the future).

NEXTDC is currently Climate Active certified for its business operations and its data centre services¹.

In addition, NEXTDC works with utility providers, energy retailers and renewable project developers to offer data centre tenants commercially attractive *renewable electricity supply options*. NEXTDC will support tenants who choose to self-procure renewable electricity to address their greenhouse gas emissions in the facility.

Although it is not possible at this stage of the project to provide a detailed accurate breakdown of the greenhouse gas emissions impact of the project, an indicative greenhouse gas emissions impact (Scopes 1, 2 and 3) of the development is provided in this section of the report.

¹ <https://www.climateactive.org.au/buy-climate-active/certified-members/nextdc>

These predicted indicative emissions are identified for the first year of operation and each subsequent development stage until fully operational. The anticipated dates are based on the current proposed construction sequence of the buildings as per the table below.

Table 4 Proposed Construction Sequence

Construction Activities	Duration (months)	Indicative Timing to Construction Completion
Excavation and Site Preparation	5 months	June 2025 to October 2025 *dependent on SSDA approval timeframe - assume 9 month timeframe
Construction and Building Works (Stage 1 – Building B)	24 months	October 2025 to September 2027
Construction and Building Works (Stage 1 – Building C)	18 months	October 2026 to March 2028
Construction and Building Works (Stage 1 – Building A)	18 months	April 2027 to September 2028
Construction and Building Works (Stage 2 – Building D)	12 months	October 2028 to September 2029
Construction and Building Works (Stage 3 – Building E)	12 months	April 2029 to March 2030

Predicted greenhouse gas emissions include emissions from grid electricity in NSW (Scopes 2 and 3), diesel generator testing (Scopes 1 and 3), HVAC refrigerants (Scope 1) excluding leakage rates. The vast majority of greenhouse gas emissions impact comes from grid electricity use, assuming no renewable electricity is procured.

However, NEXTDC has a renewable electricity procurement strategy in place for their own operations as well as a program to encourage tenant renewable electricity uptake, as described elsewhere in this report. These greenhouse gas emission estimates do not take that into account and use emissions from purchased electricity in NSW, as per the Australian National Greenhouse Accounts Factors 2023 (2023 NGA Factors Workbook) for the first year of operations.

This is a conservative approach, as predicted electricity grid emissions for 2027/2028 are likely to be lower than those in the 2023 NGA Factors Workbook, as further renewable electricity projects are brought into the grid.

Table 5 Indicative GHG Emissions

Stage - Building	Indicative Timing to First Year of Operations	Indicative Scope 1 Emissions (tCO ₂ -e)*	Indicative Scope 2 Emissions (tCO ₂ -e)**	Indicative Scope 3 Emissions (tCO ₂ -e)***	Indicative Total GHG Emissions (tCO ₂ -e)
Stage 1 – Building B	October 2027 to October 2028	4,170	204,900	15,100	224,170
Stage 1 – Building C	April 2028 to April 2029	4,170	189,840	15,100	209,110
Stage 1 – Building A	October 2028 to October 2029	3,980	72,330	4,600	80,910
Stage 2 – Building D	October 2030 to October 2031	4,170	174,770	12,080	191,020
Stage 3 – Building E	April 2030 to April 2031	4,220	199,630	15,110	218,960

* Diesel generator testing + HVAC refrigerants

** Grid electricity

*** Diesel generator testing + Grid electricity

5.2 Building Fabric and Passive design

For a typical building the building fabric plays a significant role in reducing the operational energy, primarily by reducing the mechanical loads. Solar loads and conductive heat transfer through the façade form a large component of the mechanical load of the space and therefore have a large impact on the operational energy.

These principles remain true for front of house areas but don't apply to the data halls. The data halls do not have windows and, because the facility operates continuously and always requires cooling heat transfer through the envelope has a different relationship to a normal building. Heat transfer through the envelope will increase peak plant loading, however there are significant annual hours where heat transfer through the envelope will be from inside to out, reducing energy consumption. Energy modelling through detailed design will optimise the thermal envelope based on the balance of peak energy consumption and minimising annual energy consumption.

5.3 Efficient Lighting

It is proposed that new lighting provided will be LED type luminaire fittings which provide efficient lighting that will meet or exceed Section J efficiency requirements.

To further limit lighting electricity consumption, motion sensor control is proposed to limit lighting in occupied spaces, which will also be accompanied by manual local switches for user control.

6 Integrated Water Management

Key points:

- Fixture selection in future design stages must adhere to GREP and Green Star requirements for flow efficiency.
- Rainwater harvesting and cooling tower water reuse.

Water is a finite resource and the design of the S4 data centre will be designed to minimise water consumption where possible. This will be achieved by selecting water efficient fixtures which reduce water consumption.

6.1 Water Sources

Water consumption will include:



Potable Sources: Taps/showers, drinking water



Non-potable sources: Flush fixtures (toilets/urinals), cooling towers

6.2 Water Capture

The facility collects rainwater from the roof for rainwater harvesting tanks and provides tanks to collect cooling tower discharge water for reuse. These tanks will help to minimise water consumption of the facility.

6.3 Fixture Efficiency

Selection of fixtures and fittings must be selected to comply with the WELS rating noted in Table 6 below.

Table 6 WELS requirements for fixtures

Fixture type	Minimum rating
Taps	5 Star
Toilets	4 Star
Urinals	5 Star
Dishwashers	5 Stars
Showers	3 or 4 Star but less than 7.5L/s

6.4 Water Sensitive Urban Design

Given the site constraints careful consideration has been given to how to manage water within the site to promote the impact to surrounding areas and waterways. The following WSUD strategies have been included within the design for the site.

