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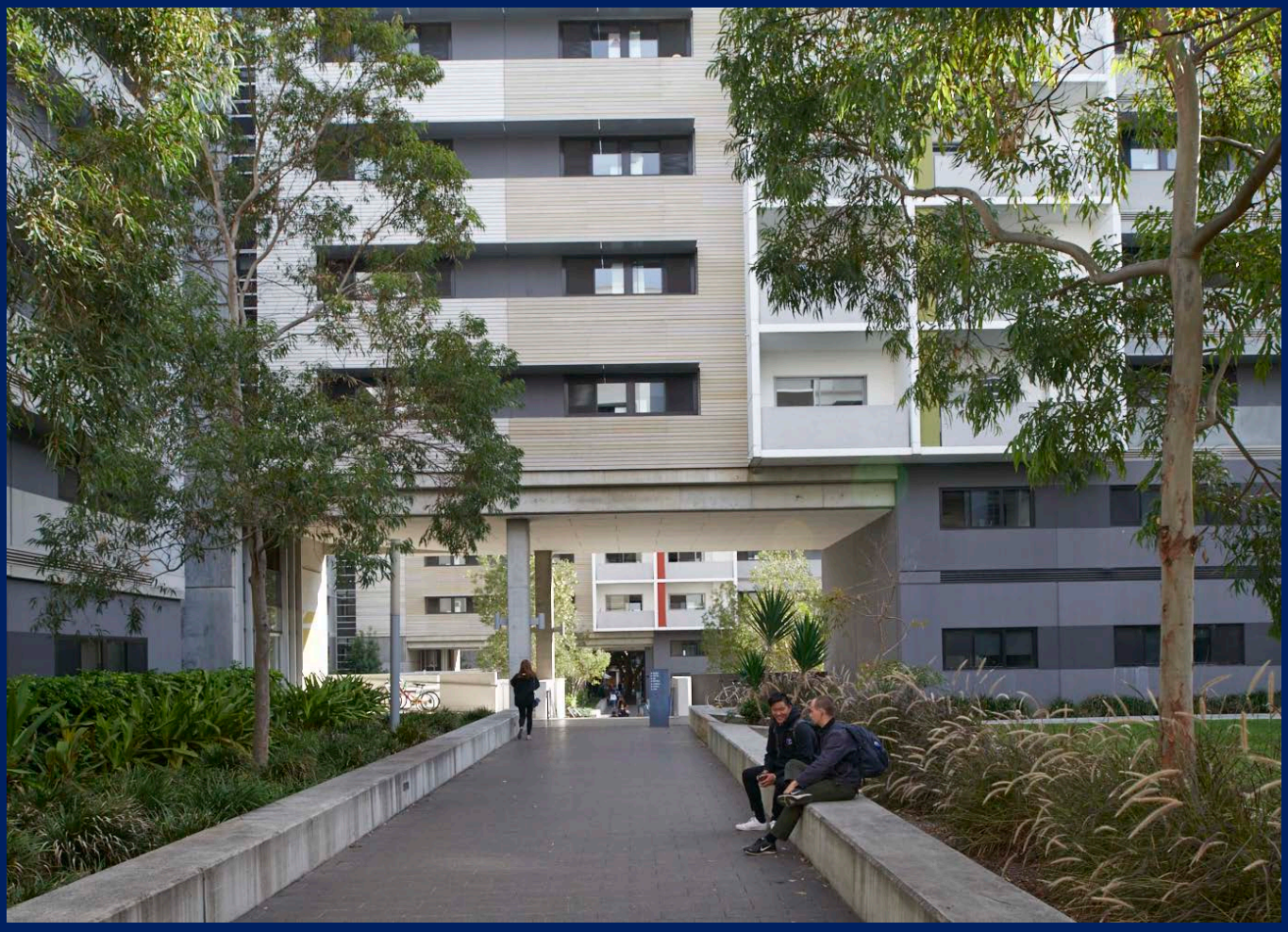
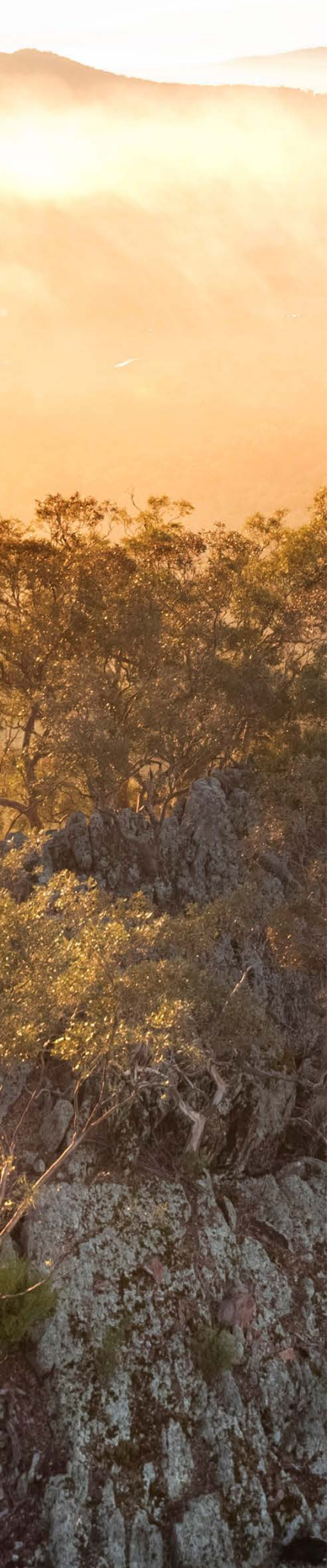
NSW GOVERNMENT

Sustainable Buildings SEPP

An overview of the new State Environmental Planning Policy for sustainable residential and non-residential development

September 2023





Acknowledgement of Country

The Department of Planning acknowledges that it stands on Aboriginal land. We acknowledge the Traditional Custodians of the land and we show our respect for Elders past, present and emerging through thoughtful and collaborative approaches to our work, seeking to demonstrate our ongoing commitment to providing places in which Aboriginal people are included socially, culturally and economically.

