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Arne Jacobsen

Mechanical Engineering
Lighting Design
Sustainable Design
Electrical Engineering

Copenhagen
London
Sydney
Canberra
Hong Kong
New York

Level 8, 9 Castlereagh Street
Sydney, NSW, 2000, Australia
ABN 50 001 189 037
t: +61 / 2 9967 2200
e: info@steensenvarming.com

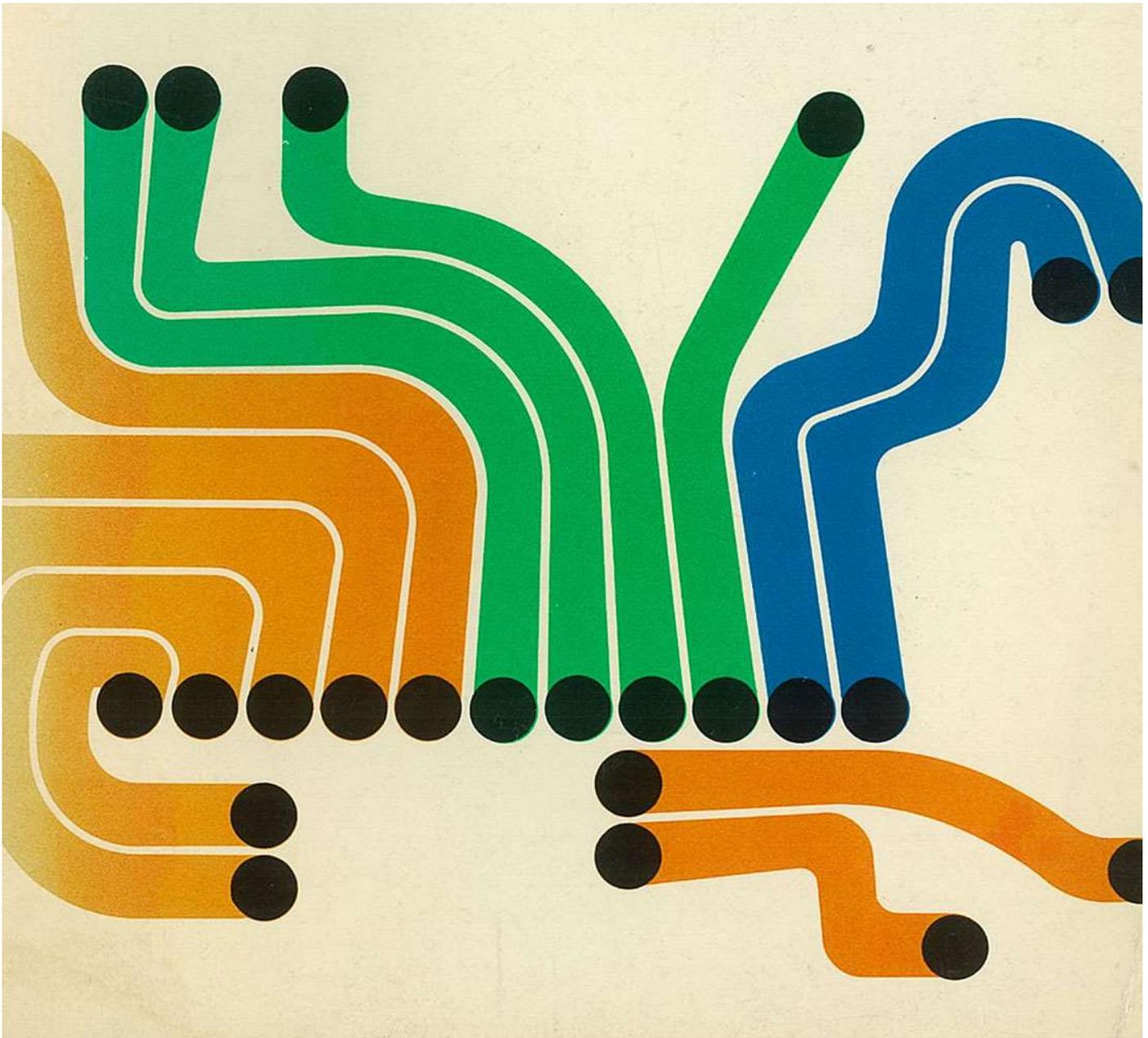
SUSTAINABLE DESIGN

STEENSEN VARMING



Bankstown TAFE

ESD Report for Development Application



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ABN 50 001 189 037
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e: info@steensenvarming.com