- **Roof water capture** – capturing water from the roof, reducing stormwater runoff and supplementing potable water.

7 Resources

Key points:

- The facility will have minimal operational waste consumption.
- The design team have completed an integrated design workshop to discuss strategies to reduce embodied carbon.

7.1 Sustainable Materials

Sustainability will be considered during material selection in the detailed design phase to limit the project's consumption of natural resources.

The design should encourage materials that adequately and economically perform their intended functions and have lower adverse environmental impacts throughout their lifecycle whilst maintaining good health qualities and avoiding exposure to indoor toxins such as Volatile Organic Compounds.

Accordingly, key sustainability factors for material selection are summarised in Figure 2.

7.2 Construction Waste

The project will aim to minimise construction waste that goes to landfill, diverting waste where possible.

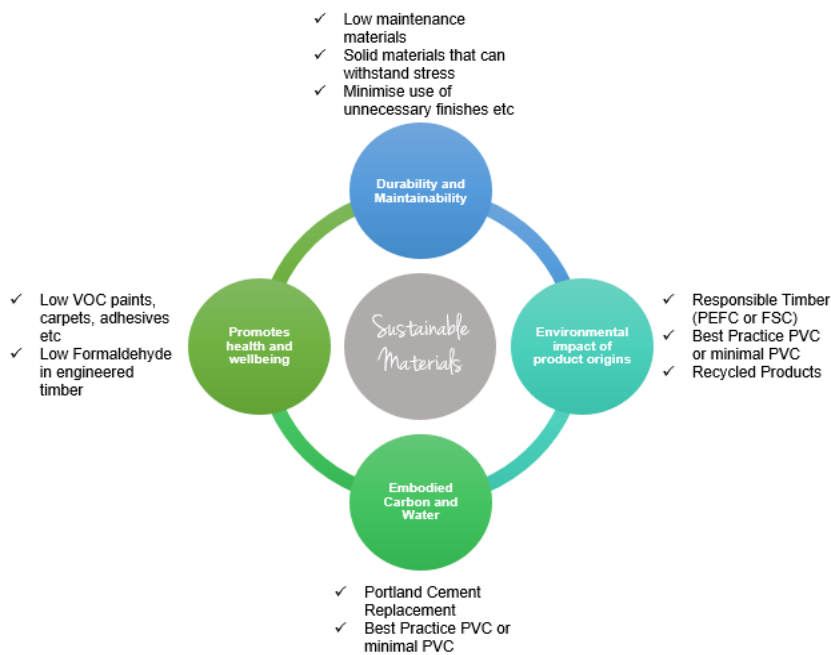


Figure 2 Key material selection principles.

8 Transport

Key points:

- Because the data centre has very low occupancy transport is not a major consideration – as such there are no specific design responses.

9 Resilience

9.1 Climate Risks for the site

A detailed climate change risk assessment for the project has not been completed but key risks that the design will need to consider for Western Sydney are:

- Increase in average temperature – this should be considered in plant selection as it may impact seasonal performance
- Higher frequency of extreme temperatures – this should be considered in peak mechanical plant sizing
- Increased risk of bushfires as harsher fire weather is projected for the near and far future – the design must consider and respond to this risk

10 Mitigation measures

Section 10 outlines the overall ESD mitigations that are either being implemented into the design or are included for further consideration in operations. Table 7 below provides a summary of some mitigation strategies that will help reduce the consumption of resources, especially energy, greenhouse gas, and water, along with other ESD measures.

The ESD strategy is being developed to align with the SEARs requirements and Sustainable Building SEPP requirements for the NEXTDC S4 data centre development. These strategies will be realised through focused ESD initiatives involving building design that considers optimised energy generation, reduced greenhouse gas emissions and potable water use, optimised resource use and minimisation of waste throughout the whole lifecycle of the building.

The mitigation measures listed below in Table 7 act to reduce the impacts of the proposal, particularly with regards to energy and water consumption. While savings of measures included in the design have been noted, other measures have been earmarked for further consideration where the savings will be further progressed through detailed design.

As a result, it is not possible at this stage to give a definitive answer to the total savings achieved. Despite this, mitigations which have been included in the design have achieved significant savings across energy and water. A summary of the key savings is shown below:

- Energy use and Greenhouse Gas emissions – Designing to a Power Usage Effectiveness (PUE) of 1.2, compared to an industry standard of 1.6, can result in a 20% reduction in energy consumption for cooling and other non-IT infrastructure. This improvement in energy efficiency directly translates to lower greenhouse gas emissions. Additionally, the development is targeting a 5-star NABERS Energy for Data Centre Infrastructure rating, demonstrating a commitment to sustainable design and operation.
- Water use - Designing to a Water Usage Effectiveness (WUE) of 1.5 litres per kilowatt-hour (L/kWh), compared to the industry standard of 1.8 L/kWh, can result in a significant 17% reduction in water consumption.