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Sustainable Buildings SEPP Overview

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This page: Sunset over Rock Cave Reserve, Kengal, Wagga Wagga
Photo: David Collins 2018

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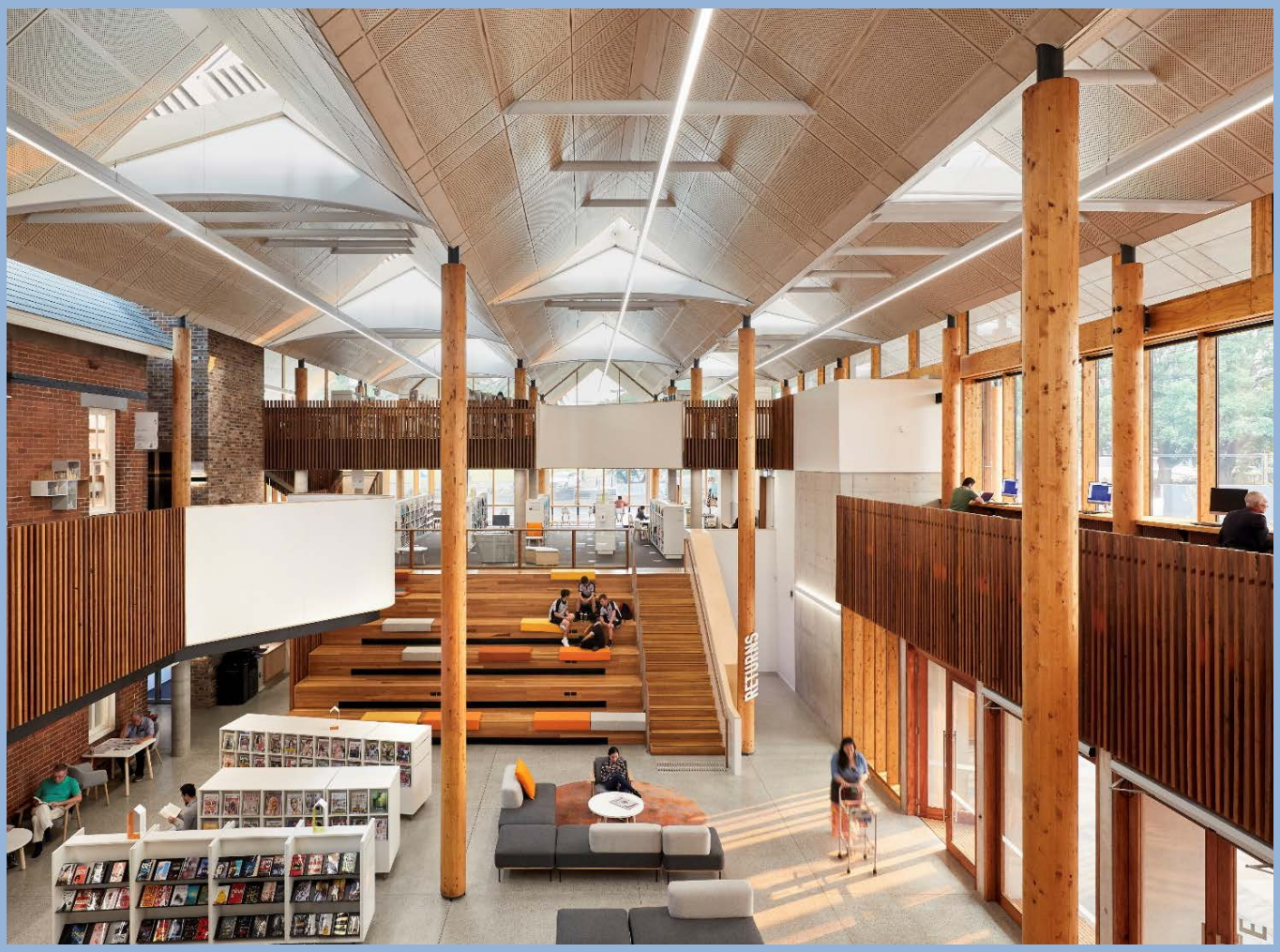


Marrickville Library
Design: BVN Architecture
Photo: Tom Roe

We're taking a consolidated approach to planning and developing sustainable buildings in NSW. That means making sure the places where we live, work and play are healthy, comfortable, and ready for the future. To make that happen we need consistent processes for the measuring, reporting, and assessing of sustainability in buildings.

The *State Environmental Planning Policy (Sustainable Buildings) 2022*, also known as the Sustainable Buildings SEPP, aims to simplify and coordinate the way that we plan for and design sustainable buildings in NSW.

This policy is the first of its kind nationally, which means that NSW is taking a leading role in delivering sustainable buildings. The Sustainable Buildings SEPP puts the sustainability of places at the forefront of development. Our shared responsibility to sustain thriving communities and care for our environment underpins the policy.