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Amandine Conrad
Graduate Sustainability Consultant

amandine.conrad@steensenvarming.com
+45 5080 3902

Diksha Vijapur
Associate

diksha.vijapur@steensenvarming.com
+61 2 9967 2200

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1.0 Introduction

This report has been prepared by Steensen Varming for the Bankstown campus of the Technical and Further Education (TAFE) Department, NSW (TAFE NSW) project.

The purpose of this report is to summarise the Environmentally Sustainable Design (ESD) initiatives adopted for the TAFE Bankstown, explain how the project has addressed the DA sustainability requirements and, provide an overview of how the proposed design is responding to sustainable planning.

To do so, this report will address the sustainability requirements outlined in Chapter 3.2 (1) (non-residential development) of the State Environmental Planning Policy (Sustainable Buildings) (SEPP) 2022 and the Environmental Sustainability Policy for City of Canterbury-Bankstown.

Additionally, in line with the Sustainable Buildings SEPP requirements, a NABERS Embodied Emissions Materials Form for the project has been prepared and included as an appendix to this report.

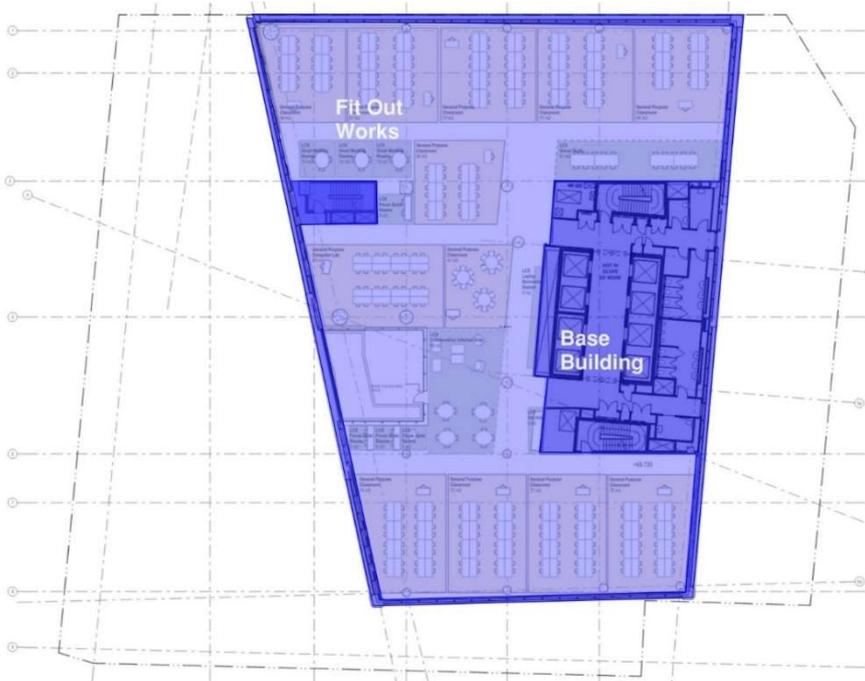
1.1 Project Overview

This report accompanies a Development Application that seeks approval for the fit-out development of the TAFE Bankstown campus to be located within an existing base-building at 74 Richard Road, Bankstown.

The project will occupy eight floors of an existing building. The existing 'base building' is a 19-storey building consisting of:

- Two basement levels including car and bicycle parking, a loading dock, back-of-house storage and plant equipment,
- Ground floor retail tenancies, shared lobby, multi-purpose tiered space, showcase areas, amenities and plant equipment,
- Commercial lobby,
- Above ground levels comprising a mix of tertiary education uses including conference facilities,
- Landscaped podium terraces and balconies,
- Ground level landscaping, retail and public domain works including the provision of a pedestrian plaza fronting the retail premises.

Floors/levels 10-17 within the base building is to be leased for tenants.