Table 7 ESD project initiatives

Impact	Mitigation	Mitigation Details
Energy and Greenhouse Gas emissions - Energy use	Efficient lighting	It is proposed that new lighting provided will be LED type luminaire fittings which provide efficient lighting along with motion sensor controls for occupied spaces.
	Design optimisation for reducing operational energy consumption	The mechanical system is proposed to utilise high efficiency chillers supplying high temperature chilled water to data hall cooling plant to maximise energy efficiency when chillers run, reducing energy consumption.
Integrated Water Management - Water use	Water efficient fixtures and appliances	It is proposed that fixture selection in future design stages must adhere to GREP and Green Star requirements for flow efficiency
	Rainwater harvesting and cooling tower reuse	Rainwater from the roof will be collected in rainwater harvesting tanks and also to provide tanks to collect cooling tower discharge water for reuse
Resources – Sustainable materials and Construction Waste	Design strategies implementation to lower embodied carbon	Strategies to reduce embodied carbon as discussed in the integrated design workshop to be implemented in the design
	Construction and demolition waste management planning	A construction and demolition waste management plan to be developed in the next phase to inform regarding major waste streams generated, including disposal and diversion rates
Climate Change	Appropriate HVAC plant selection for increasing average temperatures	Plant selection will be based off the energy modelling analysis with climate change factors incorporated in the design.
	High SRI Roofing for higher frequency of extreme temperatures	High SRI Roofing materials in accordance with Green Star Urban heat island requirements will help lower the heat effect.
	Increased HVAC monitoring for bushfire risk	Increased HVAC monitoring schedule to ensure filters are replaced frequently to maintain fresh airflow in conditioned areas as a measure for bushfire smoke

In addition to the design initiatives outlined in this report, operational initiatives will form part of NEXTDC’s strategy to tackle the greenhouse gas emissions impact of the project. Implementing these strategies will enable NEXTDC to achieve vastly reduced emissions for the S4 facility in the future through renewable electricity procurement and nature-based offsets (Climate Active certified or other accepted alternatives in the future).

NEXTDC is currently Climate Active certified for its business operations and its data centre services².

NEXTDC also works with utility providers, energy retailers and renewable project developers to offer data centre tenants commercially attractive renewable electricity supply options. NEXTDC will support tenants who choose to self-procure renewable electricity to address their greenhouse gas emissions in the facility.

² <https://www.climateactive.org.au/buy-climate-active/certified-members/nextdc>

11 Appendix A

NABERS Embodied Emissions Material Form

The NABERS Embodied Emission Material Form has been completed by the Quantity Surveyor and has been appended to this report for completeness.

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	16 Johnstn Crescent, Horsley Park, NSW			
Postcode	2175		Required	Postcode of building
Township	HORSLEY PARK		Township/suburb/region automated from postcode (may not give exact town name)	Township/suburb/region of the building site.
Distance to nearest major city/town	35	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 standard 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 (NLANS&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			m ²	Required for Class 1a: Detached residential houses, townhouses
Class 1b: Boarding houses and hostels			m ²	Required for Class 1b: Boarding house, guest house, hostel
Class 2: Multi-unit residential buildings			m ²	Required for Class 2: Multi-unit residential, including apartment buildings
Class 3: Other residential buildings			m ²	Required for Class 3: Other residential buildings
Class 4: Residential inside non-residential			m ²	Required for Class 4: Residential building inside a non-residential building, e.g., caretaker residence
Class 5: Office buildings			m ²	Required for Class 5: Office building
Class 6: Retail buildings			m ²	Required for Class 6: Retail building, e.g., shop, restaurant, cafe
Class 7a: Carparks			m ²	Required for Class 7a: Carparks
Class 7b: Warehouse-type buildings			m ²	Required for Class 7b: Warehouses, wholesalers and storage facilities
Class 8: Industrial buildings	63,000	62,000	m ²	Required for Class 8: Industrial buildings, e.g., factories and workshops
Class 9a: Healthcare buildings			m ²	Required for Class 9a: Healthcare, e.g., hospitals, clinics, day surgeries
Class 9b: Civic buildings			m ²	Required for Class 9b: Civic buildings, e.g., theatres, civic centres, train stations
Class 9c: Aged care and personal care buildings			m ²	Required for Class 9c: Aged care and personal care
Class 10a: Non-habitable buildings			m ²	Required for Class 10a: Non-habitable buildings including sheds, carports and private garages
Class 10b: Miscellaneous structures			m ²	Required for Class 10b: Miscellaneous structures, including fences, masts, antennas, retaining walls and swimming pools
Class 10c: Bushfire shelters			m ²	Required for Class 10c: Bushfire shelters not attached to a Class 1a building
Total	63,000	62,000	m²	Required: Sum of m ² inputs must be more than 0.

Project information	Value	Unit	Note
Total cost of project	2,378,800.00	AUD excl. GST	Required
Building design life	40	years	Required
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 site	Value	Unit	Note
Site area	82,084	m ²	Required
Shared services or infrastructure	No		Required
Building footprint area	20,728	m ²	Required
Typical floor area (if different to building footprint area)	5,300	m ²	Only needed if different to row above
Typical floor perimeter	293	m	Required
Area of external carpark (not included in GFA)	20,000	m ²	Required. Enter 0 if not applicable.
Area of external hardstand (not included in GFA)	19,000	m ²	Required. Enter 0 if not applicable.
Area of other hard landscaping (not included in GFA)	3,000	m ²	Required. Enter 0 if not applicable.
Number of floors/stories above ground, including ground floor	19	no.	Required
Number of floors/stories below ground	0	no.	Required. Enter 0 if not applicable.
Number of floors/stories of car parking	0	no.	Required. Enter 0 if not applicable.
Total height above ground	39	m	Required

Structural material choices	Value	Unit	Note
Foundation type	Piles		Required
Frame type (dominant)	Reinforced concrete		Required
Suspended floor type (typical)	Reinforced concrete		Only needed for multi-storey buildings
Describe low carbon materials specified in your building (e.g. green concrete, low carbon bricks)			Required
Describe recycled content specified in your building (e.g. recycled steel)			Required

Step 2: Quantity of materials

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

Fill out blue cells

Material category	Subcategory 1	Subcategory 2	Subcategory 3	Value	Unit of measure	Comment	A05 ACMM Code	ICMS3 (Level 3 Codes Construction)
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Structure

The structural parts of the building that are below ground (substructure) and above ground (superstructure). This includes fill below the substructure, foundations, basements levels, suspended floors, wall structure, roof structure, stairs, lift shafts and balconies. It excludes external areas such as hardstands, carparks, patios, etc.

