

Design and Place SEPP Exhibition Documents

Council Meeting 8 March 2022 – Provided under Separate Cover

- 1. DP & SEPP Overview**
- 2. Design & Place Draft SEPP**
- 3. DP & SEPP Regulation & Amendment Consultation**
- 4. DP & SEPP Ministerial Direction**
- 5. DP & SEPP Cost Benefit Analysis (Deloitte)**
- 6. Draft Apartment Design & Guideline**
- 7. Draft Urban Design Guide**
- 8. Draft Local Government Design Review Panel Manual**
- 9. DP & SEPP Sustainability in Residential Buildings**
- 10. Frequently Asked Questions**

DECEMBER 2021

Design and Place SEPP Overview

Overview of the Design and Place SEPP consultation draft and related guides for public exhibition



The Department of Planning, Industry and Environment acknowledges the Traditional Custodians of the land and pays respect to Elders past, present, and future. We honour Australian Aboriginal and Torres Strait Islander peoples' primary cultural and spiritual relationships to place, and their rich contribution to our society. To that end, all our work seeks to uphold the idea that if we care for Country, it will care for us.

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Title: DESIGN AND PLACE SEPP
 – OVERVIEW

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Cover image: Summer Hill Mill, Sydney
 Design: Hassell. Photo: Guy Wilkinson



Part A

Introduction

Photo: Brett Boardman

We're taking a new approach to planning and development to support a new way of living. That means making sure everyone can be part of healthy, productive, and sustainable communities, with access to greener places, better public spaces, and homes that are comfortable to live in – no matter where they live. To make that happen we need more consistent, certain and streamlined planning processes, especially when it comes to design.

The new *State Environmental Planning Policy (Design and Place) 2021* (DP SEPP) and supporting guides are part of a broader review of all our SEPPs and it aims to simplify the way that we plan for and design sustainable and resilient places in NSW.

The DP SEPP is the first policy to implement the Minister's State Planning Principles which require new planning instruments to deliver 'well-designed places that enhance quality of life, the environment and the economy'.

NSW is taking a leading role in sustainability and the DP SEPP puts the sustainability, quality, beauty and vibrancy of places at the forefront of development. Our shared responsibility to sustain healthy and thriving communities, and to care for our environment underpins the policy. The DP SEPP spans places of all scales, from precincts, large developments and buildings, to infrastructure and public space.

We've worked closely with stakeholders including the development industry, local government, and the community for almost 12 months, to develop this new policy for the people of NSW. Industry and councils told us

the initial policy positions didn't quite have the balance right.

We listened to that feedback and have worked hard addressing those issues. We're now ready to exhibit the DP SEPP and hear your responses to the changes we've made. Throughout the exhibition, we will also continue to consult with stakeholders to continue to test the economic, social, and environmental benefits of the policy.

Policy isn't made until all views have been considered – so far our consultation with stakeholders has involved in-depth conversations with industry, councils and other peak stakeholders about potential impacts. Now it's time for everyone to have their say.

Ultimately, our aim is to deliver what the community wants from their local area and their homes while balancing this with continued housing supply.

The DP SEPP outlines a principle-based approach to encourage greater creativity and innovation and reduce complexity in the planning system.



Photo: Destination NSW

A.1

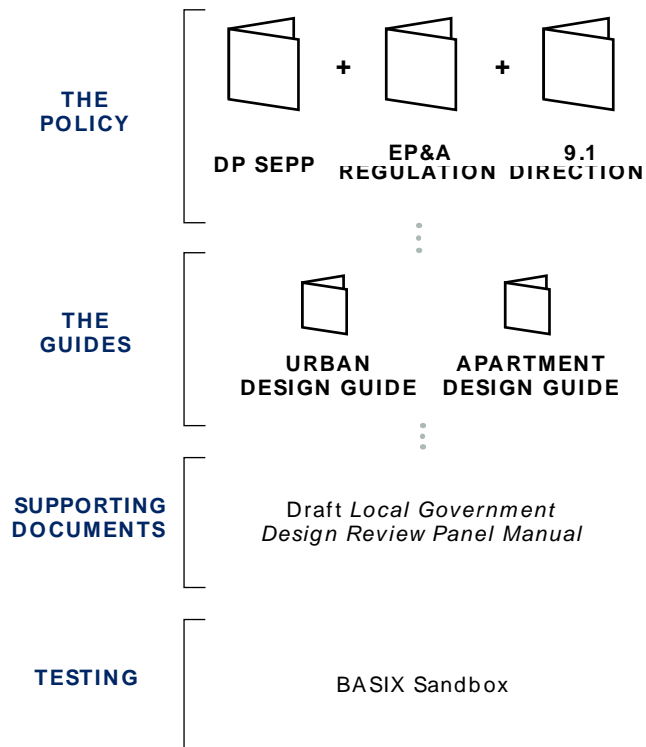
What is on exhibition?

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

- the proposed draft *State Environmental Planning Policy (Design and Place) 2021* (DP SEPP)
- proposed changes to the Environmental Planning and Assessment Regulation 2000 (EP&A Regulation)
- proposed direction by the Minister under section 9.1 of the *Environmental Planning and Assessment Act 1979* (9.1 Direction)

The policy package is supported by:

- the revised *Apartment Design Guide* (ADG)
- the proposed new *Urban Design Guide* (UDG)
- updates to residential sustainability (BASIX) and new sustainability requirements for non-residential development
- supporting tools for testing during exhibition and the BASIX Sandbox Tool
- the *Local Government Design Review Panel Manual* (LGDRPM).



Timeline

The following timeline shows key milestones for the DP SEPP from mid-2020 until it comes into effect in late 2022.

MID-LATE 2020	FEB-APRIL 2021	MAY-SEPT 2021	LATE 2021	END 2021 – EARLY 2022	MAY-JUNE 2022	MID-END 2022	END 2022
Writing the DP SEPP explanation of intended effect (EIE)	Public exhibition 1	Writing the SEPP and guides	Public exhibition 2	Finalise the SEPP	Make the DP SEPP	Transitional period (6 months)	DP SEPP in effect

Status of the draft instrument

For the purposes of section 4.15(1)(a)(ii) of the *Environmental Planning and Assessment Act 1979* (EP&A Act) the draft proposed DP SEPP is not notified to any consent authorities and so is not a mandatory matter for consideration under section 4.15 of the EP&A Act. Consent authorities therefore should not enforce the provisions of this draft.

However, applicants may consider the DP SEPP and guides in the development of future proposals (for example, taking into account the considerations of the DP SEPP, and new guide objectives).

Have your say

The policy package is on exhibition until late February 2022. You may make a submission via the NSW Planning Portal: [Have your say](#)

For more information:

- See the [website](#).
- Send an email to designandplacesepp@planning.nsw.gov.au
- [Register](#) for briefings over the course of the exhibition.

A.2

What has changed since the previous exhibition?

From February – April 2021, the Department of Planning, Industry and Environment exhibited an explanation of intended effect to create a Design and Place SEPP (EIE). Over 1,000 people attended webinars and forums to learn about the proposed DP SEPP, and 337 written submissions were made.

How we've listened to stakeholders

In July 2021, a summary of feedback from that public exhibition was set out in a 'What we heard' document'.

Minister's issues

The Minister identified 7 issues for further attention. We worked with internal and external policy working groups, including peak industry bodies and councils. These issues have been addressed as follows:

- *Undertake rigorous cost-benefit modelling for the SEPP and supporting guides* – completed in partnership with NSW Treasury during the drafting of this instrument.
- *Set clear environmental sustainability targets* – see Information Sheets C-2 and C-3.
- *Clarify the appropriate qualifications and design skills* – detail of design skills required, and the content of design verification statements are set out below in Design skills.
- *Establish clear definitions for precinct thresholds* – thresholds to apply the *Urban Design Guide* have been streamlined.
- *Develop streamlined and consistent processes for design review* – a new *Local Government Design Review Panel Manual* and related thresholds will be referenced in the EP&A Regulation.
- *Draft the SEPP to require the flexible application of the revised Apartment*

Design Guide – the DP SEPP has introduced mechanisms to support alternative design solutions.

- *Prioritise consolidating and streamlining policies and guidelines* – the DP SEPP will be the primary source of design principles and considerations for development applications on urban land. The UDG will also improve the consistency of master plans and development control plans (DCPs). A Ministerial Direction will require planning authorities to consider the principles and considerations of the DP SEPP and the objectives of the UDG when preparing planning proposals, including future local environmental plan (LEP) reviews. Current LEPs and DCPs will not be modified by the policy package, other than the matters that are already deemed to override other instruments in *State Environmental Planning Policy No 65 – Design Quality of Residential Apartment Development (2002)* (SEPP 65) and the *State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004* (BASIX SEPP).

Policy working groups

Eight policy working groups, with representatives from industry peak bodies and councils, were established to consider key topics raised during public exhibition. Four rounds were held. Further testing and economic modelling was done to develop the policy. The policy package reflects the feedback we received from public exhibition, this further work and the extensive, additional engagement with stakeholders. See a response to the stakeholder issues raised in Part B - Stakeholder engagement and response and information sheets on specific topics.



A.3

Key features of the policy package

Principle-based approach

There are 5 design principles that are introduced by the DP SEPP. Each principle is supported by 2 considerations and specific measures to satisfy each principle.



1. Deliver beauty and amenity
to create a sense of belonging for people

1. Overall design quality

2. Comfortable, inclusive and healthy places



2. Deliver inviting public spaces and enhanced public life
to create engaged communities

3. Culture, character and heritage

4. Public space for public life



3. Promote productive and connected places
to enable communities to thrive

5. Sustainable transport and walkability

6. Vibrant and affordable neighbourhoods



4. Design sustainable and greener places
to ensure the wellbeing of people and the environment

7. Green infrastructure

8. Resource efficiency and emissions reduction



5. Deliver resilient and diverse places
for enduring communities

9. Resilience and adaptation to change

10. Optimal and diverse land use

Approach to guidance

Two guides are given effect under the DP SEPP – the revised *Apartment Design Guide* (ADG), and a new *Urban Design Guide* (UDG). The DP SEPP clarifies that assessment is to be against the objectives of each guide, by either applying the design criteria and guidance in the guide, or through a reasonable alternative that meets the objective. Design verification statements will support this process by describing how the objectives have been met. Further detail is included in Design skills in Part B.

The ADG will continue to apply to residential development of 3 or more storeys and 4 or more dwellings, or as otherwise referred to in other instruments³. The UDG will apply to development applications under the DP SEPP and that meet the following thresholds:
—development over 1ha

—development on applicable industrial-zoned land over 1ha *only* if the application also involves built form with a capital investment value (CIV) of \$30 million or more, or
—where a master plan or DCP is required by another instrument, or a concept development application under section 4.22 of the EP&A Act is proposed.

Apartment Design Guide

The *Apartment Design Guide* has been refreshed, and the objectives, design criteria and guidance have been reviewed. Fundamental to the success of the ADG since its introduction in 2015 is that it results in homes that people want to live in. Responses in *The place you live community survey*, held in September 2021, identified private open space, airflow, sunlight and storage as people's most important issues.

3. For example, SEPP Amendment (Build-to-rent Housing) 2021[NSW] Schedule 1, clause 41H

The revised ADG addresses the design of quality places that will meet people's needs for living. It guides development that provides trees and landscaped gardens, room for growing families, space to work and study from home, storage that suits modern life and a space to park your bike.

Key changes in response to feedback and learnings since the last review include providing a clear framework for the flexible application of the ADG, and the need for design verification now being against the objectives of the ADG. The new mechanism will enable alternative solutions to those in the ADG that may better suit the needs of the local area and the site. External storage and studio balcony depths have also been adjusted in response to people's needs.

New guidance is also provided for a diverse mix of apartments (where there is no guidance provided by the local council), as well as updates to sustainability measures – tree planting in deep soil, bike parking, shading of glazed facades, waste storage and rainwater harvesting. Furniture layouts have also been provided to support the assessment of non-standard apartment sizes.

To provide greater clarity and consistency about the measurement of cross-ventilation, a standard method of measurement has been applied. This will ensure that more people living in apartments get the natural airflow they need to reduce their heating and cooling bills, prevent mould, and experience indoor-outdoor living. This does not change the existing requirements for cross-ventilation, but it does address technical gaps in previous guidance on calculating or assuming natural cross-ventilation to ensure this is delivered as intended.

Changes to deep soil provision will also ensure we still get the tree canopy cover that is needed to green our environment and combat extreme heat.

A better response to place is facilitated through new guidance on indoor common space types and ground floor uses to help new apartment buildings achieve an offer that is more than just the sum of their units. A new mechanism will enable alternative solutions to design criteria that better suit the needs of the local area and the site.

All these changes have been costed to ensure they are feasible and affordable in future designs.

See C-1 Apartment Design Guide for more details of changes from ADG 2015, those proposed in the EIE and the proposed revised ADG.

Urban Design Guide

The Urban Design Guide (UDG) is a resource to improve the planning and design of urban environments across NSW. Without clear objectives established from the outset, we risk poorer outcomes for our new suburbs – less housing diversity, fewer trees, inadequate infrastructure and public space – with the challenge of retrofitting these at much greater cost later.

Places designed using the UDG will make it easier to walk and cycle to work or school, to the shops or the park, and to catch a bus or train. This will be achieved through a combination of practical outcomes, such as a maximum block size for walkability, and '20-minute neighbourhood' target distances from homes to parks, schools, shops and public transport, through to guidance on a process for places to be developed that take into account their topography, movement systems and urban structures.

We're helping to create great places with more spaces to enjoy as our cities and suburbs grow. Targets for public space and tree canopy, walking distances to clusters of services, density and diversity, all help shape our future neighbourhoods into beautiful, vibrant and diverse places across NSW. Focusing on providing more, and more diverse types of housing close to shops, services, transport and parks, encourages healthier lifestyles and avoids the car dependency typical of post-war development. This means more places where people love to live, with public space, facilities, places to meet and hang out – space made for community by design.

Sustainability

NSW is taking a leading role in sustainability with a pledge to reach net zero emissions by 2050 and delivery of the Net Zero Plan Stage 1 by 2030. NSW has whole-of-economy targets to reduce greenhouse gas emissions by 50 per cent by 2030 compared to 2005 levels, and 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. The proposal aligns with these NSW policies: Net Zero Plan, Electricity Infrastructure Roadmap, Electric Vehicle Strategy, Waste and Sustainable Materials Strategy 2041, NSW Clean Air Strategy, and our Climate Change Policy Framework.

The NSW planning system does not currently have oversight of modelled operational emissions, water or embodied emissions performance for new non-residential buildings. The proposed sustainability performance standards and compliance pathways will enable NSW to gain access to new or improved data that will inform future benchmarks and targets in the DP SEPP and other planning and regulatory settings.

BASIX

As part of the planning approvals process in NSW, all new homes, and renovations over \$50,000 must meet the Building Sustainability Index (BASIX) requirements, which examine the energy and water use and the thermal performance of the development. We plan to make a number of changes to BASIX to take effect in late 2022.

Increasing the targets for energy and thermal performance – Consistent with the NSW Government's Net Zero Plan and to align with the proposed increases to the *National Construction Code*, we plan to increase the targets for energy use and thermal performance. The proposed targets were the result of a rigorous cost-benefit analysis. We plan to review these targets every few years to meet the Government's net zero objectives and its commitment to the national *Trajectory for Low Energy Buildings*.

Introducing a new requirement for embodied carbon emissions – To assess the embodied carbon emissions of the material used to build each home, we plan to add a new BASIX Materials Index. It will be similar to the 3 existing BASIX components. That is, the developer will need to enter

some additional information about the development and meet a target for the embodied carbon emissions.

Updating the BASIX Tool – To improve the user experience, we are rebuilding the BASIX Tool to integrate it with the Planning Portal. As part of this, we are updating some of the BASIX methodologies (e.g. for lifts, lighting and appliances) to reflect ongoing innovation and feedback from our stakeholders. Phase 1 of the BASIX Sandbox will be available for beta testing during the public exhibition.

Introducing an alternative merit assessment pathway – To provide greater flexibility in demonstrating that a development has met the NSW sustainability requirements, we plan to introduce a merit assessment pathway. This will allow a recognised professional to complete a sustainability assessment using other accredited modelling software. Assessments using this pathway can be submitted as part of a development application as an alternative to a BASIX assessment.

Non-residential sustainability

New standards and reporting requirements are proposed for all non-residential developments. These proposed measures will be applied in conjunction with the sustainability provisions in BASIX as well as the ADG and UDG. They also align with other NSW policies including the Net Zero Plan, Electricity Infrastructure Roadmap, Electric Vehicle Strategy, Waste and Sustainable Materials Strategy 2041, NSW Clean Air Strategy and our Climate Change Policy Framework.

Reflecting the DP SEPP's broader focus on the design of buildings, spaces and places:

- non-residential sustainability targets for energy, water and waste and electric vehicle (EV) readiness have been introduced
- applicants will be asked to 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 information about embodied emissions and responsible sourcing of key materials will be required.

For the residents of NSW, this means the DP SEPP will help make our new buildings cheaper to heat and keep cool, will save drinking water and will contribute to a low-carbon future.

Design skills and design review

Design skills

Qualified designers will be required to prepare a design verification statement for a range of developments that have a significant impact to verify they designed or directed the design of the proposal, and state how it addresses the objectives of their relevant guide, justify any alternative design solutions, and respond to feedback from design review panels. Design verification statements will now be required in the following circumstances:

Table 1: When design verification statements are required and who prepares these

WHAT	WHO	VERIFICATION AGAINST
Apartment building	Architect (as currently required by SEPP 65)*	Objectives of the ADG
Developments that comprise public or common open space over 1,000 m ²	Landscape architect (registered with the Australian Institute of Landscape Architects) or landscape designer (8 years' experience)	Objectives of the UDG
Urban design development to which the UDG applies (e.g. sites greater than 1ha).	Urban designer with 5 years' experience in precinct or master planning	Objectives of the UDG

The verification will be for the relevant component of the application. For example – a large proposal may have an urban designer verify the overall master plan, a landscape architect verify the design of a major open space, and an architect verify an individual apartment building.

Design review

The new *Local Government Design Review Panel Manual* will be referenced in the EP&A Regulation, together with the design review thresholds, and provides guidance on the operation and function of design review panels. Applicants must prepare a design review report to demonstrate how they have considered the advice of the panel and justify any departure from that advice, and consent authorities must have regard to this statement in determining an application.

*They must also meet the requirements for Class 2 buildings under the *Design and Building Practitioner's Act 2020*. The design requirements of the DBP Act are not modified by the DP SEPP.

A.4

About this consultation draft

Consolidation of SEPPs

The proposed DP SEPP will incorporate two existing SEPPs:

- *State Environmental Planning Policy No 65—Design Quality of Residential Apartment Development 2002* (SEPP 65)
- *State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004* (BASIX SEPP).

SEPP 65 and the BASIX SEPP will be repealed when the DP SEPP takes effect.

Application of the DP SEPP

The DP SEPP will apply to the whole of NSW, other than specified land use zone exclusions, including some rural land, industrial land, environmental conservation land and waterways.

The DP SEPP is also proposed to have some application to planning proposals on sites greater than 1ha, such as land being converted to non-rural land or where built form controls are proposed to be changed. This is proposed to be achieved via a new section 9.1 Ministerial Direction.

Other than the BASIX provisions, the DP SEPP will not apply to Class 1A buildings (and for development applications comprising 24 Class 1A buildings or fewer), Class 7a buildings and Class 10 buildings, where they do not form part of a mixed-use development otherwise captured by this SEPP, nor the amalgamation and subdivision of 2 lots.

Other exclusions are development under Schedule 1, items 1 to 10, 18 and 20 to 25 of *State Environmental Planning Policy (State and Regional Development) 2011* (SRD SEPP).

The policy package will not amend:

- *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008* (the Codes SEPP). Changes to complying development standards will be considered as part of the DP SEPP's ongoing monitoring and review
- *State Environmental Planning Policy (Sydney Region Growth Centres) 2006* (Growth Centres SEPP) or SEPP (Western Sydney Aerotropolis) 2020. However, the development of future master plans and precinct plans under these SEPPs will need to consider the *Urban Design Guide*.

Changes to the EP&A Regulation

The policy package proposes to introduce new requirements into the EP&A Regulation to support policy initiatives:

- a new requirement for site analysis that seeks to improve the quality of contextual and site analysis presented on drawings submitted with development applications
 - new development application requirements for DP SEPP development, including:
 - a net zero ready statement for all development, excluding BASIX-affected development
 - documentation that discloses embodied energy
 - design verification statements for urban designers and landscape architects
 - verification that the advice of design review panels has been incorporated.
- For urban design development (to which the UDG applies):
- estimated energy consumption and emissions (which also applies to offices, shopping centres, and hotels)
 - for State significant developments, explanation of how projects respond to Country and to inputs from Aboriginal stakeholders.

Several existing clauses of the EP&A Regulation, including those associated with SEPP 65 and the BASIX SEPP, are also proposed to be amended, including:

- a requirement for DCPs to have regard to the UDG
- clauses 50, 143A, 154A will expand the requirement for a design statement, and knowledge and skill requirements for architects will also be aligned to the Design Building Practitioner's Regulation 2021 (Schedule 2, cl 5)
- design review panel requirements (formerly in SEPP 65) through reference to a new Local Government Design Review Panel Manual, as well as thresholds for design review panel referral.

Ministerial Direction

A new section 9.1 Ministerial Direction is proposed to require planning proposals for sites greater than 1ha to have regard to the DP SEPP design principles and considerations, to be considered by a design review panel, and consider the UDG objectives.

A.5

Amendments to other instruments

Limiting solar absorptance

To support the updated BASIX standards and new sustainability standards and requirements for non-residential development, the department is considering complementary amendments to existing policies that will consider roof colours and alternative technologies to mitigate urban heat impact.

The urban heat impact results in metropolitan or built-up areas being significantly warmer than the surrounding areas. Having roofs that absorb a smaller proportion of the incident solar radiation is one way to reduce the urban heat impact – this can be supported by using lighter colours.

When referring to building materials, such as roof tiles and roof sheeting, colours are classified based on their solar absorptance (SA). Solar absorptance is the proportion of the total incident solar radiation that is absorbed by the roofing material (the remainder is reflected) and is expressed as a ratio between 0 and 1.

BASIX classifies colour into *light, medium and dark* based on their solar absorptance.

BASIX SOLAR ABSORPTANCE RATING	
Light	< 0.475
Medium	0.475 - 0.7
Dark	> 0.7

Roofs that have a lower solar absorptance absorb less heat than dark roofs.

The policy intent of these new development standards is to ensure the solar absorptance of roofing on new houses is no higher than 0.7:

- colour can have a SA rating in the BASIX light to medium range, or a surface treatment may be applied that reduces the SA below 0.7, and
- the finished roof surface must be a low reflective surface, to prevent glare.

Dark roofs with SA higher than 0.7 may be allowed in certain circumstances such as heritage-listed items and in cold climates where dark roofs contribute to homes being more comfortable throughout the year.

These development standards would be located in both the Codes SEPP and *Standard Instrument—Principal Local Environmental Plan (2006)* (Standard Instrument LEP), to ensure all new homes are following the same rules.

For the Codes SEPP, the development standard would be included in the following codes:

- Part 3 Housing Code
- Part 3A Rural Housing Code
- Part 3B Low Rise Housing Diversity Code
- Part 3C Greenfield Housing Code
- Part 3D Inland Housing Code
- Part 5A Commercial and Industrial (New Buildings and Additions) Code.

The same standard will also be proposed as a new clause in the Standard Instrument LEP.

As part of the public exhibition of the DP SEPP, the department is also seeking submissions in response to these proposed amendments to limit solar absorptance.

Table 2: How the DP SEPP applies to various development types

DEVELOPMENT TYPE	MATTERS TO CONSIDER (DP SEPP)			APPLICATION REQUIREMENTS (EP&A REGULATION)			REQUIRED SKILLS / DESIGN VERIFICATION		
DA for detached house (Class 1A)	N/A – excluded from SEPP other than BASIX			Note: site plan required – EP&A Reg Schedule 1 Part 1			BASIX certificate or equivalent		
Complying development – Low Rise Housing Diversity Code	N/A – excluded from SEPP other than BASIX			Note: site plan required – EP&A Reg Schedule 1 Part 2			Note: Design Verification Statement for Complying Development under Codes SEPP		
Residential apartment building (Class 2)	SEPP considerations		ADG objectives	Site and place analysis					Architect
Concept DA for apartment complex over 1ha		UDG objectives			Aboriginal stakeholders (State significant developments only)			Urban designer	
State significant development to which the DP SEPP applies						As LEP cl 7.13 requires DCP			
Office under 1ha with CIV of \$40m							Landscape architect (If open space over 1,000 m ²)		
Co-living/ student housing (Class 3)		Guidance under Housing SEPP							
Factory costing \$20m on 10 ha site		Excluded from UDG unless both >1ha and >\$30m CIV							
Pharmaceutical plant over 1ha	SRD SEPP Schedule 1, item 10 excluded from DP SEPP								
Rural mine, heavy industry, port	Zones excluded from land application of DP SEPP								

A background photograph of a park with lush green grass, large trees with dense foliage, and a modern building visible in the distance. A blue rectangular overlay is positioned on the left side of the image, containing text.

Part B

Stakeholder engagement and response

Key themes of the SEPP are described below
using those raised in the *What We Heard* report.

Photo: Grahame Edwards

B.1

Certainty and flexibility

Great design is everyone's business – It's more than how things look, it's fundamental to better lives, better places, better returns on investment, and a more sustainable and resilient future.

The DP SEPP proposes that development is evaluated against 5 design principles (the principles). Consent authorities must be satisfied the development can meet these principles by reference to specific matters (the considerations). These general design considerations enable a consistent approach to design and place challenges.

Desired outcomes that relate to a given type of development are then elaborated in guidance. Residential apartments must meet the objectives of the ADG, and for planning proposals and development applications greater than 1ha (generally), the objectives of the UDG must be addressed.

WHAT WE HEARD	WHAT WE'VE DONE
Enabling flexibility in the application of the ADG	<p>A new clause in the DP SEPP requires consent authorities to consider reasonable alternative solutions to design criteria and/or design guidance that meet the objectives if they result in a neutral or better design outcome. The ADG has been updated to include examples of alternative design solutions.</p> <p>Applicants will need to make the case for these alternative solutions. To demonstrate the alternative is a better design outcome for the relevant site and context (i.e. is place-based), the designer will need to verify how options and design review advice were considered and the preferred solution arrived at, in the design verification statement.</p> <p>Changes to the Regulation and the guides also clarify and strengthen site analysis as a means for applicants and assessors to determine context and therefore justify place-based decisions.</p>
DP SEPP in the planning system	<p>The DP SEPP will help structure applications consistently by providing general considerations for all applicable development (for statements of environmental effects), and simplified design objectives in the guides (for designers to address in the design verification statement).</p> <p>Design review will be required to take place before DA lodgement, so that the panel's advice can guide design outcomes, and panels will be asked to review how the objectives have been met holistically. A design review report is to be submitted with the development application to demonstrate how the applicant has considered the panel's advice. Councils will be required to give detailed reasons for departing from the recommendations of the design review panel. The process and timeliness of design review will also be improved by requiring panels to adhere to a new <i>Local Government Design Review Panel Manual</i>.</p>
Providing greater certainty around implementation and timing	<p>The DP SEPP is proposed to include a delayed commencement provision of approximately 6 months. Generally, the DP SEPP and guides will not affect apartment development lodged before commencement, nor precinct planning that has already been undertaken – e.g. existing Growth Centres indicative layout plans (ILPs) and approved Aerotropolis precinct plans. Full savings and transitional arrangements are set out in the draft DP SEPP.</p>
Ensuring the DP SEPP structure is simple and streamlined	<p>Considerations provide means by which each principle can be met, in many cases broken down into specific measures. This provides a line of sight and a hierarchy between broad principles and specific actions. The considerations are outcome-based – for example the development has considered light and air to support human health – enabling greater flexibility as to how this is achieved.</p> <p>Where relevant, criteria have been included in the DP SEPP to support each guide to simplify assessment and to avoid confusion between standards and guidance (which SEPP 65 contributed to by cross-referencing the ADG for non-discretionary standards).</p>

B.2 Commerciality and feasibility

Consider the cost of bad design – Better design doesn't have to cost more, but the cost of bad design can have significant long-term safety, economic and societal impacts including poorer health and wellbeing. Well-designed places are more likely to be welcomed and supported by the community – not resisted.

The commerciality and feasibility of development is subject to many factors, including unforeseen events and changing market preferences. The work to create a DP SEPP coincided with the COVID-19 pandemic, which has accelerated global trends and continues to shape the places we live, work and play, as well as reshaping industry, and our understanding of what residents need. The DP SEPP is sensitive to the need to smooth this transition, and to meet the needs of future markets and the transition to net zero by 2050. Other productive outcomes of the DP SEPP include the efficient use of land, encouraging a mix of uses and local access to shops, parks and schools, sustainable transport and enabling industry to reduce car parking.

WHAT WE HEARD	WHAT WE'VE DONE
A revised ADG that balances costs and benefits	Cost-benefit analysis has been done to support the policy package, including the cost-benefit analysis for apartments and urban design development over 1 ha.
Having a positive impact on housing affordability	<p>The application of guidance, including the ADG, has been set out in the DP SEPP, and consent authorities are required to consider reasonable alternative solutions where proposed by applicants.</p> <p>In terms of feasibility planning for future sites, the DP SEPP will not apply to projects already in the planning process, including section 4.55 amendments in the first 2 years or proposals that rely on and are lodged within 2 years of a concept DA. The extensive public consultation process (i.e. February 2021 EIE exhibition and November 2021 draft DP SEPP exhibition) and proposed 6 month delayed commencement date will provide industry with sufficient lead-in time to take account of these new provisions when undertaking feasibility studies to acquire new property.</p> <p>New density targets for residential and mixed-use development around centres for sites to which the UDG applies will also assist with future housing affordability – see below.</p>
Density provisions	<p>Minimum density targets have been included in the DP SEPP in line with the submissions made in response to the EIE. For all development to which the UDG applies, a gross residential density target is proposed of at least 15 dwellings per ha to ensure that future development is serviceable. For development that has excellent transport accessibility (defined as 'PTAL 6' using a methodology developed in the UK and applied to NSW since 2019), a higher minimum density target of 30 dwellings per ha is given, to make best use of transport infrastructure and to discourage urban sprawl.</p> <p>Development must be capable of achieving these gross density targets – that is, across the developable area of the site, the primary development controls (including zoning, height, floor space ratio and site coverage) must be capable of achieving a minimum yield, as demonstrated by the urban design strategy.</p>

B.3

Sustainability and ambition

Designing for the future – We need our cities and towns to develop sustainably and adapt to new technology - to foster new and emerging markets, businesses, jobs, and economic prosperity, and to enable the transition to net zero in the built environment.

For non-residential development, the DP SEPP proposes to introduce a net zero statement to help applicants demonstrate how their development will transition to net zero emissions in operation. Applicants will report on their proposed energy performance, onsite renewables and avoidance of fossil-fuel reliant systems. An embodied emissions disclosure will be introduced to facilitate reporting on embodied emissions of material. For residential development, we plan to increase the BASIX sustainability targets, and also include a new materials index to assess the embodied energy of materials.

WHAT WE HEARD	WHAT WE'VE DONE
Responding to climate change	<p>Development on sites to which the UDG applies require consideration of natural hazard risk (including compound and climate change scenarios).</p> <p>The DP SEPP proposes to increase BASIX targets, updated to align with the new <i>National Construction Code</i> (NCC2022), on the trajectory to net zero. A materials index will also be introduced, to commence reporting on embodied carbon.</p> <p>Minimum performance standards and verification methods for energy and water will also be introduced for non-residential projects, in line with the application of the DP SEPP to a broad range of development in NSW.</p> <p>Sustainability targets under the SEPP will be reviewed in 2025.</p>
Promoting green infrastructure, public space and biodiversity	<p>The DP SEPP requires consideration of green infrastructure, public space and water management through tree canopy and public open space targets in the UDG. Place-based considerations in the UDG will also strengthen an approach to place that starts with its unique characteristics, connects green and blue infrastructure and reduces impacts on the natural environment and fosters biodiversity by design.</p>
Updating BASIX and alternative pathways	<p>The BASIX Sandbox will be updated, and an alternative pathway to BASIX is proposed, to enable other tools to be used. The manner in which BASIX takes into account various site measures is also being regularly reviewed.</p> <p>The targets required by BASIX will now be included in the DP SEPP package to provide greater transparency.</p>

For more information, refer to information sheets C-2 and C-3.

B.4 Quality and amenity

Well-connected communities and apartments for living – We're helping to create places with more spaces for you to enjoy as our cities and suburbs grow. People will live in safer, well-ventilated, well-lit, greener, and healthier places.

The DP SEPP proposes to provide a framework for assessing the quality of design outcomes, particularly homes, to ensure that what is built is fit for the future. We need families to be able to continue to live affordably closer to work, to work from home, and to build communities where we want to live – well-connected to schools, transport, parks and grocery shops.

The DP SEPP also proposes to improve the quality of design application requirements including:

- site analysis (site and context analysis, site synthesis – the parameters for development, and design drawings showing the response to place)
- place analysis (relationship to wider context and strategic planning, taking account of the existing and future built environment, natural environment, public space and movement and connections)
- design drawings
- design verification statements
- design review reporting (by panels as well as applicants responding to panels).