All types of buildings from residential to key types of non-residential are covered by the policy. The NSW Government has incorporated BASIX into this policy and updated energy and thermal performance standards for homes. We have introduced specific requirements for state significant and large commercial development in recognition of existing industry commitments to sustainability.

We are bringing NSW into alignment with the National Construction Code and working towards the goal of achieving net zero emissions in NSW by 2050.

We are introducing embodied emissions measurement and reporting for all building types to help us capture valuable data to inform future policy in this emerging field.

We do not make policy until all views have been considered. For over two years we have consulted with industry, council and community stakeholders on these policy initiatives and potential impacts. We have also received expert advice, undertaken economic analysis, and considered written submissions in the development of the policy.

Stakeholders told us that they supported incremental change to achieve more sustainable buildings in NSW. There was general support to update BASIX standards, to measure embodied emissions and to shift away from fossil fuel use to keep pace with industry best practice.

We listened to feedback and incorporated key initiatives into the Sustainable Buildings SEPP. The policy encourages greater consistency in designing, assessing, and monitoring the performance of sustainable buildings.

Lardelli Park, Putney Hill
Design: Cox Architecture
Photo: Martin Mischkulnig

A.1 Policy framework

This document provides an overview of the policy package, which comprises:

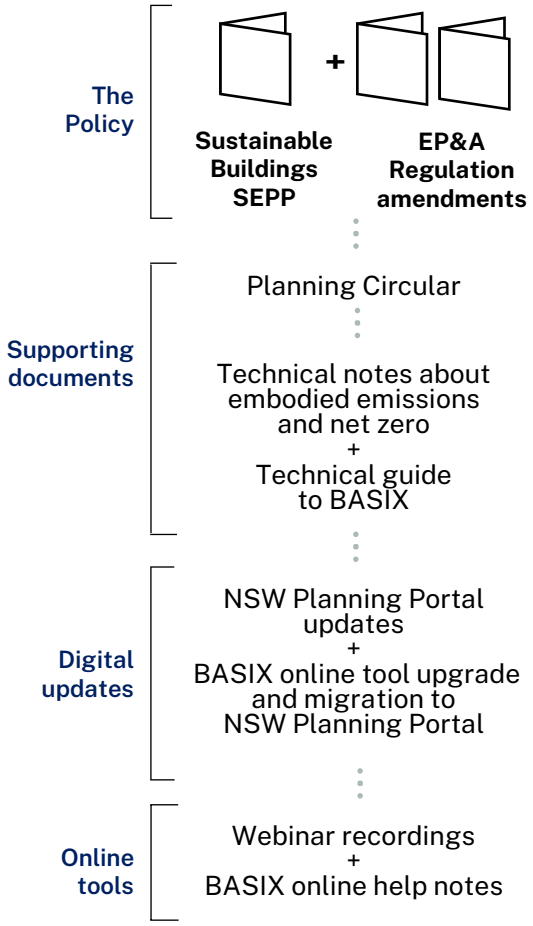
- the State Environmental Planning Policy Sustainable Buildings) 2022 (SB SEPP)
- changes to the Environmental Planning and Assessment Regulation 2000 (General Regulation)
- changes to the Environmental Planning and Assessment (Development Certification and Fire Safety) Regulation 2021 (DC Regulation)

This includes minor housekeeping amendments to the regulations made in September 2023, which appear as a separate document on the SB SEPP website.

The policy package is supported by:

- Upgrades to the BASIX online tool
- New non-residential data fields added to NSW Planning Portal
- Technical guidance for key initiatives like embodied emissions and net zero
- Webinars and planning circular to support councils and industry.

The *State Environmental Planning Policy (BASIX) 2004* will be repealed and the content integrated into this policy.



A.2 Key dates

The Sustainable Buildings SEPP is in effect from **1 October 2023**, following a one-year transitional period. The policy will be reviewed every 3 years to stay on target for the trajectory to low energy buildings agreed by all jurisdictions.

LATE 2021 - EARLY 2022	AUG 2022	SEPT 2022 – SEPT 2023	OCT 2023	2025
Exhibition of increased BASIX standards and non-residential initiatives	SB SEPP is made.	Transitional period. Digital implementation and technical guidance.	SB SEPP commences.	SB SEPP is reviewed.

A.3 Features of the policy package

NSW has whole-of-economy targets to reduce greenhouse gas emissions by 50 per cent by 2030 compared to 2005 levels, and to achieve net zero emissions by 2050. Achieving these targets will require all new and existing buildings in NSW to be operating at net zero well before 2050. Energy efficiency, conserving potable water and improving thermal performance are high priorities.

All buildings	Residential Development	Non-residential development
Calculate and report on embodied emissions of construction materials	Updates to the BASIX online tool and user interface Introduction of the materials index calculator for embodied emissions. Increased energy and thermal performance standards (for detached homes and apartments over 5 stories) Water standards unchanged	Energy standards and associated offsets for large commercial development New water standards for large commercial developments Net zero statement to demonstrate that a building can operate without fossil fuels by 2035 for large commercial and certain state significant development

Residential sustainability [BASIX]

As part of the planning approval process all new homes and renovations over $50,000 must meet the Building Sustainability Index (BASIX) requirements for energy, water use and thermal performance.

The NSW Government has increased the standards for energy use and thermal performance in homes, which is consistent with our Net Zero Plan and aligns with proposed increases to the *National Construction Code*. We will review the standards every few years to meet the government's net zero objectives and its commitment to the national *Trajectory for Low Energy Buildings*.