Plan layout for Level 10 in Bankstown TAFE Building and scope of the Fit Out Works.
Source (adapted): Plan Drawing, Level 10, fjc studio, 28/3/2025

The Bankstown TAFE base building has attained formal certification for a 5-star rating under the Green Star Design and As Built (v1.3), a NABERS Energy 4.5 stars, a WELL Core Gold Rating and compliance with Section J Energy Efficiency requirements under the National Construction Code (NCC) 2022. The proposed tenancy Fit Out Works in their design and operation are required to not cause any detrimental impact on the base building's environmental performance and the associated ratings mentioned above.

In addition to the SEPP requirements, the following sustainability requirements are identified and reviewed for the Bankstown TAFE building Fit Out Works:

TAFE NSW requirements:

- TAFE Sustainable Design Standard (rev C June 2023) in combination with;
- Sustainable Design Standard – Proposed Revisions Explainer (17/5/2025)

Government requirements:

- NSW Net Zero Government Operational Policy (December 2024)
- NCC Section J

Green Star Requirements:

- Green Star Interior v1.3 Submission Guideline – 5 star rating
- Alignment with the Base building Green Star D&AB (v1.3) 5-star rating criteria

NABERS Requirements:

- NABERS Energy (Tenancy Rating)

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Other relevant documents:

- Base Building Fit Out Guidelines (Commercial) (Rev3 4/9/2023)
- Base Building Brief (Rev3 4/8/2023)

2.0 Assessment Requirements

In preparing this report, the sustainability requirements from the following regulations have been addressed:

- ESD Statement addressing Sustainable Buildings SEPP
- Canterbury Bankstown City Council Local Environment Plan (LEP) 2024
- Environmental Sustainability Policy of Canterbury-Bankstown City Council.

2.1 State Environmental Planning Policy (Sustainable Buildings) 2022

The SEPP (Sustainable Buildings) has been released in 2022 and is comprised of requirements for residential and non-residential building typologies. For non-residential typologies, the policy consists of three segments:

- Chapter 3.2 General sustainability
- Chapter 3.3 for Large commercial developments
- Chapter 3.4 for State Significant Development Applications (SSDA)

This section has been prepared to state the relevant development consent requirements outlined in Chapter 3.2 (non-residential development) of the State Environmental Planning Policy (Sustainable Buildings) 2022.

The Bankstown TAFE fitouts are classified as a non-residential building typology. The project budget is estimated to be over \$10M approximately. However, they are not classified as commercial fitouts and not seeking approval via an SSDA planning pathway. As such Section 3.2 of the SEPP (Sustainable Buildings) is applicable to the project. It has been determined that sections 3.3 and 3.4 are not applicable to the Bankstown TAFE project.

As such, the following Sustainable Buildings SEPP Chapter 3.2 measures apply to the project, as tabulated below:

Table 1: SEPP Sustainable Buildings 2022 Requirements

The following table summarises the requirements:

Clause No.	SEPP SB (2022) Chapter 3.2 Requirement	Section of report where response is provided
3.2 (1)	(a) the minimisation of waste from associated demolition and construction, including by the choice and reuse of building materials,	This section addresses this item. Refer to Section 3.1 below and to the Waste Management plan prepared for the project.

3.2 (1)	(b) a reduction in peak demand for electricity, including through the use of energy efficient technology,	This section addresses this item. Refer to Section 3.2 below.
3.2 (1)	(c) a reduction in the reliance on artificial lighting and mechanical heating and cooling through passive design,	This section addresses this item. Refer to Section 3.3 below.
3.2 (1)	(d) the generation and storage of renewable energy,	This section addresses this item. Refer to Section 3.4 below.
3.2 (1)	(e) the metering and monitoring of energy consumption,	This section addresses this item. Refer to Section 3.5 below.
3.2 (1)	(f) the minimisation of the consumption of potable water.	This section addresses this item. Refer to Section 3.6 below.
3.2 (2)	The embodied emissions attributable to the development have been quantified.	Separate NABERS Embodied Emissions material form addresses this item and refer to Section 3.7 below.

Relevant design documentation and reports to support these strategies are being developed by the design team to address the requirements during the design phase and subsequent construction stage, where it will be the responsibility of the contractor to implement the targeted strategies.