WHAT WE HEARD	WHAT WE'VE DONE
Delivering quality places and homes	<p>The considerations of the DP SEPP and the objectives of the ADG both reflect learnings from the pandemic set out in the EIE and now reflected in Australian Productivity Commissions research⁴ – in the neighbourhoods, by supporting local economies and transport networks, providing for public open space, walking and cycling and considering car use and the potential for rising congestion.</p> <p>For apartments, design criteria for bike parking and storage have been retained, and guidance provided for achieving better family apartments. To accommodate working from home, the proposed change to bedroom sizes has been replaced with more flexible guidance on additional space provision.</p>
Better accommodating diverse households	<p>Housing diversity is a key consideration of the DP SEPP. In areas of excellent transport accessibility (see B-2 above), with density to be maximised and guidance provided on housing mix, the DP SEPP will ensure that diversity is delivered.</p> <p>In relation to apartments, the revised ADG provides guidance on apartments for families with children and working from home, and a new mix target (when no local authority mix is provided) aims to ensure there are a range of dwellings provided for different household sizes and to enable a whole-of-life approach.</p>
Ensuring health and amenity	<p>Amenity has been introduced into Principle 1 to clarify this is a key outcome sought by the DP SEPP. A number of other amenity outcomes and public benefits are delivered by the DP SEPP ranging from open space and tree canopy, to supporting walking and cycling; targets for these are outlined in the UDG.</p>

4, Working From Home: Research Paper, Australian Government Productivity Commission, September 2021

B.5 Design review

Timely advice from experts – Improving the quality of design advice on projects by engaging with design review panels early, improving the response time of panels, and design review reporting, so applicants get advice when it matters.

The existing provisions relating to design review have been brought over from SEPP 65 and applied to all development under the DP SEPP. A manual has been prepared to assist with the timeliness and consistency of local design review panels.

WHAT WE HEARD	WHAT WE'VE DONE
How can design review be improved and better integrated in the assessment pathway to ensure it adds value?	<p>To address inconsistency in the process and feedback of existing design review panels, clarify the role of parties and how recommendations should be made, local design review panels must follow a new design review manual that has been prepared for this purpose, which also guides the skills required for panellists, and the need to consider the design holistically when giving advice. Councils that do not currently have a design review panel must constitute one prior to the DP SEPP taking effect.</p> <p>Applicants will be required to seek panel input before lodging applications and submit a design review report that sets out how the recommendations of the design review panel have been addressed. The design verification statement will need to justify any alternative solutions to design criteria.</p>

B.6 Design skills

Quality by design – Recognising that architects have improved the standard of apartment design, and that involving landscape architects and urban designers likewise elevates the design of open space and major development.

The proposal to extend design verification to open space and urban design has been retained and refined in the DP SEPP. Town planners, architects and landscape architects are proposed to be acknowledged as having potential skills in urban design. In the case of surveying, the DP SEPP still seeks a designer's input on subdivisions of sites over 1ha, development with a CIV of \$30m or developments that are over 35 m tall, recognising these kinds of development would benefit from a greater consideration of place.

Plans to expand the requirement for registered architects has been removed, and instead we have aligned the skills, knowledge and experience of architects undertaking residential apartment development with the Design Building Practitioner's Regulation.

WHAT WE HEARD	WHAT WE'VE DONE
Are there opportunities to include a wider range of accreditation and skills that currently practice within the built environment industry? Will there be support for growing the skill sets of assessors?	<p>A wider range of skills have now been acknowledged in the design process, including planners, landscape designers and urban designers – see Design skills and Design review above.</p> <p>During the implementation phase of the SEPP there is proposed to be education and training for assessment teams and industry.</p>

B.7

Metro and regional differentiation

A SEPP for all of NSW – A principle-based SEPP with universal aspirations that can be adapted to context, fit for our towns, cities and suburbs.

The SEPP does not apply to rural land. Otherwise, the DP SEPP generally sets out considerations that apply broadly, and are appropriate to regional and city settings, suburban and greenfield contexts.

WHAT WE HEARD	WHAT WE'VE DONE
How will the DP SEPP accommodate different development contexts (e.g. metro and regional, inner city and suburban or greenfield)?	<p>The terms 'precinct' and 'significant development' have been removed, with a primary threshold of generally 1ha adopted for the UDG – the scale at which place-based changes can be effective in both regional and metro contexts.</p> <p>The urban design process defined in the UDG is universal and encourages applicants to respond to the unique qualities of places across NSW. This approach caters for the range of different contexts (metro, regional, inner/outer suburbs) and development types covered by the UDG.</p> <p>It is expected that the level of complexity in the proposed urban design strategy, will vary depending on context, scale and nature of the project.</p> <p>A small number of measures have been circumscribed to reflect the differences between Sydney and regional NSW, including:</p> <ul style="list-style-type: none"> — requirement for procuring off site renewable energy certificates for a minimum 5 years is for large commercial assets in Greater Sydney only and State significant development across NSW to enable further feasibility to be undertaken for regional NSW, and — car parking being applied to areas of high public transport accessibility only, to ensure outer metro and regional areas reliant on cars are not faced with an undersupply of parking.
How will the DP SEPP apply in the context of rural land?	<p>Generally, the SEPP does not apply, other than RU5 Village or E4 Environmental Living zones. The SEPP also does not apply to detached houses nor Codes SEPP development (other than in respect of BASIX) nor minor subdivisions.</p> <p>The main manner the SEPP would apply to rural land would be in greenfield subdivision – so sites over 1ha in RU5/ E4 zones, or planning proposals for subdivision or conversion of rural land over 1ha.</p>
What is the status of coverage of State significant development areas containing environmentally sensitive land, e.g. bushfire buffers, environmental and drainage corridors?	<p>As with rural land, the SEPP will not apply to land zoned E1to E3 or W1to W3, unless it is proposed to be converted to other uses to which the DP SEPP applies (such as greenfield subdivision).</p> <p>The UDG sets out an approach which starts with the unique characteristics of place, and takes account of the natural environment when designing new urban places, to reinforce the need to protect environmentally sensitive zones, set buffers, and connect green corridors in the design process.</p>

B.8 Hierarchy of instruments

Supporting long-term change – Setting the principles and parameters to enable a better response to place in both future development and the review of strategic plans.

The SEPP is intended to apply broadly to new development and planning proposals. Codes SEPP development will be excluded from its operation, as well as completed precinct planning.

WHAT WE HEARD	WHAT WE'VE DONE
How will the hierarchy of the proposed SEPP be clarified?	<p>DP SEPP-applicable development has now been defined, including its relationship to key SEPPs and other environmental planning instruments.</p> <p>The DP SEPP will not apply to development under the Codes SEPP. It will not amend existing indicative layout plans under the Growth Centres SEPP, nor existing precinct plans under the Aerotropolis SEPP. However future ILPs and precinct plans will need to take into account the UDG.</p> <p>Future planning proposals, including LEPs, and future DCPs will also need to take into account the DP SEPP and the UDG respectively.</p> <p>The intent of the UDG to support consistency in DCPs is to ensure that place strategies and master plans are supported by controls that ensure that they are implemented as intended, and any non-spatial components such as floor space bonuses allocated in DCPs still meet controls. This is particularly relevant to any mechanisms for value capture in light of the Kaldas Review and practice note on Planning Agreements (Feb 2021).</p>
Will this reduce council involvement in the assessment process?	<p>No change is proposed to council's role as consent authority, nor the need to take account of advice of design review panels when given. The SEPP will assist councils to respond to applications thematically by reference to the principles, considerations, objectives and design review recommendations, to streamline and focus decisions on overall design quality, and reduce reliance on compliance tables. Councils will be provided with new information to assist in their assessment, such as a materials index, and design review report.</p>
What happens when the DP SEPP conflicts with local policy?	<p>The DP SEPP will continue to override local policy in relation to –</p> <ul style="list-style-type: none"> — the relevant components of the ADG set out in clause 6A of SEPP 65, which have been retained — BASIX targets, which will continue to override local residential sustainability targets — where applicants demonstrate a lower parking rate is appropriate in areas of high transport access, a lower parking rate may be applied to those developments subject to the lodgement of a green travel plan. <p>Generally, however, the DP SEPP does not affect existing LEPs and DCPs, nor does it modify place strategies and master plans prepared before the SEPP comes into force.</p>

B.9

Connecting with Country

Well-designed places will care for us as we care for them –

Great design starts with Country, and supports safer, healthier, more connected, and inclusive places and communities.

The DP SEPP aims to recognise the importance of Country to Aboriginal people and to incorporate local Aboriginal knowledge and culture into new developments as a way of responding to Country. The Connecting with Country Framework will also provide additional guidance and suggested methods for working with Aboriginal stakeholders to realise the best outcomes for Country and for communities.

WHAT WE HEARD	WHAT WE'VE DONE
How will contemporary practice of living culture be reflected as well as cultural heritage? How will industry and government be supported to improve processes and protocols for more meaningful and appropriate engagement with Aboriginal people? How will Aboriginal communities be supported to respond to increased requirements for participation in planning, design and delivery of projects?	<p>The need to acknowledge the cultural significance of Country from an Aboriginal perspective is outlined in the aims of the DP SEPP. For State significant development over 1 hectare, the design verification statement for master plans will need to verify how Country has informed the design, in 3 specific ways that address some of the current challenges to incorporating living culture – the level of engagement, meaningful action, and protection of intellectual property. The design verification statement will therefore explain how:</p> <ul style="list-style-type: none">— the relevant Aboriginal stakeholders are involved throughout the process— their advice has informed the design outcomes— Indigenous Cultural Intellectual Property (ICIP) is recognised and respected.

An aerial photograph of a modern university campus. The image shows a mix of architectural styles, including a traditional multi-story building with many windows and a newer building with a distinctive facade of vertical red and white stripes. A large, dark blue semi-transparent rectangle is overlaid on the left side of the image, containing the text 'Part C' and 'Information sheets'. A red horizontal line is positioned below 'Part C'. In the foreground, there is a green lawn, a paved walkway with a few people, and a curved glass-enclosed walkway or bridge structure. The overall scene is bright and sunny.

Part C

Information sheets

Photo: Salty Dingo

C.1

Apartment Design Guide

An overview of the key changes to the 2015 ADG, and changes made since the EIE, is as follows:

DG = design guidance
DC = design criteria
NDDS = non-discretionary development standard
POS = private open space

Table 3: Overview of key changes to ADG 2015

THEME	2015 ADG	EIE	CURRENT DRAFT ADG
Verification statement	Registered architect response to 9 design quality principles	–	Design verification statement – registered architect response to 36 objectives, grouped under the 5 SEPP principles (DG)
Building separation	9 storeys and above – 12-24m Up to 8 storeys 9-18m Up to 4 storeys 6-12m (in visual privacy)	25+ storeys – increase 24 m separation to 30 m separation	No change to distances from ADG 2015 (DC)
Building form	No maximum tower floorplate	Maximum 700 m ² GFA tower floorplate	No maximum tower floorplate
Street activation	No metrics on non-residential	40% ground floor allocated to non-residential use in R3-R4 zones and in centres	Place based – where it meets LGA objectives (DG) Guidance on ground floor apartments (DG)
Deep soil	<650: 7% no minimum dimension 650-1500: 7% minimum 3m 10% >1500+: 7% minimum 6m 15%	<650: 14-18% 650-1500: 14-18% 1500-3000: 14-18% >3000: 21-25%	<1500 m ² : 10% site area, minimum 3 m wide (DC) 1500 m ² +: 15% site area, minimum 3 m wide with 6 m portion (DC)
Tree canopy	No targets set		>1500 m ² : 15% minimum tree canopy target (DC) 1500 m ² +: 20% minimum tree canopy target (DC)
Car parking	For development within 800m of railway station in Sydney Metro or in B3/B4 in nominated regional centres use lesser of Guide to Traffic Generating Developments or Council guidance Criteria for carparking identified in clause 30 of SEPP 65 as NDDS	Reduced minimum and/or maximum cap Ability to reduce rates by taking action e.g.: Travel Plan	No change proposed from ADG 2015 NDDS status retained Green Travel Plan can be submitted to support a proposal for reduced carparking in PTAL 6 areas (DG) All resident car spaces to be 'EV ready' (DG)
Bike parking	No minimum	1per bedroom	1per dwelling (DG) Class A spaces can be provided as part of external storage calculation 1visitor space per 10 dwellings (DG)
Common circulation	Maximum of 8 units/core Up to 12 units/core with additional amenity	Maximum of 8 units per core (DC) 8-12 units per core below nine storeys (DG)	No change proposed from ADG 2015 to maximum of 8 units/core (DC) or up to 12 units/core with additional amenity (DG) Controls on lift wait time & capacity (DC) Corridors to be naturally lit and ventilated (DG) Corridors over 12m to be articulated (DG) Provide suitable clearance in front of lifts to allow for circulation, furniture and emergency access (DG)

THEME	20 15 ADG	EIE	CURRENT DRAFT ADG
Communal spaces	Minimum 25% of site area 50% has 2 hrs midwinter sunlight access	Replace site area metric with unit metric Minimum 250 m ² for residential developments >10 000 m ² New requirements for communal space (internal)	8 m ² /unit up to 25% of site area (allowing smaller CS for small developments) (DC) No change to midwinter sunlight access (DC) No requirement for internal communal space. Guidance for where it is provided. Minimum dimension 6m. For sites smaller than 650sqm, minimum dimension 4m (DG) Decouple communal space from deep soil to enable greater flexibility with location (DG)
Apartment mix	No metrics for mix	–	Where there are no local government controls in place, for developments >20 apartments, at least 3 dwelling types, minimum 10% of one type, maximum 50% studio/ 1bed (studios/ 1bed considered as one type) (DG) Up to 20% of 2-3 bed apartments with increased size for families/ working from home, including multiple main bedrooms, one 12 sqm bedroom, a second living space, at least one bath and wider service spaces, and easily accessed location near communal spaces (DG) Allowance for 2.4m wide, 7 m ² study as habitable room to support working from home, only one per apt (DG) Limiting structural and services to internal walls to promote flexibility, with examples provided (DG)
Apartment size	Studio 35 m ² , 1bed 50 m ² , 2 bed 70 m ² , 3 bed or more 90 m ² Extra bathrooms add 5 m ² Extra bedrooms add 12 m ² Minimum width 3.6 m for studio + 1bed Minimum width 4 m for 2 bed & 3 bed or more Min room sizes Criteria for minimum size identified in clause 30 of SEPP 65 as NDDS	Guidance for departure from minimum areas 20% of 2 +3 bed – have 12m ² bedrooms to support family units and working from home Non-structural walls for flexible layouts	No change to min apartment sizes from ADG 20 15 (NDDS) No change to apartment widths or min room sizes from ADG 20 15 (DC) or using furniture layouts to support departure from minimum areas and room sizes (DG)
Ceiling height	Minimum ceiling heights: habitable rooms 2.7 m non-habitable 2.4 m 2.4 m for upper floor of 2 storey apartment, where area <50% of total area 30 deg slope from 1.8m for attics 3.3m for ground & first floors in mixed use areas to promote flexibility Criteria for ceiling height identified in clause 30 of SEPP 65 as NDDS	Ground floor ceiling heights for all non-residential uses (habitable rooms only) to 4.2 m	Residential ceilings generally unchanged from ADG 20 15, except kitchens allowed to be 2.4 m (NDDS) Ground floor non-residential ceilings 3.3 m high (irrespective of zone) (NDDS) Floor to floor height recommendations for ground and first floors to promote flexibility moved to 1.2 Built form and siting and changed to guidance.
Livable Housing	20% of apartments	Increase if supported by NSW Government research	No change to ADG 20 15 (DG)
Adaptable apartments (AS4299)	Defer to local council policy	Increase if supported by NSW Government research	No change to ADG 20 15 (DG)

THEME	2015 ADG	EIE	CURRENT DRAFT ADG
Private open space	<p>Minimum area: studio 4 m², 1bed 8 m², 2 bed 10 m², 3 bed or more 12 m²</p> <p>Minimum depth: studio -, 1bed 2 m, 2 bed 2 m, 3 bed or more 2.4 m</p> <p>Ground level/podium apartments 15 m²/3 m deep</p>	<p>Increase to minimum depth of balconies for some apt sizes – studios to have 1m minimum depth, 2 bed units to have 2.4 m minimum depth</p>	<p>No change to minimum areas (DC)</p> <p>Minimum depth introduced for studios (1m) and increased for 2 bed (2.4 m) (DC)</p>
Solar access	<p>Living area and public open space in 70% of apartments get 2 hrs (Sydney metro, Newcastle and Wollongong LGAs) and 3 hrs elsewhere between 9am and 3pm midwinter</p> <p>Max 15% with no direct sunlight</p> <p>1sqm direct sunlight measured at 1m AFFL, achieved for at least 15 mins</p>	<p>Extend time period (no definition)</p>	<p>Add Gosford LGA to: Living area and public open space in 70% of apartments get 2 hrs (Sydney metro, Newcastle, Wollongong and Gosford LGAs) and 3 hrs elsewhere between 9am and 3pm midwinter (DC)</p> <p>No change to max 15% with no direct sunlight (DC)</p> <p>Allow 8am-3pm window in constrained situations where criteria can't be met (DG)</p>
Shading and glare control	<p>Shading encouraged in guidance (no metrics)</p> <p>High performance glazing accepted for reducing reflectance</p>	<p>50% glazing or no glass for 50% of first metre of floor</p>	<p>Glazing greater than 30% of the wall to have external shading to block 30% of summer sun (DG)</p> <p>Performance glazing not considered substitute for shade (DG)</p>
Natural cross-ventilation	<p>60% of apartments level 9 and below</p> <p>18m glass to glass for through apartments</p>	<p>Increase to 70% of all units across all stories</p> <p>Require ceiling fans for habitable rooms with 2.7m ceilings</p> <p>More kitchens and bathrooms with windows</p>	<p>Maintain current 60% for first 9 storeys, and 18 m dimension for through-apartments (DC)</p> <p>Apartments 10 storeys or greater are deemed to be cross-ventilated only if any enclosure of the balconies at these levels allows adequate natural ventilation and balconies cannot be fully enclosed (DC)</p> <p>Ventilation tool in appendix to help applicants and assessors calculate / model / prove alternative design solutions for ventilation</p>
Storage	<p>Minimum volume: studio 4m³, 1bed 6m³, 2 bed 8m³, 3 bed or more 10m³ with at least 50% internal</p>	<p>Increase provision for storage external to apartment (4,5,6,7 m³ instead of 2,3,4,5 m³)</p>	<p>No change to internal volumes</p> <p>External volumes increased (4,5,6,7 m³ instead of 2,3,4,5 m³) (DC)</p> <p>Total storage: studio 6 m³, 1bed 8 m³, 2 bed 10 m³, 3 bed or more 12 m³ (DC)</p> <p>Additional specification for both internal and external storage dimensions (DG)</p>
Water efficiency	<p>No specifics but reference to non-potable</p>	<p>Non-potable water use</p>	<p>Rainwater storage tank size specified (DG)</p> <p>Recycled water infrastructure required (purple pipe) (DG)</p>
Waste	<p>2 days waste storage within apartments for waste and recycling</p>	<p>Source separation of waste streams</p>	<p>No change to 2 days waste storage within apartments for waste, recycling (DG)</p> <p>Days waste storage within apartments for organics (DG)</p>

C.2

Sustainability in residential buildings (BASIX)

Most of the proposed changes to BASIX and the sustainability of new residential buildings that were outlined in the DP SEPP EIE are proceeding as planned. There are a few changes in the EIE that are not proceeding, as outlined below. We are not introducing any new concepts beyond what was discussed in the EIE.

Providing other assessment tools that 'plug in' to BASIX

The EIE discussed the possibility of recognising under BASIX, the following tools, which assess both thermal comfort and energy performance:

- the Green Star Homes Standard currently being developed by the Green Building Council of Australia (GBCA), which became available in 2021, and
- the 'Whole-of-Home' tools to be accredited by the NatHERS Administrator, which are proposed to be available in 2022.

We are not currently recognising these tools within BASIX.

Allowing a tailored approach for thermal comfort and energy performance

The EIE proposed allowing minor trade-offs to thermal comfort performance if the developer improved other sustainability aspects of the development.

We received significant feedback opposed to this proposal and have decided not to proceed with this proposal.

Aligning sustainability performance with DP SEPP principles

The EIE proposed expanding BASIX to also include new requirements for embodied carbon emissions, green infrastructure, and stormwater run-off.

We are proceeding with a new embodied carbon emissions requirement, but are not introducing green infrastructure, and stormwater run-off requirements into BASIX at this time as further work is required in this area.

Sustainability assessment consistent with other jurisdictions

The EIE discussed possible changes to the way BASIX reports the estimated water and energy consumption of a development in comparison to a benchmark to align with the *National Construction Code* requirements that apply in other jurisdictions.

NSW has worked to align the BASIX requirements with the NCC requirements that will apply from 2022 in other jurisdictions. At this stage, the way BASIX reports estimated water and energy consumption (i.e. with reference to a benchmark) will remain.

Promoting innovation and the adoption of new technology

The EIE discussed introducing 'BASIX Plus' certification to recognise designs that exceed the BASIX performance requirements by a specific amount.

There was minimal interest from our stakeholders in this proposal. We are not planning to proceed with a 'BASIX Plus' certification at this time. However, developers can demonstrate higher performance by having the design certified under other standards such as the Green Star Homes Standard or Passive House standard. These standards have a higher threshold than required by BASIX.

Clauses of the DP SEPP reflect the intent and manner of operation of the BASIX scheme under the current BASIX SEPP, with drafting changes made to simplify language, consolidate similar provisions and remove redundant provisions. Former provisions of the BASIX SEPP can be found in the DP SEPP as follows:

Table 4: Overview of key changes required to integrate BASIX SEPP into the DP SEPP

BASIX SEPP	DP SEPP
<p>s3 Aims</p> <p>Specifies:</p> <ul style="list-style-type: none"> — the legislative provisions establishing BASIX — that an application for a development consent, complying development certificate or construction certificate for most residential development must be accompanied by a list of commitments (on the BASIX certificate) — that the development must comply with the BASIX commitments — that this policy aims to ensure consistent application of the BASIX scheme throughout NSW, and overrides — competing provisions in other environmental planning instruments and development control plans that would modify BASIX obligations 	<p>The first three provisions have been omitted as they are redundant (they are covered by the EP&A Regulation and the new 'relevant building' definition in DP SEPP below)</p> <p>The fourth provision has been carried over (cl 28).</p> <p>The fifth provision has been carried over (cl 29).</p>
<p>s4 Definitions</p> <p>Defines <i>BASIX affected building</i>, <i>BASIX affected development</i>, <i>BASIX certificate</i>, <i>BASIX commitment</i>, <i>BASIX optional development</i>, and <i>competing provision</i></p>	<p>These definitions have been maintained but form part of the Dictionary of the DP SEPP (DP SEPP schedule 3 directs you to the EP&A Regulation for the definition).</p>
<p>cl 5 Land to which the Policy applies</p> <p>This Policy applies to the whole of the State, including Lord Howe Island.</p>	<p>(cl 6) This Policy applies to the State</p>
<p>cl 6 Buildings to which the Policy applies</p> <p>Specifies the types of residential development that BASIX applies to.</p>	<p>cl 29(3) introduces a new term 'relevant building', which is defined in 29(5)(e) to define when BASIX applies (reflecting the same intent as the BASIX SEPP, using a defined term)</p>
<p>cl 7 Relationship with other environmental planning instruments</p> <p>This Policy prevails over any other environmental planning instrument, whenever made, to the extent of any inconsistency.</p>	<p>Maintained with minor rewording in cl 29(1).</p>
<p>cl 8 Other environmental planning instruments do not apply to BASIX commitments</p> <p>Specifies that the competing provisions of an environmental planning instrument are of no effect if they would modify BASIX obligations</p>	<p>Clauses 8 and 9 of BASIX SEPP merged into cl 29(1) of DP SEPP</p>
<p>cl 9 Development control plans do not apply to BASIX commitments</p> <p>Specifies that the competing provisions of a development control plan are of no effect if they would modify BASIX obligations</p>	
<p>s10 Provisions providing for exceptions to development standards do not allow departures from BASIX commitments</p> <p><i>State Environmental Planning Policy No 1—Development Standards</i> does not apply to a development standard that arises, under the regulations under the Act, in connection with a BASIX commitment for a building to which this Policy applies or for the land on which such a building is situated.</p>	<p>Deleted as existing clause was unnecessary</p>
<p>NEW PROPOSALS FOR DP SEPP (not in BASIX SEPP):</p>	<p>New provision 28 specifying that a relevant building must meet the BASIX targets for a) energy/operational emissions, b) thermal performance, c) water, and d) embodied emissions/materials index. The targets, which will vary with building type and location, are listed in schedule 1.</p> <p>New provision stating that it is intended to periodically review BASIX requirements to align with national requirements and achieve NSW policy objectives</p> <p>New Regulation cl 164a specifying that a merit assessment can be completed by a suitably qualified professional to meet NSW sustainability requirements in place of a BASIX assessment and BASIX certificate</p>

C.3 Sustainability in non-residential buildings

Overview of sustainability for non-residential buildings

Performance benchmarks and targets vary across development types and apply to both new development and major refurbishments. Performance improvements are tailored to specific use cases. Where applicable, these have been informed by data and information from the National Australian Built Environment Rating System (NABERS), the National Construction Code (NCC), the Green Building Council of Australia (GBCA), Electric Vehicle Council and other analysis.

The stringency of performance requirements will likely expand or increase in future SEPP reviews.

An overview of the proposed measures, standards and where they apply are as follows.

Table 5: Energy use requirements

PROPOSED USE	ENERGY PERFORMANCE PATHWAYS	OFFSET RESIDUAL EMISSIONS REQUIREMENT
<p>The below developments must meet the National Construction Code's Section J requirements. Deemed-to-satisfy method is not permitted. Then they must achieve one of the below assurance pathways.</p> <p>Where certain developments cannot achieve net zero emissions in operation, they will procure renewable energy certificates to offset their residual emissions for a minimum 5-year period.</p>		
Offices (base building) $\geq 1000 \text{ m}^2$ net lettable area (NLA)	Independently verified NCC JV3 compliant method OR Signed minimum 5.5 Star NABERS Energy Commitment Agreement OR Certified Green Star Buildings "credit achievement" in Credit 22: Energy Use.	Yes - Greater Sydney only
Retail premises (shopping centres base building) $\geq 5000 \text{ m}^2$ gross lettable area retail (GLAR)	Independently verified NCC JV3 compliant method OR Signed minimum 4.5 Star NABERS Energy Commitment Agreement OR Certified Green Star Buildings "minimum expectation" in Credit 22: Energy Use.	Yes - Greater Sydney only
Hotels (whole of building) ≥ 100 rooms	Independently verified NCC JV3 compliant method OR Signed minimum 4 Star NABERS Energy Commitment Agreement OR Certified Green Star Buildings 'minimum expectation' in Credit 22: Energy Use.	Yes - Greater Sydney only
Mixed use – Where one or more of the above land uses apply	One of the above pathways relevant to the proposed use.	Yes - Greater Sydney only
State significant development where the SEPP applies	Green Star Buildings 'credit achievement' in Credit 22: Energy Use.	Yes – whole of NSW

Table 6: Water use requirements

PROPOSED USE	MINIMUM WATER PERFORMANCE STANDARD
Offices (base building) $\geq 1000\text{m}^2$ NLA	4-star NABERS Water Rating; OR
Hotels (whole building) ≥ 100 rooms	Green Star Buildings 'minimum expectation' in Credit 25: Water Use.
Retail premises (base building) $\geq 5,000\text{m}^2$ GLAR	Green Star Buildings 'minimum expectation' in Credit 25: Water Use.
All other developments	

Table 7: Electric vehicle requirements

PROPOSED USE	EV MINIMUM REQUIREMENTS
Apartments (class 2), residential aged care / retirement living (class 9c)	100% EV-ready parking spaces Minimum 10% visitor parking spaces installed with EV charging stations (or 1 space if <10 spaces provided)
Class 3 buildings that are hotels or motels	Minimum 25% EV ready parking spaces
Offices (class 5) and retail centres (class 6)	Minimum 10% EV-ready parking spaces
All other non-residential uses (excluding class 1, 4, 7a and 10, and class 3 buildings that are not hotels or motels)	Minimum 20% EV-ready parking spaces
An "EV-ready" parking space has cabling to the space, and room for the charging head unit	

Table 8: Sustainability application requirements

APPLICATION REQUIREMENT	COMMENTS
Net zero statement (NZS)	
<p>Components include:</p> <ul style="list-style-type: none"> — Net zero ready: Disclose estimated scope 1 and 2 emissions up to 2050 — Net zero ready: Where fossil-fuel dependent building systems are used, confirmation (on plans) of sufficient physical space, infrastructure and electrical capacity for the development to transition to 100% fossil-fuel free energy by 2035 — Energy performance assurance pathway: identify method of independent verification and provide evidence (developments in Table 1 only) — Energy performance measures: information about onsite renewables, passive design, other infrastructure that will improve energy performance e.g. chilled beams — Evidence electric vehicle requirements will be met (developments in Table 3 only) — Evidence of intent / procurement of renewable energy certificates for minimum 5 years (specific developments in Table 1 only). 	<p>There are various components to the net zero statement, outlined to the left.</p> <p>The information is requested at each point in the development process, including development application, construction certificate and occupation certificate.</p>
Embodied emissions statement (EES)	
<ul style="list-style-type: none"> — Disclose embodied emissions for the top 5 materials in the development. — Disclose any products that have an environmental product declaration (EPD). — Describe how low-emission construction technologies are proposed to be used in the development, and how this has informed the selection of materials, structural systems and construction methods. 	<p>Calculating embodied emissions will be supported by a proposed new embodied emissions calculator on the Planning Portal.</p>

ACRONYMS	
ADG	<i>Apartment Design Guide</i>
Aerotropolis SEPP	<i>State Environmental Planning Policy (Western Sydney Aerotropolis) 2020</i>
BASIX	Building Sustainability Index
BASIX SEPP	<i>State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004</i>
CIV	capital investment value
Codes SEPP	<i>State Environmental Planning Policy (Exempt and Complying Development Codes) 2008</i>
DA	development application
DCP	development control plan
DPIE	Department of Planning, Industry and Environment
DP SEPP	<i>State Environmental Planning Policy (Design and Place) 2021</i>
EIE	explanation of intended effect
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EP&A Regulation	Environmental Planning and Assessment Regulation 2000
EV	electric vehicle
GANSW	Government Architect New South Wales
Growth Centres	<i>SEPP State Environmental Planning Policy (Sydney Region Growth Centres) 2006</i>
ILP	indicative layout plan
LEP	local environmental plan
NABERS	National Australian Built Environment Rating System
NCC	<i>National Construction Code</i>
NDL	net developable land
NSW SDRP	NSW State Design Review Panel
LGDRPM	<i>Local Government Design Review Panel Manual</i>
PTAL	public transport accessibility level
SA	solar absorptance
SEPP	State environmental planning policy
SEPP 65	State Environmental Planning Policy No 65 – Design Quality of Residential Apartment Development (2002)
SRD DEPP	<i>State Environmental Planning Policy (State and Regional Development) 2011</i>
TfNSW	Transport for New South Wales
UDG	<i>Urban Design Guide</i>

GLOSSARY	
Amenity	The 'liveability', comfort or quality of a place which makes it pleasant and agreeable to be in for individuals and the community. Amenity is important in the public, communal and private domains and includes the enjoyment of sunlight, views, privacy and quiet. It also includes protection from pollution and odours. Expectations of amenity and comfort are contextual and change over time.
Complying development	A combined planning and construction approval for straightforward development that can be determined through a fast-track assessment by a council or an accredited certifier. Complying development applies to homes, businesses and industry and allows for a range of things like the construction of a new dwelling house, alterations and additions to a house, new industrial buildings, demolition of a building, and changes to a business use.
Design review panel	A panel of expert and independent design professionals that provides constructive feedback on the design quality of development proposals and strategic design projects.
EV ready	An 'EV-ready' parking space has cabling to the space, and room for the charging head unit.
Green infrastructure	The network of green spaces (either natural or constructed), urban tree canopy in streets, continuous soil and water systems that deliver multiple environmental, economic, and social values and benefits to urban communities.
Green travel plan	A plan prepared by a qualified transport planner or traffic engineer that details measures to promote and support the use of sustainable transport options, such as public transport, cycling and walking.
Master plan	A framework document showing how development will occur in each place and including building parameters like height, density, shadowing, and environmental concerns. It is a visual document that details a clear strategy or plan for the physical transformation of a place, supported by financial, economic, and social policy documents which outline delivery mechanisms and implementation strategies.

Net zero ready	A 'net zero ready' development has high energy performance, is EV ready, is capable of achieving net zero operational emissions and is either all-electric, or 'all-electric ready', i.e. capable of becoming all-electric and not using onsite fuels.	Urban design development	Defined as: — development on land that is not in an industrial zone that has a site area greater than 1 ha, or — development on land in an industrial zone (IN1 General Industrial, IN2 Light Industrial and IN4 Working Waterfront) that has: i. a capital investment value of \$30 million or more, and ii. a site area greater than 1 ha, or — development in relation to which an environmental planning instrument requires a development control plan or master plan to be prepared for the land before development consent may be granted for the development.
Public space	Places publicly owned, or designated for public use, that are accessible and enjoyable for all, free of charge and without a profit motive, including: — public open spaces – active and passive spaces including parks, gardens, playgrounds, public beaches, riverbanks and waterfronts, outdoor playing fields and sports courts, and publicly accessible bushland — public facilities – public libraries, museums, galleries, civic and community centres, show grounds and indoor public sports facilities — streets – streets, avenues and boulevards, squares and plazas, pavements, passages and lanes, and bicycle paths.	Walkability	Refers to measures that support safe, comfortable, and direct walking to destinations such as footpaths, crossings, shading, protection from traffic, connected paths along desire lines and proximity, typically 1600 m or less to destinations by the shortest route.
Public open space	Land that has been reserved for the purpose of recreation and sport, preservation of natural environments, and provision of green space. For apartment buildings, this land is vested in or under the control of a public authority.		
Resilience	A complex and dynamic system-based concept used differently in various disciplines referring to the ability of a system to return to a previous or improved set of dynamics following a shock. It also refers to the potential for individuals, communities, and ecosystems to prevent, absorb, accommodate, and recover from a range of shocks and stresses, including but not limited to bushfires, flooding, extreme heat and coastal hazards.		
Sustainability	Relates to the endurance of systems, buildings, spaces, and processes – their ability to be maintained at a certain rate or level, which contributes positively to environmental, economic and social outcomes.		
Tree canopy	The layer of leaves, branches and stems of a tree that provide coverage of the ground when viewed from above. Urban tree canopy refers to trees on public and private land within urban areas and comprises a variety of tree types such as exotics, deciduous trees, and evergreens.		