A new BASIX Materials Index has been incorporated into the BASIX certification process to assess the embodied emissions of construction materials used to build each home. Applicants will be asked to enter some additional information about the development so that the BASIX online tool can calculate and report on embodied emissions in key building materials.

To improve user experience and transparency, the BASIX online tool has been upgraded and integrated with the Planning Portal. We also updated some calculation methodologies (such as for lifts, lighting, and appliances) to reflect ongoing innovation and stakeholder feedback.

The existing BASIX water standards have not changed and will be revisited in 2025.

Non-residential sustainability

The NSW planning system does not currently have oversight of modelled operational emissions, water use or embodied emissions performance for new non-residential buildings. The new sustainability performance standards and compliance pathways will give NSW access to data that will inform future benchmarks.

New standards and reporting requirements apply for all non-residential developments. These measures are in conjunction with the sustainability provisions in BASIX. They also align with other NSW policies including the Net Zero Plan, Waste and Sustainable Materials Strategy 2041 and our Climate Change Policy Framework.

Reflecting the Sustainable Buildings SEPP's broader focus on integrated design:

- non-residential standards for energy and water have been introduced
- applicants must consider, early in the design process, how the project will avoid dependence on fossil fuels and be capable of operating at net zero emissions.
- disclosure of the embodied emissions of key materials will be required.

The Sustainable Buildings SEPP will help make our new buildings cheaper to heat and keep cool, will conserve drinking water, and contribute to a low-carbon future.

A.4 Policy application and approach

Consolidation of SEPPs

The SB SEPP incorporates the State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004, which will be repealed.

Application of the SEPP

The SB SEPP applies to all of NSW.

BASIX provisions continue to apply to all new residential developments and home renovations over $50,000. The BASIX tool recognises regional variation to standards resulting from local climatic conditions.

The non-residential provisions have different applications depending on the building type. All new non-residential development with a capital investment value over $5 million and any renovation with a capital investment value over $10 million must consider general and embodied emissions provisions.

In addition, state significant development under Schedules 13-15 of the State Environmental Planning Policy (Planning Systems) 2022 - health, education and cultural institutions - must demonstrate that they are capable of operating without fossil fuels by 2035.

There are also energy and water standards that only apply to large commercial development, defined as follows:

- Offices with a net lettable area greater than 1,000 square metres
- Hotels and motels with more than 100 rooms
- Serviced apartments with more than 100 apartments.

Large commercial developments also need to demonstrate net zero capacity and offset any onsite fossil fuel use and any performance gap in operational energy.

There are specific exclusions, including land zoned rural, industrial, environmental conservation and waterways. The policy does not apply to non-residential development that is for the purposes of infrastructure or is considered exempt and complying development.

Changes to the EP&A Regulations

The policy introduces new requirements into the Environmental Planning and Assessment Act Regulation 2021 to explain key development application requirements.

For non-residential development these requirements include:

- general sustainability provisions to be considered
- documentation that reports on embodied emissions
- a net zero ready statement for large commercial and state significant development
- for large commercial development only - submission of a NABERS commitment agreement to demonstrate that the development is on track to achieving its energy and water standards.

Several existing clauses of the EP&A Regulation, including those associated the BASIX SEPP have been amended and the materials index required to be used.

The non-residential components of the policy also have follow-up requirements that will need to be submitted at construction certificate, or at occupation certificate or 24 months after the occupation certificate is issued. These requirements are legislated in two ways:

- Amendments to the Development Certification and Fire Safety Regulation to include embodied emissions and reporting on energy and water with the construction certificate.
- Condition of consent in the General Regulation requiring large commercial development to submit NABERS ratings for energy and water 24 months after occupation and to demonstrate offsets purchased for any on-site fossil fuel use or energy performance gap.

Requirements occur at multiple stages in the design and delivery process to incorporate sustainability early on and verify performance over the project life cycle.

Part B

Sustainability in Residential Buildings

Wonderland, Central Park, Sydney
Design: FJC Studio
Photo: Rodrigo Vargas

B.1 Energy and thermal performance standards

All new homes and renovations over $50,000 must meet the BASIX sustainability standards. These standards are for energy and water use and thermal performance of the home. Measurement and reporting of embodied emissions is also introduced for these homes.

The Building Sustainability Index (BASIX) is an important part of NSW's development application process. It mandates standards to reduce water and energy consumption, and greenhouse gas emissions from new houses and apartments. BASIX sets thermal performance requirements to ensure that homes stay cool in summer and warm in winter without using a lot of energy.

Since BASIX was introduced on 1 July 2004, more than half a million homes in NSW now meet the water and energy standards. Together, these homes are estimated to have saved 340 billion litres of potable water, and reduced emissions to 12.3 million tonnes of carbon dioxide equivalent to 135,000 Olympic swimming pools, and planting 40 million trees.

In 2019, the Energy ministers of the federal, state and territory governments agreed to the Trajectory for Low Energy Buildings, a national plan that aims to achieve zero-energy and zero-carbon buildings. The national plan proposes making cost- effective increases to the energy efficiency requirements of the National Construction Code for residential buildings from 2022.

These updates to BASIX will contribute to net zero goals.

NSW is bringing BASIX thermal performance and energy standards in line with proposed changes to the National Construction Code as much as possible. The higher BASIX thermal performance standards are at least 7 stars, based on the star-rating scale defined by the Nationwide House Energy Rating Scheme.