Coverage of structural material spend	-	-	-	62.5%	%	Required. Coverage of spend for structural elements entered below. Minimum requirement = 50%. Exclude head contractor preliminaries and margins.		
Concrete in-situ	<10 MPa	-	-		m³	Please enter reinforcing steel as part of 'Reinforcing steel' below	01_SB or 02-11	02 or 03
Concrete in-situ	>10 MPa to <20 MPa	-	-		m³	Please enter reinforcing steel as part of 'Reinforcing steel' below	01_SB or 02-11	02 or 03
Concrete in-situ	>20 MPa to <32 MPa	-	-		m³	Please enter reinforcing steel as part of 'Reinforcing steel' below	01_SB or 02-11	02 or 03
Concrete in-situ	>32 MPa to <40 MPa	-	-		m³	Please enter reinforcing steel as part of 'Reinforcing steel' below	01_SB or 02-11	02 or 03
Concrete in-situ	>40 MPa to <50 MPa	-	-	27,385	m³	Please enter reinforcing steel as part of 'Reinforcing steel' below	01_SB or 02-11	02 or 03
Concrete in-situ	>50 MPa to <60 MPa	-	-		m³	Please enter reinforcing steel as part of 'Reinforcing steel' below	01_SB or 02-11	02 or 03
Concrete in-situ	>60 MPa to <80 MPa	-	-		m³	Please enter reinforcing steel as part of 'Reinforcing steel' below	01_SB or 02-11	02 or 03
Concrete in-situ	>80 MPa to <100 MPa	-	-		m³	Please enter reinforcing steel as part of 'Reinforcing steel' below	01_SB or 02-11	02 or 03
Concrete in-situ	>100 MPa	-	-		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 pre-cast panel	-	-	-	22,653	m²		01_SB or 02-11	02 or 03
Concrete block	Hollow core	-	-		m³	Enter as cubic metres, calculated as (area in m²) * (thickness in m / 1000).	01_SB	02 or 03
Concrete block/brick	Solid	-	-		m³	Enter as cubic metres, calculated as (area in m²) * (thickness in m / 1000).	01_SB	02 or 03
Concrete block/brick	Solid AAC	-	-		m³	Solid Aerial Autoclaved Concrete (AAC) block. Enter as cubic metres, calculated as (area in m²) * (thickness in m / 1000).	01_SB	02 or 03
Mortar	-	-	-		kg		01_SB	02 or 03
Reinforcing steel	Bar & mesh	-	-	6,300,996	kg	Include all reinforcing steel bar mesh in the building's structure in this row. Usually this is calculated as kg/m² per concrete element and then summed. Example: 10 m² of 40 MPa concrete @ 100 kg/m² + 5 m² of 50 MPa concrete @ 150 kg/m² = 1,750 kg reinforcing steel.	01_SB or 02-11	02 or 03
Reinforcing steel	Fibre & strand	-	-		kg	Include all steel fibre reinforcing and steel strand in the building's structure in this row. Examples include Universal beams, universal columns and welded beams	01_SB	02 or 03
Structural steel	Hot rolled structural	-	-	2,256	t	Examples include C purlins, Z purlins and all light gauge steel framing	01_SB	02 or 03
Structural steel	Cold formed structural	-	-		t		01_SB	02 or 03
Structural steel	Other welded structural	-	-		t		01_SB	02 or 03
Structural steel	Plate	-	-		t	Include any allowance for connections here	01_SB	02 or 03
Structural steel	Sheet	-	-		t		01_SB	02 or 03
Stainless steel	-	-	-		t	Primarily for engineered timber structure connections	02-11	02 or 03
Reinforced concrete piles	Concrete	-	-	4,950	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	Steel reinforcing	-	-	1,088,000	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	-	-	-		t	Where concrete and reinforcing steel are also used, enter these in the rows above.	01_SB	02 or 03
Timber (solid)	Sawn softwood	-	-		m³		02-11	02 or 03
Timber (solid)	Sawn hardwood	-	-		m³		02-11	02 or 03
Timber (engineered)	CLT	-	-		m³		02-11	02 or 03
Timber (engineered)	Glulam	-	-		m³		02-11	02 or 03
Timber (engineered)	LVL	-	-		m³		02-11	02 or 03
Timber (engineered)	OSB	-	-		m³	Enter as cubic metres, calculated as (area of wall in m²) * (thickness in m / 1000).	02-11	02 or 03
Brick	Heat cured	-	-		m³	Enter as cubic metres, calculated as (area of wall in m²) * (thickness in m / 1000).	02-11	02 or 03
Structural Insulated Panel (SIP)	Steel outer	-	-		m²		01_SB	02 or 03
Structural Insulated Panel (SIP)	Aluminium outer	-	-		m²		01_SB	02 or 03
Structural Insulated Panel (SIP)	Engineered timber outer	-	-		m²		01_SB	02 or 03
Fill	-	-	-		t	Include purchased material only. Exclude siteown material.	01_SB	01
Sand & gravel	-	-	-		t	Include purchased material only. Exclude siteown material and sand/gravel in concrete.	01_SB	01
Waterproofing membrane	Bituminous	-	-	97,841	m²		01_SB	01 or 02 or 03
Waterproofing membrane	Polyethylene	-	-		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

The skin of the building that separates the internal building from the external environment. This includes the roof cladding, wall cladding, windows, doors and internal/external shafts. It also includes insulation and the internal wall lining of envelope walls.