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New South Wales

State Environmental Planning Policy (Design and Place) 2021

under the

Environmental Planning and Assessment Act 1979

Her Excellency the Governor, with the advice of the Executive Council, has made the following State environmental planning policy under the *Environmental Planning and Assessment Act 1979*.

Minister for Planning and Public Spaces

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State Environmental Planning Policy (Design and Place) 2021

under the

Environmental Planning and Assessment Act 1979

Part 1 Preliminary

1 Name of Policy

This Policy is *State Environmental Planning Policy (Design and Place) 2021*.

2 Commencement

This Policy commences on [insert date 6 months after publication] and is required to be published on the NSW legislation website.

3 Aims of Policy

- (1) The aims of this Policy are as follows—
 - (a) to provide a consistent set of principles and considerations to guide the design of the built environment,
 - (b) to ensure high quality and innovative design of the built environment,
 - (c) to create places that support the health and well-being of the community,
 - (d) to integrate good design processes into planning and development,
 - (e) to recognise the economic, environmental, cultural and social benefits of high quality design,
 - (f) to ensure sustainable development and conserve the environment,
 - (g) to minimise the consumption of non-renewable energy and reduce greenhouse gas emissions,
 - (h) to achieve better built form and aesthetics of buildings, streetscapes and public spaces,
 - (i) to recognise the importance of Country to Aboriginal people and to incorporate local Aboriginal knowledge, culture and tradition into development.
- (2) This Policy also aims to give effect to the objects of the Act, section 1.3(b) and (e)–(g).

4 Definitions

- (1) The Dictionary defines words used in this Policy.
- (2) Words used in this Policy have the same meaning as in the standard instrument set out in the *Standard Instrument (Local Environmental Plans) Order 2006*, unless otherwise defined in this Policy.

Note—The *Environmental Planning and Assessment Act 1979* and the *Interpretation Act 1987* contain definitions and other provisions that affect the interpretation and application of this Policy.

5 Meaning of “residential apartment development”

- (1) In this Policy, **residential apartment development** means development for the purposes of residential flat buildings, shop top housing or mixed use development with a residential accommodation component if—
 - (a) the development consists of one or more of the following—
 - (i) the erection of a new building,
 - (ii) the substantial redevelopment or refurbishment of an existing building,
 - (iii) the conversion of an existing building, and
 - (b) the building is at least 3 storeys, not including storeys that provide for car parking that are—
 - (i) below ground level (existing), or
 - (ii) less than 1.2 metres above ground level (existing), and
 - (c) the building contains at least 4 dwellings.
- (2) If particular development comprises development specified in subsection (1) and development for other purposes, only the part of the development specified in subsection (1) is residential apartment development.
- (3) Development is not **residential apartment development** if it involves a class 1a or 1b building within the meaning of the *Building Code of Australia* only.

6 Meaning of “urban design development”

- (1) In this Policy, **urban design development** means the following development—
 - (a) development on land that is not in an industrial zone that has a site area greater than 1 hectare,
 - (b) development on land in an industrial zone that has—
 - (i) a capital investment value of \$30 million or more, and
 - (ii) a site area greater than 1 hectare,
 - (c) development in relation to which an environmental planning instrument requires a development control plan or master plan to be prepared for the land before development consent may be granted for the development.
- (2) In this section—
industrial zone means Zones IN1 General Industrial, IN2 Light Industrial and IN4 Working Waterfront.

7 Meaning of “non-residential development”

In this Policy, **non-residential development** means development for the following purposes—

- (a) the erection of office premises with a net lettable area of at least 1,000 square metres (**prescribed office premises**),
- (b) the erection of retail premises with a gross lettable area of at least 5,000 square metres (**prescribed retail premises**),
- (c) the erection of hotel or motel accommodation with at least 100 rooms (**prescribed hotel or motel accommodation**),
- (d) State significant development that does not include development for residential purposes (**non-residential State significant development**).

8 Land to which Policy applies

- (1) This Policy applies to the State, except as otherwise provided by this section.

- (2) This Policy does not apply to the following—
- (a) development on land wholly in any of the following zones—
 - (i) Zones RU1 Primary Production, RU2 Rural Landscape, RU3 Forestry or RU4 Primary Production Small Lots,
 - (ii) Zone IN3 Heavy Industrial,
 - (iii) Zones E1 National Parks and Nature Reserves, E2 Environmental Conservation or E3 Environmental Management,
 - (iv) Zones W1 Natural Waterways, W2 Recreational Waterways or W3 Working Waterways,
 - (b) development that is permitted with or without consent or exempt or complying development under—
 - (i) *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*, or
 - (ii) *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007*,
 - (c) development of a kind specified in *State Environmental Planning Policy (State and Regional Development) 2011*, Schedule 1, clauses 1–10, 18 and 20–25 regardless of the capital investment value of the development,
 - (d) development involving only —
 - (i) minor subdivision within the meaning of the *Environmental Planning and Assessment Regulation 2000*, clause 256I, or
 - (ii) a strata subdivision, or
 - (iii) the subdivision involving less than 1 hectare of land,
 - (e) development involving the erection of 24 or less class 1a buildings under the *Building Code of Australia*, or of a class 7a or 10 building, if the buildings do not form part of mixed use development to which this Policy applies.
- (3) Part 3, Division 3 applies to development specified in subsection (2)(a), (c)(i), (e) and (g) if the development is BASIX affected development.

9 Relationship with other environmental planning instruments generally

In the event of an inconsistency between this Policy and another environmental planning instrument, whether made before or after the commencement of this Policy, this Policy prevails to the extent of the inconsistency.

10 Maps

- (1) A reference in this Policy to a named map adopted by this Policy is a reference to a map by that name—
- (a) approved by the Minister when the map is adopted, and
 - (b) as amended or replaced from time to time by maps declared by environmental planning instruments to amend or replace that map, and approved by the persons making the instruments when the instruments are made.
- (2) Two or more named maps may be combined into a single map and a reference in this Policy to the named map is a reference to the relevant part or aspect of the single map.
- (3) The maps adopted by this Policy are to be kept in electronic form and made available for public access in accordance with arrangements approved by the Minister.

11 Maps adopted by Policy

In this Policy—

Climate Zone Map means the State Environmental Planning Policy (Design and Place) 2021 BASIX Climate Zone Map.

Water Use Map means the State Environmental Planning Policy (Design and Place) 2021 BASIX Water Use Map.

DRAFT

Part 2 Design principles and design considerations

12 Design principles and design considerations

- (1) The principles for design in New South Wales are the following—
 - (a) to deliver beauty and amenity to create a sense of belonging for people,
 - (b) to deliver inviting public spaces and enhanced public life to create engaged communities,
 - (c) to promote productive and connected places to enable communities to thrive,
 - (d) to deliver sustainable and greener places to ensure the well-being of people and the environment,
 - (e) to deliver resilient, diverse places for enduring communities.

Note— The Minister has issued a direction under the Act, section 9.1 to councils generally. The direction requires a council to exercise its functions under the Act, section 3.21 or Division 3.4 that relate to the preparation of a local environmental plan in accordance with the design principles.

- (2) The considerations that guide the implementation of the design principles are as follows—

Design principle

Deliver beauty and amenity to create a sense of belonging for people.

Deliver inviting public spaces and enhanced public life to create engaged communities.

Promote productive and connected places to enable communities to thrive.

Deliver sustainable and greener places to ensure the well-being of people and the environment.

Deliver resilient, diverse places for enduring communities.

Design considerations

Overall design quality.

Comfortable, inclusive and healthy places.

Culture, character and heritage.

Public space for public life.

Vibrant and affordable neighbourhoods.

Sustainable transport and walkability.

Green infrastructure.

Resource efficiency and emissions reduction.

Resilience and adapting to change.

Optimal and diverse land use.

13 Consideration of design principles and design considerations by consent authority

- (1) Development consent must not be granted for development to which this Policy applies unless the consent authority is satisfied that the development is consistent with the design principles.
- (2) In determining whether development is consistent with the design principles, the consent authority must take into account the design considerations for each design principle.
- (3) Sections 14–23 set out the requirements for a consent authority in relation to each design consideration.

14 Design consideration—overall design quality

The consent authority must consider whether overall—

- (a) the scale, massing and siting of the building respond appropriately to the desired character of the surrounding area, and
- (b) the layout and connections of the development respond appropriately to the surrounding area, and
- (c) the detailing of the buildings and spaces respond to the appropriate visual distance at which the buildings and spaces are observed and experienced, and
- (d) the development represents an effective and economical use of space that responds to the constraints of the site, and
- (e) the articulation of the building is proportionate to the scale and massing of the building.

15 Design consideration—comfortable, inclusive and healthy places

The consent authority must consider whether—

- (a) the layout and design of the development maximises passive heating and cooling and minimises adverse impacts on residents and public amenity, and
- (b) the development incorporates inclusive design measures that are appropriate for the purpose of the development, and
- (c) for development that includes open space—the open space is accessible, comfortable and enables pedestrian circulation.

16 Design consideration—culture, character and heritage

The consent authority must consider whether—

- (a) the development detracts from the desired character of the area, and
- (b) the design of the development incorporates or responds to—
 - (i) heritage items and conservation area on or near to the site, and
 - (ii) areas of Aboriginal and non-Aboriginal cultural significance, and
- (c) if the development is State significant development to which the Urban Design Guide applies—the development incorporates a response to Country and takes into account submissions made to the applicant by Aboriginal stakeholders.

17 Design consideration—public spaces and public life

The consent authority must be satisfied of the following—

- (a) for development involving new public space—the public space is—
 - (i) located to maximise equitable access by the public, and
 - (ii) located on land that is fit for purpose, and
 - (iii) designed by a qualified landscape architect,
- (b) for development involving public space—the public space is designed to facilitate social interaction,
- (c) the development does not result in an adverse impact on, or net loss of, public open space,
- (d) the development contributes to connectivity between existing and proposed landscape corridors, public spaces and walking and cycling networks near the site.

18 Design consideration—vibrant and affordable neighbourhoods

The consent authority must consider the following—

- (a) for urban design development involving subdivision—whether the subdivision supports—
 - (i) walkability, and
 - (ii) smart cities by adequately providing for current and future needs for telecommunication infrastructure,
- (b) for development for residential purposes—whether the development contributes to the housing needs of the local population,
- (c) for development that is within walking distance of a train station or in a town centre—whether the development contributes to a diverse mix of uses and active streets,
- (d) whether the development provides enhanced visibility and contributes to passive surveillance and the activation of the neighbourhood at different times of day.

19 Design consideration—sustainable transport and walkability

The consent authority must consider whether the development—

- (a) contributes to minimising car trips and car travel distances by—
 - (i) supporting access to public transport, and
 - (ii) minimising private car parking, and
- (b) minimises the impact of car parking on public space, and
- (c) supports increased opportunities for walking and cycling by integrating with, or improving connections to existing walking and cycling networks, and
- (d) provides bicycle parking and end of trip facilities, and
- (e) supports the installation of infrastructure for charging electric vehicles.

Note— See also section 33.

20 Design consideration—green infrastructure

The consent authority must consider the following—

- (a) whether the development retains or improves existing green infrastructure and contributes to the restoration and regeneration of natural systems,
- (b) whether the development maximises tree canopy cover and provides sufficient deep soil to support the tree canopy,
- (c) whether new and existing green infrastructure will be appropriately managed and maintained during at least the first 12 months.

21 Design consideration—resource efficiency and emissions reduction

The consent authority must consider whether the development—

- (a) for urban design development involving subdivision—minimises, and excludes as far as practicable, the use of on-site gas for cooking, heating and hot water, and
- (b) is designed to minimise waste from associated demolition, construction and during the ongoing use of the development, including by the choice and reuse of building materials, and
- (c) minimises greenhouse gas emissions, as part of the goal of achieving net zero emissions by 2050, including by incorporating the following—
 - (i) passive design,

- (ii) energy efficiency,
- (iii) the use of renewable energy, and
- (d) uses water sensitive urban design and maximises water re-use.

22 Design consideration—resilience and adapting to change

The consent authority must be satisfied that the development is resilient to natural hazards by —

- (a) incorporating measures to—
 - (i) avoid or reduce exposure to natural hazards, and
 - (ii) mitigate and adapt to the risks of natural hazards, including risks of climate change and compounding risks, and
- (b) mitigating the impact of expected natural hazards through the siting and design of the development.

23 Design consideration—optimal and diverse land uses

- (1) The consent authority must be satisfied that the development—
 - (a) contributes to an appropriate mix of compatible uses, and
 - (b) for subdivision for new residential accommodation—includes different lot widths and sizes to support diverse residential accommodation types, and
 - (c) for urban design development—includes appropriate residential density close to proposed or existing amenities, including public transport, open space, schools, shops and other services.

Part 3 Assessment of development

Division 1 Urban design development

24 Objectives of Urban Design Guide

- (1) Development consent must not be granted to urban design development unless the consent authority is satisfied that the development meets the objectives of the Urban Design Guide.
- (2) Development may meet the objectives of the Urban Design Guide by—
 - (a) meeting the applicable design criteria set out in the Urban Design Guide, to the extent possible, or
 - (b) an alternative solution that the consent authority considers achieves a neutral or more beneficial outcome than meeting the design criteria set out in the Urban Design Guide.
- (3) In determining whether development meets the objectives of the Urban Design Guide, the consent authority must—
 - (a) apply the design criteria set out in the Urban Design Guide flexibly and consider alternative solutions, and
 - (b) consider the objectives of the Urban Design Guide only in relation to the particular development application.

25 Development control plans for urban design development

- (1) Development consent must not be granted to urban design development unless a development control plan applies to the land on which the development is to be carried out.
- (2) A development control plan is not required if the development involves alterations to existing buildings only.

Note—The Act, section 4.23 provides for a concept development application to be made instead of a development control plan in certain circumstances.

26 Energy and water use standards for non-residential development

Development consent must not be granted to non-residential development unless the consent authority is satisfied the development—

- (a) enables the following—
 - (i) the reduction and shifting of peak demand for electricity,
 - (ii) storage of renewable energy, for example batteries,
 - (iii) metering and monitoring of energy consumption, and
- (b) is capable of achieving the standards for energy and water use specified in Schedule 1.

Division 2 BASIX standards for residential development

27 BASIX standards

- (1) Development consent must not be granted to BASIX affected development that involves the erection of a BASIX affected building unless the consent authority is satisfied that the development is capable of achieving the standards for the following specified in Schedule 2—
 - (a) energy use,
 - (b) water use,

- (c) embodied emissions,
 - (d) thermal performance.
- (2) Subsection (1) does not apply to development involving a heritage item or within a heritage conservation area if the Planning Secretary is satisfied that the development is not capable of achieving the standard specified in Schedule 2 because of the development controls that apply.

Consultation note— The final version of this Policy will include the standards for energy use, water use and thermal performance for other BASIX affected development, such as alterations and additions.

28 Review of BASIX standards

The Planning Secretary must review the standards specified in Schedule 2—

- (a) as soon as practicable after the beginning of 2025, and
- (b) at least once every 3 years after that.

29 BASIX commitments not to be displaced

- (1) The aim of this section is to ensure consistency in the implementation of the BASIX scheme throughout the State, by overriding provisions of other environmental planning instruments and development control plans that would otherwise affect an obligation arising under the BASIX scheme.
- (2) The competing provisions of an environmental planning instrument or a development control plan, whenever made, are of no effect to the extent to which they aim—
 - (a) to reduce consumption of mains-supplied potable water, or
 - (b) to reduce emissions of greenhouse gases, or
 - (c) to improve the thermal performance of a building.
- (3) Subsection (2) does not—
 - (a) displace the competing provisions to the extent to which they apply to a part of BASIX affected development that will not be used for residential purposes, or
 - (b) apply to a competing provision that encourages, or offers incentives for, the adoption of measures beyond the measures required by provisions of the kind referred to in the definition of **competing provision**.
- (4) In this section—

competing provision of an environmental planning instrument or a development control plan means a provision that—

 - (a) establishes a development standard, or
 - (b) requires a consent authority to consider a matter when considering or determining a development application, or
 - (c) requires a consent authority to be satisfied about a matter before granting development consent, or
 - (d) requires a consent authority to impose a condition on a development consent, or
 - (e) affects the granting of a development consent, or the conditions with which a development consent is granted.

Division 3 Residential apartment development

30 Objectives of Apartment Design Guide

- (1) Development consent must not be granted for residential apartment development unless the consent authority is satisfied that the development meets the objectives of the Apartment Design Guide.
- (2) Development may meet the objectives of the Apartment Design Guide by—
 - (a) meeting the applicable design criteria, to the extent possible, and the design guidance set out in the Apartment Design Guide, or
 - (b) an alternative solution that the consent authority considers achieves a neutral or more beneficial outcome than meeting the design criteria and design guidance set out in the Apartment Design Guide.
- (3) In determining whether development meets the objectives of the Apartment Design Guide, the consent authority must—
 - (a) apply the design criteria and design guidance set out in the Apartment Design Guide flexibly and consider alternative solutions, and
 - (b) consider the objectives of the Apartment Design Guide only in relation to the particular development application.

31 Development control plans cannot be inconsistent with Apartment Design Guide

- (1) A provision of a development control plan that specifies a requirement, standard or control in relation to the following matters specified in the Apartment Design Guide has no effect—
 - (a) visual privacy,
 - (b) solar and daylight access,
 - (c) common circulation and spaces,
 - (d) apartment size and layout,
 - (e) ceiling heights,
 - (f) private open space and balconies,
 - (g) natural ventilation,
 - (h) storage.
- (2) This section applies regardless of when the development control plan was made.

32 Non-discretionary development standards for residential apartment development

- (1) This section identifies development standards for particular matters relating to residential apartment development.
- (2) If the standards are complied with, the consent authority cannot require more onerous standards for the matters.
- (3) The following are non-discretionary development standards—
 - (a) the car parking for the building must be equal to, or greater than, the lesser of—
 - (i) the recommended minimum amount of car parking specified in the Apartment Design Guide, or
 - (ii) the minimum amount of car parking required under an applicable environmental planning instrument or development control plan,

- (b) the internal area for each apartment must be equal to, or greater than, the recommended minimum internal area for the relevant apartment type specified in the Apartment Design Guide,
- (c) the ceiling heights for the building must be equal to, or greater than, the recommended minimum ceiling heights specified in the Apartment Design Guide.

Division 4 Miscellaneous

33 Car parking requirements for new buildings and green travel plans

- (1) This section applies to development on land shown as “Public Transport Accessibility Level (PTAL) 6” on the [*insert name of Map*] that involves—
 - (a) the erection of a building, and
 - (b) the provision of less car parking spaces than the minimum number of car parking spaces required under an applicable environmental planning instrument or development control plan.

Consultation note— The final Policy will include a map that is similar to the map at <https://opendata.transport.nsw.gov.au/dataset/ptal-public-transport-accessibility-level>.

- (2) Development consent must not be granted unless the consent authority is satisfied that a plan (a **green travel plan**) that complies with subclause (3) has been prepared by a qualified transport planner or traffic engineer.
- (3) A green travel plan must include the following—
 - (a) how the plan implements the design consideration specified in section 19,
 - (b) the targets for mode share that are to be achieved within 3 years after the occupation certificate is issued for the development,
 - (c) the amount of car parking to be made available as a result of the development,
 - (d) measures to facilitate sustainable transport, including end of trip facilities, secure bicycle parking, changing rooms, car sharing arrangements and subsidising public transport.
- (4) In this section—
mode share means the percentage of trips that are taken using different types of transport, for example, walking, public transport and cars.

Part 4 Design review

34 Application of Part

- (1) This Part applies to the following development—
 - (a) State significant development to which this Policy applies,
 - (b) development with a capital investment value of more than \$30 million,
 - (c) development with a capital investment value of between \$5 million and \$30 million if the development will be carried out by a council or the Crown,
 - (d) development with a site area of at least 1 hectare,
 - (e) residential apartment development,
 - (f) other development specified by another environmental planning instrument as being development to which this section applies.
- (2) This Part does not apply to development specified in subsection (1)(c) if the consent authority is satisfied that the development will not have a significant impact on the public domain.

35 Design review panel advice

- (1) Development consent must not be granted to development to which this Part applies unless—
 - (a) a design review panel has reviewed the development, and
 - (b) the consent authority has taken into account the design review panel's advice.

Note—The *Environmental Planning and Assessment Regulation 2000* deals with design review panels, including by—

 - (a) providing for the constitution, membership and procedures of design review panels, and
 - (b) requiring certain development applications and modification applications to be accompanied by a statement or report about how the development incorporates the advice from a design review panel.
- (2) Subsection (1) does not apply if an architectural design competition is conducted, as provided for in an environmental planning instrument, in accordance with—
 - (a) the *Design Excellence Guidelines* published by the Department in October 2010, or
 - (b) design competition guidelines adopted by the consent authority under the environmental planning instrument.

36 Design verification statements and design review reports

Development consent must not be granted to development to which this Part applies unless the consent authority has considered a design verification statement or design review report that accompanied the development application under the *Environmental Planning and Assessment Regulation 2000*.

Part 5 Miscellaneous

37 Repeals

The following State environmental planning policies are repealed—

- (a) *State Environmental Planning Policy No 65—Design Quality of Residential Apartment Development*,
- (b) *State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004*.

38 Savings and transitional provisions

- (1) This Policy does not apply to the following—
 - (a) a development application lodged but not finally determined before the commencement date,
 - (b) a development application that is part of a concept development application if the development application is lodged within 2 years after development consent was granted to the concept development application,
 - (c) an application for modification of a development consent under the Act, section 4.55 or 4.56 that is—
 - (i) lodged but not finally determined before the commencement date, or
 - (ii) lodged within 2 years after the original development consent was granted, regardless of when the development application for the original development consent was lodged or determined.
- (2) In this section—
commencement date means the date on which this Policy commences.

Schedule 1 Energy and water use standards for non-residential development

section 26

1 Definitions

In this Schedule—

Green Star Building rating means a certification given by or on behalf of the Green Building Council of Australia.

JP1 energy use standard means Section JP1 in Volume 1 of the Building Code of Australia verified under Section JV3 in Volume 1 of the Building Code of Australia, as in force on the commencement of this Schedule, by a NABERS independent design review panel.

NABERS means the National Australian Built Environment Rating System.

2 Energy use

- (1) The standard for energy use for non-residential State significant development is a Green Star Building rating of credit achievement in energy use.
- (2) The standard for energy use for development for the purposes of the erection of prescribed office premises is—
 - (a) the JP1 energy use standard, or
 - (b) a Green Star Building rating of credit achievement in energy use, or
 - (c) a 5.5 star NABERS energy commitment agreement.
- (3) The standard for energy use for development for the purposes of the erection of prescribed retail premises is—
 - (a) the JP1 energy use standard, or
 - (b) a Green Star Building rating of minimum expectation in energy use, or
 - (c) a 4.5 star NABERS energy commitment agreement.
- (4) The standard for energy use for development for the purposes of the erection of prescribed hotel or motel accommodation is—
 - (a) the JP1 energy use standard, or
 - (b) a Green Star Building rating of minimum expectation in energy use, or
 - (c) a 4 star NABERS energy commitment agreement.
- (5) To avoid doubt, different standards may apply to the same building if it is used for different purposes.

3 Water use

- (1) The standard for water use for non-residential State significant development is a Green Star Building rating of minimum expectation in water use.
- (2) The standard for water use for development for the purposes of the erection of prescribed office premises, prescribed retail premises or prescribed hotel or motel accommodation is—
 - (a) a Green Star Building rating of minimum expectation in water use, or
 - (b) a 4 star NABERS water rating.

Schedule 2 Energy and water use, embodied emissions and thermal performance standards for BASIX affected development

section 27

Part 1 Preliminary

1 Definitions

- (1) In this Schedule—
climate zone means the climate zone as shown on the Climate Zone Map.
prescribed residential accommodation means the following—
- (a) attached dwellings,
 - (b) dwelling houses,
 - (c) dual occupancies,
 - (d) group homes,
 - (e) multi dwelling housing,
 - (f) secondary dwellings,
 - (g) semi-detached dwellings,
 - (h) seniors housing that is a group of independent living units.
- total floor area***—
- (a) for Part 1—see section 2, and
 - (b) for Part 5—see section 6.
- (2) In this Schedule—
- (a) a building with a ***slab on the ground*** means a building with a concrete slab laid directly on compacted soil, sand or gravel with no airspace below,
 - (b) a building with a ***suspended floor*** means a building that is not a building with a slab on the ground.
- (3) The number of occupants of a type of development is to be calculated using standard occupancy rates approved by the Planning Secretary.

Part 2 Energy use

2 Meaning of “total floor area”

In this Part, ***total floor area*** of prescribed residential accommodation means the total floor area within the finished surfaces of the walls, including the floor area occupied by cupboards or built-in furniture, fixtures or fittings, but not including a garage.

3 Energy use

- (1) This section specifies the standard for energy use for different types of development according to the climate zone in which the development will be carried out.
- (2) The standard represents a percentage reduction in the amount of carbon dioxide emissions resulting from the use of energy attributable to each occupant of the particular type of development over a year compared to a baseline amount determined by the Planning Secretary.

public consultation draft

State Environmental Planning Policy (Design and Place) 2021 [NSW]

Schedule 2 Energy and water use, embodied emissions and thermal performance standards for BASIX affected development

- (3) Table 1 specifies the minimum percentage reduction required for each type of development for the climate zone in which the development will be carried out, according to the following—
- (a) the type of development,
 - (b) for prescribed residential accommodation—the total floor area of the building,
 - (c) for residential flat buildings and shop-top housing—the number of storeys above ground level (existing).

Table 1

Climate zone	Prescribed residential accommodation		Residential flat buildings and shop-top housing			
	Total floor area of up to or equal to 110m ²	Total floor area greater than 110m ²	Up to 3 storeys above ground level (existing)	4 or 5 storeys above ground level (existing)	6–20 storeys above ground level (existing)	21 or more storeys above ground level (existing)
8	65%	69%	63%	57%	59%	61%
9	65%	67%	64%	59%	57%	58%
10	66%	68%	65%	60%	58%	61%
11	67%	70%	66%	61%	59%	61%
14	62%	65%	62%	57%	55%	58%
15	67%	70%	64%	59%	60%	62%
17	68%	72%	67%	62%	62%	63%
18	66%	69%	63%	58%	60%	61%
20	64%	67%	61%	56%	57%	59%
24	60%	63%	60%	55%	55%	58%
25	51%	53%	52%	47%	43%	48%
27	65%	68%	62%	57%	58%	60%
28	66%	70%	62%	57%	60%	62%
46	65%	68%	62%	57%	58%	61%
48	65%	68%	63%	59%	58%	60%
56	68%	72%	67%	63%	62%	63%
65	60%	62%	60%	55%	53%	56%
69	53%	54%	53%	48%	44%	50%

Part 3 Water use

4 Water use

- (1) The standard for water use is the minimum standard shown on the Water Use Map for the land on which the development is to be carried out.
- (2) The standard represents a percentage reduction in the average daily amount of mains-supplied potable water use attributable to each occupant of the particular type

of development over a year compared to a baseline amount determined by the Planning Secretary.

Part 4 Embodied emissions

5 Embodied emissions

- (1) This section specifies the standard for embodied emissions for different types of development.
- (2) The standard represents the maximum amount of embodied emissions that are attributable to a particular building, taking into account the number of occupants of the building.
- (3) The standard for embodied emissions is a maximum of—
 - (a) for prescribed residential accommodation—12.5 tonnes of carbon dioxide for each occupant of the building, and
 - (b) for residential flat buildings and shop-top housing—9.4 tonnes of carbon dioxide for each occupant of the building.
- (4) In this Part—

embodied emissions means the carbon dioxide emissions resulting from the materials used to construct the building, including by taking into account the following—

 - (a) the extraction of raw materials that are used to construct the building,
 - (b) transporting materials to be manufactured,
 - (c) the manufacture of the materials to be used to construct the building.

Part 5 Thermal performance

6 Application of Part

- (1) This Part specifies the standard for thermal performance for different types of development according to the climate zone in which the development will be carried out.
- (2) The standard represents the maximum amount of energy required to heat and cool a dwelling, measured in megajoules per square metre of the total floor area of the dwelling over a year.
- (3) In this Part—

total floor area of a dwelling means the sum of the floor area of conditioned and unconditioned areas of the dwelling, determined in accordance with the Nationwide House Energy Rating Scheme or NatHERS.

7 Thermal performance for prescribed residential accommodation

- (1) Table 2 specifies the maximum thermal performance for dwellings in prescribed residential accommodation according to—
 - (a) whether the building has a slab on the ground or a suspended floor, and
 - (b) the climate zone in which the development is to be carried out.
- (2) Table 2 specifies the maximum thermal performance for—
 - (a) heating a dwelling, and
 - (b) cooling a dwelling, and
 - (c) the total for heating and cooling a dwelling.

public consultation draft

State Environmental Planning Policy (Design and Place) 2021 [NSW]
Schedule 2 Energy and water use, embodied emissions and thermal performance standards for BASIX
affected development

Table 2

Climate zone		Building with slab on ground		Building with suspended floor	
		Heating	Cooling	Heating	Cooling
8	75	52	45	48	53
9	—	24.9	64.6	26.3	67
10	—	20.4	47.1	23.8	45.9
11	—	22.9	31.5	26.3	30.2
14	120	115	10	110	17
15	51	45.9	29.8	36.1	32.9
17	30	15.5	17.5	25	15.1
18	61	55	28.1	53.4	32.5
20	96	90	32.6	85.1	41.1
24	122	117	30	108	35
25	298	—	—	—	—
27	79	75.6	47.3	64.2	52.8
28	60	54.9	37.5	53.6	43.4
46	75	45.3	44.7	51	47.9
48	79	70.9	20.8	67.1	27.9
56	30	24.4	17.9	24.4	18.9
65	156	150	15.7	149.8	38.5
69	277	—	—	—	—

8 Thermal performance for residential flat buildings and shop-top housing with up to and including 5 storeys

- (1) Table 3 specifies the maximum thermal performance for dwellings in residential flat buildings and shop-top housing with up to and including 5 storeys above ground level (existing) according to the climate zone in which the development is to be carried out.
- (2) Column 1 specifies the maximum thermal performance for heating each dwelling in the residential flat building or shop-top housing.
- (3) Column 2 specifies the maximum thermal performance for cooling each dwelling in the residential flat building or shop-top housing.
- (4) Column 3 specifies the maximum thermal performance for heating all the dwellings in the residential flat building or shop-top housing, calculated as a weighted average according to the total floor area of each dwelling.
- (5) Column 4 specifies the maximum thermal performance for cooling all the dwellings in the residential flat building or shop-top housing, calculated as a weighted average according to the total floor area of each dwelling.

public consultation draft

State Environmental Planning Policy (Design and Place) 2021 [NSW]
Schedule 2 Energy and water use, embodied emissions and thermal performance standards for BASIX affected development

Table 3

Climate zone	Individual dwelling		Average of all dwellings	
	Column 1	Column 2	Column 3	Column 4
	Heating	Cooling	Heating	Cooling
8	47.8	74.9	45.6	71.3
9	26.4	68.6	24.9	64.6
10	21.4	49.4	20.4	47.1
11	24.1	33.2	22.9	31.5
14	189.2	37.4	176.1	34.8
15	55.8	33	53.3	31.6
17	24.8	27.9	23.9	26.9
18	78.3	33.5	73.5	31.5
20	133.5	52.1	123.6	48.3
24	200.5	40.2	185.7	37.2
25	503	—	475	—
27	80.4	65.5	74.9	61
28	61.7	62.2	56.2	56.7
46	53.3	66	51.4	63.5
48	94.1	48.4	88.4	45.5
56	32.3	21	30.9	20
65	254.4	24.2	239.3	22.7
69	492.1	—	455	—

9 Thermal performance for residential flat buildings and shop-top housing with 6 or more storeys

- (1) Table 4 specifies the maximum thermal performance for dwellings in residential flat buildings and shop-top housing with 6 or more storeys above ground level (existing) according to the climate zone in which the development is to be carried out.
- (2) Column 1 specifies the maximum thermal performance for the total heating and cooling of each dwelling in the residential flat building or shop-top housing.
- (3) Column 2 specifies the maximum thermal performance for heating each dwelling in the residential flat building or shop-top housing.
- (4) Column 3 specifies the maximum thermal performance for cooling each dwelling in the residential flat building or shop-top housing.
- (5) Column 4 specifies the maximum thermal performance for the total heating and cooling of all the dwellings in the residential flat building or shop-top housing, calculated as a weighted average according to the total floor area of each dwelling.
- (6) Column 5 specifies the maximum thermal performance for heating all the dwellings in the residential flat building or shop-top housing, calculated as a weighted average according to the total floor area of each dwelling.

public consultation draft

State Environmental Planning Policy (Design and Place) 2021 [NSW]

Schedule 2 Energy and water use, embodied emissions and thermal performance standards for BASIX affected development

- (7) Column 6 specifies the maximum thermal performance for cooling all the dwellings in the residential flat building or shop-top housing, calculated as a weighted average according to the total floor area of each dwelling.