BASIX standards for thermal performance and energy for all new residential buildings have increased across NSW except for homes in the North Coast climate zones and small apartment buildings up to 5 storeys. This is where economic modelling showed that the benefits of energy bill savings are not enough to cover extra upfront costs.

Different standards are set to account for the climatic conditions in NSW and energy use from shared services (such as lifts) and common areas (such as lobbies and corridors) in apartment buildings.

The NSW electricity grid has, over time, become greener as we produce more electricity from renewable sources. We have recognised this in the energy standards by updating the greenhouse emissions factor when we calculate the energy consumption.

BASIX water standards have stayed the same across NSW for now and are carried across into the new BASIX assessment tool.

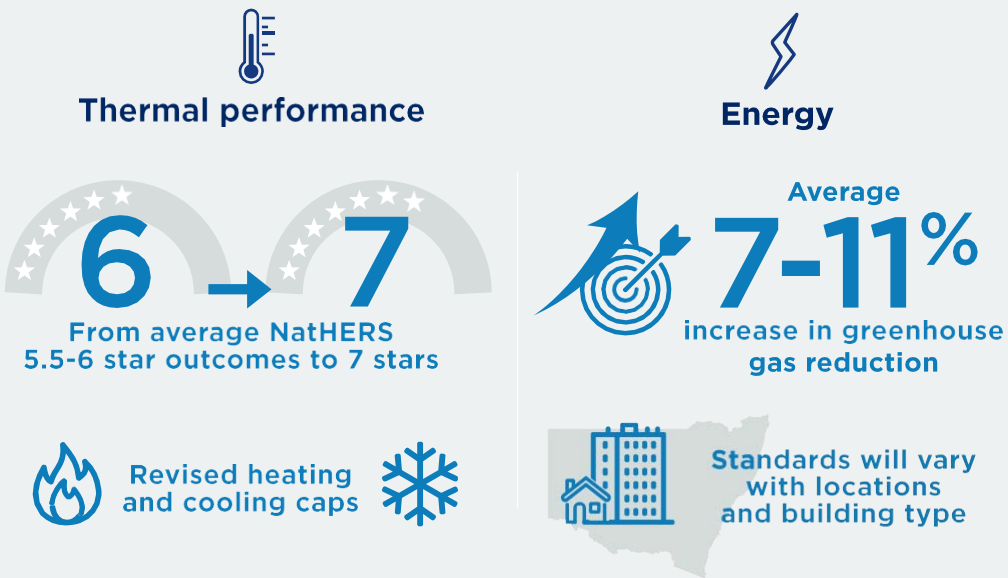


Figure 1: Increases in energy and thermal performance standards.

Figure 2:
Example of a home that includes features to satisfy pre-2023 BASIX requirements.

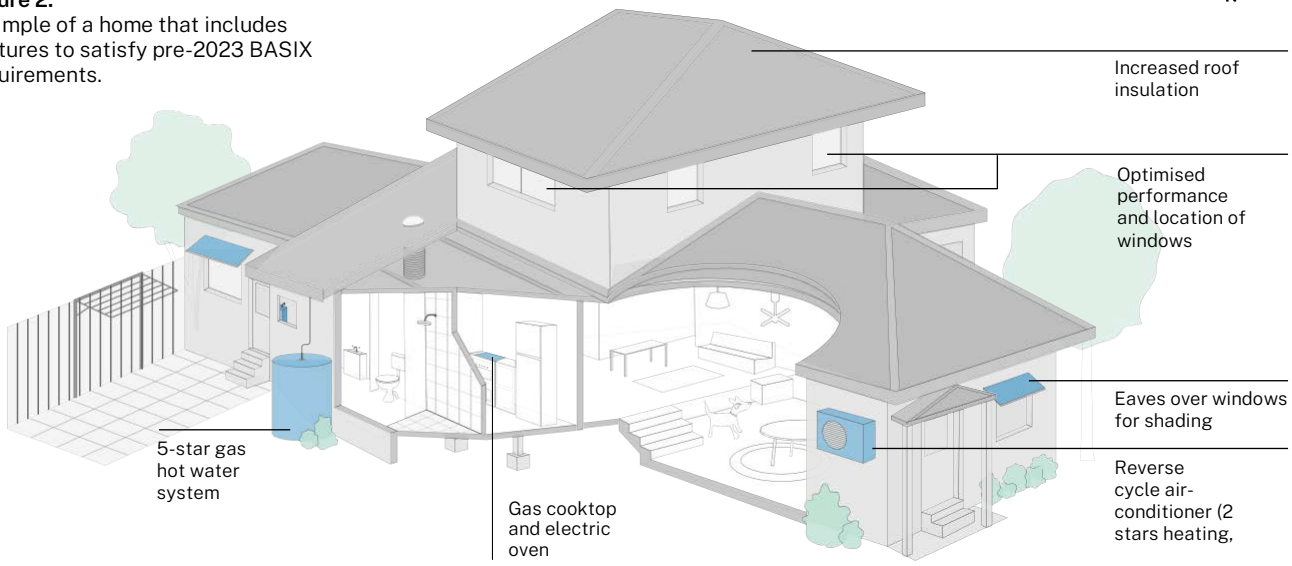


Figure 3:
Example of a home that includes 'all electric' appliances to meet the higher BASIX standards.