Coverage of envelope material spend	-	-	-	62.5%	%	Required. Coverage of spend for the envelope items you have entered below. Minimum requirement = 50%. Exclude head contractor preliminaries and margins.		
Roof cladding	Profiled steel	-	-		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 galvanneal steel, zinc-aluminium (zincalume) coated steel and zinc-aluminium-magnesium (ZAM) coated steel, whether painted or unpainted.	05_RF	03 or 04
Roof cladding	Profiled aluminium	-	-	20,728	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	Profiled zinc	-	-		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	Membrane	-	-		m²	Enter as m² of roof area. Exclude allowances for overlap in the membrane sheets.	05_RF	03 or 04
Roof cladding	Tiles (traditional clay)	-	-		m²	Enter as m² of roof area. Exclude allowances for overlap between the tiles.	05_RF	03 or 04
Roof cladding	Tiles (concrete)	-	-		m²	Enter as m² of roof area. Exclude allowances for overlap between the tiles.	05_RF	03 or 04
Roof cladding	Other (Please describe >>)				m²	Please enter a description for any roofing that does not fit a predefined classification	05_RF	03 or 04
Wall cladding	Bricks (heat cured)	-	-		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	Bricks (air dried)	-	-		m²	Enter as m² of wall area. Air-dried bricks are cured using ambient temperature.	06_EW	03 or 04
Wall cladding	Bricks (under fired)	-	-		m²	Enter as m² of wall area.	06_EW	03 or 04
Wall cladding	Bricks (concrete)	-	-		m²	Enter as m² of wall area.	06_EW	03 or 04
Wall cladding	Mortar and render	-	-		kg		06_EW	03 or 04
Wall cladding	Profiled steel	-	-		m²	Enter as m² of wall area. Exclude allowances for overlap in the cladding sheets, offsets, etc. This row includes all metal-coated and pre-painted steel sheets where steel is the base metal. Examples include galvanneal steel, zinc-aluminium (zincalume) coated steel and zinc-aluminium-magnesium (ZAM) coated steel, whether painted or unpainted.	06_EW	03 or 04
Wall cladding	Profiled aluminium	-	-	16,990	m²	Enter as m² of wall area. Exclude allowances for overlap in the cladding sheets, offsets, etc. This row also includes pre-painted aluminium sheets.	06_EW	03 or 04
Wall cladding	Profiled zinc	-	-		m²	Enter as m² of wall area. Exclude allowances for overlap in the cladding sheets, offsets, etc. This row also includes pre-painted zinc sheets.	06_EW	03 or 04
Wall cladding	GRC cladding	-	-		m²	Enter as m² of wall area, GRC = Glass Reinforced Concrete.	06_EW	03 or 04
Wall cladding	Timber weatherboards	-	-		m²	Enter as m² of wall area. Exclude allowances for overlap between weatherboards, offsets, etc.	06_EW	03 or 04
Wall cladding	Fibre cement board	-	-		m²	Enter as m² of wall area. Exclude allowances for offsets, etc.	06_EW	03 or 04
Wall cladding	Terracotta	-	-		m²	Enter as m² of wall area. Exclude allowances for offsets, etc.	06_EW	03 or 04
Wall cladding	Brick tiles / veneers	-	-		m²	Enter as m² of wall area. Exclude allowances for offsets, etc.	06_EW	03 or 04
Wall cladding	Plasterboard	-	-		m²	Enter as m² of wall area. Exclude allowances for offsets, etc. Include both external wall linings and internal wall linings for envelope walls.	12_WF or 06_EW	03 or 04
Wall cladding	Plywood	-	-		m²	Enter as m² of wall area. Exclude allowances for offsets, etc. Include both external wall linings and internal wall linings for envelope walls.	12_WF or 06_EW	03 or 04
Wall cladding	Other (Please describe >>)				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	Aluminium frame	Single glazed	-		m²	Include all single glazing, including standard, toughened, laminated and low-E	07_WW or 08_ED	03 or 04
Windows & doors	Aluminium frame	Double glazed	-		m²	Include all double glazing, including standard, toughened, laminated and low-E	07_WW or 08_ED	03 or 04
Windows & doors	Aluminium frame	Triple glazed	-		m²	Include all triple glazing, including standard, toughened, laminated and low-E	07_WW or 08_ED	03 or 04
Windows & doors	Timber frame	Single glazed	-		m²	Include all single glazing, including standard, toughened, laminated and low-E	07_WW or 08_ED	03 or 04
Windows & doors	Timber frame	Double glazed	-		m²	Include all double glazing, including standard, toughened, laminated and low-E	07_WW or 08_ED	03 or 04
Windows & doors	Timber frame	Triple glazed	-		m²	Include all triple glazing, including standard, toughened, laminated and low-E	07_WW or 08_ED	03 or 04
Windows & doors	uPVC frame	Single glazed	-		m²	Include all single glazing, including standard, toughened, laminated and low-E	07_WW or 08_ED	03 or 04
Windows & doors	uPVC frame	Double glazed	-		m²	Include all double glazing, including standard, toughened, laminated and low-E	07_WW or 08_ED	03 or 04
Windows & doors	uPVC frame	Triple glazed	-		m²	Include all triple glazing, including standard, toughened, laminated and low-E	07_WW or 08_ED	03 or 04
Windows & doors	Frameless	Single glazed	-		m²	Include all single glazing, including standard, toughened, laminated and low-E	07_WW or 08_ED	03 or 04
Windows & doors	Frameless	Double glazed	-		m²	Include all double glazing, including standard, toughened, laminated and low-E	07_WW or 08_ED	03 or 04
Windows & doors	Frameless	Triple glazed	-		m²	Include all triple glazing, including standard, toughened, laminated and low-E	07_WW or 08_ED	03 or 04
Windows & doors	Other (Please describe >>)				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	Single skin façade	Glazed panel	Single glazed		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	Single skin façade	Glazed panel	Double glazed	11,327	m²	Include all double glazing, including standard, toughened, laminated and low-E	06_EW	03 or 04
Curtain wall	Single skin façade	Glazed panel	Triple glazed		m²	Include all triple glazing, including standard, toughened, laminated and low-E	06_EW	03 or 04
Curtain wall	Single skin façade	Opaque panel	Aluminium cladding		m²		06_EW	03 or 04
Curtain wall	Single skin façade	Opaque panel	GRC cladding		m²	GRC = Glass-fibre Reinforced Concrete	06_EW	03 or 04
Curtain wall	Single skin façade	Opaque panel	Insulated shadow box		m²		06_EW	03 or 04
Curtain wall	Single skin façade	Opaque panel	Brick cladding		m²		06_EW	03 or 04
Curtain wall	Single skin façade	Opaque panel	Stone cladding		m²		06_EW	03 or 04
Curtain wall	Double skin façade	Glazed panel	Single glazed		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	Double skin façade	Glazed panel	Double glazed		m²	The type of glazing refers to the building's envelope wall, not including the outer skin	06_EW	03 or 04
Curtain wall	Double skin façade	Glazed panel	Triple glazed		m²	The type of glazing refers to the building's envelope wall, not including the outer skin	06_EW	03 or 04
Curtain wall	Double skin façade	Opaque panel	Aluminium cladding		m²		06_EW	03 or 04
Curtain wall	Double skin façade	Opaque panel	GRC cladding		m²	GRC = Glass-fibre Reinforced Concrete	06_EW	03 or 04
Curtain wall	Double skin façade	Opaque panel	Insulated shadow box		m²		06_EW	03 or 04
Curtain wall	Double skin façade	Opaque panel	Brick cladding		m²		06_EW	03 or 04
Curtain wall	Double skin façade	Opaque panel	Stone cladding		m²		06_EW	03 or 04