Table 4

Climate zone	Individual dwelling			Average of all dwellings		
	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
	Total	Heating	Cooling	Total	Heating	Cooling
8	95	68.3	71.9	75	51	50
9	—	26.4	68.6	—	24.9	64.6
10	—	21.4	49.4	—	20.4	47.1
11	—	24.1	33.2	—	22.9	31.5
14	158	155	10.7	120	118	6
15	66	53	33.8	51	45.4	32.3
17	39	35	20.4	30	28	17.6
18	81	65.5	34.4	61	56.2	32.7
20	127	117.2	47.3	96	90	40.9
24	161	157.2	31.9	122	118	24
25	366	—	—	298	—	—
27	103	81.3	54.4	79	68	45.5
28	79	65.1	61.8	60	59.6	45
46	94	65.1	61.8	75	51	48.4
48	104	94.2	30.8	79	75.9	25.2
56	38	32.5	19.8	30	28.1	18.7
65	200	183.5	20.6	156	153.3	33.1
69	339	—	—	277	—	—

Schedule 3 Dictionary

section 4

Apartment Design Guide means the Apartment Design Guide published by the Department on [insert date] that applies to residential apartment development.

BASIX affected building, BASIX affected development, BASIX certificate and BASIX optional development have the same meaning as in the *Environmental Planning and Assessment Regulation 2000*.

design considerations means the considerations specified in sections 14–23.

design principles means the principles specified in section 12.

design review panel has the same meaning as in the *Environmental Planning and Assessment Regulation 2000*.

green infrastructure means a network of green spaces, natural systems and semi-natural systems, including waterways, bushland, tree canopy, green ground cover, parks and open spaces, that —

- (a) supports sustainable communities, and
- (b) is strategically designed, and managed to support a good quality of life in an urban environment.

non-residential development—see section 7.

non-residential State significant development—see section 7.

prescribed hotel or motel accommodation—see section 7.

prescribed office premises—see section 7.

prescribed retail premises—see section 7.

public space means a place that is available for use by the public free of charge, including the following—

- (a) open spaces, such as parks, gardens, playgrounds, beaches, riverbanks, waterfronts, outdoor playing fields and courts and bushland,
- (b) libraries, museums, galleries, community centres, showgrounds and indoor sports facilities,
- (c) streets, avenues, squares, pavements, paths and bicycle paths.

residential apartment development—see section 5.

the Act means the *Environmental Planning and Assessment Act 1979*.

urban design development—see section 6.

Urban Design Guide means the Urban Design Guide published by the Department on [insert date] that applies to urban design development.



New South Wales

Environmental Planning and Assessment Amendment (Design and Place) Regulation 2021

under the

Environmental Planning and Assessment Act 1979

Her Excellency the Governor, with the advice of the Executive Council, has made the following Regulation under the *Environmental Planning and Assessment Act 1979*.

Minister for Planning and Public Spaces

Explanatory note

The object of this Regulation is to make amendments related to the making of the *State Environmental Planning Policy (Design and Place) 2021*.

Environmental Planning and Assessment Amendment (Design and Place) Regulation 2021

under the

Environmental Planning and Assessment Act 1979

1 Name of Regulation

This Regulation is the *Environmental Planning and Assessment Amendment (Design and Place) Regulation 2021*.

2 Commencement

This Regulation commences on the [insert date 6 months after publication] and is required to be published on the NSW legislation website.

DRAFT

Schedule 1 Amendment of Environmental Planning and Assessment Regulation 2000

Consultation note— This Schedule includes amendments to the *Environmental Planning and Assessment Regulation 2000* as in force in December 2021. Some provisions of the Regulation will be omitted and instead included in the *Environmental Planning and Assessment (Development Certification and Fire Safety) Regulation 2021*, which commences on 1 January 2022.

[1] Clause 3 Definitions

Omit the definitions of *Apartment Design Guide*, *design quality principles*, *design review panel* and *residential apartment development* from clause 3(1).

Insert instead in alphabetical order—

Apartment Design Guide has the same meaning as in *State Environmental Planning Policy (Design and Place) 2021*.

architect means a design practitioner registered under the *Design and Building Practitioners Act 2020* in the design practitioner—architectural class.

design considerations has the same meaning as in *State Environmental Planning Policy (Design and Place) 2021*.

design principles has the same meaning as in *State Environmental Planning Policy (Design and Place) 2021*.

design review panel means—

- (a) the design review panel constituted by the Minister under Part 16B for the local government area in which the development will be carried out, or
- (b) if a design review panel has not been constituted for the local government area in which the development will be carried out—the State design review panel.

design verification statement—see clause 57.

green infrastructure has the same meaning as in *State Environmental Planning Policy (Design and Place) 2021*.

landscape architect means—

- (a) a registered landscape architect member of the Australian Institute of Landscape Architects, or
- (b) a person with at least 8 years' experience in landscape design.

Local Government Design Review Panel Manual means the Local Government Design Review Panel Manual published on the NSW planning portal as in force from time to time.

non-residential development has the same meaning as in *State Environmental Planning Policy (Design and Place) 2021*.

residential apartment development has the same meaning as in *State Environmental Planning Policy (Design and Place) 2021*.

State design review panel—see clause 268B.

urban design development has the same meaning as in *State Environmental Planning Policy (Design and Place) 2021*.

Urban Design Guide has the same meaning as in *State Environmental Planning Policy (Design and Place) 2021*.

urban designer means the following—

- (a) a qualified town planner with at least 5 years' experience in precinct or master planning,

- (b) a landscape architect with at least 5 years' experience in precinct or master planning,
- (c) an architect with at least 5 years' experience in precinct or master planning.

[2] Clause 16, heading

Omit the heading. Insert instead—

16 Content of development control plan

[3] Clause 16(3)

Insert after clause 16(2)—

- (3) In preparing a development control plan, the council must consider—
 - (a) the design principles and design considerations specified in the *State Environmental Planning Policy (Design and Place) 2021*, and
 - (b) the Urban Design Guide.

[4] Clause 21A Approval of development control plans relating to residential apartment department

Omit “(if any) constituted for the council’s local government area (or for 2 or more local government areas that include the council’s area)” from clause 21A(1)(a).

[5] Clause 21A(1)(b)(ii)

Omit “the matters specified in Parts 1 and 2 of”.

[6] Clause 50 How must a development application be made?

Insert after clause 50(1AA)—

Note— See Division 1A for other information and documents required to accompany certain development applications.

[7] Clause 50(1A), (1AB) and (1B)

Omit the subclauses.

[8] Part 6, Division 1A

Insert after clause 56B—

Division 1A Documents and information to accompany development applications

57 Design verification statement

- (1) A development application for the following development must be accompanied by a ***design verification statement***—
 - (a) residential apartment development,
 - (b) urban design development,
 - (c) development involving public or common space of more than 1,000 square metres.
- (2) A design verification statement for development specified in subclause (1)(a) must—
 - (a) be prepared by an architect, and

- (b) verify that the architect designed, or directed the design of, the development, and
 - (c) explain, by reference to the Apartment Design Guide, how the development achieves the objectives of the Guide.
- (3) A design verification statement for development specified in subclause (1)(b) must—
 - (a) be prepared by an urban designer, and
 - (b) verify that the urban designer designed, or directed the design of, the development, and
 - (c) explain, by reference to the Urban Design Guide, how the development achieves the objectives of the Guide, and
 - (d) for urban design development that is State significant development—explain the following—
 - (i) the involvement of Aboriginal stakeholders in the design of the development,
 - (ii) how the development incorporates the intellectual property of the local Indigenous communities.
- (4) A design verification statement for development specified in subclause (1)(c) must—
 - (a) be prepared by a landscape architect, and
 - (b) verify that the landscape architect designed, or directed the design of, the development, and
 - (c) explain, by reference to the Urban Design Guide, how the development achieves the objectives of the Guide.
- (5) This clause requires more than 1 design verification statement for the same development application if the development application relates to more than 1 type of development specified in this clause.

57A Additional requirements for design verification statements

- (1) If the development application relates to development that requires review by a design review panel under *State Environmental Planning Policy (Design and Place) 2021*, section 35, the design verification statement must also—
 - (a) verify that the design of the development incorporates the design review panel's advice,
 - (b) explain how the development is consistent with the design review panel's advice,
 - (c) explain how the development otherwise satisfies the design principles and design considerations set out in the *State Environmental Planning Policy (Design and Place) 2021* in relation to any part of the development that is not consistent with the design review panel's advice.
- (2) If the development application is also required to be accompanied by a BASIX certificate for a building, the design verification statement does not need to address the design principles and design considerations to the extent to which they aim—
 - (a) to reduce consumption of mains-supplied potable water, or reduce emissions of greenhouse gases, or
 - (b) to improve the thermal performance of the building.

57B Design review report

- (1) This clause applies to a development application for development that requires review by a design review panel under *State Environmental Planning Policy (Design and Place) 2021*, section 35.
- (2) A development application must include a report that explains how the development—
 - (a) incorporates the advice from the design review panel, and
 - (b) is consistent with the design review panel's advice, and
 - (c) otherwise satisfies the design principles and design considerations set out in the *State Environmental Planning Policy (Design and Place) 2021* in relation to any part of the development that is not consistent with the design review panel's advice.
- (3) This clause does not apply if the development application must be accompanied by a design verification statement under clause 57.

57C Embodied energy

- (1) A development application for development to which *State Environmental Planning Policy (Design and Place) 2021* applies must—
 - (a) disclose the amount of embodied emissions attributable to the development, using the calculator published on the NSW planning portal as in force from time to time,
 - (b) describe the use of low-emission construction technologies in the development.
- (2) This clause does not apply to BASIX affected development.
- (3) In this clause—
embodied emissions has the same meaning as in *State Environmental Planning Policy (Design and Place) 2021*, Schedule 2, section 5.

57D Net zero statement

- (1) A development application for development to which *State Environmental Planning Policy (Design and Place) 2021* applies must include the following information (a *net zero statement*)—
 - (a) the estimated annual energy consumption for the building in kilowatt hours per square metre of floor area,
 - (b) the estimated amount of emissions from the building, including direct and indirect emissions,
 - (c) evidence that the development incorporates the infrastructure and space that is necessary for the building to achieve net zero emissions by 1 January 2035,
 - (d) details of how data about the emissions of the building will be able to be recorded and reported,
 - (e) for prescribed non-residential development—evidence that the non-renewable energy used by the building will be offset by the surrender of renewable energy certificates equivalent to 1 megawatt hour of renewable energy generation over 5 years.
- (2) This clause does not apply to BASIX affected development.
- (3) In this clause—

prescribed non-residential development means non-residential development that is—

- (a) State significant development, or
- (b) carried out on land in the Greater Sydney Region.

[9] Clause 99

Insert after clause 98F in Division 8A—

99 Condition relating to charging facilities for electric vehicles

- (1) It is a condition of a development consent for development that includes a car park that—
 - (a) an electricity supply distribution board is installed on each storey of the car park, and
 - (b) the electricity supply distribution board is capable of being used to charge electric vehicles, and
 - (c) the electricity supply board is clearly marked as capable of being used to charge electric vehicles.
- (2) Subclause (1) does not apply to development involving—
 - (a) a class 1, 4, 7a or 10 building, or
 - (b) a class 3 building that is not hotel or motel accommodation.
- (3) It is a condition of the development consent for development involving a class 2 or 9c building that—
 - (a) all car parking spaces provided for residents, visitors and staff are capable of supplying 12 kilowatt hours of electricity to charge electric cars for each car parking space between 11pm and 7am every day, and
 - (b) a facility to charge electric vehicles is installed in at least 10% of all car parking spaces provided for visitors, or in 1 car parking space if there are fewer than 10 car parking spaces provided for visitors, and
 - (c) storage for electrical cables must be capable of being installed within 5 metres of each car parking space provided for residents, visitors and staff.
- (4) It is a condition of the development consent for development involving a class 3 building that is hotel or motel accommodation that at least 25% of all car parking spaces are capable of supplying 48 kilowatt hours of electricity to charge electric cars for each car parking space between 11pm and 7am every day.
- (5) It is a condition of the development consent for development involving a class 5 or 6 building that at least 10% of all car parking spaces are capable of supplying 12 kilowatt hours of electricity to charge electric cars for each car parking space between 9am and 5pm every day.
- (6) It is a condition of the development consent for development involving a class 7b, 8, 9a or 9b building that at least 20% of all car parking spaces are capable of supplying 12 kilowatt hours of electricity to charge electric cars for each car parking space between 9am and 5pm every day.
- (7) It is a condition of the development consent for development involving a 2, 5, 6, 7b, 8, 9a, 9b or 9c building that the development must provide—
 - (a) facilities for charging electric vehicles other than cars, such as scooters, electric bicycles and heavy vehicles, and

- (b) at least one 10A outlet for every 4 bicycle parking spaces.

99A Condition relating to green travel plan

- (1) This clause applies to development to which *State Environmental Planning Policy (Design and Place) 2021*, section 33 applies if a green travel plan was prepared in accordance with that section.
- (2) It is a condition of the development consent that the green travel plan is—
 - (a) reviewed every 2 years, and
 - (b) implemented in a way that ensures the targets for mode share specified in the green travel plan are achieved.

[10] Clause 115 Application for modification of development consent except for State significant development

Omit clause 115(3)–(5).

[11] Clause 115, note

Insert at the end of clause 115—

Note—See clause 116 for other documents required to accompany certain modification applications.

[12] Clause 116

Insert after clause 115A—

116 Design verification statement to accompany certain modification applications

- (1) This clause applies to an application for the modification of a development consent under the Act, section 4.55(2) or section 4.56(1) if the original development application was required to be accompanied by a design verification statement under clause 57.
- (2) The modification application must be accompanied by a design verification statement.
- (3) Clause 57 applies to the design verification statement required to accompany the modification application under this clause in the same way as it applies to a development application.
- (4) If the modification application relates to development that required review by a design review panel under *State Environmental Planning Policy (Design and Place) 2021*, section 35 in relation to the original development application, the design verification statement must also—
 - (a) verify that the design of the development incorporates the design review panel's advice, and
 - (b) explain how the development is consistent with the design review panel's advice, and
 - (c) explain how the development otherwise satisfies the design principles and design considerations set out in *State Environmental Planning Policy (Design and Place) 2021* in relation to any part of the development that is not consistent with the design review panel's advice.
- (5) This clause does not apply to State significant development to which *State Environmental Planning Policy (Design and Place) 2021* does not apply.

[13] Clause 143A

Omit the clause. Insert instead—

143A Design verification requirements

- (1) This clause applies to development for which the development application was required to be accompanied by a design verification statement under clause 57.
- (2) A certifier must not issue a construction certificate for the development unless the certifier has received the design verification statement.

[14] Clauses 154A, 154AA, 154AB and 154AC

Omit clause 154A. Insert instead—

154A Design verification requirements

- (1) This clause applies to development for which the development application was required to be accompanied by a design verification statement under clause 57.
- (2) A certifier must not issue an occupation certificate to authorise a person to commence occupation or use of a building unless the certifier has received the design verification statement.

154AA Sustainability requirements for certain non-residential development

- (1) This clause applies to prescribed non-residential development to which clause 57D applies.
- (2) A certifier must not issue an occupation certificate to authorise a person to commence occupation or use of a building unless the certifier is satisfied of the following—
 - (a) the building is capable of achieving the standards for energy and water use specified in *State Environmental Planning Policy (Design and Place) 2021*, Schedule 1,
 - (b) the building incorporates measures to achieve net zero emissions by 1 January 2035, and
 - (c) the non-renewable energy used by the building will be offset by the surrender of renewable energy certificates equivalent to 1 megawatt hour of renewable energy generation over 5 years, as referred to in clause 57D(1)(e).

154AB Green travel plan requirements for certain development

- (1) This clause applies to development to which *State Environmental Planning Policy (Design and Place) 2021*, section 33 applies if a green travel plan was prepared in accordance with that section.
- (2) A certifier must not issue an occupation certificate to authorise a person to commence occupation or use of a building unless the certifier is satisfied the building is capable of implementing the measures and meeting the mode share targets specified in the green travel plan.

154AC Requirements for charging facilities for electric vehicles

- (1) This clause applies to development to which clause 99 applies.
- (2) A certifier must not issue an occupation certificate to authorise a person to commence occupation or use of a building unless the certifier is satisfied that the requirements in clause 99 that apply to the building have been complied with.

[15] Clause 164A BASIX certificates

Insert after clause 164A(2)—

- (2A) The Planning Secretary may approve other arrangements under which the sustainability of proposed development may be assessed.
- (2B) The arrangements may provide for—
 - (a) a qualified person to issue an assessment of the sustainability of proposed development, and
 - (b) the assessment to be treated as a BASIX certificate for the purposes of this Regulation.

[16] Clause 164A(4)(c)

Omit “meet the Government’s requirements for sustainability”.

Insert instead “comply with *State Environmental Planning Policy (Design and Place) 2021*, Part 3, Division 2”.

[17] Clause 164A(5)

Insert in alphabetical order—

qualified person means the following—

- (a) an architect,
- (b) a chartered professional engineer recognised by Engineers Australia,
- (c) a registered professional engineer accredited by the Association of Professional Engineers Australia,
- (d) a fellow or a member, other than an affiliate, associate or student member, of the Australian Institute of Refrigeration, Air Conditioning and Heating.

[18] Clause 248, heading

Omit “—residential apartment development”.

Insert instead “for design review panel advice”.

[19] Clause 248

Omit “is referred to a design review panel for advice”.

Insert instead “requires review by a design review panel under *State Environmental Planning Policy (Design and Place) 2021*, section 35”.

[20] Clause 258 Fee for application for modification of consent for local development

Omit “to which clause 115(3) applies” from clause 258(2A).

Insert instead “that requires review by a design review panel under *State Environmental Planning Policy (Design and Place) 2021*, section 35”.

[21] Clause 258(3A)

Omit “referred to”. Insert instead “required to be reviewed by”.

[22] Part 16B

Insert after clause 268A—

Part 16B Design review panels—the Act, s 4.64(1)

268B Constitution of design review panels

- (1) The Minister may constitute a design review panel for—
 - (a) a local government area, or
 - (b) 2 or more local government areas, or
 - (c) State significant development and State significant infrastructure (referred to as the *State design review panel*).
- (2) Before constituting a design review panel for a local government area, the Minister must consult with the council for the local government area, including in relation to the members of the panel.
- (3) The Minister may abolish a design review panel at any time and for any reason.
- (4) The Minister may make arrangements with the council for which a design review panel is constituted for the council to provide staff and facilities for the panel.
- (5) Schedule 7 contains provisions relating to the members and procedures of a design review panel.

268C Membership of design review panels

- (1) A design review panel must consist of 3 or more persons appointed by the Minister.
- (2) One of the members must be appointed as chairperson of the panel.
- (3) A person may be appointed as a member of a panel only if the person has expertise in architecture, landscape architecture or urban design.
- (4) In appointing members of a design review panel, the Minister must ensure that, as far as practicable, the panel consists of architects, landscape architects and urban designers.
- (5) A person may not be appointed as a member of a panel if the person is an officer or employee of a consent authority that is advised by the panel.

268D Functions of design review panels

- (1) A design review panel must give independent advice about the design quality of proposed development that requires review by a design review panel under the *State Environmental Planning Policy (Design and Place) 2021*, section 35 including—
 - (a) whether the development is consistent with the design principles and design considerations, and
 - (b) if part of the development is not consistent, whether the inconsistency is justified on the grounds of the design of the development.
- (2) A design review panel may give advice under subclause (1) only if requested by—
 - (a) a person seeking to make a development application, or
 - (b) a consent authority.
- (3) A design review panel must provide advice under subclause (1) within 14 days of a request from a person seeking to make a development application or a consent authority.

- (4) A design review panel may also review and provide independent advice to a council about the provisions that relate to design quality of development contained in—
 - (a) a draft local environmental plan or development control plan, or
 - (b) a draft master plan or other planning policy document, or
 - (c) a local environmental plan or development control plan in force.
- (5) A design review panel may advise a council whether it endorses provisions reviewed under subclause (4)(c).
- (6) A design review panel also has the following functions—
 - (a) to give independent advice to councils on mechanisms and initiatives to improve the implementation of the design principles and design considerations,
 - (b) to contribute to the co-ordination of design quality across boundaries of local government areas.
- (7) A design review panel may make public its advice under subclause (1) or (4) for the purposes of improving—
 - (a) the understanding of design quality, and
 - (b) the implementation of the design principles and design considerations,
- (8) A design review panel must exercise its functions—
 - (a) having regard to the design principles and design considerations specified in the *State Environmental Planning Policy (Design and Place) 2021*, and
 - (b) in accordance with the Local Government Design Review Panel Manual.

[23] Schedule 1 Forms

Omit clause 2(1)(b). Insert instead—

- (b) design drawings,
- (b1) a site analysis,

[24] Schedule 1, clause 2(1)(r)

Insert after clause 2(1)(q)—

- (r) for staged development—a staging plan.

[25] Schedule 1, clause 2(3)

Omit “sketch referred to in subclause (1)(b) must indicate the following matters”.

Insert instead “design drawings referred to in subclause (1)(b) must be drawn to scale and must include the following”.

[26] Schedule 1, clause 2(3)(f)–(f2)

Omit clause 2(3)(f). Insert instead—

- (f) drawings of the proposed landscape area, including species and materials to be used, in the context of the proposed building or buildings and the surrounding development and its context,
- (f1) compliance with development standards, including by annotations of plans, elevations and sections, such as building height and setbacks,

- (f2) existing adjacent buildings to show the context of the proposed development,

[27] Schedule 1, clause 2(3)(h) and (i)

Omit “sketch” wherever occurring. Insert instead “design drawings”.

[28] Schedule 1, clause 2(3A)

Insert after clause 2(3)—

- (3A) The site analysis referred to in subclause (1)(b1) must include the following—
- (a) drawings of the site context and wider context,
 - (b) constraints and opportunities, including the identified risks and hazards affecting the site,
 - (c) drawings of the streetscape and adjacent public areas,
 - (d) an analysis of different siting options, if relevant,
 - (e) if the development is in an area in which the built form is changing—a description of the existing and likely future context.

[29] Schedule 1, clause 2(5)

Omit “residential apartment development to which *State Environmental Planning Policy No 65—Design Quality of Residential Apartment Development* applies”.

Insert instead “development to which *State Environmental Planning Policy (Design and Place) 2021* applies”.

[30] Schedule 1, clause 2(6)

Omit the subclause.

[31] Schedule 7

Insert after Schedule 6—

Schedule 7 Members and procedures of design review panels

clause 268B

1 Term and conditions of office

- (1) A member of a design review panel holds office for the term determined by the Minister, which must be at least 2 years, and may be re-appointed.
- (2) A member ceases to hold office—
 - (a) if the panel is abolished by the Minister, or
 - (b) if the member completes a term of office and is not re-appointed, or
 - (c) if the member dies or resigns, or
 - (d) in other circumstances determined by the Minister.
- (3) A member is entitled to be paid remuneration and expenses as determined by the Minister.
- (4) A member holds office subject to the conditions determined by the Minister

2 Alternate members

- (1) The Minister may appoint one or more alternate members for a panel.
- (2) An alternate member may act in the place of a member of the panel during the absence or illness of the member.
- (3) An alternate member must have expertise in architecture, landscape architecture or urban design.
- (4) An alternate member is not required to have expertise in the same area as the member for whom the alternate member acts.
- (5) While acting in the place of a member, the alternate member has all the functions of the member and is taken to be a member.

3 Pecuniary interests

- (1) This clause applies to a member who has a pecuniary interest in a matter that is the subject of advice by the panel.
- (2) If the member is present at a panel meeting at which the matter is being considered, the member—
 - (a) must disclose the interest to the meeting as soon as practicable, and
 - (b) must not take part in the consideration or discussion of the matter.
- (3) In this clause—
pecuniary interest has the same meaning as in the *Local Government Act 1993*, Chapter 14.

4 Procedure at meetings

The procedure for the conduct of panel meetings is to be determined by the Minister in consultation with the members of the panel, taking into account the following documents—

- (a) the terms of reference for the State design review panel published by the Department in force from time to time,
- (b) the Local Government Design Review Panel Manual.

5 Quorum

The quorum at a panel meeting is 3 members of the panel.

6 Presiding member

- (1) The chairperson is to preside at a panel meeting.
- (2) In the absence of the chairperson, a person elected by the members is to preside at the panel meeting.
- (3) The presiding member has a deliberative vote and, in the event of an equality of votes, has a second or casting vote.

7 Planning Secretary guidelines

The Planning Secretary may issue guidelines in relation to the membership and procedures of a panel.

8 Existing design review panels

- (1) On the commencement of this Schedule, an existing design review panel is taken to be a design review panel under this Regulation.

- (2) During the transition period—
- (a) this Regulation, clause 268C and this Schedule, clause 5 do not apply to an existing design review panel, and
 - (b) despite this Schedule, clause 4, the procedure for the conduct of panel meetings for an existing design review panel may be determined by the existing design review panel.
- (3) In this clause—
- existing design review panel*** means a design review panel constituted under *State Environmental Planning Policy No 65—Design Quality of Residential Apartment Development* that existed immediately before the commencement of this Schedule.
- transition period*** means the period commencing on the day on which this Schedule commences and ending 6 months later.

DRAFT

Environmental Planning and Assessment (Design Principles and Considerations) Direction 2022

under the

Environmental Planning and Assessment Act 1979

I, the Minister for Planning and Public Spaces, in pursuance of section 9.1 of the *Environmental Planning and Assessment Act 1979*, give the following direction.

Minister for Planning and Public Spaces

Dated:

Name of Direction

- (1) This direction is the Environmental Planning & Assessment (Design Principles and Considerations) Direction 2022.

Objective

- (2) The objectives of this direction are to:
 - (a) ensure the design principles and design considerations set out in the *State Environmental Planning Policy (Design and Place)* [insert date] are considered early in the planning process,
 - (b) ensure the objectives of the Urban Design Guide published by the department in [insert date] are considered early in the planning process,
 - (c) integrate good design processes into planning and development to create places that support the health and well-being of the community and to achieve better built forms and aesthetics of buildings, streetscapes and public spaces by providing consistent urban design guidance that supports place-based approaches for precinct planning and development,
 - (d) to ensure planned precincts receive the appropriate design evaluation from Design Review Panels and that advice received is considered and integrated.

Where this direction applies

- (3) This direction applies to all planning authorities.

When this direction applies

- (4) This direction applies when a planning authority prepares a planning proposal that will affect land greater than 1 hectare in area and within:
 - (a) an existing or proposed residential, commercial, mixed use or industrial zone, or
 - (b) any other zone in which residential development is permitted or proposed to be permitted.

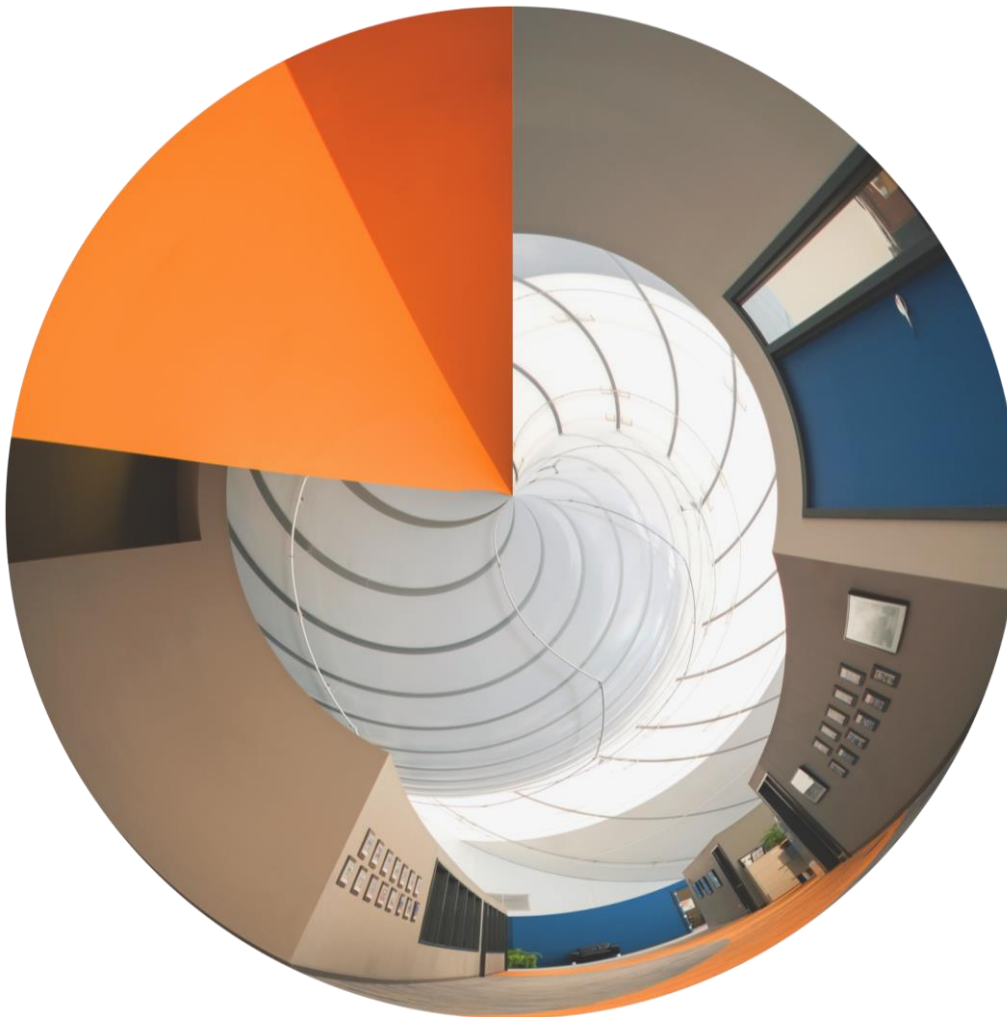
What a relevant planning authority must do if this direction applies

- (5) A planning authority must ensure a planning proposal:

- (a) takes into account and demonstrates consistency with the design principles and design considerations set out in the *State Environmental Planning Policy (Design and Place)* [insert date],
 - (b) is consistent with the objectives of the Urban Design Guide published by the Department in [insert date],
 - (c) demonstrates how it responds to Country and how it has been informed by contributions from Aboriginal stakeholders of the land, where they have been provided,
 - (d) is referred to the relevant design review panel for advice concerning the design response.
- (6) A planning proposal must, in relation to land to which this direction applies:
- (a) give effect to any relevant residential density, connectivity and open space criteria and guidance as referenced in the Urban Design Guide.

Consistency

- (7) A planning proposal may be inconsistent with the terms of this direction only if the planning proposal authority can satisfy the Secretary of the Department of Planning, Industry and Environment (or an officer of the Department nominated by the Secretary) that the provisions of the planning proposal that are inconsistent are:
- (a) justified by a strategy which:
 - (i) gives consideration to the objective of this direction,
 - (ii) identifies the land, which is the subject of the planning proposal, and
 - (iii) is approved by the Secretary of the Department of Planning, Industry and Environment (or an officer of the Department nominated by the Secretary), or
 - (b) justified by a study prepared in support of the planning proposal which gives consideration to the objective of this direction, or
 - (c) in accordance with the relevant Regional or District Plan, prepared by the Department of Planning, Industry and Environment or the Greater Sydney Commission, which gives consideration to the objective of this direction, or
 - (d) of minor significance, or
 - (e) contrary to the terms of any reservation, covenant or restriction applying to the relevant open space land.



Proposed Design and Place State Environmental Planning Policy: Cost Benefit Analysis

Department of Planning, Industry and Environment
7 December 2021

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1 Background

1.1 Purpose of this document

This document provides an overview and outcomes of the economic evaluation undertaken to assess the impact of the proposed Design and Place State Environmental Planning Policy (DP SEPP) package including the supporting policy instruments and guides.

This is a summary document. It aims to provide a brief and accessible overview of a range of other detailed analyses and reports relating to DP SEPP. These other analyses and reports will be updated as the DP SEPP develops. In particular, the components of this analysis relating to the Apartment Design Guide are based on the findings from detailed designs, feasibilities and costings prepared for five apartment sites.

The results outlined in this document are based on inputs available and analysis undertaken as at 7 December 2021. It is likely that further refinements to the analysis will be undertaken in the future which may affect both the estimated costs and benefits. These refinements would most likely relate to inputs and assumptions relating to housing forecasts as well as, potentially, updated financial inputs for some geographic regions.

1.2 The Design and Place State Environmental Planning Policy

The proposed DP SEPP is part of the broader review of all SEPPs and aims to simplify and consolidate previous policies and update legislative requirements to maximise public benefit. The goal of the DP SEPP is to promote the design of healthy and prosperous places that support the wellbeing of people, community, and the country. In addition, the DP SEPP establishes and strengthens a place-based approach to better designs, building on enhancing the attraction of the many unique places across New South Wales.

1.3 Economic evaluation

The purpose of an economic evaluation is to provide an evidence-based assessment of the impacts of proposed policies (in this case, the DP SEPP) by considering the costs and benefits of a range of options, including non-regulatory options. An economic evaluation can help identify preferred policy options as well as clarify which areas of a policy could be adapted to enhance overall outcomes.

A cost benefit analysis examines all the monetary and non-monetary or intangible costs and benefits of a proposal from the point of view of society as a whole, including economic, social, environmental and other outcomes. It is a tool for determining whether or not the societal benefits of an investment are outweighed by the societal costs, and, if so, to what extent.

This cost benefit analysis of the DP SEPP was undertaken in line with the following government requirements and guidance documents:

- Office of Best Practice Regulation: *Cost-benefit analysis guidance note*
- NSW Treasury: *TPP17-03 NSW Government Guide to Cost Benefit Analysis*.

Undertaking a cost-benefit analysis in accordance with these guidelines involves four key steps.

1. Defining a base case and project case and, as relevant, project delivery options.
2. Identifying the costs and benefits of the project.
3. Quantifying the time series path of each cost and benefit, wherever possible, or qualitatively acknowledging costs and benefits that cannot be quantified.
4. Ascertaining the net present value (NPV) of the time series path for each cost and benefit.