2.2 Canterbury Bankstown City Council LEP 2023

The Local Environment Plan (LEP) 2023 states in section 1.9:

(1) This Plan is subject to the provisions of any State environmental planning policy that prevails over this Plan as provided by section 3.28 of the Act.

In relation to the Local Environment Plan (LEP) 2023, the development is required to address the following:

5.21 Flood planning

- (1) The objectives of this clause are as follows—
- (a) to minimise the flood risk to life and property associated with the use of land,
 - (b) to allow development on land that is compatible with the flood function and behaviour on the land, taking into account projected changes as a result of climate change,
 - (c) to avoid adverse or cumulative impacts on flood behaviour and the environment,
 - (d) to enable the safe occupation and efficient evacuation of people in the event of a flood.

6.2 Earthworks

(1) The objective of this clause is to ensure that earthworks for which development consent is required will not have a detrimental impact on environmental functions and processes, neighbouring uses, cultural or heritage items or features of the surrounding land.

6.3 Stormwater management and water sensitive urban design

(1) The objective of this clause is to avoid or minimise the adverse impacts of urban stormwater on land to which this clause applies and on adjoining properties, native bushland, waterways and ground water systems.

6.4 Biodiversity

(1) The objective of this clause is to maintain terrestrial and aquatic biodiversity by—
(a) protecting native fauna and flora, and
(b) protecting the ecological processes necessary for their continued existence, and
(c) encouraging the conservation and recovery of native fauna and flora and their habitats.

The above requirements are generally in alignment with the requirements within the Sustainable Buildings SEPP Chapter 3.2 which are addressed in the following section 3.

Furthermore, as the project is a fitout project within an existing building certified with 5-star Green Star Design and As-Built, the above requirements are met by the base building and not applicable to the Fit Out project.

2.3 Environmental Sustainability Policy of Canterbury-Bankstown City Council

Based on the Environmental Sustainability Policy on the Canterbury- Bankstown City Council, following pathways have to be followed by the development:

▪ Reducing our carbon footprint:

Council is committed to an evidence-based approach in responding to climate change and working towards net zero emissions by 2050 through innovation and efficient use of resources.

Support procurement practices across the whole organisation to procure goods and services that minimise environmental risk and maximise positive sustainable opportunities and benefits for the environment and circular economy.

▪ Reducing waste to landfill:

Council is committed to reducing waste to landfill and recovering resources to support the circular economy through advanced waste and resource recovery processing solutions with proven and efficient technologies. Council is committed to reducing greenhouse gas emissions by reducing food and organic waste to landfill

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and achieving better outcomes for community, economy and environment through waste reduction.

▪ **Protect and promote local biodiversity:**

Council is committed to the protection and promotion of local biodiversity through habitat restoration and increasing tree canopy cover in suburban areas to 40% by 2036 across the Local Government Area (LGA) together with fire and feral animal management. Council is committed to sound aquatic and terrestrial ecosystem management principles for the protection of biodiversity, natural areas and waterways. Council is committed to working with the community to increase native planting in natural areas and embedding Aboriginal cultural heritage in natural and open space planning and management.

▪ **Improve local waterway health:**

Council is committed to applying sound ecological principles to the management of catchments and waterways through water sensitive urban design principles and development controls to achieve healthy and clean waterways.

The above requirements (1) to (4) are generally in alignment with the requirements within the Sustainable Buildings SEPP Chapter 3.2 which are addressed in Section 3.

3.0 Sustainability approach

Addressing sustainable design principles requires a holistic and integrated design approach, which builds on the awareness of climate, site, form, function, and a broad range of other initiatives. The following sub-sections present the key sustainable design strategy considerations for the proposed Bankstown TAFE fitout, encompassing various aspects of sustainability.

The Fit-Out project is targeting formal certification under the Green Star Interiors (v1.3) tool for a 5-star rating and is also required to align with the sustainability commitments of the Base Building that possesses a 5-star rating under the CS Design and As-Built (D&AB) (v1.3).

3.1 Minimisation of waste

The project design comprises of waste management strategies to target operational and construction waste minimisation.

For operational waste management, the project has been designed for the collection of separate waste streams and the design will ensure safe and efficient access to waste and storage areas for both occupants and waste collection contractors.