Curtain wall	Other (Please describe >>)			m ²	Please enter a description for any curtain wall that does not fit a predefined classification	06_EW	03 or 04
Stick-framed wall system	Aluminium frame	Glazed section	Single glazed	m ²	Include all single glazing, including standard, toughened, laminated and low-E	06_EW	03 or 04
Stick-framed wall system	Aluminium frame	Glazed section	Double glazed	m ²	Include all double glazing, including standard, toughened, laminated and low-E	06_EW	03 or 04
Stick-framed wall system	Aluminium frame	Glazed section	Triple glazed	m ²	Include all triple glazing, including standard, toughened, laminated and low-E	06_EW	03 or 04
Stick-framed wall system	Aluminium frame	Opaque section	Aluminium cladding	m ²		06_EW	03 or 04
Stick-framed wall system	Aluminium frame	Opaque section	GRC cladding	m ²	GRC = Glass-fibre Reinforced Concrete	06_EW	03 or 04
Stick-framed wall system	Aluminium frame	Opaque section	Insulated shadow box	m ²		06_EW	03 or 04
Stick-framed wall system	Aluminium frame	Opaque section	Brick cladding	m ²		06_EW	03 or 04
Stick-framed wall system	Aluminium frame	Opaque section	Stone cladding	m ²		06_EW	03 or 04
Stick-framed wall system	Steel frame	Glazed section	Single glazed	m ²	Include all single glazing, including standard, toughened, laminated and low-E	06_EW	03 or 04
Stick-framed wall system	Steel frame	Glazed section	Double glazed	m ²	Include all double glazing, including standard, toughened, laminated and low-E	06_EW	03 or 04
Stick-framed wall system	Steel frame	Glazed section	Triple glazed	m ²	Include all triple glazing, including standard, toughened, laminated and low-E	06_EW	03 or 04
Stick-framed wall system	Steel frame	Opaque section	Aluminium cladding	m ²		06_EW	03 or 04
Stick-framed wall system	Steel frame	Opaque section	GRC cladding	m ²	GRC = Glass-fibre Reinforced Concrete	06_EW	03 or 04
Stick-framed wall system	Steel frame	Opaque section	Insulated shadow box	m ²		06_EW	03 or 04
Stick-framed wall system	Steel frame	Opaque section	Brick cladding	m ²		06_EW	03 or 04
Stick-framed wall system	Steel frame	Opaque section	Stone cladding	m ²		06_EW	03 or 04
Stick-framed wall system	Other (Please describe >>)			m ²	Please enter a description for any wall system that does not fit a predefined classification	06_EW	03 or 04
Wall louvre system	Aluminium	-	-	5,663		06_EW	03 or 04
External shading system	Aluminium frame	Aluminium cladding	-	m ²	Please enter as m ² of shaded area = linear metres * (width in mm / 1000)	06_EW	03 or 04
External shading system	Aluminium frame	GRC cladding	-	m ²	Please enter as m ² of shaded area = linear metres * (width in mm / 1000). GRC = Glass-fibre Reinforced Concrete.	06_EW	03 or 04
External shading system	Aluminium frame	Terracotta cladding	-	m ²	Please enter as m ² of shaded area = linear metres * (width in mm / 1000)	06_EW	03 or 04
External shading system	Aluminium frame	Stone cladding	-	m ²	Please enter as m ² of shaded area = linear metres * (width in mm / 1000)	06_EW	03 or 04
External shading system	Aluminium frame	Pre-cast concrete	-	m ²	Please enter as m ² of shaded area = linear metres * (width in mm / 1000)	06_EW	03 or 04
External shading system	Aluminium frame	Timber	-	m ²	Please enter as m ² of shaded area = linear metres * (width in mm / 1000)	06_EW	03 or 04
External shading system	Aluminium frame	Glass (opaque)	-	m ²	Please enter as m ² of shaded area = linear metres * (width in mm / 1000)	06_EW	03 or 04
External shading system	Aluminium frame	Steel	-	m ²	Please enter as m ² of shaded area = linear metres * (width in mm / 1000)	06_EW	03 or 04
External shading system	Other (Please describe >>)			m ²	Please enter as m ² of shaded area = linear metres * (width in mm / 1000)	06_EW	03 or 04