The results presented in this report are underpinned by stakeholder consultation and preliminary feasibilities for **five case study locations** in Greater Sydney. These preliminary feasibility studies were conducted in order to understand the revenue and cost impacts under the

proposed revisions of the Apartment Design Guide (ADG) inside the broader DP SEPP. Costs and revenues based on these hypothetical development feasibility studies are summarised in the Appendix of this report.

This cost benefit analysis builds on and utilises previous work around the DP SEPP, including previous economic studies such as that of SGS Economics & Planning for Government Architect New South Wales (GANSW) in relation to DP SEPP.

2 Policy Overview

SEPPs are instruments that address planning issues on a state-wide level. The NSW Department of Planning Industry & Environment (DPIE) regularly undertakes a review of SEPPs to help modernise, simplify and improve the effectiveness and usability of policies. Development of DP SEPP is part of the broader review of all SEPPs and aims to simplify and consolidate how to deliver good building and place design in NSW. The overarching goal of the DP SEPP is to promote the design of healthy and prosperous places that support the wellbeing of people, community, and country. Alongside, it seeks to set clearer benchmarks for development, leading to simpler and clearer approval pathways.

The proposed DP SEPP will repeal and replace State Environmental Planning Policy No 65—Design Quality of Residential Apartment Development (SEPP 65) and State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004 (BASIX SEPP), with the intention to integrate previous policies and update legislative requirements to maximise public benefit. The DP SEPP is the first principles-based regulation that incorporates considerations and guidance to encourage innovative design that maximises public benefit.

2.1 Key policy issues

The proposed DP SEPP aims to address **five key issues** associated with the current regulatory framework.

1. **A fragmented planning policy framework.** Existing design guidance and regulation in NSW lacks coherence and is disjointed across numerous instruments, leading to high level of uncertainty, risk and transaction costs for developers. The DP SEPP consolidates these regulations utilising a principles-based policy framework.
2. **Inflexible design standards.** Some design standards and requirements in NSW are excessive, inflexible, redundant or otherwise not fit for purpose, creating unnecessary cost in the development process.
3. **Low design standards leading to potential environmental cost.** The existing planning policies are not aligned with the broader strategic goals of NSW emissions reduction policy and Environment Planning Act.
4. **Unsatisfactory design outcomes having negative impact on living standards.** Poor design outcomes in precincts and large sites reduces community health and wellbeing, negatively impacting on quality and standards of living.
5. **Foregone cultural value.** There has been limited engagement with First Nation's people in urban design, planning and development. This has led to development of cities with little connection to Country and as a result denying citizens the cultural enjoyment and appreciation of the places they live and visit.

2.2 Need for the Design and Place State Environmental Planning Policy

The proposed DP SEPP aims to integrate sustainable and culturally considerate planning directions in order to become consistent with broader policy frameworks such as *Connecting for Country* and NSW's net zero policies. As such, the DP SEPP pursues a design-led, place-based approach to regulation, following five key principles:

- Deliver beauty and amenity to create a sense of belonging for people.
- Deliver inviting public spaces and enhanced public life to create engaged communities.
- Promote productive and connected places to enable communities to thrive.
- Deliver sustainable and greener places to ensure the well-being of people and the environment.
- Deliver resilient, diverse places for enduring communities.

These principles underpin the design and assessment framework for developments across NSW. The DP SEPP will apply to all development excluding class 1A buildings, consolidation or subdivision of two lots, exempted and complying development and non-urban land.

The proposed DP SEPP aims to achieve greater benefits to the wider NSW community through strengthening a place-based approach to developments. These proposed elements include increased open space, improved public amenity (i.e. increased tree plantings, cooler urban places) and encourage decreased private car usage and overriding health benefits. There will also be increased individual outcomes through increased provision of sustainable housing, increased access to services and transport options and better urban patterns and connectivity. Developers will also have increased certainty through improved early design work, greater transparency and decision making.

2.2.1 Role of DP SEPP in enhancing productivity in NSW

The proposed DP SEPP seeks to address the NSW Productivity Commission White Paper's (2021) recommendation 7.2 "to both identify where regulation is justified and ensure it applies proportionate responses, including non-regulatory approaches wherever possible". This includes investigating issues where there is no particular market failure, such as in the case of car parking provision and apartment sizes.

The DP SEPP addresses the Recommendation 7.2 of the Productivity Commission's White Paper by:

- **Simplifying the planning policy framework:** the integration of planning policies and instruments such as BASIX and SEPP 65 along with supporting the simplification and consolidation of design requirements in NSW. The addition of policy guidance such as the UDG and LGDRPM to the SEPP further support the consolidation of design requirements into a single, comprehensive policy response to address a fragmented and overly complex planning framework.
- **Adopting a principle-based policy approach:** a principle-based approach to planning policies is less prescriptive as it supports innovation and promotes better design outcomes without prescribing a solution in the policy response. This includes outlining the principles that councils should use to guide their implementation of the standards, where flexibility is needed.
- **Maximising flexibility through the DP SEPP:** design requirements within the Urban Design Guide and Apartment Design Guide are objectives based. Provisions in the DP SEPP will allow the objectives of each guide to be met in a flexible manner by satisfying the objective, either through the applicable design criteria and guidance, or by proposing suitable alternative solutions. For example, the ADG provides design guidance on minimum rates for bicycle parking in residential apartment buildings. Where these minimum rates cannot be met, the ADG provides alternative design responses which promotes active transport and reduced private car usage. Alternative design responses include the implementation of the Green Travel Plan and providing multiple car share services within 400m of the primary building entry. **To maximise flexible application of the Guides, consent decisions that are based on the Guides do not establish a precedent for future applications. This means all decisions will be based on just the application, its site conditions and the Guides.**
- **Leveraging other regulatory standards to maximise flexibility within the DP SEPP:** developers are able to offer alternative design responses to design criteria and guidance within the Urban Design Guide and Apartment Design Guide through the application of the flexibility provision on the proposed policy initiatives.

2.3 The need for government action

To determine if government action is necessary, it is important to establish if a problem exists and the size and nature of that problem. The need for government action has been formally recognised in the SEPPs review program, which aims to simplify and improve the NSW planning policy framework. Previous interventions by government through the introduction of new policies and priorities, although individually having merit, have resulted in a complex and fragmented design planning governance framework in NSW.

This demonstrates a strong need for regulatory reform to simplify the NSW planning system, bringing together disparate policies and regulatory instruments concerning design into a single document. An inconsistent and fragmented regulatory framework has led to inefficiencies and complexities in the design planning process.

There are also a number of potential market failures that could arise in the absence of the amendments made to the DP SEPP. These provide a rationale for government intervention in the management of good urban design, local amenity and the sustainable management of the State's built environment in addition to maintaining flexibility within the regulatory framework. Taken together there is a clear need for government regulation to balance the trade-offs between providing flexibility to maximise private land value, and welfare for NSW residents, businesses, and the environment through the DP SEPP.

2.3.1 Nature of the good

2.3.1.1 Public goods

The DP SEPP is a large package of reforms which addresses a range of market and non-market goods. While a large proportion of these reforms are related to market goods such as dwellings, a range of policy initiatives provide guidance for appropriate levels of public goods such as open space, green space, tree canopy requirements as well as visual and private amenity.

2.3.1.2 Common pool resources

Provisions under the DP SEPP, especially the ADG, provide guidance on the design, quality and number of facilities within an apartment such as elevators, communal and open space, car share parking, bike parking and storage requirements. These resources within an apartment can be treated as common pool resources which are prone to undervaluation because they are non-excludable but can be subject to congestion and overuse. There is a need for regulatory oversight over basic design quality for shared resources within developments, without which underinvestment can reduce amenity and liveability outcomes.

2.3.1.3 Externalities

Built environments can exert a significant negative externality on the environment that are not managed within the private market. This includes noise, light, and air pollution from construction activity as well as the contribution of the built environment on greenhouse gas emissions and exacerbating the urban heat island effect. These negative externalities detract from local amenity, deplete natural resources, and contribute to climate change by increasing carbon emissions in the atmosphere. Regulatory intervention is needed to help mitigate the impacts of these negative externalities such that an economically efficient outcome where all costs and benefits (including externalities) beyond private value are considered.

2.3.2 Availability of information

2.3.2.1 Information failure

The current planning framework provides inconsistent and fragmented information resulting in slow approval processes, poor housing affordability and lower housing supply. This is an information and communication failure, preventing the market from achieving efficient outcomes. Better regulatory oversight is required to adequately communicate the necessary information to minimise inefficient market outcomes.

2.3.3 Treatment of risks and benefits realisation

2.3.3.1 Low probability, high impact events

Market led investment will underinvest in preparation for low probability high impact events such as fire, flood, cyclone, pandemic etc. There is need for regulatory oversight to ensure adequate investment into preparation and preparedness initiatives as well as to future proof NSW's built environment. Initiatives which aim to improve design quality and build resilient infrastructure that can withstand damages from natural hazards in the DP SEPP are important to ensure these provisions are adequately invested in.

2.3.3.2 Present bias, matching costs and future option value

Present bias refers to the notion that individuals fail to fully consider ongoing costs and future needs when making decisions. An example is the long-term cost of energy consumption.

Regulatory intervention can support an early energy transition, reducing the future cost of a steeper transition curve for individuals.

Furthermore, Apartment considerations today must factor in future trends to provide adequate housing supply. Noting that population growth will increase pressures on housing supply, a shift towards families living in apartments is expected to occur. Proposed regulations within the DP SEPP enable developments to be more adaptable to future needs of a growing population, through measures which support family living.

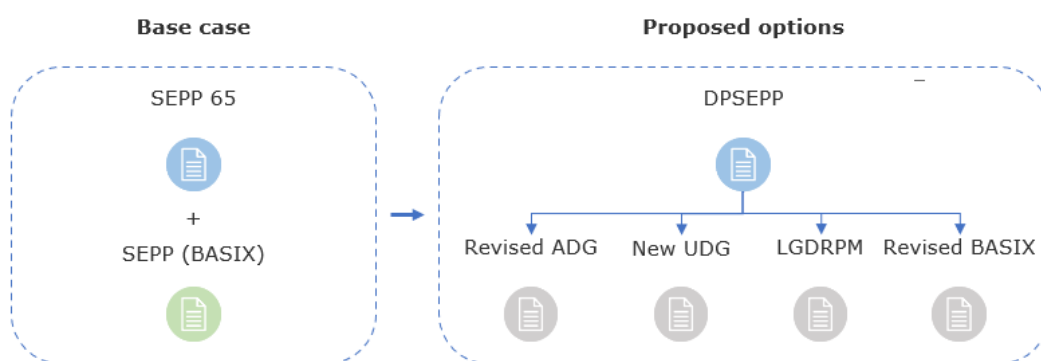
2.3.3.3 Future option value

The option value refers to the extent to which design decisions are irreversible. For example, larger spaces have an option value of being split into smaller spaces in the future. The reverse, aggregating smaller spaces into larger ones, is often cost prohibitive. Regulations around dwelling mix and yield need to be considered carefully in order to minimise the loss of future option value.

A lack of regulation can lead to a reduction in green space, which is 'locked in' and irreversible. In this sense the DP SEPP policy can help secure future option value by ensuring adequate open space, green space and building requirements are considered within the regulatory framework.

2.4 Supporting policies and guides

The DP SEPP will be supported by a revised Apartment Design Guide (ADG), a new Urban Design Guide (UDG) and Local Government Design Review Panel Manual (LGDRPM) and revisions to BASIX.



2.4.1.1 Apartment Design Guide (Revised)

The Apartment Design Guide (ADG) is a resource to improve the planning and design of residential apartment development in NSW. This replaces the 2015 version of the Apartment Design Guide. The ADG will help to achieve better design and planning for residential apartment development, by providing benchmarks for designing and assessing these developments.

There is a close and integrated relationship between this ADG and the DP SEPP. The DP SEPP refers to some parts of the ADG that must be applied when assessing development applications. Revisions to the ADG aim to address concerns around inflexible planning requirements with regards to solar access, natural ventilation, noise, apartment size and layout, deep soil and landscape design as well as car parking.

2.4.1.2 Urban Design Guide (New)

The NSW Urban Design Guide (UDG) will complement the NSW DP SEPP by facilitating place-based design approaches to planning projects considered at the scale of the city or town, the neighbourhood and the block or large sites. The UDG supports the aim of the DP SEPP in creating healthy and prosperous places for people, community and Country.

2.4.1.3 Local Government Design Review Panel Manual (New)

The Local Government Design Review Panel Manual (LGDRPM) provides advice on how to convene, conduct and participate in design review panels that are consistent, independent, expert, and timely. The LGDRPM supports the requirement within the DP SEPP for design review conducted by a design review panel (DRP) to form part of the planning approvals process for certain projects.

2.4.1.4 Building Sustainability Index (Revised)

The Building Sustainability Index (BASIX) is a scheme introduced by the NSW Government in 2004 to regulate the energy efficiency of residential buildings. The DP SEPP will replace *SEPP Building Sustainability Index: BASIX 2004* and will continue to drive sustainability targets for energy and water efficiency for housing in NSW.

2.5 Key policy initiatives for economic evaluation

The DP SEPP replaces two existing State environment planning policies namely SEPP No 65 – Design Quality of Residential Apartment Development and SEPP (Building Sustainable Index: BASIX) 2004. The relevant provisions from existing State environmental planning policies are transferred to the DP SEPP.

Additionally, the DP SEPP also establishes new guidance in the form of an Urban Design Guide and a Design Review Guide to provide a streamlined, consistent, and robust framework to address key issues and respond to each of the five principles identified for the design and assessment of places in urban and regional New South Wales.

This reform results in revisions to existing provisions under the Apartment Design Guide and BASIX. Together, this package of reforms concerns a number of existing, revised, and new policy initiatives.

Deloitte Access Economics worked with DPIE, NSW Treasury and industry experts to identify key policy initiatives from the package of policy initiatives proposed under the DP SEPP using an established set of criteria. An initiative was shortlisted as a 'key initiative' if it was considered to have a significant cost or benefit impact, or if it met the following criteria:

- involved a high degree of regulatory prescription (as per DPIE's assessment)
- had potential for high compliance costs
- was amended or new policy position (not just a continuation of existing policy settings)
- covered the full breadth of policy principles guiding the SEPP package
- was relevant to the CBA, especially with reference to the quantitative analysis.

This approach was taken as a pragmatic response to appropriately consider the range of policy initiatives proposed in the DP SEPP for the purposes of the modelling the impact of the policy in a cost-benefit analysis (CBA). Narrowing the list of policy initiatives into a priority list of key initiatives was integral to examine and quantify the incremental impacts of the proposed reform. This allowed for better identification of the types of benefits and costs applicable to each of the key initiatives, as well as guiding policy development to key areas of impact. Initiatives that were likely to impose a significant burden or elicit a strong response from certain stakeholders were included in the modelling.

After identifying key policy initiatives, Deloitte Access Economics grouped these initiatives into one of six 'impact categories' based on the similarity between costs, benefits, and stakeholders affected. Each key policy initiative was assigned to the impact category it best aligned with.

The six impact categories are identified in Table 2.1. The impact categories were designed to be mutually exclusive and comprehensively exhaustive (i.e., the impact categories listed should capture the full range of effects the key initiatives will have on the market).

Table 2.1: Description of impact categories used to group key initiatives proposed in the Design and Place SEPP

Impact Category	Description
Build requirements / due diligence	Includes initiatives that require industry to design or construct dwellings in a certain way. This also includes initiatives in the DP SEPP which reference additional application requirements to be fulfilled by developers.
Environment - energy, water and emissions	Refers to environmental initiatives that involve a requirement to incorporate water/energy sustainability elements into a design. In particular, this group includes a number of initiatives which seek to improve environmental outcomes from reducing greenhouse gas emissions.
Environment - other	Refers to initiatives that reduce the impact of developments on the environment through impacts other than the reduction of greenhouse gas emissions. In particular, initiatives in this category relate to green infrastructure requirements that reduce the impact of urban heat island effect or initiatives which seek to reduce waste. As such, this group encompasses initiatives which seek to improve sustainability and environmental outcomes, where the major impact is not emissions reduction.
Social and cultural consideration	Refers to initiatives that improve the social/cultural impact of a development, i.e., improve connection to place, empower indigenous engagement and provide social cohesion benefits.
Mobility / connectivity	Groups those initiatives that improve walkability and connectivity between places in urban precincts by prescribing certain design characteristics of those precincts.
Amenity	Refers to initiatives that improve the features or facilities of the development site and surrounds, including open space requirements and passive design goals. These initiatives provide guidance or instruction on how to improve amenity by conforming with good design practice.

Source: Deloitte Access Economics

2.6 Options considered for this analysis

In line with NSW Treasury guidelines, this report considers a base case, a non-regulatory option, and two other potential policy options.

2.6.1 Base case

The **base case** is defined as ‘business as usual’ with no change to the current regulatory system, meaning that the two existing SEPPs, namely SEPP No 65 – Design Quality of Residential Apartment Development and SEPP (Building Sustainable Index: BASIX) 2004 would not be repealed and replaced by the DP SEPP. No additional provisions to these SEPPs will be made and no new guidance in the form of an Urban Design Guide or a Design Review Guide will be provided.

2.6.2 Other options

The options for analysis in this cost benefits study are informed by the recommendations made by the NSW Productivity Commission in its White Paper on “Rebooting the Economy” published in May 2021. The White Paper finds that current design regulations under SEPP No 65 are “overly complex, prescriptive, and inflexible to the changing needs of business and residents.” An inconsistent and fragmented regulatory framework has led to declining housing supply, slow approval processes and poor housing affordability in NSW.

Under Recommendation 7.2, the White Paper recommends a review and revision of SEPP No 65 to maximise flexibility while maintaining minimum basic quality for dwellings in NSW. The options considered in this analysis explore a spectrum of policy positions to improve flexibility in design regulations whilst maintaining the minimum basic quality.

2.6.3 Option 1: Proposed Design and Place SEPP without the flexibility provision

Under option 1, developments are subject to the full set of provisions proposed under the DP SEPP. This includes the revised targets for BASIX and the ADG as well as new provisions under the UDG and DRG. Importantly, no additional flexibility would be provided to meet new design requirements other than what is already available to applicants within the proposed DP SEPP.

Revisions to the ADG aim to increase flexibility while maintaining minimum basic quality for its residents. Some elements of the ADG, although prescriptive in nature, aim to meet the changing needs for business and residents. For example, apartment mix regulations introduced in the revised ADG which alter the ratio of 1-, 2-, 3-, and 4-bedroom apartments in a development where an LGA does not already prescribe a mix, aim to mitigate future demand shortages resulting from an observed increase in families living in apartments rather than standalone dwellings. A shift towards families living in apartments will reduce demand for studios and one-bedroom apartments, which currently dominate the apartment mix in most developments. Revisions to BASIX and new provisions under the UDG aim to improve environmental outcomes and reduce greenhouse gas emissions to decarbonise residential developments and future proof urban design requirements. Finally, regulations within the DRG aim to increase transparency and reduce inconsistency in design regulations.

2.6.4 Option 2: Proposed Design and Place SEPP with the flexibility provision

Under option 2, the impacts of a flexibility provision on the proposed policy initiatives under the DP SEPP are considered. While the provisions under the DP SEPP and accompanying instruments remain unchanged in this option, the flexibility provision provides applicants with some flexibility in the application of design criteria. If a design proposal which varies design criteria can meet the objectives of the design criteria in the zone in which the development is proposed and the applicant can demonstrate the departure will result in improved planning outcomes, the applicant may deviate from prescribed design criteria.

The ability to vary design criteria, based on approval by the design assessment authority, provides applicants with additional flexibility in the implementation of the policy initiatives proposed under the DP SEPP. Furthermore, previous exclusion of regulatory guidance such as BASIX will no longer be exempt from the application of the flexibility provision.

2.6.5 Option 3: Proposed Design and Place SEPP with the flexibility provision and adjustments of selected policy initiatives

Option 3 considers a variation of Option 2 – SEPP with flexibility provision – and with adjustments to selected initiatives inside the SEPP, ADG and UDG. Many of these are existing policy provisions, not new ones proposed as part of the DP SEPP package. Adjustments to initiatives were developed in consultation with NSW Treasury and Deloitte Access Economics. Generally, those initiatives which are expected to significantly increase construction costs or impose stringent minimum standards are adjusted in this option. It is understood the initiatives also have a significant impact on reduction of amenity for consumers. Initiatives relating to open space and green space requirements as well as sustainability standards are adjusted where other regulations are expected to achieve the same impact or the initiatives in the DP SEPP exceed national standards.

3 Policy outcomes

Cost-benefit analysis (CBA) modelling is being undertaken to determine if the benefits derived from the policy outweigh the costs imposed. A summary of the interim CBA approach and results is provided in Sections 0 and 3.2.

The impacts of the flexibility provision have been considered for the most prescriptive policy initiatives within the DP SEPP and its accompanying instruments. This includes build requirements in the ADG pertaining to apartment mix, storage requirements and natural ventilation and the UDG in relation to deep soil requirements and open space regulations.

Deloitte Access Economics assumes that while significant costs related to construction activity will reduce, the administrative and compliance burden on developers and government authorities will increase as a result of the flexibility provision. Although the proposed amendments to the DP SEPP maintain that variations to development standards should meet the objectives of the development standards, there is a small reduction (5%) in the full realisation of benefits associated with provisions related to build requirements and open space requirements as a result of the flexibility provision.

3.1 Costs and benefits included in the study

Table 3.1 and Table 3.2 below summarise the costs and benefits quantified in this analysis.

Table 3.1: Quantified cost categories considered in this analysis

Cost category	Description	Impact category
Higher administrative costs: design review	Additional number of dwellings (for LGAs who do not currently have a design review panel) to undergo design review panel and local council approval process	Build requirements / due diligence
Higher compliance costs (including indigenous engagement)	Additional cost to developer and regulators for complying with regulatory requirements, applied on a per precinct/large site project basis. Not applicable to approved master plans.	Build requirements / due diligence
Construction costs – (estimated from WT)	Higher construction costs from changes to the ADG quantified by WT estimates.	Build requirements / due diligence
Higher construction cost - design	Higher construction costs arising from energy efficiency improvements.	Environment - energy, water and emissions
Higher construction costs - greenspace	Higher construction cost from those initiatives that increase open space requirements and impose higher quality standards. Green infrastructure costs arising from additional tree requirements to improve urban design.	Environment - other
Higher construction costs - noise attenuation	Higher construction cost arising from noise attenuation measures applied to residential developments that are in centres located in the night-time economy.	Environment - other
Cost of public open spaces	Construction cost associated with providing private versus public open spaces to residents.	Environment - other
Cost of car parking	Construction cost change associated with changes to car parking requirements under option 3.	Build requirements / due diligence
Cost of EV car parking provision	Additional construction cost associated with infrastructure to provide 'EV ready' car parks.	Environment – energy, water and emissions

Source: Deloitte Access Economics

Table 3.2: Quantified benefit categories considered in this analysis

Benefit category	Description	Impact category
Realised reserve development capacity	Increased yield due to increase in density regulations	Build requirements / due diligence
Reduced developer risk	Reduce uncertainty in building requirements such that the developers can mitigate against unexpected costs/project contingencies during the approval process.	Build requirements / due diligence
Reduced build cost	Reduction in car parking requirements will reduce number of parks built – reducing construction costs.	Environment – energy, water and emissions
Reduced crime	Passive design requirements which seek to improve walkability and connectivity, help reduce crime.	Environment - other
Reduced urban heat island	Reduced urban heat island effect due to additional tree canopy and deep soil requirements.	Environment - other
Improved green space aesthetics	Aesthetic value of additional trees per dwelling on urban realm. This relates only to the aesthetic value of street trees in urban spaces.	Environment - other
Increased walkability and health benefits	Initiatives geared at improving walkability and connectivity will also serve health benefits for residents.	Mobility/Connectivity
Lower operational costs	Improvements to amenity as a result of increased energy efficiency – calculated as a premium for green buildings and associated lower operational costs. Considers the reduction in embodied carbon emissions.	Environment – energy, water and emissions
Reduced greenhouse gas emissions	Reduction in greenhouse gases due to a reduction in residential car spaces. Reduction in greenhouse gasses due to increased walkability.	Environment – energy, water and emissions
Improved social cohesion	Considers the mental health and social interaction benefits for residents from improvements to urban and apartment design.	Social and cultural considerations
Improved connection to place	Increased connection to place with reference to consideration for country and Indigenous engagement.	Social and cultural considerations
Improved private amenity	In comparison to other benefits, this particular benefit captures the impact of four amenity features considered in the study were access to outdoor open space (courtyard or balcony), orientation, cross-ventilation, and open views on apartment prices	Amenity
Energy efficiency benefits	Energy cost savings for residents resulting from additional guidance on energy efficient buildings.	Environment – energy, water and emissions

Source: Deloitte Access Economics

3.2 Cost benefit analysis results

Table 3.3 below outlines the results of the CBA in 2021-dollar net present value terms (NPV) and incremental to the base case. Over 30 years, **Option 2** returns an NPV of \$980 million across NSW and a benefit-cost ratio (BCR) of 1.42. The BCR of 1.42 means that for every dollar of costs imposed by the policy, 1.42 dollars of benefit are realised.

Table 3.3: CBA results for Option 2 (NPV \$2021 \$'000 – incremental to the base case) – whole of NSW

Cost-benefit analysis 2021 to 2052 (\$'000)

Results are incremental to the base case

	Option 2
Costs	
Total costs	2,347,546
Total benefits	3,327,481
NPV	979,935
BCR	1.42

Source: Deloitte Access Economics

Limitation of our work

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Draft Apartment Design Guide

Creating great apartments
Draft for discussion 2021

A scenic landscape featuring a body of water in the foreground, with tall reeds and grasses. In the background, there are dense green trees and a clear blue sky. A semi-transparent blue rectangle is overlaid on the image, containing text.

Acknowledgement of Country

The Department of Planning, Industry and Environment acknowledges the Traditional Custodians of the land and pays respect to Elders past, present, and future. We honour Australian Aboriginal and Torres Strait Islander peoples' primary cultural and spiritual relationships to place, and their rich contribution to our society. To that end, all our work seeks to uphold the idea that if we care for Country, it will care for us.

ADG structure comparison

2021 DRAFT ADG SECTION	2021 DRAFT ADG SUBSECTION	INCORPORATING 20 15 ADG SUBSECTIONS
Introduction	Minister's foreword Government Architect's foreword About this guide How to use this guide	Introduction Minister's foreword About this guide How to use this guide
Part 1 Designing for the site	1.1 Site and context analysis	3A Site analysis 1A Apartment building types 1B Local character and context 1C Precincts and individual sites
	1.2 Built form and siting	2A Primary controls 2B Building envelopes 2C Building height 2D Floor space ratio 2E Building depth 2F Building separation 2G Street setback 2H Side and rear setbacks 3B Orientation 4C Ceiling heights (extracts)
	1.3 Site access and address	3C Public domain interface (extracts) 3G Pedestrian access and entries 3H Vehicle access (extracts)
	1.4 Relationship to the street	3C Public domain interface 4L Ground floor apartments 4S Mixed use (extracts) 4T Awning and signage
	1.5 Green infrastructure	3E Deep soil zones 4O Landscape design 4P Planting on structures
	1.6 Parking	3J Bicycle and car parking 3H Vehicle access (extracts)
Part 2 Building Design	2.1 Common circulation	4F Common circulation and spaces
	2.2 Communal spaces	3D Communal and public open space 4F Common circulation and spaces
	2.3 Apartment mix and diversity	4K Apartment mix 4Q Universal design
	2.4 Apartment configuration	4C Ceiling height 4D Apartment size and layout
	2.5 Private open space and balconies	4E Private open space and balconies
	2.6 Sunlight, daylight, shade and thermal comfort	3B Orientation 4A Solar and daylight access 4U Energy efficiency
	2.7 Natural ventilation	4B Natural ventilation 4J Noise and pollution 4U Energy efficiency
	2.8 Acoustic privacy, noise and pollution	4H Acoustic privacy 4J Noise and pollution
	2.9 Visual amenity	3F Visual privacy
	2.10 Storage	4G Storage
	2.11 Building articulation	4M Facades 4N Roof design 4R Adaptive reuse (relevant extracts)
Part 3 Environmental considerations	3.1 Energy efficiency	
	3.2 Water	4V Water management and conservation
	3.3 Waste	4W Waste management
	3.4 Materials and maintenance	4X Building maintenance
Appendices	A1: Application requirements	Appx 1 Site analysis checklist
	A2: Site and context analysis	
	A3: Solar access analysis	Appx 5 Sunlight access analysis tool
	A4: Alternative design responses for natural ventilation and natural cross-ventilation	-
	A5: Furniture schedule	-
	A6: Indicative apartment layouts	Appx 4: Apartment building example schemes
	A7: Maintenance schedule	-
	A8: Apartment building types	1A Apartment building types, Appx 4 Apartment building example schemes
	Glossary	Glossary

Minister's foreword



It is exciting to see our State coming back to life after long and difficult lockdowns. The NSW Government is committed to making it simpler, faster and cheaper for businesses to get back on their feet, and, while we get back to business, we are also making sure that safer, healthier and more inclusive places are at the heart of our communities, helping us to achieve a more sustainable and prosperous future.

The *State Environmental Planning Policy (Design and Place) 2021* (DP SEPP) aims to do just that, by ensuring that great places and great design are in the focus of our planning process.

The people of NSW deserve to live in homes that are affordable and meet the needs of our diverse and growing communities.

For the *Apartment Design Guide* (ADG) to be successful, it must result in homes that people want to live in. A landmark survey of the NSW community undertaken in September 2021, clearly showed how important private open space, air flow, sunlight, storage, green space and energy efficiency are to people across all our communities.

This review of the ADG builds on its greatest qualities, while also responding to lessons learnt since 2015, particularly in light of the pandemic. It promotes greater housing diversity and choice by including provisions for family apartments,

spaces to work or study, more storage and usable balconies. It also seeks to promote walking, cycling and public transport use by introducing greater bike parking requirements, and reducing minimum car parking requirements in suitable locations.

We've also looked at some of the pinch points experienced by councils and industry, great design can't always be quantified and written down in a series of tables. This revised ADG seeks to ensure that innovation and creativity isn't stifled by providing a clear framework for alternate design solutions where it benefits the community.

In response to this important feedback, as well as research and testing, we have made series of changes to support these needs, and we have done so while ensuring they are feasible and affordable.

The DP SEPP together with the guides will ensure we have the policy, so the people of NSW will be able to enjoy the benefits that good design can deliver – design that will make our cities and towns vibrant, productive and sustainable, while supporting the needs of people and the quality of places.

With a collective effort now, and an investment in more sustainable ways of planning, designing and delivering our homes and urban environments, we will all reap the future dividends – better health, better connected communities, more comfortable and efficient apartments for living, and a more resilient built environment.

Government Architect's foreword



Our places and buildings are for the long term. Their impacts are far-ranging, and our joint responsibility to make a positive contribution to these places is more significant than ever before.

We are faced with the urgent need for sustained economic recovery as well as having a clear focus on environmental sustainability. In the wake of the pandemic we have a whole new appreciation for how people want to work and live. We have a growing understanding about how we need to be better connected to the Country on which we reside. In this context, I am committed to ensuring the DP SEPP, together with its supporting guides, will deliver better housing and urban design outcomes for communities across NSW.

Good design plays an important role in improving peoples' mental and physical health, and the community has reinforced this understanding. We are necessarily connected to the places where we live and work, and this policy is directed at creating equitable and high-quality built spaces embedded in liveable and beautiful environments. For our neighbourhoods, workplaces, schools, hospitals and other infrastructure, this is evident in our connection to the natural environment, moments for recreation, and the ways we move around and through places and create connections. For houses and apartments, this means homes that are well-ventilated and insulated and contain ample outdoor space, with great outlook and a positive relationship to the immediate context. We want homes we love to live in – and this is even more important now as our homes are also becoming more multifunctional – they're places of work, they're our home gym, and our places to entertain.

The DP SEPP also seeks to create places that are more responsive to the environment and to our unique Australian culture. When our buildings are designed sustainably, they respond to climate, are cheaper to heat or cool, they last longer and create less waste, and are more enjoyable to inhabit. They connect to parks and walkways, they sit within cool streets that have connected soil networks and tree canopy, where stormwater is well-managed to contribute to the ecosystem rather than cause problems, and where the greater community uptake of electric vehicles is supported with appropriate infrastructure. While this reflects the NSW Government's goal to achieve net zero emissions, it also creates better places to live and work – places that have character and identity and are resilient.

The DP SEPP promotes place-based design. It focuses on the importance of sound decision-making through the use of skilled professionals, through documentation of the design process, and through participation in design review before lodgement of planning applications, fostering the optimal outcome for each site and each community.

I'm grateful for the commitment and energy of our stakeholders and colleagues across industry, government and the community, who have worked alongside us to develop a draft DP SEPP that is flexible and responsive. The policy and supporting guides that are now on exhibition will provide a clear framework to create housing, infrastructure and development that will better fit community needs now and in the future.

I look forward to continuing to work with you to finalise the policy and guides so together we can deliver the homes people want and the places they want to live, in a way that enhances the environment for us all.

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Acknowledgements

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About this guide

What is the Apartment Design Guide?

This *Apartment Design Guide* is a resource to improve the planning and design of residential apartment development in NSW. It supersedes the 2015 version of the Apartment Design Guide.

The guide is to be used in conjunction with the *Draft State Environmental Planning Policy (Design and Place) 2021* (the DP SEPP) which sets out NSW Government policy for improving the design quality of the built environment, including residential apartment development.

The *Apartment Design Guide* is a companion document to the *Urban Design Guide* (DPIE 2021), which explains how larger scale urban developments can comply with the DP SEPP requirements.

The *Draft Connecting with Country* framework (GANSW 2020) also provides guidance for all planning and design proposals across NSW.