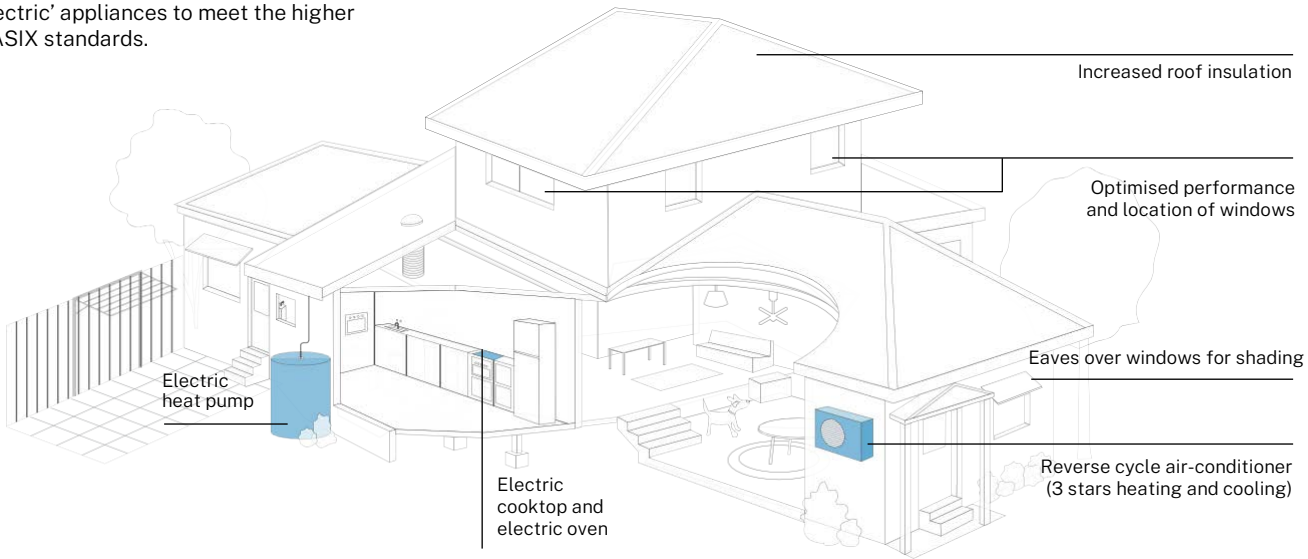
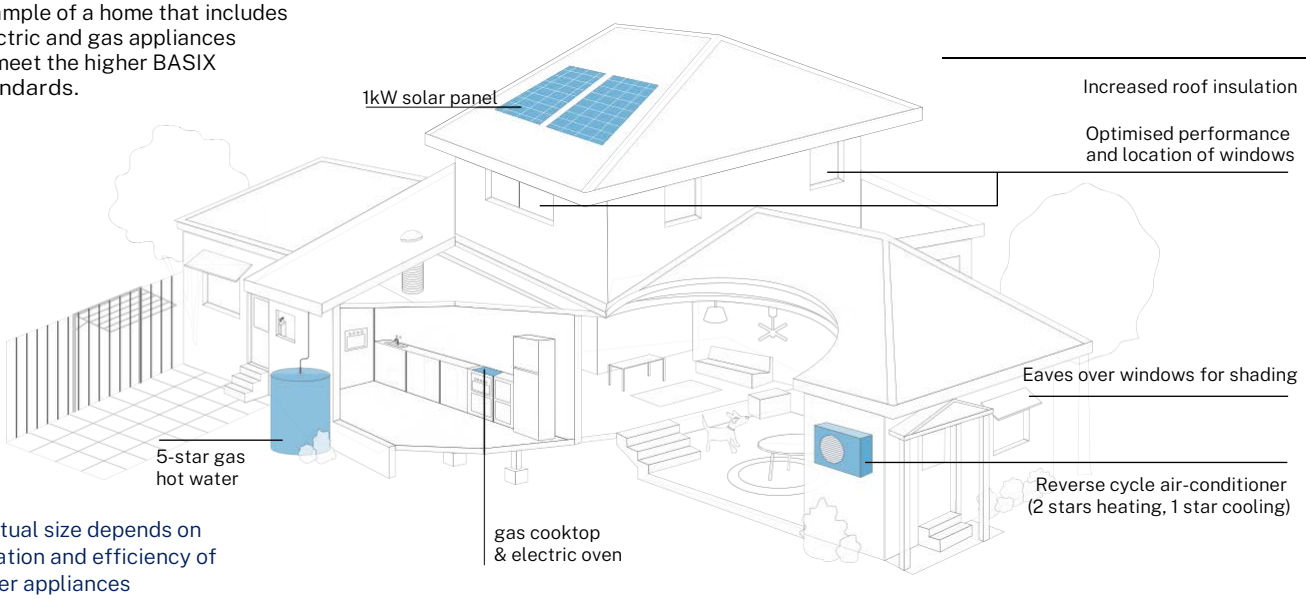


Figure 4:
Example of a home that includes electric and gas appliances to meet the higher BASIX standards.