In addition to the above, the project is targeting the following construction waste management strategies for the contractor to implement during construction:

- The builder or head contractor will have an environmental management system in place to manage its environmental impacts on site.
- The builder or head contractor will have an environmental management plan to cover the scope of construction activities.
- The builder will divert at least 90% of construction and demolition waste from landfill.

3.2 Reduction in peak demand for electricity

The following energy efficient design features of the proposed Fit Out are developed to contribute towards reduction in peak demand of electricity:

- An indoor air quality monitoring system comprised of Carbon dioxide (CO₂) sensors is being incorporated in the mechanical services design to maintain the maximum concentration of CO₂ below 800 ppm. This system is an energy-efficient solution as it allows for adjustment of outdoor air supply ventilation rates based on air quality, rather than continuously always providing an increased ventilation rate.
- The interior layout of the fitout is designed to maximise use of daylight to regularly occupied areas, thereby minimising the energy associated with electric lighting,

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- Electric lighting is designed to be comprised of high efficiency LED (Light Emitting Diode) technology and to include occupancy sensors where required.
- Passive strategies of the base building detailed in Section 3.3 also contribute towards reducing peak demand, as cooling loads will be lower.

Overall, for the proposed fitout design, the following energy hierarchy is also being implemented to drive design decisions for energy efficiency measures, that are feasible within the limitations of the proposed fitout design scope:



3.3 Passive Design

The base building has been designed to have a high-performance façade in terms of thermal performance and passive design features comprising of external shading, thermal insulation along the external building envelope elements, efficient glazing that minimises unwanted solar gains but permits natural light transmission.

The fitout is taking advantage of the base-building façade, as the current design scope does not include any modifications to the external façade. The following passive design initiatives have been considered for the interior design of the Fit-Out project to maintain the impact of the existing façade's passive design features:

- The interior spatial planning of the fitouts configured offices and collaboration zones closer to the facades to maximise daylight availability and connection to the outdoors whenever possible.
- Occupancy sensors are considered for all non-critical spaces, to ensure the artificial lighting system is only activated when the space is occupied and remain turned off at all other times.

3.4 Generation and Storage of Renewable Energy

The base-building is comprised of roof-mounted photovoltaic array to generate on-site renewable energy. The base-building also possesses a NABERS Energy 5-star rating and is also procuring 100% Green Power to align with the base-building organization's Climate Active certification requirements.

Due to the Base-Building's stipulated requirements for Tenancy fitouts, the proposed fitouts are required to maintain the same level of Green Power procurement at 100%, as a lease condition.

3.5 Metering and Monitoring of Energy Consumption

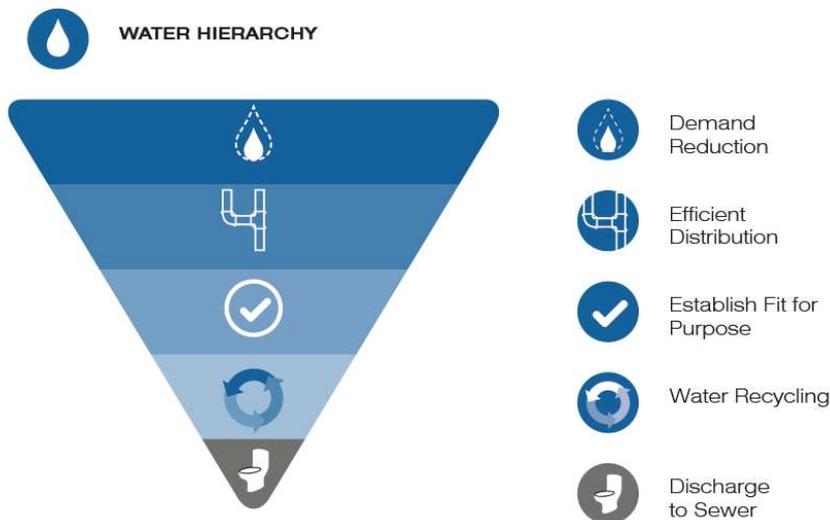
The base building is designed in accordance with the metering requirements of Green Star and NABERS, and a Building Management System (BMS) system is already included in the base building. The fitout will be utilising the base-building services including the BMS systems, and will comprise of new metering and monitoring systems for any supplementary systems that are being introduced into the fitouts. Furthermore, the fitout metering will be done according to the NABERS protocol for Tenancy energy ratings.