Who is this Apartment Design Guide for?

The guide is for:

- design teams and their clients preparing planning applications for developments with residential apartments
- members of design review panels considering the design quality of development proposals
- design and planning professionals in local and state government assessing development proposals
- members of the community participating in the planning process by viewing and submitting comments on development proposals.

Application of the Apartment Design Guide

The *Apartment Design Guide* applies to residential flat buildings, shop-top housing and the residential component of mixed-use developments where these buildings are 3 or more storeys and have 4 or more dwellings, and where the development consists of the:

- erection of a new building
- substantial redevelopment or refurbishment of an existing building
- conversion of an existing building to a residential flat building.

Aims of the Apartment Design Guide

The guide aims to:

- deliver buildings that respond appropriately to the character of their neighbourhood, landscape setting and surrounding built form

- improve the liveability of apartments through greater amenity; improved layout, apartment depth and ceiling heights; and provisions for solar access, natural light and ventilation, and visual privacy
- improve environmental sustainability by supporting walking and cycling, providing greater building adaptability and robustness, improving energy efficiency, and applying water-sensitive urban design
- improve the relationship between apartments and public space including streets, lanes and open space
- promote the provision of a more diverse mix and choice of housing to suit different-sized households and people of all ages.

The *Apartment Design Guide* has been updated to respond to innovations across a range of social, economic and sustainability factors, and a growing understanding of best practice based on completed developments.

How this guide relates to the NSW planning process

The advice in this guide is framed around a set of objectives for residential apartment development. These objectives have a critical role in the documentation applicants must provide to support a development application, and the process the consent authority must use to assess the development application, as follows:

Apartment development must be consistent with the DP SEPP

The DP SEPP sets a consistent statewide policy framework for the design quality of the built environment, including residential apartment development. It establishes 5 design principles, 10 considerations and a range of key outcomes. Residential apartment development in NSW must be consistent with the DP SEPP principles and considerations.

This requirement applies to design professionals when designing residential apartment development, to design review panels when giving advice on proposals, and to consent authorities when determining a development application.

The *Apartment Design Guide* objectives are derived from the DP SEPP principles and considerations and provide further detailed guidance applicable to the design and assessment of residential apartment development.

As a consequence of its statutory authority, the DP SEPP may take precedence over, or supplement, the provisions of other state environmental planning policies, local environmental plans (LEPs) and development control plans (DCPs).

In addition, the specific matters relating to siting, design and amenity of residential apartment development that are referred to in clause 23 of the DP SEPP prevail over any inconsistent DCP controls.

The DP SEPP sets 3 non-discretionary development standards for apartment development (relating to car parking requirements and minimum apartment sizes and ceiling heights). If complied with, these standards cannot be used as a reason to refuse a development application. These standards are included in the relevant sections of this guide.

Development application requirements

Development application requirements for residential apartment development are set out in the Environmental Planning and Assessment Regulation 2000 (the EP&A Regulation). Residential apartment proposals also need to meet the development application requirements set out in the DP SEPP.

A list of the documents and evidence required to support an application for apartment development can be found on the NSW Planning Portal.

How to use this guide

Residential apartment development in NSW must be consistent with the *Apartment Design Guide* (ADG) objectives.

This guide includes objectives, design criteria and design guidance. The objectives are considered as universal requirements for achieving good urban outcomes in keeping with the 5 principles of the DP SEPP. These are outcomes that will ultimately benefit the health, wellbeing and prosperity of our homes, places and planet.

It is acknowledged that projects will have different responses depending on the site, scale, brief and typology. The objectives are not prescriptive controls, and the guide provides criteria and detailed guidance that describe how they can be met. The design criteria are quantitative benchmarks that if met, will achieve the objective. For some objectives only design guidance applies. The design guidance

offers qualitative advice for how objectives can be achieved through appropriate design responses. This guide also includes a framework for developing 'alternative design solutions' that allow designers to find the best solution for their site. Where an alternative is proposed, the development application (and specifically the design verification statement) must demonstrate how this delivers a neutral or beneficial planning outcome when assessed against the objective.

Documentation of the design process, including technical submissions or other evidence to support alternative design responses, particularly options that have been considered, is critical to demonstrate the best planning outcome for the site is achieved.

The criteria and guidance included in this guide is not exhaustive, and each site and project will have a unique response. We can't create great places by writing a rule for everything, however we can begin to define what is important, and use skill, expertise, good processes and sound judgement to help us get there.

Our places and buildings are for the long term. Their impacts are far ranging, and our joint responsibility to make a positive contribution to our places is more significant than ever before.

Design verification statement

The EP&A Regulation requires a qualified designer to prepare a design verification statement which should demonstrate how the proposal provides the best possible design response for the site, and how it meets each of the ADG objectives.

The statement should direct the consent authority to where they can find evidence supporting the design response. (This could be a reference to a drawing, a table or another report, or the evidence can be provided in the design verification statement.)

The DP SEPP requires a consent authority to consider the design verification statement when determining a development application.

Design review

Design review provides independent expert design advice on development proposals. It can help to improve the design quality of developments, and is a requirement for all apartment development proposals in areas where there is a design review panel.

The design verification statement submitted as part of a development application for a residential apartment building requires the applicant to set out how the proposal responds to advice from the design review panel, and to justify any departures from that advice. A template for this response is included in the *Local Government Design Review Panel Manual* (DPIE 2022).

The *Local Government Design Review Panel Manual* provides information on the review of development proposals by independent council-appointed design review panels.

Structure of the guide

Part 1 – Designing for the site

This part explains the benefits of a site and context analysis, and how consideration of place and broader context informs site-specific design decisions. This advice applies to preparation and assessment of development applications. It includes guidance on how an apartment development can contribute to and enhance its context by considering its interface with adjoining properties and public realm.

Part 2 – Building design

This part addresses the design of apartment buildings in more detail. It focuses on building form, layout, functionality, landscape design and residential amenity. This advice applies during the design process and to the preparation and assessment of development applications.

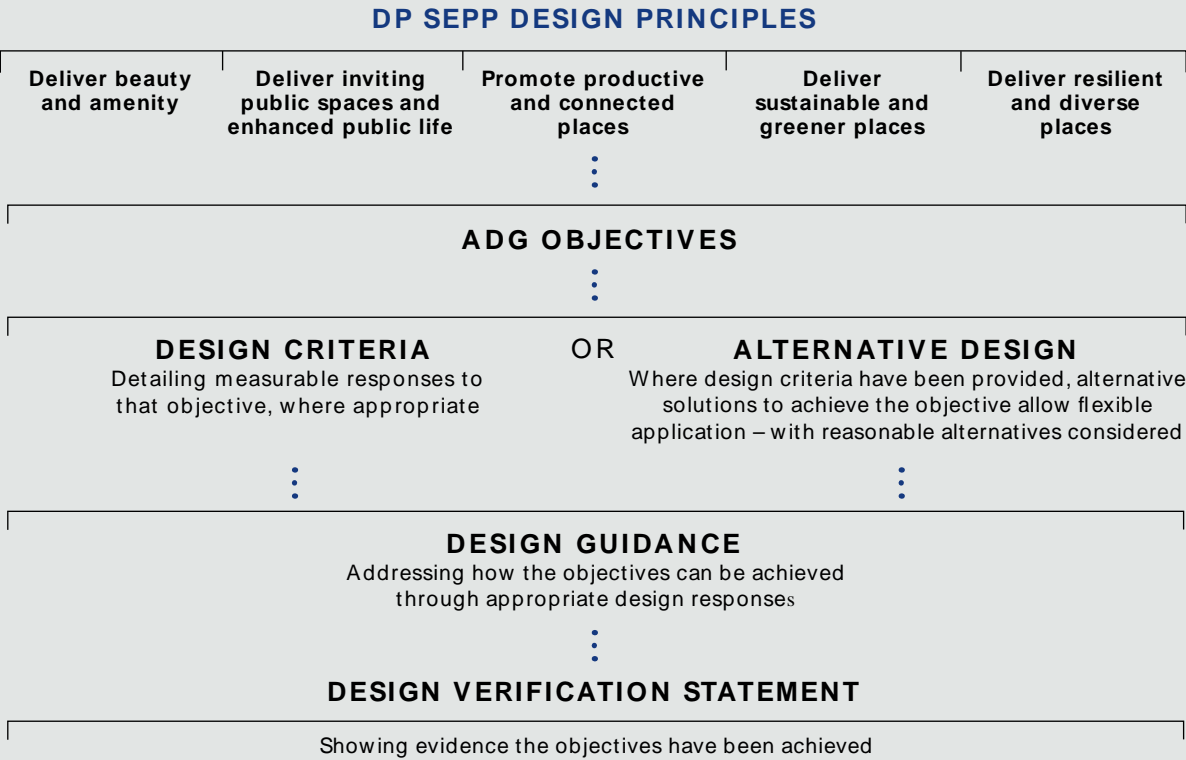
Part 3 – Environmental considerations

This part addresses the environmental performance of both individual apartments and apartment buildings as a whole. It provides guidance on energy and thermal performance, water, waste, and building materials and maintenance.

Appendices

This part addresses documentation of the design process, including technical submissions or evidence to support alternative design responses.

Figure 1: Line of sight from the DP SEPP to the Apartment Design Guide





PART ONE

Designing for the site

1.1

Site and context analysis

Good design responds and contributes to its context, including key natural and built features and the influence of social, cultural, economic and environmental factors.

Analysis of the context and the project site is the critical first step of the design process. Describing the elements of the locality and the conditions affecting the site identifies opportunities and constraints and reveals how new buildings should respond to and enhance the quality and character of the area.

OBJECTIVES

- 1.1 Base design decisions on comprehensive site analysis, strategic planning priorities and the site's contextual opportunities and constraints.

DESIGN GUIDANCE

Site and context analysis

Undertake a comprehensive site and context analysis. Capture this analysis in the design verification statement, explaining how it has informed design decisions. Typically, this involves 3 steps:

1. **Gather** information about the site's contribution and response to its context, gained from site inspections, primary research and other sources (e.g. consultation, searching online).
2. **Synthesise** the information to understand the site parameters holistically.
3. **Interpret** and distil the information to establish key design considerations for the site which will be addressed through further exploration.

Consider the site and context at 3 scales:

Catchment: an area defined by the walkable distance that encompasses key community amenity, including for example public transport, public open space, a town centre (zoned for commercial uses) or a school.

Neighbourhood: an area which includes adjacent blocks and a minimum of 2 intersections and may be defined by its shared building forms and detail (e.g. in a statement prepared by the local council).

Site: adjoining properties, and properties on the other side of the street.

Technical consultants (e.g. surveyors, landscape architects, contamination specialists, geotechnical engineers and arborists) can contribute greatly to a thorough understanding of the site and the preparation of a detailed site analysis.

See Appendix 2.1 and 2.2 of this guide for a more detailed explanation of site analysis, a checklist, and how the process should be recorded in the design verification statement. The *Urban Design Guide* also provides guidance on place-based design and site analysis.

'Place-based design': responding to context and character

Analysing the context informs how new buildings should respond to and enhance the quality and identity of a particular place and contribute to creating the desired future character. The desired character can range from retaining the existing look and feel of an area to establishing a completely new character based on different uses, street patterns, subdivision, densities and typologies.

Typically, the desired character of an area is described within local planning controls and strategies, such as development control plans and local housing strategies. These establish expectations about the environmental, social, cultural and economic elements of a place that should be maintained, enhanced or changed.

The site as part of an urban system

Each site, and the elements within a site, are part of a network or system. For example: an existing tree is not only related to the site on which it is located, but is connected to a broader network of green infrastructure, providing shared amenity to neighbouring properties; supporting soil health, local ecosystems and biodiversity; and reducing urban heat.

Informed by analysing the elements of urban systems, such as green and blue infrastructure, and experiencing a place through site visits (before and during the design process and at different times of the day and year), the design response is more likely to create an outcome that is successfully embedded in its environment and community.

Cultural context – response to Country

A critical first step in analysing the cultural context of a site is gaining an understanding of Country, with respect to the site, as defined by local Traditional Custodians and knowledge-holders.

The meaningful associations we make with a place, the things which happen on or in that place, and the physical characteristics of a place, together allow us to understand a 'place-based' way to design. A well-rounded and holistic understanding of place sustains and respects culture.

All Aboriginal communities are responsible for nurturing narratives and sustaining memories that shape and maintain landscapes for future generations. Understanding a place is a subtle and complex combination of strong physical and emotional interconnection to the meaning, activity and physical form of Country. All NSW communities can learn from this understanding, and through this lens bring cultural awareness to the way we consider the design of the built and natural environment and the preservation of natural surroundings.

The *Draft Connecting with Country* framework (GANSW 2020) provides more information supporting this approach, including engagement with Traditional Custodians and knowledge-holders. Connecting with Country recognises

that places have both Aboriginal and non-Aboriginal histories that need to be shared and acknowledged. The framework advocates a shift towards a Country-centred approach which views all natural systems including people, animals, resources, and plants, as equally important parts of a connected ecosystem. As the Traditional Custodians of the land and waters, Aboriginal people have a deep and ongoing connection to these elements through their experience of Country. Country includes tangible and intangible aspects including knowledge and cultural practices, belonging and identity, wellbeing, and relationships. Aboriginal people maintain a strong belief that if we care for Country, it will care for us.

At the scale of an individual site, particularly a site within an established area, the design team are encouraged to research the local story of Country as it applies to the site, starting with accessing local government resources and advisory committees. The site analysis checklist in Appendix 2.2 highlights some required information.

Should early investigation into Country identify a significant finding relating to the site or area, then actions may be required to comply with the *National Parks and Wildlife Act 1974*, administered through Heritage NSW.

Refer to case study projects included in the *Draft Connecting with Country* framework.

NAIDOC week event at Hyde Park, Sydney.
Photo: City of Sydney Council



1.2

Built form and siting

Well-designed built form and appropriate siting of apartment buildings is fundamental to enhancing amenity and maximising the enjoyment and experience of place.

- By shaping and framing the surrounding space, built form can:
- contribute to establishing future desired character
 - safeguard green infrastructure
 - ensure residential amenity through access to fresh air, sunlight and daylight, outlook and visual privacy, while being protected from noise, pollution and urban heat.

The built form and siting of apartment development should be designed to respond to and respect its context, including the topography, urban grain, scale, setbacks, proportions, materials and visual and social relationships, as understood through the site analysis process.

OBJECTIVES

- 1.2.1 The built form responds to the historic, cultural, and planning context, streetscape and open spaces with appropriate building height, bulk, setbacks, and separation.
- 1.2.2 Minimise built form impact on neighbouring sites and properties, limit overshadowing in winter, and protect the privacy of adjacent properties.

DESIGN CRITERIA

Separation between windows and balconies ensures visual privacy. Minimum required separation distances from buildings to the side and rear boundaries are listed in Table 1.2.1.

Table 1.2.1:
Best practice minimum building separation distances

BUILDING HEIGHT	BETWEEN NON-HABITABLE ROOMS	BETWEEN HABITABLE AND NON-HABITABLE ROOMS	BETWEEN HABITABLE ROOMS (INCLUDING BALCONIES)
Up to 4 storeys	6 m	9 m	12 m
5-8 storeys	9 m	12 m	18 m
9+ storeys	12 m	18 m	24 m

DESIGN GUIDANCE

Siting

Locate, orientate and configure building forms in response to the site analysis.

Articulate the skyline using a variety of building heights and stagger built form in relation to street walls, with adequate tower separation to protect access to sunlight and sky view for the surrounding public realm and neighbouring properties. (See Figure 1.2.1.)

Test the desired built form and siting outcome to ensure it supports the objectives and design guidance set out in this guide. In particular:

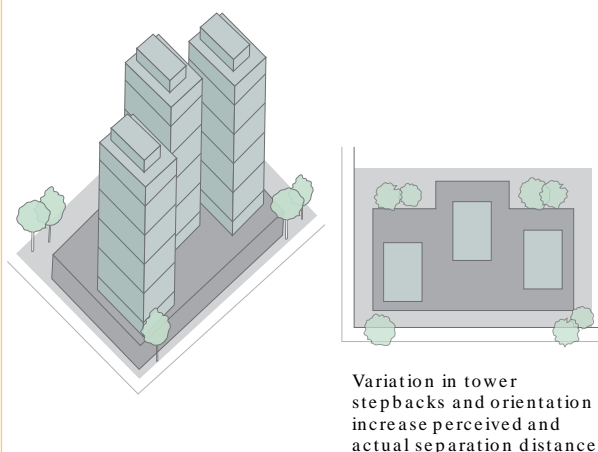
- building separation
- open spaces
- apartment layouts and amenities such as adequate access to sunlight and daylight, shade, natural ventilation, and visual and acoustic privacy.

To determine the site planning, including entry levels, carefully consider natural systems like ground and surface water management including flooding.

Figure 1.2.1

Staggering built form and including adequate tower separation protects access to sunlight and sky view for the surrounding public realm and neighbouring properties, and improves privacy and daylight within tall buildings.

Adequate minimum separation distance between buildings promotes privacy, daylighting and at-grade access to sunlight and sky view



Variation in tower setbacks and orientation increase perceived and actual separation distance

Building separation and setbacks

Align building separation and setbacks with building use. For example, in town centres zero street and side setbacks may be appropriate to define a street wall.

When measuring building separation:

- share separation equally between adjacent sites, so each building is located no closer than half the required separation distance from the property boundary
- treat gallery access circulation areas as habitable space, with separation measured from the exterior edge of the circulation space.

For residential buildings next to commercial buildings, to measure separation distances:

- for retail, office spaces and commercial balconies use the habitable room distances
- for service and plant areas use the non-habitable room distances.

Define built form through building separation and setbacks relative to the desired streetscape, development pattern and local landscape features (refer Figure 1.2.3).

Reinforce a street edge or define a future streetscape with the front building line.

Match the rhythm, spacing, form and street aspect ratios of existing development that achieves the desired future character of the area.

Frame views, and step back from special buildings and landscape features including heritage items or other elements with local significance.

Retain significant trees and landscaping and consolidate deep soil zones between properties and within the public realm.

Consider the articulation of balconies and landscaping within the street setback.

Consider secondary upper-level building setbacks and separation to reinforce the desired streetscape, scale of buildings at the street level, and at other frontages to open spaces.

Minimise overshadowing of the surrounding areas, streets and other buildings.

For some site conditions, building separation and setbacks may need to be increased beyond the minimums noted in Table 1.2.1:

- to achieve adequate solar access and open space on the site, and avoid overshadowing of public space and overlooking of neighbours e.g. on sloping sites
- to respond appropriately to the scale of neighbouring sites
- for future street or footpath widening.

Alternative design responses – building separation and setbacks

Where building separation distances cannot be met (e.g. in the adaptive re-use of existing structures), maximise the visual amenity of apartments using other design strategies. See Figure 1.2.6, and Part 2.9: Visual amenity.

Demonstrate adequate daylight and ventilation is achieved: see Parts 2.6 and 2.7.

Building floorplates, depth and articulation

The building 'envelope' includes allowable gross floor area as well as building components that do not count as floor space but contribute to building design and articulation, such as balconies, lifts, stairs and open circulation space.

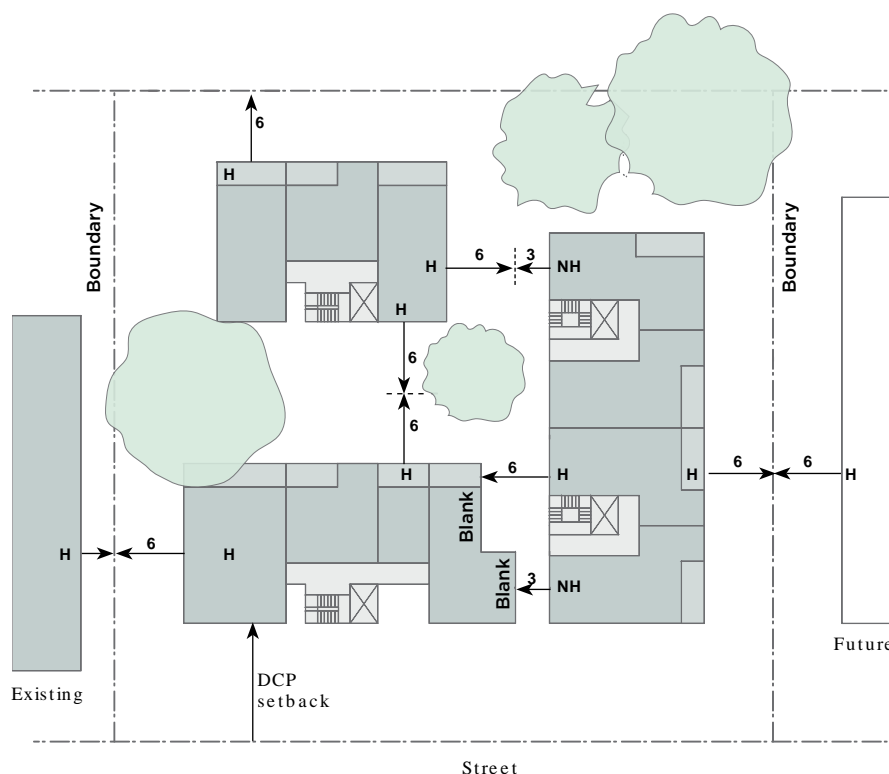
For apartment tower floorplates (any part of a building 10 storeys and above), ensure the overall size provides maximum amenity for apartments (e.g. solar access, cross ventilation, common circulation) and minimises impact on surrounding public space and surrounding buildings (e.g. overshadowing, impact on sky views from public space and visual bulk).

The overall building depth should provide for optimal cross-ventilation (see Part 2.7: Natural ventilation), daylight access (Part 2.6: Sunlight, daylight, shade and thermal comfort), building separation, landscaping, sky views and sunlight access to neighbouring buildings and open space.

For mixed-use buildings, align building depth with likely uses. For example, transition deeper commercial or retail podium levels to a narrower residential floorplate above.

Figure 1.2.2

Any one development will need to accommodate appropriate setbacks and building separation for a variety of site conditions. The separation distances shown in this diagram are based on a development of up to 4 storeys.



H: habitable room
NH: non-habitable room

Consider varying building depth relative to orientation and height. Buildings facing east–west capture sun from both aspects and may support dual-aspect apartments of greater depth (see Part 2.7), while buildings facing north–south should be shallower to reduce the number of south-facing apartments that have limited or no direct sunlight access (see Part 2.6).

Shape, stagger and off set built form within the site and in relation to adjacent development to achieve optimal amenity for public and communal space and individual apartments. See Figures 1.2.2 to 1.2.6.

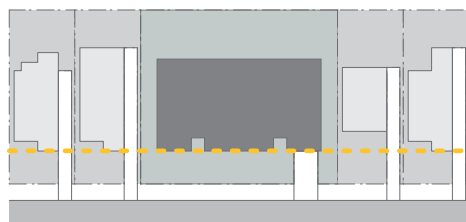
Use building articulation to break down the visual bulk of the building and provide visual interest.

- Consider the pattern of neighbouring built form and desired character of the street (Figure 1.2.3)

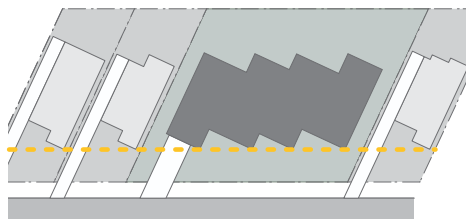
Figure 1.2.3

Building separation, and side and street setbacks, should relate to the immediate context, and to desired future character, as defined by planning strategies.

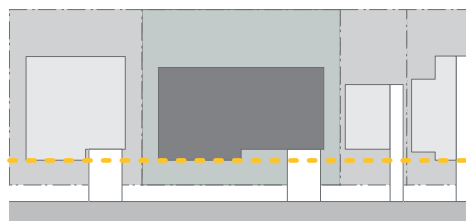
1. Predominant setback



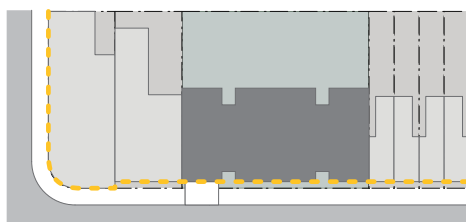
2. Variation for angled subdivision



3. Setback range



4. Building line



- Use design solutions such as facade recesses, narrower widths or bays and material variation to create separation.
- Where any building length exceeds 40 m, division into separate elements will help reduce the overall bulk of the building.

Where building depths exceed those suggested to achieve adequate daylight access (Part 2.6: Sunlight, daylight, shade and thermal comfort) and natural ventilation (Part 2.7: Natural ventilation), demonstrate the alternative design can achieve the objective of acceptable amenity for apartments. This may require additional building articulation and higher ceiling heights.

Figure 1.2.4

New development adjacent to existing buildings should provide adequate separation distances to the boundary in accordance with the design criteria.

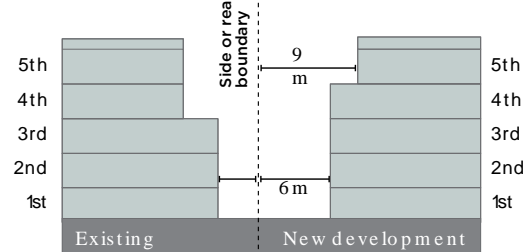


Figure 1.2.5

Within the same site, minimum separation should be shared equitably between buildings. On sloping sites, appropriate separation distances ensure visual privacy for apartments on different levels.

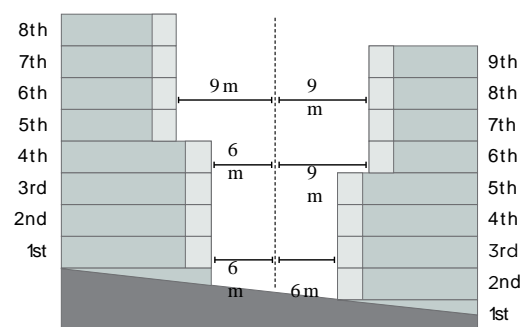
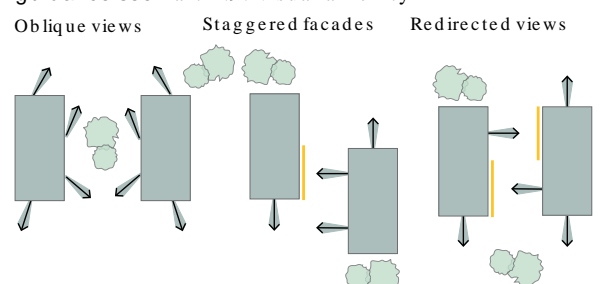


Figure 1.2.6

Shaping, staggering and realigning built form achieves better amenity for public and communal space as well as visual amenity for individual apartments. For further guidance see Part 2.9: Visual amenity.



Building height

Appropriate building height ensures adequate daylight and sunlight access, as well as sky view, is available for apartments, communal open space, adjoining properties and public space.

See Part 2.4: Apartment configuration for minimum residential ceiling heights.

Where flooding conditions require the ground level to be raised, minimum ceiling heights in Table 2.4.2 of Part 2.4 still apply.

- Accommodate the following within the permissible building height:
- rooftop communal open space including lift and stair access and shade structures
 - articulated roofs designed to enhance design quality.

Relate the height of buildings and other built form elements to context-specific features such as natural landforms, heritage items or other buildings that are unlikely to change (such as strata subdivided buildings).

Define an overall height, street wall or podium height in relation to existing datum lines, such as eaves, parapets or cornices.

Align floor-to-floor heights of new development with existing built form.

For buildings without podiums, or for built form above a podium, adopt a single setback that is equal to or greater than the separation distance required for the overall building (see Figure 1.2.7).

In locations such as main streets and centres where buildings incorporate blank party walls and a continuous street wall is desirable, no building separation is necessary.

For generating the height of buildings in mixed-use development, Table 1.2.2 provides recommended floor-to-floor heights to maximise future flexibility of use.

Table 1.2.2
Recommended floor-to-floor height for future proofing (to promote future flexibility of uses) in mixed-use development.

AREA	RECOMMENDED FLOOR-TO-FLOOR HEIGHT (MIN.) FOR MIXED-USE DEVELOPMENT
Ground floor non-residential uses	4.2 m
Ground floor residential uses	3.6 m
First floor residential uses	3.6 m

Figure 1.2.7
Setbacks and minimum building separation distances should increase proportionally to the building height. Minimise multiple steps.

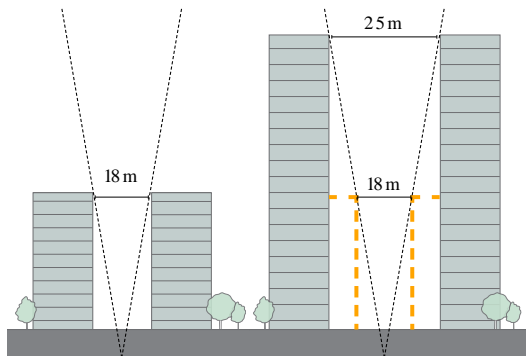
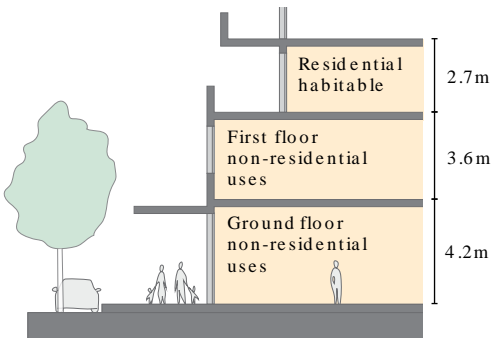


Figure 1.2.8
Higher floor-to-floor heights are encouraged for retail and commercial floors of mixed-use developments, to promote flexibility of use and allow larger ceiling spaces for additional services.





Pedestrian through-site links need to be direct with clear sightlines to each end. Windows and balconies should overlook through-site connections to provide passive surveillance. Landscape buffers create visual amenity and provide shade. Refer to Objective 1.3.1. Central Park by Ateliers Jean Nouvel and PTW, Photo: Brett Boardman

1.3

Site access and address

Clear and connected pedestrian networks provide amenity for local communities, support walkability, enable active and safe streets, and reduce reliance on car travel. Reinforcing pedestrian and cycling networks within larger sites can amplify existing connections and improve public space by increasing permeability and access.

Clear entry points to developments, direct entries to ground floor apartments and visible non-residential uses (where appropriate), contribute to the life and legibility of the street, add to the identity of the building and the character of the streetscape.

Well-designed building entries also enable efficient servicing of the development and delivery of goods to residents.

OBJECTIVES

- 1.3.1 Any pedestrian link should prioritise walking and cycling and provide access to streets and connection to local destinations.
- 1.3.2 Entries are clear, visible, safe, and accessible, and contribute to the life and activity of the street.

DESIGN GUIDANCE

Through-site links

Through-site links reduce the impact of large building mass on its surroundings and promote fine-grain connectivity and permeability, and improve walkability in the immediate street network.

Where a site is sufficiently sized to support the inclusion of through-site links, and for all sites with internal pathways, consider the design and location of links.

Facilitate direct connections along desire lines between attractors within the development (communal spaces, non-residential uses) and the wider context (public open space, main streets, centres and public transport).

- Use types of links appropriate to the local context and their primary use, e.g. shared zones, laneways, paths or arcades.
- Make links direct and accessible from public space.

Provide clear sightlines for safety and good lighting. Consider minimum lighting and lux levels as set out in *AS 1428.2-1992 Design for access and mobility Part 2*.

Provide through-site links in locations that are overlooked by habitable rooms and private open spaces of apartments and adjacent development for passive surveillance.

Provide active uses where appropriate.

Integrate with and extend the green infrastructure network, tree canopy and landscape buffers to soften built-form interfaces.

Provide integrated facilities to support cycling (for more detail see Part 1.6: Parking).

Site access

Relate access and entries to the surrounding pedestrian and street network.

Consider the rhythm and grain of the surrounding context in the design of access and entrances.

Make entries easy to identify and directly accessible from the surrounding streets and public space.

Maximise the number of entries that face the street to improve accessibility, passive surveillance, and opportunities for activation.

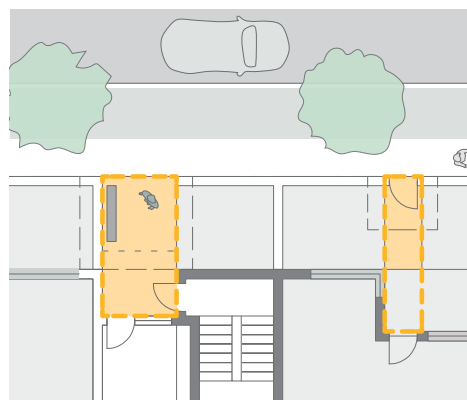
Make lift lobbies, stairwells and hallways clearly visible from communal open spaces and public space.

Provide direct access to ground floor apartments where they address a street, public open space or a proposed through-site link. These connections, via a private terrace, balcony or courtyard, are opportunities for activation and passive surveillance.

In developments with multiple street frontages, buildings or entries, differentiate the entries to improve legibility using architectural detailing, landscaping, changes in colour and materials, or public art. Ensure clear sightlines and pathways are available to secondary building entries where they do not have a street address. For larger developments, provide wayfinding and signage.

Figure 1.3.1

Successful building entries define public and private space, are clearly identifiable and activate the street.



Accessibility and serviceability

Integrate steps and ramps into the overall building and landscape design.

Minimise steps and level changes along pathways and, where not conflicting with flood planning, at transitions between public space and entries, ground floors and car parks.

Consider larger than minimum widths of common pathways to allow people with prams, wheelchairs and mobility aids to pass each other easily.

Prioritise access by equitable and sustainable modes of transport, especially walking and cycling, by providing:

- appropriately designed ramps and facilities for bicycles, mobility scooters and prams connected to common circulation spaces
- clearly identified access to resident bicycle parking.

Minimise conflicts between pedestrians, vehicle access and movement routes adjoining the site.