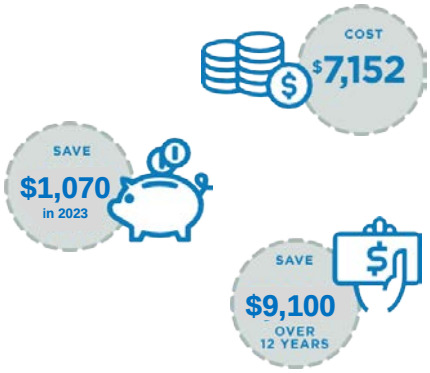
*Actual size depends on location and efficiency of other appliances

B.2 BASIX benefits

Occupants of homes meeting the higher standards will use less energy. Estimated energy bill savings, based on 2022 energy prices, will vary with locations and building types:

- Occupants of new high-rise apartment blocks in suburban Sydney could save from $105 to $265 on yearly energy bills.
- Occupants of houses in Western Sydney can save $1,070 on yearly energy bills.
- Energy bill savings for people living in regional areas varies with locations. Those in Wagga Wagga will save $420 and those in Dubbo could save $1,260 on yearly bills.

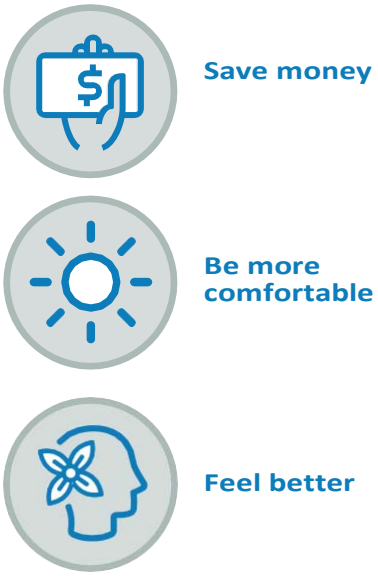
An average home meeting the higher BASIX standards will:



Homes meeting the higher thermal performance standards will be naturally cooler in summer and warmer in winter. Occupants won't need to turn on the heater or air conditioner as often.

The higher standards will reduce emissions by another 150,000 tonnes a year, which is equivalent to planting 485,000 trees.

Living in homes meeting higher BASIX standards will:



Homes meeting the higher BASIX standards will save an average:

150,000 tonnes

of greenhouse gas emissions each year

EQUIVALENT TO

planting over

485,000

trees

running

31

wind turbines for a year

B.3 Materials index

In Australia, the embodied emissions from construction materials contributes to 16% of all emissions and this figure is expected to climb significantly up to 2050.

As part of our commitment to achieving net zero emissions, we need to reduce the embodied emissions of the materials used in constructing new homes and ensure that emissions stay low once buildings are established. Adding a materials index to BASIX is an important first step to reducing the embodied emissions of new homes.

The BASIX materials index calculates the embodied emissions of construction materials used to build a home and compares it to a benchmark. Embodied emissions of a home are calculated by estimating the volume of different materials used in the home's construction applying an emissions factor for that material.

There is no embodied emissions standard proposed for now.

The emissions factors represent the embodied emissions from the production and use of a building material over the life of the home (for example, maintenance and replacement). Default factors for embodied emissions of materials are based on the well-recognised EPiC database.

Demand for lower embodied emissions materials is still developing as the building design and construction industry adjust to these changes. Standards for embodied emissions could be added as we gather more data and the market for low embodied emissions materials develops.

B.4 BASIX online tool

The BASIX online tool is integrated into the NSW Planning Portal as part of this launch of the Sustainable Buildings SEPP.

We have also migrated live BASIX certificates over to the NSW Planning Portal to ensure that applicants can continue to access their certificates and related data.

We have also updated the help text and online measurement protocols, including the thermal performance protocol, to help applicants to navigate the new online tool.

Part C

Sustainability in non-residential buildings

One Bligh, Sydney CBD
Design: Ingenhoven Architects. and Architectus
Photo: Courtesy of Ingenhoven

C.1 Application requirements

Policy initiatives for non-residential buildings will reduce greenhouse gas emissions by 0.72Mt over ten years and will ensure that NSW is leading the nation in the measurement and verification of sustainable performance.

The non-residential sustainability measures comprise 5 components that are tailored to suit different development types. Data from National Australian Built Environment Rating System (NABERS) has informed the policy development.

Measure	What is in the new policy?	Why is this needed?	Where does it apply?
1. General Sustainability	Reporting on general performance, including water conservation, waste minimization and use of renewable energy.	Establishes consistent categories for all developments to consider sustainable performance.	All non-residential development (unless exempt)
2.Embodied Emissions Reporting	Disclose at development application and construction certificate the quantities of materials and associated emissions. Describe how embodied emissions are minimised (by re-used or recycled content and low emissions construction technologies). Use NABERS embodied emissions materials form until NABERS framework is ready.	Enable critical data collection to support potential future benchmarks for embodied emissions. Impact early design decisions and follow material selection and emissions through to construction. Enable incremental shift in industry practice and seed low emissions supply chain.	All non-residential development (unless exempt)
3. Net Zero Statement	Demonstrate at development application that the development is designed with sufficient space and infrastructure so all energy needs can be sourced from renewables by 2035.	Prompt developments early in design process to consider how they will achieve net zero in operations by 2035 to avoid costly retrofits later.	Large commercial + certain state significant development
4. Energy Performance and Offsets (Post occupancy verification of energy and offsets)	Independently verify that the development has met the energy performance required by the NCC, through NABERS post occupancy assurance. Purchase offsets for onsite fossil fuel use and to rectify any performance gap for energy efficiency.	Reduce energy performance gap between the design and as-built development and incentivise net zero ready construction.	Large commercial
5. Water Performance (Verified post occupancy)	Independently verify that the development has met a minimum 3-star NABERS water rating.	Increase transparency of operational water performance.	Large commercial

C.2 General sustainability requirements

In NSW there are currently no consistent sustainability provisions for that consent authorities can refer to when assessing non-residential buildings. To address this, the new Sustainable Buildings SEPP asks consent authorities to consider how the building will:

- minimise waste from associated demolition and construction, including choice and reuse of building materials,
- reduce in peak demand for electricity, including through the use of energy efficient technology,
- generate and store renewable energy,
- reduce reliance on artificial lighting and mechanical heating and cooling through passive design
- meter and monitor energy consumption,
- minimise consumption of potable water.