3.6 Minimise Potable Water Consumption

The following initiatives are being considered in the current design, to minimise the project's potable water consumption.

- Water efficient fixtures and fittings, such as taps, showerheads, toilets, zip taps, dishwashers etc certified under the WELS rating scheme will be specified for the project.
- There is minimal irrigation area within the project boundary.
- Efficient water management through an automatic water meter monitoring system will be installed.

The following hierarchy has been the basis of water strategies/ initiatives implemented within the base building. The fitout design aims to align with the water hierarchy by implementing the above strategies that are feasible within the proposed scope of works.



3.7 Embodied Emissions Reporting

As part of the Sustainable Buildings SEPP, a NABERS Embodied Emissions Material form has been prepared by the quantity surveyor for the project and will be submitted as an appendix to this report.

The embodied emissions material form discloses the quantities and types of materials proposed for the Fit Out project to inform on the amount of embodied emissions attributable to the development. This to support the Government in the development of a benchmarking tool.

To support a reduction in the embodied emissions for the project, the following recommendations are to be considered:

- Material reduction through efficient design layouts, structure and façade.
- Prioritising prefabricated and modular components
- Specification of low carbon materials
- Sourcing of local products
- Substitution of raw materials with recycled or reclaimed alternatives
- Design for disassembly & repurposing of demolition waste.

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4.0 Conclusion

This report provides a list of the sustainability strategies that have been considered for the TAFE Bankstown. Further design development will be carried out in the subsequent design stages, post early contractor involvement.

It should also be noted that the project will attain a 5-star Green Star rating under the Green Star Interiors fitout rating tool, to meet the requirements of the NSW Net-Zero Government Operations Policy as well as the NSW TAFE's sustainability commitments.

The proposed design methodology employed is robust and the ESD approach and initiatives proposed are well considered and supported by the project team. This approach should ensure that the project will address all applicable DA requirements and meet or exceed all sustainability requirements under the relevant policies and standards.

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5.0 Appendix-A NABERS Embodied Emissions



Upfront Embodied Carbon Calculator

Material quantities

Enter all material quantities in this tab. Where product-specific emission factors are available, a new material category must be added to the Product specific EPV tab before it can be selected here.

You can create groups of materials that are consistently used for curtain walls, windows, or doors in the Custom assemblies tab, which you can then select under the Custom assembly material type.

Cell colour key: Required, Optional, For reference, Error. Includes a text input field for explanation.

Example table with columns: Building section, Material description and notes, Material type, Material category, Material quantity, Material unit, Material conversion notes, Source location, Is quantity estimated?, Is waste included?, Waste rate (%), Recycle rate (%), Storage recovery (%), Landfill (%), Sustainable board material.

Materials (all of quantities)

Provides list of all the materials used in the building. See NABERS EC Rules section 7.3 for guidance on what materials to include in the listing.

Main materials table with columns: Building section, Material description and notes, Material type, Material category, Material quantity, Material unit, Material conversion notes, Source location, Is quantity estimated?, Is waste included?, Waste rate (%), Recycle rate (%), Storage recovery (%), Landfill (%), Sustainable board material, Quantity (Standard), Material unit (Standard), Quantity (Material), Material category (see in type), Emission factor (kg CO2e/m2), Storage (kg CO2e/m2), Material emissions (kg CO2e), Material conversion factor (kg CO2e), Truck emissions (kg CO2e), Rail emissions (kg CO2e), Ship emissions (kg CO2e), Material transport emissions (kg CO2e), Waste (%), Construction (kg CO2e), Material waste (kg CO2e), Construction waste (kg CO2e), Construction waste (kg CO2e), Construction waste (kg CO2e), Waste material emissions (kg CO2e), Waste material emissions (kg CO2e), Waste material emissions (kg CO2e), Area covered (m2), Replacement, Replacement, Material repair, replacement, Material deconstruction, Material waste processing, Demolition waste, Demolition waste, Demolition waste, Material end-of-life, Recycled content, Emissions beyond GWP.