Provide clear sightlines where vehicles cross pedestrian pathways.

Separate and distinguish pedestrian and vehicle access. Techniques include changes in surface materials or levels, or separation with landscaping

Locate mailboxes in a secure area and in close proximity to the main building entry, or integrated into individual apartment street entries where possible. For best practice regarding the location and alignment of mailboxes, see Australia Post guidelines.

Consider access for deliveries, especially for bulky items, and where parcels may be left without contact with the addressee.

Alternative design responses – street entries

Where direct street access to ground floor apartments is difficult to achieve, provide primary access from common circulation. This applies:

- where there may be a significant level change across the site
- where the existing or proposed street setback is greater than 3 m
- to retain mature planting and existing landscape features
- on noisy or high-traffic roads
- for apartments designed for or able to be adapted for universal access, where apartment amenity can be improved by raising the ground floor level above the street.

For further guidance on ground floor apartments see Part 1.4 Relationship to the street, and for internal circulation see Part 2.1 Common circulation.

Design ground floor apartments to address public space and be accessed directly from the street.
OneA by Breakspear Architects, Photo: Tom Ferguson



Breaks between buildings, colour and landscaping can be combined to help identify building entries. The Burcham, by Allan Jack + Cottier, Photo: Tom Ferguson





Features such as awnings, blade walls and signage contribute to building entries that are clearly identifiable from the street. Refer to Objective 1.4.3. Verve, Hill Thalys with CKDS, Photo: Brett Boardman

1.4

Relationship to the street

The way in which an apartment building meets the ground plane and public space significantly influences the quality, character and life of a neighbourhood.

Non-residential interfaces in mixed-use development increase the activity and vitality of residential areas and local centres, accommodate local businesses, and support the local economy. This contributes to walkable neighbourhoods where local services and jobs can be accessed easily.

Residential interfaces such as ground floor apartments, building entries, private open space, communal and circulation spaces can relate to the human scale of the street and contribute to the activity and safety of the ground plane. Where street activation is not provided through non-residential use, direct access to ground floor apartments facing a street can improve street activation and passive surveillance.

OBJECTIVES

- 1.4.1 Provide building and landscape interfaces with the street that deliver safe, secure, and high-amenity building entries and ground floor apartments
- 1.4.2 Maximise street activation and passive surveillance of public realm through appropriate active street frontages or ground floor apartments.
- 1.4.3 Integrate awnings and signage into the built form to provide orientation and wayfinding

DESIGN GUIDANCE

Transition between public and private space

Built form and landscape interfaces with public space can support safety by encouraging passive surveillance and activating the street. Interfaces at the ground plane are particularly important.

Arrange uses, entries, private open space, common spaces and internal circulation so they view the street and open space.

Limit the length of blank and solid walls, particularly along street frontages.

Consider the principles of crime prevention through environmental design (CPTED).

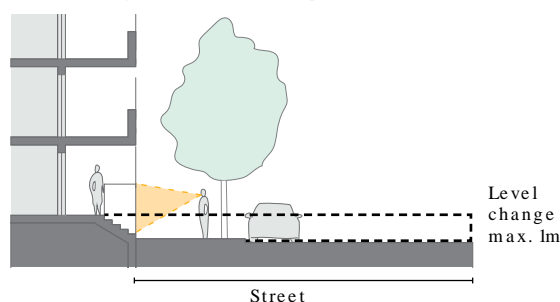
Use soft landscaping to soften the street edges of any raised terraces, such as the edges of private open space and basement car parking. Use layered planting to provide privacy rather than solid fences.

Design ground floor levels and entry points to respond to adjoining public space levels, minimising the extent of ramps or stairs required for building access.

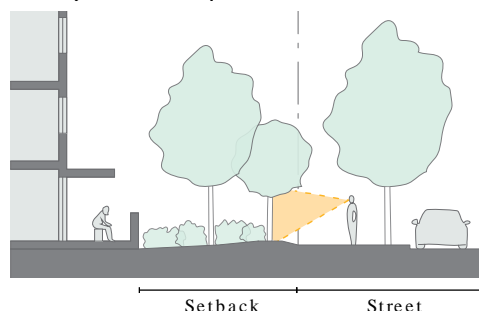
Avoid ground floor levels located below the footpath level, or more than 1m above it. Where this can't be avoided, use well-designed landscape setbacks to achieve the objectives.

Figure 1.4.1 Public realm interface scenarios

A change in level from the footpath to a ground floor apartment up to 1m enhances privacy while allowing surveillance of the public realm.



Gardens with a variety of plantings including trees and shrubs can enhance the quality of the public realm, while providing privacy and amenity benefits to apartment residents.



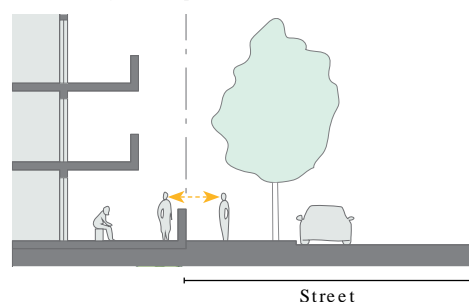
Residential interfaces

Design frontages between private space and public or communal space to balance activation and openness with privacy and safety. Design solutions include:

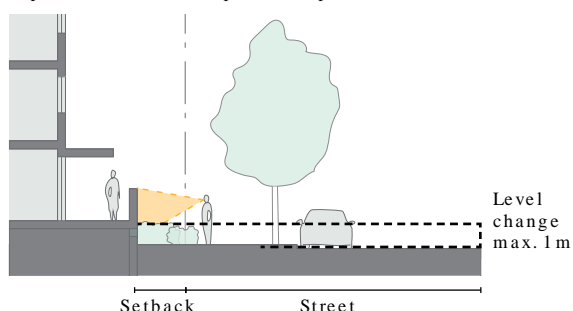
- raising the floor level of ground floor private open spaces and terraces (maximum 1m above the street level)
- using window, glazing and balcony configurations that minimise sightlines into apartments while providing passive surveillance of the ground plane
- maximising sunlight and daylight access for ground floor apartments by using:
 - high ceilings and tall windows
 - trees and shrubs that allow sunlight access in winter and provide shade in summer
- creating flexibility in the design of the ground floor component of double-storey apartments to accommodate uses such as a home office.

Consider opportunities for residents' casual interaction with public space, such as providing seating at building entries, in common circulation areas, near front boundaries, or in private courtyards next to streets.

Ground floor terraces at street level can help promote activity along a street and contribute to the safety of the public realm.



Where ground floor apartments are elevated above the footpath, landscaping should be considered to soften the building edge and improve the relationship with the public realm.



Mixed-use and non-residential interfaces

Consider incorporating non-residential uses by providing commercial, retail, community or public spaces, informed by local needs and planning policies. Proximity to foot traffic, public transport and town centres is also an important consideration.

Design solutions include providing:

- spaces that are adaptable, accommodating diverse uses and activities that can change over time (see Part 1.2 for floor-to-floor heights which support flexible use)
- direct street access and address
- a variety of ground floor tenancy spaces that offer greater street activation than a single large tenancy, or where a larger tenancy is planned, additional facade articulation including multiple entry points
- outdoor dining, where local planning controls allow, and the design can accommodate:
 - weather protection including shade
 - sufficient space for pedestrians to pass seating areas comfortably
 - deeper setbacks or recesses to the ground floor facades where streets have narrow footpaths.

Consider these options early in the design process, to ensure non-residential spaces are well-proportioned and fit for purpose.

Where non-residential uses are located beside noisy roads or hostile environments, consider including landscaping or courtyards to provide protected outdoor areas adjacent to active uses.

Locate non-residential uses on lower levels of buildings in areas where residential use may not be appropriate or desirable, such as along main roads or railway lines.

Commercial floors can be a useful buffer at first floor level between residential apartments on upper floors and busy active ground floor uses such as food and beverage premises.

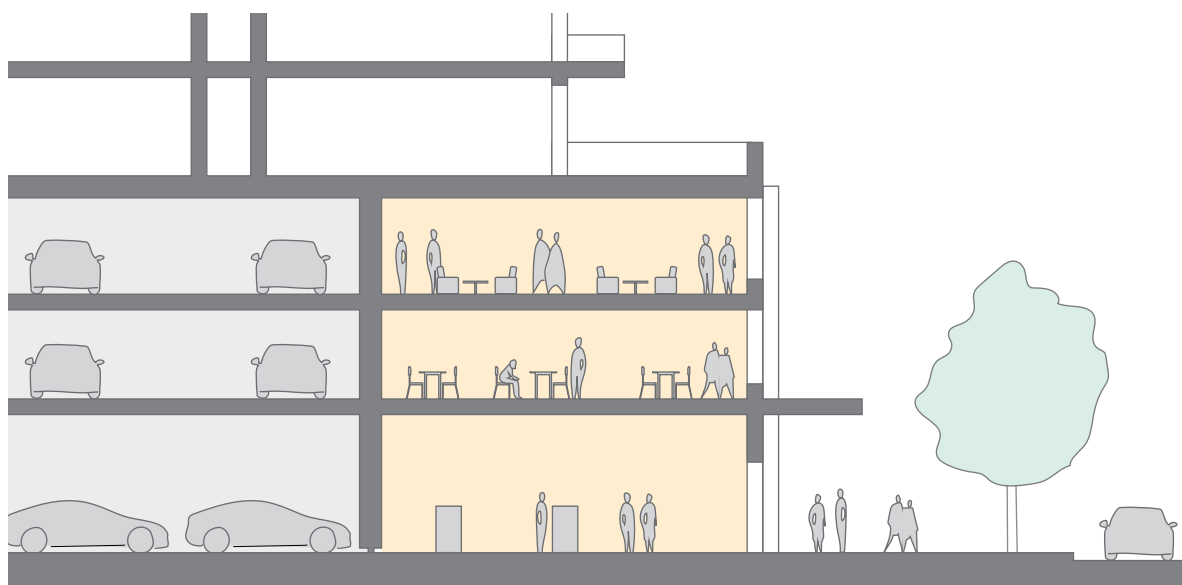
Where non-residential uses are unachievable or inappropriate, consider other ways of promoting greater street activity, such as:

- live-work apartments or home office spaces at ground floor level
- ground floor apartment layouts supporting small-office-home-office (SOHO) use, that provide opportunities for future conversion into commercial or retail use (see Part 1.2: Built form and siting for recommended floor-to-floor heights to support adaptability)
- 2- to 3-storey terrace or townhouse apartments.

Active uses can be used to 'sleeve' above-grade parking and activate the street, as shown in Figure 1.4.2.

Figure 1.4.2

Active uses can be used to 'sleeve' above-grade parking to activate the street.



Utilities and building services

Reduce the visual impact of utilities and building services on public space by locating them in basement car parks wherever possible, including substations, pump rooms, water tanks and waste storage areas.

Where building services are required to be located at or above ground level, including waste facilities, loading areas, car parking vents, rainwater goods, and infrastructure for electrical, fire, hydraulic or mechanical services, ensure they are:

- visually and physically recessive
- integrated with the development's built form and landscape
- not in front of the primary building frontage
- screened with planting or other design elements.

A diversity of uses improves access to services and promotes walking, social interaction and safety. Newmarket by Bates Smart, Photo: Felix Mooneerem.



Awnings and signage

Design awnings and signage to contribute positively to prevailing streetscape, built form and amenity, and character.

Provide awnings along streets with high pedestrian activity and active frontages, and at all building entries, to define entry points and provide weather protection.

Design awnings to:

- provide continuity along the street and align with existing awnings and street patterns, including wrapping around corners
- integrate and conceal building services including gutters, downpipes and cabling for signage and lighting
- integrate appropriate artificial lighting for pedestrian safety
- avoid impact on or conflict with street trees and other green infrastructure and consider their growth over time.

Integrate signage and wayfinding elements into the building design so they respond to the scale, proportion, materials and detailing of the development, and are consistent, legible, discrete and well-designed.

Setbacks can be used to retain existing trees which increase the quality of the development and the surrounding public space. The facade of this project was significantly inset to retain a mature fig tree in the street frontage. SOP by Bligh Voller Nield Architecture, Photo: Murray Fredricks.



1.5

Green infrastructure

Green infrastructure is the network of green spaces, natural systems, and semi-natural systems that support sustainable communities.

Successful landscape design, best undertaken by a qualified landscape architect and considered early in the design process, responds to place and optimises the existing natural and cultural features of a site. It considers the connectivity between elements on a site and the broader network of urban green infrastructure.

The primary landscape design elements that contribute to green infrastructure in apartment development include deep soil zones, green cover including tree canopy, and planting on structures.

Green infrastructure provides neighbourhood and residential amenity, reduces urban heat and improves air quality. By supporting biodiversity and habitat, it contributes to ecological resilience and assists stormwater infiltration and flood mitigation. Green infrastructure supports community health and wellbeing and contributes to sustainable urban development by offering opportunities for public space and active transport corridors.

Landscape design responds to the underlying natural environment, existing site conditions, and significant features such as trees and rock outcrops. It creates green spaces for respite, recreation and places to garden and grow food. Landscape design also enhances environmental performance and microclimate by incorporating diverse and appropriate planting and biofiltration. It can provide connections across urban habitat to support native plants and animals.

OBJECTIVES

- 1.5 Provide and retain sustainable landscaping, planting and trees, including planting on structures and in deep, connected soil.

DESIGN CRITERIA

Deep soil

Table 1.5.1: Deep soil and tree canopy area targets

SITE AREA	MINIMUM DIMENSION	DEEP SOIL ZONE % OF SITE AREA	MINIMUM CANOPY TARGET (%) OF SITE AREA
<1500 m ²	3 m	10 %	15%
1500 m ² +	3 m, with a wider contiguous portion that is a minimum 6 m wide and at least 25% of the minimum deep soil area	15%	20%

Note: Table 1.5.1 deep soil targets are a minimum recommendation. Local controls reflect variations in character and local context, and take precedence where their requirements are greater than these. Tree canopy spread is calculated at maturity (refer Table 1.5.2) and includes newly planted as well as retained trees on site.

For sites where it is not possible to provide sufficient deep soil, e.g. mixed use developments where the basement or building envelope fills the site, use alternative options for green cover, such as planting on structures, including for landscaped communal open space offering amenity and outlook for residents.

DESIGN GUIDANCE

Deep soil

Soils are important for sustaining a healthy ecosystem. Healthy and connected deep soil networks allow trees to thrive and provide maximum environmental benefit. There is no equivalent to deep soil, and its provision should always be prioritised as a key design consideration. To meet the green infrastructure objective, Table 1.5.1 provides targets for deep soil zones.

Prioritise deep soil zone locations to:

- retain and protect natural soil profiles to support existing vegetation, especially during the construction process
- maximise the area of undisturbed deep soil and minimise cut and fill
- retain existing trees in front and rear setbacks
- maximise contiguous areas of deep soil by co-locating with deep soil areas on adjacent sites and in the public realm. See Figure 1.5.1 and 1.5.2.

Figure 1.5.1

Where possible, co-locate deep soil areas across lot boundaries to support canopies of large trees.

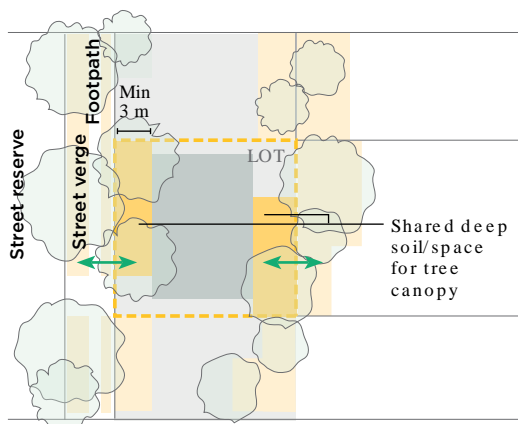
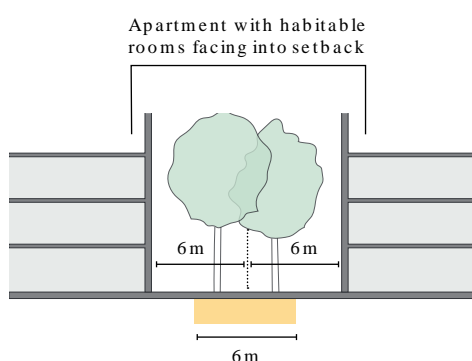


Figure 1.5.2

Setbacks provide opportunities for shared deep soil across boundaries to allow for the growth of large canopy trees, which provide privacy and outlook for apartments.



Coordinate the building and landscape design with services engineering disciplines to ensure service locations do not compromise deep soil.

Consolidate basement car parking beneath building footprints to allow for maximum deep soil.

Where deep soil and communal open space is co-located in areas relied on for minimum deep soil area, if a communal facility is provided it should be a 'minor structure' only, as defined in the glossary.

Figure 1.5.3

Opportunities for deep soil zones are increased when parking levels are contained within the building footprint.

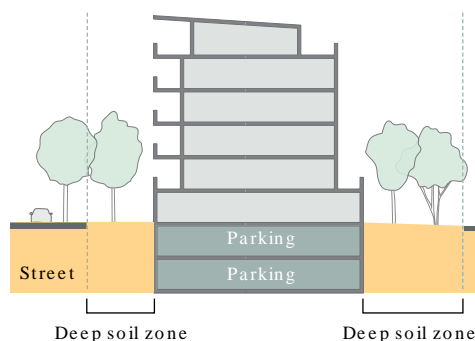
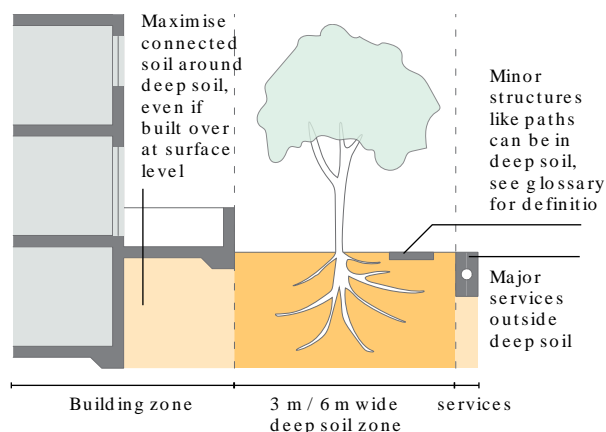


Figure 1.5.4

Consolidate deep soil areas and minimise intrusion of built elements and services to allow for growth of large canopy.



Tree canopy

Tree canopies support sustainable, liveable and cool neighbourhoods with more shade and cleaner air, providing more beautiful places to live.

Domestic use of air conditioning in NSW is projected to increase by 90 per cent by 2050. Trees can reduce household energy costs by providing an alternative, non-mechanical mechanism for cooling, and direct tree shade is shown to reduce household cooling kilowatt hours by 30 per cent.

Table 1.5.2 provides tree canopy sizes at maturity, which can be used to calculate the percentage of tree canopy required for the site area in Table 1.5.1.

Table 1.5.2: Tree size and mature canopy spread

TREE TYPE	MATURE CANOPY SPREAD
Small	Minimum 6 m diameter
Medium	Minimum 8 m diameter
Large	Minimum 12 m diameter

It is best practice to:

- replenish canopy through sufficient new tree planting of a suitable mature size
- allow sufficient deep soil for the development of healthy root systems, providing anchorage and stability for mature trees.

Table 1.5.3: Tree planting rates

SITE AREA	TREE PLANTING RATE
<650 m ²	For every 350 m ² of site area, or part thereof, at least one small tree is to be planted in the deep soil area
650 to – 1,500 m ²	For every 350 m ² of site area, or part thereof, at least one medium tree is to be planted in the deep soil area
1,500 m ² +	For every 575 m ² of site area, or part thereof, at least one large tree or 2 medium trees are to be planted in the deep soil area

Retaining trees

Mature trees provide the best and most immediate form of canopy and contribution to habitat. Retain and protect existing trees, including those on adjoining sites.

Locate building envelopes, basements and driveways in order to maximise the number of trees able to be retained on site.

Have existing trees assessed by an arborist to ascertain safe usual life expectancy (SULE), structural root zones (SRZ) and tree protection zones (TPZ).

Protect trees in accordance with *AS 4970–2009 Protection of trees on development sites*, and arborist recommendations.

Categorise retained trees by canopy size and include them in the tree canopy calculation.

Show trees for retention and removal on site plans and other relevant drawings; include the TPZ of retained trees.

Protect significant trees and landscape features using appropriate signage and fencing during construction.

Deep soil zones promote the growth of larger trees which improve amenity and local microclimate. The Burcham by Allan Jack +Cottier, Photo: Tom Ferguson



Tree and plant species selection

Select trees and other types of planting that are suited to site conditions, and document this as part of the landscape design. Consider:

- drought and wind tolerance
- seasonal changes in sunlight access
- modified substrate depths for a diverse range of plants
- plant longevity
- size at maturity and capacity for healthy root growth
- water availability and irrigation
- soil type
- local ecology and suitable endemic species.

Where a landscape maintenance plan is being provided, see the additional guidance in Part 3.4: Materials and maintenance, and Appendix 7.2: Landscape maintenance.

Planting on structures

Table 1.5.4:
Minimum requirements for planting on structures

PLANT TYPE	SOIL VOLUME	SOIL DEPTH	SOIL AREA
Turf		200 mm	
Ground covers		300–450 mm	
Shrubs		500–600 mm	
Small trees	10m ³	800 mm	3.5 m x 3.5 m or equivalent
Medium trees	36 m ³	1,000 mm	6 m x 6 m or equivalent
Large trees	120 m ³	1,200 mm	10 m x 10 m or equivalent

Note: dimensions in Table 1.5.4 have been calculated assuming irrigation. Any subsurface drainage requirements are in addition to these minimum soil depths.

Provide suitable locations on site and adequate soil, drainage and irrigation to ensure the ongoing health of planting.

Reinforce structures for additional saturated soil weight.

Provide soil volume appropriate for plant growth. Consider:

- modifying depths and widths according to the planting mix and irrigation frequency
- free draining and long soil life span
- tree anchorage.

Design irrigation and drainage to respond to:

- changing site conditions
- soil profile and planting regime
- whether rainwater, stormwater or recycled grey water will be used.

Design solutions include:

- green roofs, including on top of podiums, particularly where roofs are visible from the public realm
- edge planters and planter boxes to communal and private open spaces.

Green cover

In addition to deep soil areas, green cover can include planting on structures (rooftops, podiums, planters) and landscaped areas such as lawns or gardens in communal open space.

For sites where it is not possible to provide sufficient deep soil, e.g. mixed-use developments where the basement or building envelope fills the site, use alternative options for green cover, such as planting on structures, including for landscaped communal open space offering amenity and outlook for residents.

Green roofs

Green roofs can be extensive or intensive. Depending on the depth of substrate used and the level of maintenance required:

- intensive green roofs are generally greater than 300 mm deep and include accessible landscape spaces with pathways and other features
- extensive green roofs are generally less than 300 mm deep and not traffi cable.

Green walls

Green walls may be desirable in certain circumstances and where ongoing maintenance can be assured. To accommodate green walls, integrate planting structures into a building facade.

Methods for planting on structures include raised planters and a mix of shallow and deep-profile garden beds, useful in situations like roof gardens. Eve by DKO, Photo: Brett Boardman.



Texture and colour in rooftop planting with appropriate soil volumes and integrated seating contributes to vibrant communal space for residents. New Life Darling Harbour by Architectus, Photo: Brett Boardman.





Planters integrated into a facade can give the impression of a green wall and provide additional amenity for apartments.
Infinity by Koichi Takada, Photo: Tom Ferguson.

1.6

Parking

Integrating car parking within apartment buildings has a significant impact on site planning, streetscape, landscape and building facade design.

The location, form and organisation of car parking is usually a balance of development feasibility, site constraints, local context, apartment types and regulatory car parking requirements. Vehicle access must be integrated with site planning from an early stage to balance any potential conflicts between traffic patterns, streetscape elements and safe pedestrian access.

Car parking requirements are broadly based on proximity to alternative transport, and may be reduced in certain areas by the preparation of a green travel plan that details the alternative sustainable transport options that will be available. Where car dependency can be reduced by residents walking, cycling and using public transport instead, it may be possible to reduce the number of car parking spaces.

Designs should also consider and respond to developments in technology, and make provision for electric vehicles (EVs).

OBJECTIVES

1.6.1 Minimise car parking and provide access to alternative transport facilities such as car sharing and cycling, where appropriate.

1.6.2 Support cycling for transport with bicycle parking.

1.6.3 Support sustainable vehicle use by providing 'EV-ready' car parking.

1.6.4 Minimise conflicts between pedestrians and vehicle access to the site and create high quality streetscapes.

NON-DISCRETIONARY DEVELOPMENT STANDARD

Car parking

Car parking requirements for residents and visitors are either set out in the *Guide to Traffic Generating Developments (RTA 2002)*, or as prescribed by the local council. Whichever is the lower requirement is the minimum required for development in the following locations:

- on sites that are within 800 m of a railway station or light rail stop in the Sydney metropolitan area
- on land zoned, and sites within 400 m of land zoned B3 Commercial Core, B4 Mixed Use or equivalent in a nominated regional centre (see glossary).

In all other locations, car parking requirements are as prescribed by the local council.

DESIGN GUIDANCE

Car parking

Provide the car parking needs for a development off-street.

Design above-ground parking within a building to allow for future adaptive re-use, for either residential, retail or commercial use, as appropriate for the area, with floor-to-floor heights suitable for achieving minimum ceiling heights (see Part 2.4: Apartment configuration).

Make provision for 'EV-ready' connections for all residential car parking spaces as outlined in Part 3.1: Energy efficiency.

Provide a shared EV connection to 10 per cent of spaces allocated for visitors, or one space if fewer than 10 spaces are allocated for visitors (see Part 3.1).

Prioritise and provide convenient access and parking for sustainable modes of transport.

Consider deep soil zones, stormwater management and the retention of trees during initial design stages, as these can affect the size and shape of a car park footprint.

Locate basements predominantly below the building footprint. Avoid the front, rear and side setbacks where possible, to allow for consolidated and connected deep soil zones between properties and within the public realm.

Separate parking and facilities for residential and non-residential uses to improve security.

Minimise the visual and environmental impacts of car parking through:

- using efficient layouts and ramp design
- limiting protrusions of car parking structures to a maximum of 1m above ground level (measured from the top of the structure)
- using landscaping and screening to reduce visibility from public space
- avoiding lighting or noise impacts affecting public space or private dwellings.

Ensure safe movement within car parks by:

- providing direct, clearly visible and well-lit pedestrian access to common circulation areas
- establishing a clearly defined and visible lobby or waiting area to lifts and stairs
- providing pedestrian pathways separate to vehicular access where possible, to minimise use of vehicular ramps by pedestrians
- marking pedestrian crossing zones over vehicle circulation and using bollards where appropriate to protect pedestrian movement.

Vehicle entries

Balance the visual impact of vehicle entries so they are clearly visible but also recessive to the overall building form and streetscape.

Locate car park and vehicle entries behind the building line.

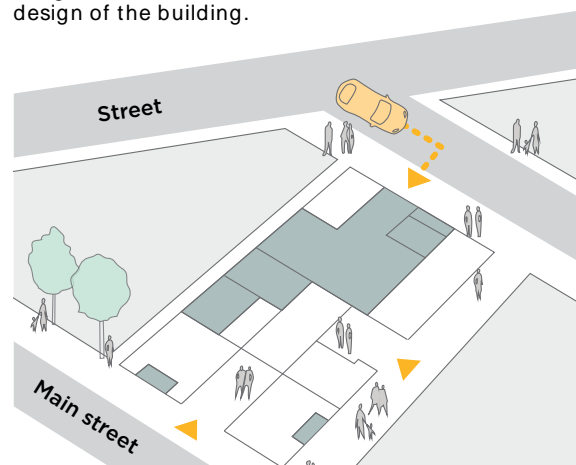
Design and locate vehicle access points to achieve safety, minimise conflicts between pedestrians and vehicles, and create high-quality streetscapes. Where possible locate vehicle access to the site for servicing and car parking on secondary streets, to minimise the impact on public space.

Minimise the width and number of vehicle access points, ramp length and visual impact.

Integrate ventilation grilles or screening devices for car parking openings into the facade and landscape design.

Figure 1.6.1

Minimise the impact of car parking and vehicular access points on the streetscape by accessing onsite car parking from secondary streets where possible, and integrate the vehicle access into the design of the building.



Bicycle parking

Provide minimum bicycle parking rates as set out in Table 1.6.1, or according to local DCP requirements, whichever is greater.

Provide bicycle parking for residents which is:

- undercover and located at ground, first floor or basement level 1
- secure and easily accessible from the public realm and common circulation areas
- clear of obstructions, clearly marked, and via routes which avoid conflict between cyclists, vehicles and pedestrians.

Provide visitor bicycle parking:

- in close proximity to building entries
- integrated into the design of the ground floor interface when provided externally
- preferably undercover.

Consider providing a portion of Class A (*AS 2890.3*) bicycle parking spaces untethered to apartments and available for rent from the body corporate.

Class A bicycle parking spaces on individual apartment titles can contribute to the calculation of storage volumes (outside apartments) required by Part 2.10: Storage.

Make bicycle parking easily accessible from street level, on grade, by lift or using ramps of a maximum gradient of 1:15.

If the development includes a major retail destination, provide proximate public bicycle parking close to and integrated with the public space and street design.

For clusters of bicycle stands in public space, avoid more than 8 spaces to allow for ease of access and minimise visual impact.

Consider providing an area 2 m x 2 m as a dedicated bicycle maintenance zone, equipped with a bike stand, and adjacent to bicycle parking. Access to electricity for battery charging is useful for e-bikes and cargo e-bikes.

Table 1.6.1 Minimum rates for bicycle parking

TYPE	RATE	BICYCLE PARKING CLASS (<i>AS 2890.3</i>)
Residential use	1 space per 1 dwelling	Class A or B
Commercial use	1 space per 200 m ² of floor space	Class B
Visitor	1 space per 10 dwellings	Class C

Bicycle parking class as set out in *AS 2890.3–2015: Parking facilities*, Part 3: Bicycle parking

Alternative design responses

Consider providing parking for alternative forms of transport such as car share vehicles, motorcycles and bicycles, and opportunities to reduce the overall provision of car parking, where:

- an option to include a site-specific response through a green travel plan is possible
- multiple car share services and multiple transport modes with frequent services are available within 400 m walking distance of the primary building entry
- adapting an existing structure for re-use means the requirements for car parking cannot be met.



Lumina, by DKO. Photo: Ben Guthrie

PART TWO

Building design

Blackwattle by Turner, Photo: Brett Boardman

2.1 Common circulation

The design of common circulation can positively influence the amenity of apartments, by increasing opportunities for dual-aspect apartments, as well as contributing to built form, articulation and the building's relationship to the street.

Successful design of lobbies, internal corridors, external galleries and vertical circulation such as lifts and stairs provides residents with a sense of belonging and opportunities for casual social exchanges that foster a sense of community.

Common circulation spaces within a building are shared by residents and their visitors, not only to access the apartments, but importantly, to access communal spaces and facilities critical to daily life and social needs, such as open space, communal facilities, waste rooms, additional storage and parking.

Important design considerations include universal access, safety, amenity and durability.

OBJECTIVES

- 2.1 Maximise the amenity of common circulation areas and provide services for maximum building occupancy to create socially inclusive, secure, and safe circulation spaces.

DESIGN CRITERIA

The maximum number of apartments accessed from a circulation core on a single level is 8.

Lift handling capacity and anticipated waiting times, demonstrated in a vertical transportation report prepared by a suitably qualified person, comply with the minimum standards in *ISO 8100-32:2020 Lifts for the transportation of persons and goods – Part 32*:

- average waiting time: 60 seconds or less
- handling capacity: 7 per cent or more.

DESIGN GUIDANCE

Configuration and layout

Design common circulation spaces to maximise opportunities for dual-aspect apartments, including multiple-core apartment buildings and cross-over apartments.

Articulate corridors greater than 12 m long. Design solutions include:

- a series of foyer areas with windows and spaces for seating
- wider areas at apartment entry doors and varied ceiling heights.

Consider providing greater than minimum requirements for corridor widths to allow for comfortable movement, universal access, and doormats, particularly in entry lobbies, outside lifts and at apartment entry doors.

Ensure visual and acoustic privacy between common circulation spaces and apartment interiors. Avoid habitable room windows opening directly onto common circulation spaces even if unenclosed.

Figure 2.1.1

Limit the total number of apartments accessed from one circulation core to 8 or fewer, to minimise single-aspect units, support a sense of community and limit overcrowding.

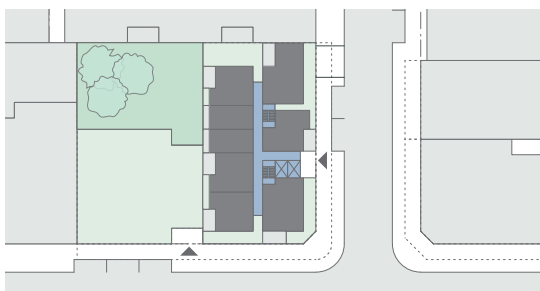
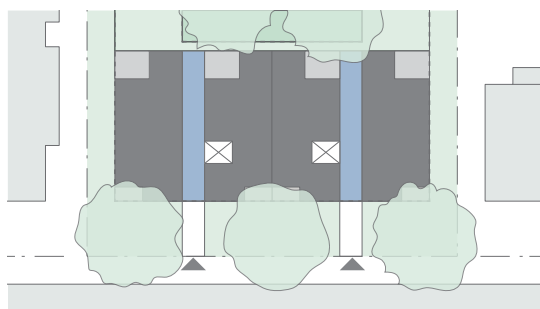


Figure 2.1.2

Multiple cores improve natural cross-ventilation and provide more entries along the street, increasing activity and passive surveillance.