Roller doors	Steel profile	-	-	m ²	Please note unit is square metres, not quantity	06_ED	03 or 04
Roller doors	Hardwood over steel	-	-	m ²	Please note unit is square metres, not quantity	06_ED	03 or 04
Roller doors	Softwood over steel	-	-	m ²	Please note unit is square metres, not quantity	06_ED	03 or 04
Revolving doors	Glass/aluminium/steel	-	-	nL		06_ED	03 or 04
Fire-rated doors	Engineered timber	-	-	nL	Please enter as single-leaf equivalent. For double-leaf doors, multiply the quantity by 2.	06_ED	03 or 04
Fire-rated doors	Steel	-	-	nL	Please enter as single-leaf equivalent. For double-leaf doors, multiply the quantity by 2.	06_ED	03 or 04
Fire-rated doors	Aluminium/glass	-	-	nL	Please enter as single-leaf equivalent. For double-leaf doors, multiply the quantity by 2.	06_ED	03 or 04
Insulation	Glass wool / fibreglass	-	-	m ²	Please include both wall and ceiling insulation	06_RF or 06_EW	03 or 04
Insulation	Stone wool	-	-	m ²	Please include both wall and ceiling insulation	06_RF or 06_EW	03 or 04
Insulation	Polystyrene	-	-	m ²	Please include both wall and ceiling insulation	06_RF or 06_EW	03 or 04
Insulation	Expanded polystyrene	-	-	20,738.0	Please include both wall and ceiling insulation	06_RF or 06_EW	03 or 04
Insulation	Other (Please describe >>)			m ²	Please include both wall and ceiling insulation	06_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 internal walls and doors				80	%	Enter the % coverage of spend 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)	Steel (light framing)	-	-	t			09_NW
Interior wall (permanent)	Timber framing	-	-	m ²			09_NW
Interior wall (permanent)	IAC panels (reinforced)	-	-	m ²			09_NW or 12_WF
Interior wall (permanent)	Concrete-filled steel panel	-	-	m ²	Panels made from a steel sheet outer with an assisted concrete core, e.g., Speedpanel.		09_NW or 12_WF
Interior wall (permanent)	Plasterboard	-	-	24,000	Enter as single-layer equivalent. If using 2 layers, multiply the area by 2.		09_NW or 12_WF
Interior wall (permanent)	Plywood	-	-	m ²	Enter as single-layer equivalent. If using 2 layers, multiply the area by 2.		09_NW or 12_WF
Interior wall (permanent)	Fibre cement sheet	-	-	m ²	Enter as single-layer equivalent. If using 2 layers, multiply the area by 2.		09_NW or 12_WF
Interior wall (permanent)	Insulation	-	-	m ²			09_NW or 12_WF
Interior wall (permanent)	Glass	-	-	m ²			09_NW or 12_WF
Interior wall (permanent)	Other (Please describe >>)			m ²	Please enter a description for any internal wall that does not fit a predefined classification		09_NW or 12_WF
Interior door (permanent)	Aluminium/glass	-	-	m ²	Please enter as single-leaf equivalent. For double-leaf doors, multiply the quantity by 2.		11_ND
Interior door (permanent)	Timber/glass	-	-	nL	Please enter as single-leaf equivalent. For double-leaf doors, multiply the quantity by 2.		11_ND
Interior door (permanent)	Timber solid lightweight	-	-	nL	Please enter as single-leaf equivalent. For double-leaf doors, multiply the quantity by 2.		11_ND
Interior door (permanent)	Fire resistant	-	-	nL	Please enter as single-leaf equivalent. For double-leaf doors, multiply the quantity by 2.		11_ND
Interior door (permanent)	Steel	-	-	nL	Please enter as single-leaf equivalent. For double-leaf doors, multiply the quantity by 2.		11_ND
Interior door (permanent)	Other (Please describe >>)			nL	Please enter a description for any internal door that does not fit a predefined classification		11_ND
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 >>)					Please enter a description for any material that does not fit a predefined classification		
Other (Please describe and add unit >>)					Please enter a description for any material that does not fit a predefined classification		