C.3 Embodied emissions reporting

The process of measuring and reporting on embodied emissions is an important source of data to inform future policy. Disclosure of embodied emissions for all non-residential development will be via the NABERS embodied emissions material form, available online. The form tabulates measurements for key materials in the substructure, superstructure and façade of the building and must be prepared by a quantity surveyor, designer, engineer or NABERS assessor. This interim form will be in used until the NABERS embodied emissions framework and related emissions factors comes into effect in 2024.

Materials, construction methods or technologies that reduce embodied emissions can also be described. This may include materials with recycled content or replacement additives and technologies like parametric design or prefabrication to reduce material waste. Applicants can also explain, via the NSW Planning Portal, if any part of the building or the construction materials have been re-used.

C.4 Net zero provisions

Net zero requirements are outlined below. The development must procure offsets for any onsite fossil fuel use, calculated for a minimum 10-year period. The offset type must be Australian Carbon Credit Units (ACCUs) or a Climate Active Carbon Neutral Certification.

Proposed use	Net zero application requirements	Offset residual emissions
State significant development	Net Zero Statement to include the following: • Estimated scope 1 and 2 emissions up to 2050 • If fossil-fuel dependent systems are used, confirm adequate physical space, infrastructure, ventilation, and electrical capacity to operate without fossil-fuel by 2035 • Provide information about onsite renewables, passive design and other infrastructure (such as chilled beams) that improve energy performance	No
Large commercial development	As above, and • evidence of procurement of offsets where applicable	Yes, offset onsite fossil fuel use calculated over 10 year period

C.5 Energy standards

The developments listed below must submit documentation for the National Construction Code's Section J requirements and we have introduced a process to verify performance within 24 months of an occupation certificate is issued. The post occupancy verification can be through a NABERS Commitment Agreement, which may be a full agreement or the lite version currently in development.

Where the energy standard is not achieved there is a performance gap, so the development must procure offsets for their residual emissions calculated for a minimum 5-year period. The offset type must be Large-scale Energy Generation certificates (LGCs).

Proposed use	Energy standard application requirements	Offset residual emissions
Offices (base building) ≥1000 m2 net lettable area (NLA)	Identify preferred Section J energy reporting pathway and submit NABERS Energy Commitment Agreement with development application Submit Section J report and any independent review or performance-based solutions at construction certificate stage Achieve minimum 5.5 Star NABERS rating within 24 months of occupation certificate.	Yes – offset performance gap between standard and operational performance
Hotels or **motels** (whole of building) ≥ 100 rooms or **Serviced apartments** ≥ 100 apartments	Identify preferred Section J energy reporting pathway and submit NABERS Energy Commitment Agreement with development application Submit Section J report and any independent review or performance-based solutions at construction certificate stage Achieve minimum 4 Star NABERS rating within 24 months of occupation certificate.	Yes – offset performance gap between standard and operational performance

Energy and net zero provisions for other development types not listed above, will be considered in future when the policy is reviewed from 2025 and every three years thereafter.

C.6 Water standards

Water standards will apply to large commercial development. No offsets are currently required.

Proposed use	Minimum water performance requirements
Offices (base building) ≥1,000 square metres net lettable area **Hotels** or **motels** (whole of building) ≥100 rooms **Serviced apartments** ≥100 apartments	Consider reducing potable water use and submit NABERS Water Commitment Agreement with development application Submit progress report (in the form of annotated drawings or written statement) at Construction Certificate Minimum 3 Star NABERS water rating achieved within 24 months of the Occupation Certificate is issued.

ACRONYMS	
BASIX	Building Sustainability Index
BASIX SEPP	State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004
CIV	capital investment value
CC	construction certificate
DA	development application
DPE	Department of Planning and Environment
EP&A	*Environmental Planning and Assessment Act 1979*
EP&A General Regulation	*Environmental Planning and Assessment Regulation 2000*
EP&A Fire Safety Regulation	*Environmental Planning and Assessment (Development Certification and Fire Safety) Regulation 2021*
NABERS	National Australian Built Environment Rating System
NatHERS	Nationwide House Energy Rating Scheme
NCC	National Construction Code
NLA	net lettable area 2022
SB SEPP	State Environmental Planning Policy (Sustainable Buildings)
SEPP	state environmental planning policy

GLOSSARY	
Embodied emissions	Embodied emissions in relation to development, means the greenhouse gas emissions resulting from the materials used to construct a building, including emissions from the following 1. the extraction of raw materials that are used to construct the building, 2. transporting materials to be manufactured, , 3. the manufacture of the materials used to construct the building.
Net zero development	A development that is ready for net zero has high energy efficiency and performance. It can achieve net zero operational emissions and is either all-electric, or 'all-electric ready'. This means it is capable of becoming all-electric and not using onsite fuels by providing adequate space, infrastructure and ventilation to convert plant and equipment to operate from all renewable sources in future.
Sustainability	When systems, buildings, spaces, and processes achieve sustainability, they last and can be maintained at a certain rate or performance level, which contributes positively to environmental, economic and social outcomes.

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