Services

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 services by type, please enter them all in the 'Other services' category at the bottom. Enter all values as material costs in dollars.

Mechanical services	-	-	-	49,665.827	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	-	-	-	63,268.037	AUD excl. GST	Electrical services including the main power supply, backup generators, security and communications. Excluding solar installations.	26_LP	06
Solar photovoltaic installations	-	-	-	235.978	AUD excl. GST	Where possible, enter material costs excluding labour, plant, equipment, margins and taxes	26_LP_PGIP	05
Plumbing/hydraulic services	-	-	-	17,261.965	AUD excl. GST	Where possible, enter material costs excluding labour, plant, equipment, margins and taxes	11_PD and 18_WD	05 or 06
Fire services	-	-	-	12,600.000	AUD excl. GST	Where possible, enter material costs excluding labour, plant, equipment, margins and taxes	25_FPS554 or 38_KVAW_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

The materials associated with hard landscaping and outbuildings on the site but outside the building envelope. This includes hardstands, carports, driveways, covered walkways, decks, patios, awnings, fences, gates, etc. Soft landscaping should be excluded.

Coverage of spend on external works				80	%	Required: Coverage of spend for external works (excluding soft landscaping) entered below. Minimum requirement = 80%. Exclude head contractor preliminaries and margins.	
Asphalt	-	-	-	m ²			33_XR
Concrete (in-situ)	<10 MPa	-	-	m ³		Please enter reinforcing steel as part of 'Reinforcing steel' below	33_XR or 34_XN or 35_XB or 36_XL
Concrete (in-situ)	>10 MPa to <20 MPa	-	-	7,149.8	m ³	Please enter reinforcing steel as part of 'Reinforcing steel' below	33_XR or 34_XN or 35_XB or 36_XL
Concrete (in-situ)	>20 MPa to <32 MPa	-	-	m ³		Please enter reinforcing steel as part of 'Reinforcing steel' below	33_XR or 34_XN or 35_XB or 36_XL
Concrete (in-situ)	>32 MPa to <40 MPa	-	-	m ³		Please enter reinforcing steel as part of 'Reinforcing steel' below	33_XR or 34_XN or 35_XB or 36_XL
Concrete (in-situ)	>40 MPa to <50 MPa	-	-	m ³		Please enter reinforcing steel as part of 'Reinforcing steel' below	33_XR or 34_XN or 35_XB or 36_XL
Concrete (in-situ)	>50 MPa	-	-	m ³		Please enter reinforcing steel as part of 'Reinforcing steel' below	33_XR or 34_XN or 35_XB or 36_XL
Pavers, bricks and blocks	Concrete	-	-	m ²			33_XR
Pavers, bricks and blocks	Clay	-	-	m ²			33_XR
Reinforcing steel	Bar & mesh	-	-	607,716	kg	Includes all reinforcing steel bar/mesh in the external works in this row. Usually this is calculated as kg/m ³ per concrete element and then sum med. Example: 10 m ³ of 40 MPa concrete @ 100 kg/m ³ + 5 m ³ of 50 MPa concrete @ 150 kg/m ³ = 1,750 kg reinforcing steel.	33_XR or 34_XN or 35_XB or 36_XL
Reinforcing steel	Fibre & strand	-	-	kg		Includes 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
Structural steel	-	-	-	t			02_L1
Structural aluminium	-	-	-	t		Includes structures, louvre systems, etc.	35_XB
External roof/wall cladding	Polycarbonate	-	-	m ²		Enter as profiled polycarbonate sheet that would ordered, including allowance for overlap	35_XB
External roof/wall cladding	PVC	-	-	m ²		Enter as profiled PVC sheet that would ordered, including allowance for overlap	35_XB
External roof/wall cladding	Aluminium sheet	-	-	m ²		Enter as aluminium sheet that would ordered, including allowance for overlap	35_XB
External roof/wall cladding	Steel profile	-	-	m ²		Enter as profiled steel sheet that would ordered, including allowance for overlap	35_XB
Fill	-	-	-	t		Include purchased material only. Exclude station material.	33_XR or 34_XN or 35_XB or 36_XL
Sand & gravel	-	-	-	t		Include purchased material only. Exclude station material and sand/gravel in concrete.	33_XR or 34_XN or 35_XB or 36_XL
Timber (solid)	Sawn softwood	-	-	m ³			33_XR or 34_XN or 35_XB or 36_XL
Timber (solid)	Sawn hardwood	-	-	m ³			33_XR or 34_XN or 35_XB or 36_XL
Timber (engineered)	CLT	-	-	m ³			33_XR or 34_XN or 35_XB or 36_XL
Timber (engineered)	CLAM	-	-	m ³			33_XR or 34_XN or 35_XB or 36_XL
Timber (engineered)	LVL	-	-	m ³			33_XR or 34_XN or 35_XB or 36_XL
Timber (engineered)	OSB	-	-	m ³			33_XR or 34_XN or 35_XB or 36_XL
Fabric (awning/shunshade)	-	-	-	m ²			35_XB or 36_XL
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	Brett Murray	Required
Company	WT Partnership	Required
ABN	6960522182	
Profession	Quantity Surveyor	Required
Qualification or registration	MRICS (6424074)	Required

Person that certified the details in this form	Value	Note
Name	Brett Murray	Required
Company	WT Partnership	Required
ABN	6960522182	
Profession	Quantity Surveyor	Required
Qualification or registration	MRICS (6424074)	Required

Confirmation of certification	Value	Note
Are 80% of material costs captured for the building's structure, envelope and external works?	Yes	Required
If no - why not?		

Additional comments from data provider

The quantities and costs mentioned in this form are indicative and subject to change and are to be relied on as a guide only. Design information is not available to support detailed quantity take offs. Assumptions have been made in relation to all quantities and costs listed in this form. All quantities and costs listed in this form are subject to change as design information becomes available to support such. All quantities and costs in this form have been provided as a rough guide, or order of magnitude only.

Additional comments of certifier

The quantities and costs mentioned in this form are indicative and subject to change and are to be relied on as a guide only. Design information is not available to support detailed quantity take offs. Assumptions have been made in relation to all quantities and costs listed in this form. All quantities and costs listed in this form are subject to change as design information becomes available to support such. All quantities and costs in this form have been provided as a rough guide, or order of magnitude only.

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

This version:

1.20

Version history:

1.00	01-October-2023	Initial version.
1.10	12-October-2023	Error on 'Instructions' tab - changed 'cost of materials' for (1)-(4) to 'quantity of materials'.
1.20	24-October-2023	Manual check for updates using button (instead of each time the sheet is opened).

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