Alternative design responses

Where a development is unable to achieve 8 or fewer apartments accessed from a circulation core on a single level, provide a high level of amenity for apartments, common lobbies and corridors, including:

- sunlight and natural cross-ventilation in apartments
- access to ample daylight and natural ventilation in common circulation spaces
- common areas for seating and gathering
- generous corridors with greater than minimum widths and ceiling heights
- other innovative design solutions that provide high levels of amenity.

Although 8 apartments is preferable, where this is not possible consider 12 apartments as the maximum number accessed from a circulation core on a single level.

Figure 2.1.3

External gallery access can be used to maximise a desirable aspect for apartments or as a buffer to a noise source.

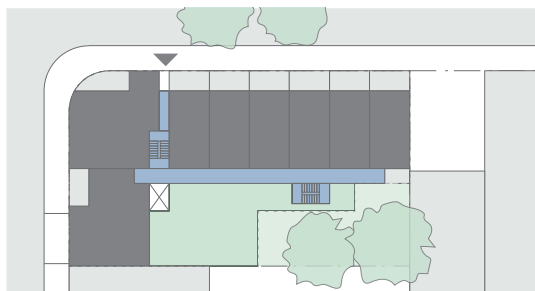
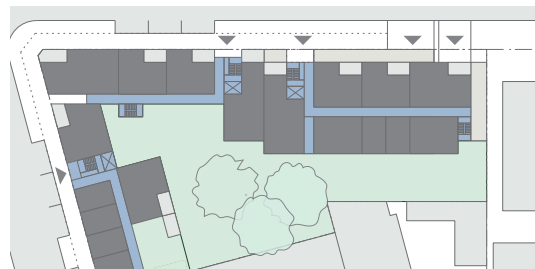


Figure 2.1.4

Mixed-use buildings may have a range of circulation spaces including multiple cores, gallery access and double-loaded corridors with cross-over apartments.



Lifts

In the vertical transportation report, include the percentage of the population waiting beyond the average waiting time.

Provide suitable clearance in front of lifts to allow for people passing, for medical emergency access, and for movement of furniture.

Consider lift redundancy (access to an alternative lift in case one lift is out of service).

To determine the location, number, size and capacity of lifts, consider:

- functional uses, including allowing for prams, mobility equipment, bicycles and shopping, and movement of goods, waste and furniture
- access to parking levels including bicycle parking and mobility equipment.

Equitable access

Consider the thoughtful integration of universal access to all common areas and apartments early in the design process. Design access to cater for households and visitors of all ages and abilities, including families with young children, the elderly, and people with impaired mobility, and to accommodate residents and visitors using prams, mobility scooters and larger electric wheelchairs.

Common stairs

Particularly for the lower floors of buildings, locate and design common stairs (including fire stairs) for ease of movement and with adequate amenity for daily use, including natural light and ventilation. This reduces reliance on lifts and provides opportunities for residents to be active and interact with other residents.

Daylight and natural ventilation

Daylight and natural ventilation in common circulation spaces that are above ground will improve amenity, thermal comfort and reduce operational costs. For daylight and natural ventilation, provide:

- a minimum glazed area of 10 per cent of the common circulation floor area served
- a minimum equivalent open area (EOA) of 2 per cent of the common circulation floor area served
- 2 or more sources of natural ventilation and daylight, where the floorplate has 7 or more apartments per floorplate, with the distance between openings maximised to encourage air movement
- high-level and low-level windows for natural ventilation where openings are located on a single aspect
- where glazing is connected to a slot or indent in the facade, the slot should have a width-to-length ratio of 1:3 or wider and be open to the sky.

Where apartment windows are adjacent to circulation areas, locate them to maximise visual and acoustic privacy.

For further detail on natural ventilation and calculation of EOA, refer to Part 2.7: Natural ventilation and Appendix 4: Alternative design responses for natural ventilation and natural cross-ventilation.

Safety and social interaction

Ensure access is direct and legible, with short, straight and clear sightlines between vertical circulation points, apartment entries and communal spaces. Minimise corridor and gallery lengths and avoid tight corners and spaces.

Provide legible signage for apartment numbers, common areas and general wayfinding, to help residents and visitors.

For safety and equitable access, ensure circulation spaces are well-lit. Consider minimum lighting and lux levels as set out in *AS 1428.2–1992 Design for access and mobility, Part 2*.

External galleries benefit from a greater number of openings and fewer closed-off sections along their length and above the balustrade.

Provide incidental spaces for social interaction and rest, such as space for seating in a corridor, at a stair landing or near a window. Consider integration and robust design of furniture in lobbies and communal areas to minimise potential theft and vandalism.

Integrated seating in entry lobbies and common circulation spaces promotes opportunities for social interaction and convenience for waiting, without risk of theft. Hensley Apartments, by Woods Bagot, Photo: Trevor Mein.



Natural light and ventilation in common circulation areas, and encouraging residents to use stairs for general circulation in addition to lifts, increases amenity and provides opportunities for residents' social interaction. The Fern by Steele Associates, Photo: Oliver Steele.





Natural light and ventilation in common circulation areas, and encouraging residents to use stairs for general circulation in addition to lifts, increases amenity and provides opportunities for residents' social interaction. George & Allen by Turner Studio, Photo: Brett Boardman.

2.2 Communal spaces

With a growing number of NSW households living and working in apartment buildings, shared spaces are an increasingly important design consideration.

Communal spaces benefit residents through economies of scale (the ability to share resources and save costs), and by providing opportunities to meet fellow residents and build a sense of community.

Communal spaces can be outdoor or indoor. Their size, location and design should respond to the apartment mix, expected household types and occupancy, site context and scale of development.

Communal open space supports a broad range of activities related to the domestic and social life of households that are unable to be accommodated within individual apartments or in publicly accessible open space.

Communal indoor space is also an important resource for residents, providing space to meet (in particular for strata management), entertain, socialise, play and exercise.

OBJECTIVES

2.2.1 Provide suitably sized and thoughtfully located communal open spaces that provide opportunities for plentiful landscaping and enhanced amenity.

2.2.2 Provide safe and resilient communal spaces that support a range of activities and contribute to the wellbeing of residents.

DESIGN CRITERIA

The quantity of communal open space provided is 8 m² per dwelling, up to 25 per cent of the site area.

At any time between 9 am and 3 pm in midwinter (21 June), ensure at least half the communal open space area receives 2 hours solar access.

DESIGN GUIDANCE

Communal open space

Where the communal open space area calculation exceeds 25 per cent of the site area, the additional part is optional, and can be provided flexibly as more communal open space or as communal indoor space.

Communal open space may be provided on podiums or rooftops; it is not required to be co-located with deep soil.

At midsummer (21 December), achieve a minimum 30 per cent direct shade to communal open space for a minimum of 2 hours between 9 am and 3 pm, using planting and landscape structures.

Provide communal open space with a minimum dimension of 6 m. For sites under 650 m² a minimum dimension of 4 m is acceptable.

Provide a range of spaces offering a variety of opportunities for both group and individual recreation and activities, aligned to the expected demographics of the building residents, including children, young people, pet owners, people working, and aged and older residents. Ensure capacity is adequate for multiple groups to use communal open space and for different uses to occur simultaneously.

Roof gardens can provide verdant and abundant reprieve from an urban environment. They can be a useful alternative in highly built-up areas where ground floor communal open space is limited. Cleveland & Co. by SJB Architects, Photo: Brett Boardman



Provide for activities which cannot be accommodated within apartments, like nature play, informal ball games, noisy activities, exercise, gardening, and social gatherings both indoors and outdoors.

Communal outdoor spaces can include:

- seating for individuals and groups
- barbecue areas and outdoor sinks or washing equipment
- play equipment and play areas for children of different ages
- ‘playful’ integrated elements such as custom seating, stepping stones through garden beds and interactive sculptures
- swimming pools, gym equipment and tennis courts
- communal gardens for residents to grow their own food and enjoy gardening
- storage for equipment for a variety of different activities, such as gardening tools, children’s play items
- shared clothes lines and drying courts.

Design spaces to be:

- clearly and directly accessible from common circulation areas, supported with signage, and if possible, close to accessible toilet facilities
- safe and well-lit with opportunities for passive surveillance
- suitable for daily use, with robust materials and details that enable ongoing maintenance.

Communal open spaces can be located on a podium or roof, and can provide opportunities for social interaction among residents, with outdoor kitchens, communal gardens, and other opportunities for recreation and relaxation. Rochford by Studio Johnston, Photo: Brett Boardman.



Establish clear definition and boundaries between private, communal and public spaces. Locate communal open space so it doesn't impact neighbouring buildings or other residents, including with noise, solar access or overshadowing.

For developments with multiple buildings, provide communal open space and communal spaces for each building, i.e. within each building or on each rooftop, in addition to spaces shared by the whole development.

Consider microclimate, urban habitat, green cover and links to green infrastructure networks to enhance amenity.

Where communal open space is located on a rooftop:

- provide protection from sun, wind, noise and pollution
- manage overlooking to and from adjacent buildings
- set trafficable areas back from the building edge, preferably behind planters or landscaped areas
- ensure there are no climbable elements, including mobile furniture.

Internal communal space can provide essential amenities for residents, including recreation, music practice, or multi-purpose spaces that can be used for meetings and social events. Infinity by Koichi Takada, Photo: Tom Ferguson.



Communal indoor spaces

Ensure communal indoor space has a high level of amenity, including good ventilation and natural light.

Enhance the amenity and usability of communal indoor spaces by connecting them to communal outdoor spaces.

Distribute the location of communal indoor space across multiple levels and locations to enable easy access for all apartments, particularly for tall buildings and towers.

Communal indoor spaces can provide a range of facilities, such as:

- multi-purpose rooms for strata meetings, social activities, birthday parties, co-parenting and rainy-day play for children, sharing domestic equipment and children's toys
- sound-insulated music rooms
- gyms, pools and exercise rooms
- shared kitchens, pantries and laundries
- libraries, reading rooms, shared studies or work from home spaces
- dedicated spaces for children and young teenagers
- communal workshop space with shared tools for home, furniture and bicycle maintenance and hobbies
- storage space.

Ground floor community rooms may have potential to contribute space for neighbourhood events, activities, meetings and classes. In this case, provision of adjacent accessible toilet facilities is particularly beneficial.

SOP by Bligh Voller Nield Architecture, Photo: Murray Fredericks.



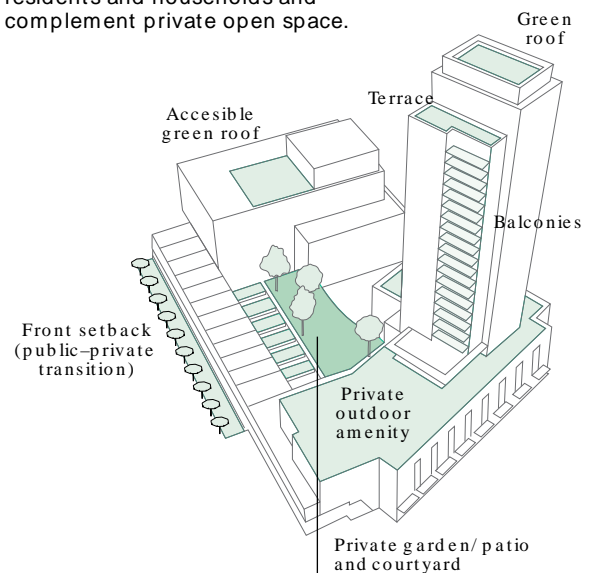
Open space which is publicly accessible

When providing publicly accessible open space in addition to the requirement for communal open space, consider the following principles:

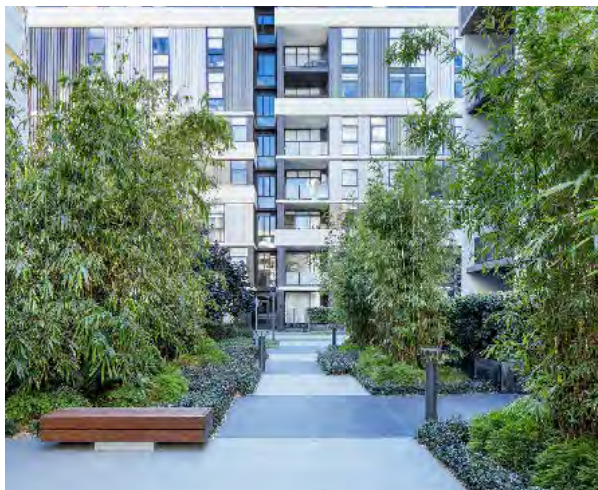
- Design the public open space in response to the existing pattern and uses of the neighbourhood. Create links to the space using sightlines, pedestrian desire paths and the wider street grid.
- Ensure the space is well-connected, with a public street along at least one edge.
- Provide active frontages that positively contribute to adjacent public open space.
- Clearly define the boundaries between the public open space and private space.
- Connect the space to nearby parks and other public landscape elements where possible.
- Provide year-round sunlight access and protection from strong winds.
- Provide opportunities for a range of recreational activities for people of all ages.

Figure 2.2.1

Apartment development can provide a broad range of communal spaces in different locations to support the needs and lifestyles of different residents and households and complement private open space.



Recreation areas allow residents to relax and connect with the natural environment. Tandara (common area) by Aspect Studios, Photo: Simon Wood.



Locate and design open space to respond to microclimate and site conditions. The Finery (common area) by Aspect Studios, Photo: Nelson Cortez.



2.3

Apartment mix and diversity

Apartment mix can provide a diversity of housing choices and support equitable access to housing.

By accommodating a variety of household types and incorporating flexibility and high degrees of amenity, apartment development can meet the needs of current and future populations and create an appealing alternative to standalone dwelling houses.

Factors that contribute to mix and diversity include number of bedrooms, bedroom-to-bathroom ratios, work-from-home arrangements, accessibility, size, quality, affordability, and universal and family-friendly design. These are considerations in the early stages of design, in response to local housing needs and strategies.

Flexible configurations and adaptable and universal design can ensure new buildings will be able to accommodate a diverse range of needs and household structures across the building lifetime without difficult and costly retrofitting.

Universally designed apartments are safer and easier to enter, move around and live in. They benefit all members of the community, from young families to older people, their visitors, and those with permanent or temporary disabilities.

OBJECTIVES

- 2.3 Provide a range of apartment types, sizes and configurations to promote flexible housing that caters for current and projected housing needs of the community.

DESIGN GUIDANCE

Apartment mix

Refer to local housing strategies, targets and planning controls to ensure the development responds to local housing needs and provides a range of apartment types, sizes and configurations that can support different household types and stages of life.

Unless otherwise outlined in a local planning policy, use the following to determine housing mix and diversity:

For the purposes of dwelling mix, consider studio apartments and 1-bedroom apartments as a single apartment type, and all apartments over 3-bedroom as a single apartment type.

For a development with more than 20 dwellings, provide a minimum of 3 different dwelling types.

Provide a mix of the types so that:

- no less than 10 per cent of the total number of dwellings are one type
- no more than 50 per cent of the total number of dwellings are studio or 1-bedroom units (combined).

Provide of minimum of 20 per cent of apartments that incorporate the Livable Housing Australia (LHA) *Livable Housing Design Guidelines* Silver Level universal design features. Provide universal access apartments across a range of types and locations within a development.

Provide adaptable housing according to the relevant council policy, designed according to the requirements of *AS 4299-1995 Adaptable housing*.

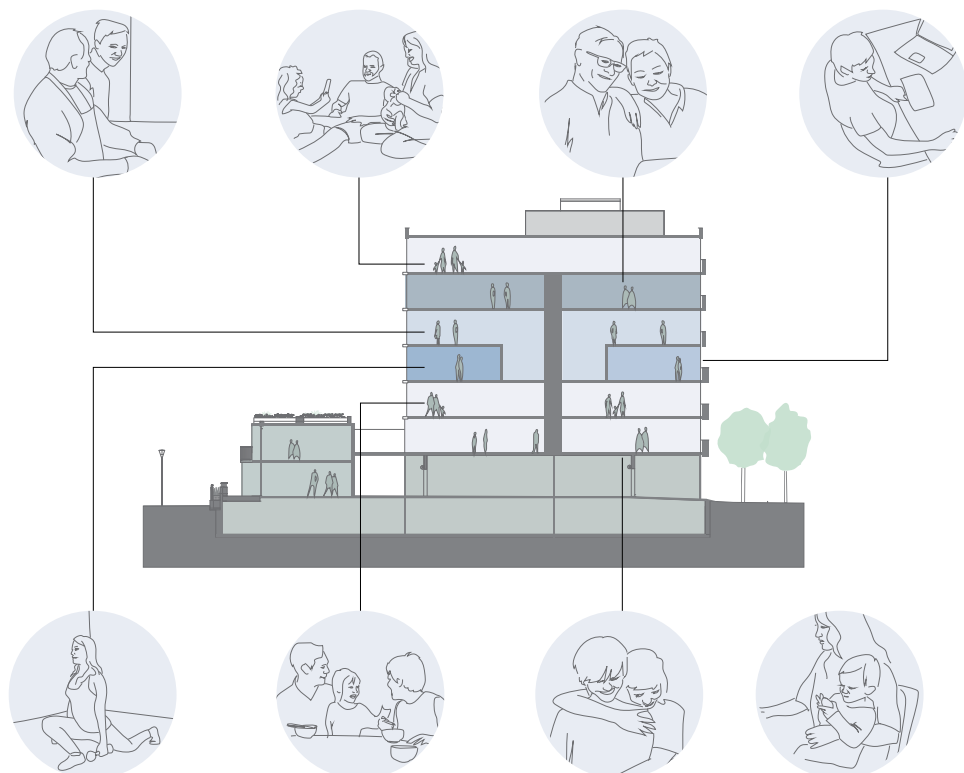
When determining the apartment mix consider:

- current market demands
- the demand for social and affordable housing
- the distance to public transport, employment opportunities, education facilities and health services
- the needs of different cultural and socio-economic groups.

Appendix 6 provides indicative apartment layouts.

Figure 2.3.1

The mix of apartments provided in a development should respond to the housing needs of the local area.



Flexibility

Design apartment layouts to provide flexibility over time and opportunities for future reconfiguration. Lightweight non-structural partitioning between internal rooms without services facilitates future modification. See Figure 2.3.2 for an example floor plan arrangement showing flexible options.

Consider diverse household types and stages of life including single-person households, families, multigenerational families and group households. Design solutions include:

- sizing and proportioning rooms to enable a variety of uses, activities, and furniture configurations – rectangular spaces 2:3 are more easily furnished than square spaces 1:1.
- rooms and spaces with different levels of privacy and acoustic separation
- dual key apartments (see glossary)
- greater than minimum apartment areas
- generous private open spaces.

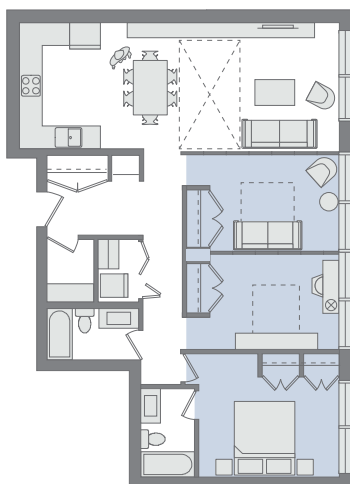
Figure 2.3.2
Lightweight internal walls without services or structure allow for future flexibility and modification.

Family-friendly apartments

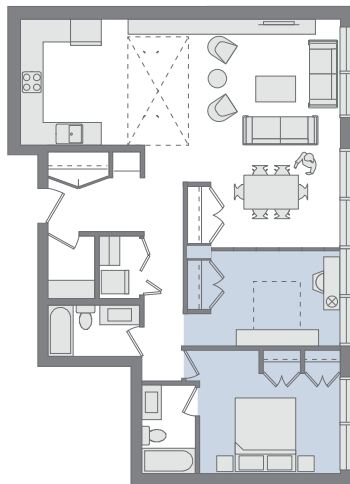
Provide 20 per cent of 2-, 3- and 4-bedroom apartments as family-friendly apartments to accommodate the needs of families with children. Design solutions include:

- greater than minimum apartment sizes
- location in lower levels of the development to allow easy access to open space and reduce dependency on corridors and lifts
- multiple living rooms or main bedrooms
- wider than minimum hallways and entry zones to allow for manoeuvring of prams and other bulky children's equipment
- larger than minimum areas for living rooms and private open spaces, including areas for play that are visible from the kitchen
- consider co-locating family friendly apartments and attached private open space with communal open space on ground level or podiums to allow intervisibility from kitchen to common play space
- for private open space consider the safety of children, e.g. use integrated planters that eliminate climbing hazards
- at least one bedroom with sufficient size to provide space for furniture like study desks and cribs (see Figure 2.3.4)
- bedroom sizes and layouts that suit various configurations of children's furniture including 2 single beds, bunk beds, space for play, and space for desks
- bathroom sizes and layouts that accommodate a parent and child using a bathroom together, and at least one bathroom with a bathtub
- greater acoustic separation between apartments and communal spaces, as well as between bedrooms and living areas.

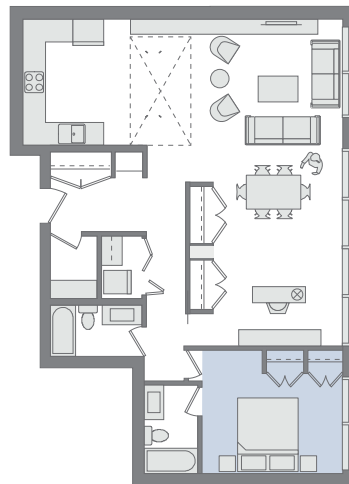
3-bedroom unit



2-bedroom unit



1-bedroom unit



Study rooms

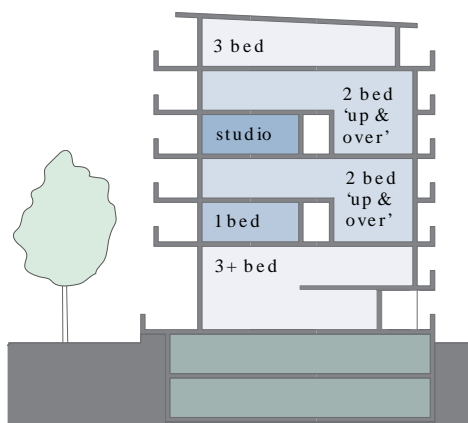
To support greater apartment mix and diversity, and facilitate working and studying from home, consider providing a study room as a separate habitable room.

Minimum-sized study rooms are capped at one per apartment. Design considerations include:

- a minimum size of 7 m² and minimum dimension of 2.4 m clear
- access to daylight and natural ventilation
- a higher level of acoustic privacy than a typical bedroom.

Figure 2.3.3

Large apartments located on the ground floor or roof level can provide opportunities for increased private open space that benefits families with children and shared households. Internal common circulation (e.g. corridors) can be reduced by adding cross-over ('up and over') apartments to the mix.



Communal space on podiums or roofs can provide great amenity for families, and an opportunity for co-location of private open space attached to family-friendly apartments. St. George Community Housing, by Aspect Studios.



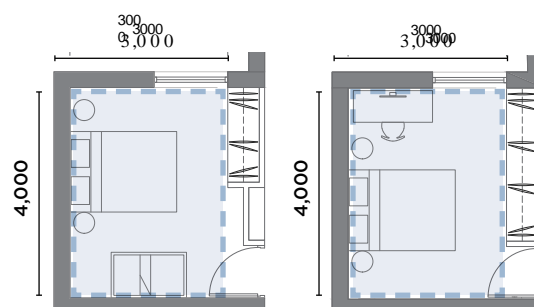
Alternative design responses

Development that includes social housing, or is delivered by a community housing provider, may incorporate an alternative approach to apartment mix, aligned with relevant housing strategies.

Where proposals are considered under *State Environmental Planning Policy (Affordable Rental Housing) 2009*, the consent authority may be flexible in applying the design guidance for the provision of apartment mix and configuration, and consider the design guidance in Part 2.4: Apartment configuration – alternative design responses.

Figure 2.3.4

Bedrooms of 12 m² (instead of minimum 9 m²) can accommodate furniture including desks or cribs, or a variety of other uses alongside sleeping.



Family-friendly apartments, with multiple large bedrooms or separated living spaces, provide opportunities for multi-generational families, families with children and co-tenants to use the apartment differently at the same time. North Rocks by Candalepas Associates, Photo: Brett Boardman.



2.4 Apartment configuration

The configuration of an apartment establishes the way rooms and spaces of different sizes, height and function are arranged, located and accessed from each other.

It determines the amenity of the apartment – how an apartment will receive sunlight, daylight and fresh air, has outlook and prospect without loss of privacy, and avoids unwanted noise and overlooking others.

Successful apartment design and efficient and well-planned spaces can create homes that are a pleasure to live in for many years – not simply a step on the way to a standalone house.

OBJECTIVES

- 2.4 Design apartments that are functional and flexible over the life of the building, with generous internal dimensions and proportions, a high level of internal amenity, natural ventilation, and daylight access.

NON-DISCRETIONARY DEVELOPMENT STANDARDS

Apartment size

Provide the following minimum internal areas for apartments.

Table 2.4.1: Minimum internal areas for apartments

DWELLING TYPE	MINIMUM INTERNAL AREA (INCLUDES ONE BATHROOM)
Studio	35 m ²
1 bedroom	50 m ²
2 bedrooms	70 m ²
3+ bedroom	90 m ²

Ceiling height

Table 2.4.2: Minimum ceiling heights (measured from finished floor level to finished ceiling level) for apartment buildings and mixed-use buildings

AREA	FLOOR-TO-CEILING HEIGHT (MINIMUM)
Habitable rooms	2.7 m
Non-habitable rooms and kitchens	2.4 m
2-storey apartments	2.7 m for main living room floor area 2.4 m for second floor, where the area doesn't exceed 50% of the apartment area
Attic spaces	1.8 m at the edge of the room with a 30-degree minimum ceiling slope
Ground floor non-residential uses	3.3 m

The minimum ceiling heights do not preclude higher ceilings.

DESIGN CRITERIA

Depth of habitable rooms is limited to a maximum of 2.5 times the ceiling height or primary window-head height, whichever is lower.

Where living and dining rooms are combined, habitable room depth is limited to a maximum of 3 times the ceiling height or primary window-head height, whichever is lower. This excludes depth occupied by storage space or a kitchen benchtop on the room's farthest wall.

Every habitable room has a window in an external wall with a total minimum glass area of not less than 10 per cent of the room's floor area. Daylight and air is not borrowed from other rooms.

Bedrooms have a minimum dimension of 3 m (excluding wardrobe space).

Main bedrooms have a minimum area of 10 m² and other bedrooms 9 m² (excluding wardrobe space).

Additional bathrooms increase the minimum internal area by 5 m² each.

A fourth bedroom and further additional bedrooms increase the minimum internal area by 12 m² each.

For living rooms and combined living and dining rooms, the minimum room width is:

- 3.6 m for studio and 1-bedroom apartments
- 4 m for 2- and 3+ bedroom apartments and cross-through apartments.

DESIGN GUIDANCE

Living areas

Provide a minimum area of 24 m² for combined living and dining rooms in 2- and 3+ bedroom apartments.

In apartments larger than a studio apartment, avoid locating the kitchen as part of the main circulation space (such as in a hallway or minimum-width entry space).

Separate access to bedrooms, bathrooms and laundries from living areas, to minimise direct openings between living and service areas.

Windows

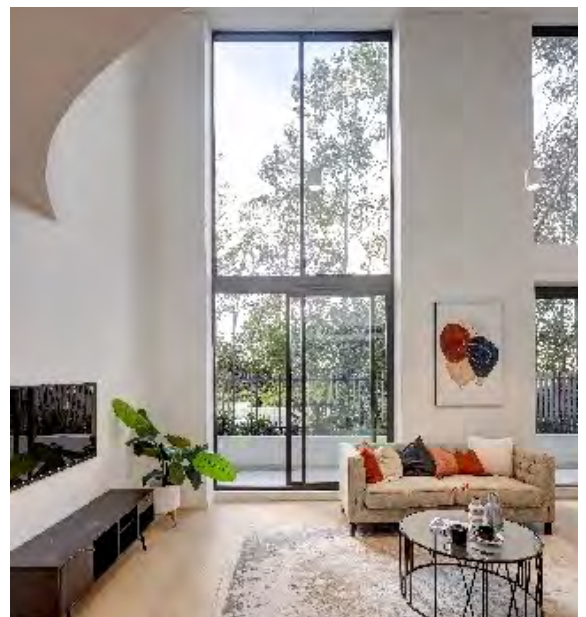
Ensure a window is visible from any point in a habitable room.

Locate all living areas and bedrooms on the external face of the building to achieve the design guidance for natural ventilation (see Part 2.7: Natural ventilation).

Where possible:

- provide an external openable window for bathrooms and laundries
- orientate main living spaces towards the primary outlook and aspect, and away from noise sources.

A double-height space near windows can ensure natural light and ventilation reach deep into the floor plan. This can be especially helpful for ground floor apartments which are more likely to be shadowed by landscaping. Neue by SJB Architects, Photo: Brett Boardman



Ceiling height

Design appropriate ceiling heights to ensure apartments have adequate daylight and sunlight access.

Where flooding conditions require the ground level to be raised, the minimum ceiling heights in Table 2.4.2 still apply.

Consider greater than minimum ceiling heights in lower-level apartments to enable better daylight access, and in shallower single-aspect apartments to enable better natural ventilation.

Wherever possible, avoid bulkheads compromising ceiling heights. Consider stacking service rooms and wet areas from floor to floor, and coordinating bulkhead locations above kitchens and non-habitable rooms. Do not extend kitchen bulkheads into the dining area (e.g. in eat-in kitchens).

Figure 2.4.1

The depth of a single aspect apartment relative to the ceiling height directly influences the quality of natural ventilation and daylight access.

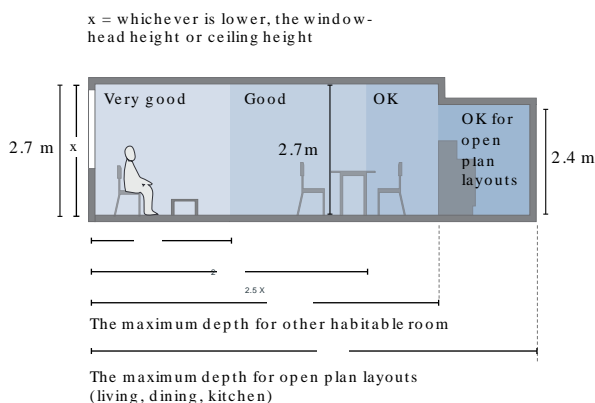
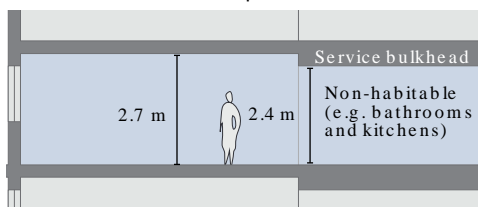


Figure 2.4.2

Design service bulkheads to be wholly contained within non-habitable rooms or kitchens, and not intrude into habitable spaces.



Alternative design responses

Where minimum apartment sizes and room dimensions are not achieved, demonstrate:

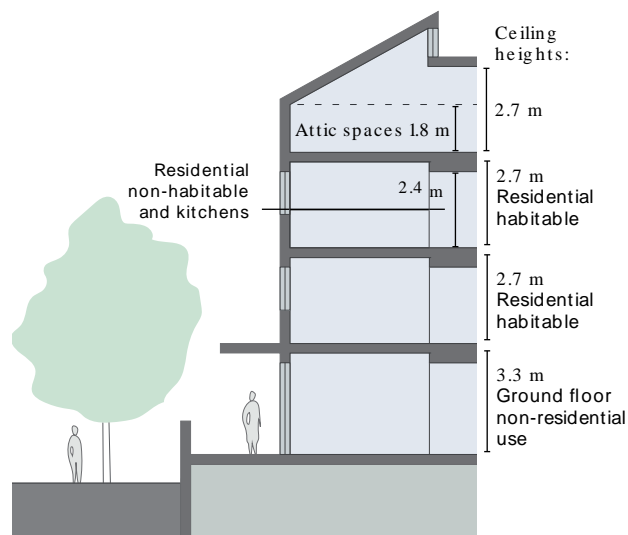
- apartment planning is efficient, usable and functional, as indicated by realistically scaled furniture layouts and circulation areas (see Appendix 5: Furniture schedule)
- apartments satisfy the design guidance set out in:
 - Part 2.6: Sunlight, daylight, shade and thermal comfort
 - Part 2.7: Natural ventilation
 - Part 2.10: Storage

Off set less than minimum apartment sizes with:

- increased private open space provision
- high-quality communal spaces that exceed the minimum criteria set out in Part 2.2: Communal spaces.

Figure 2.4.3

Ceiling heights of minimum 2.7 m can help to achieve good daylight access and natural ventilation for apartments.





A generous flow of space in an apartment, incorporating external private open space as an extension to the living room, provides great amenity and functionality. Rochford by Studio Johnston, Photo: Ben Hosking.

2.5

Private open space and balconies

Private open spaces include balconies, courtyards and terraces. These can enhance amenity, taking advantage of our temperate NSW climate to extend living areas, provide space for outdoor activities, and give privacy to interior spaces from the street.

Balconies that are safe and appropriately designed can provide space for children to play outdoors. They can also offer residents opportunities such as owning a pet or growing food.

Private open spaces are also important architectural elements, contributing to the form and articulation of the building with depth and shadow, as well as fences, balustrades and screens.

OBJECTIVES

2.5.1 Locate appropriately sized private open space to optimise internal amenity, outlook, and privacy, and provides opportunities for gardening, clothes drying, outdoor entertaining and passive surveillance of common and public areas.

2.5.2 Design and detail private open space and balconies that contribute to the overall architectural form and detail of the building.

DESIGN CRITERIA

All apartments have a primary balcony sized as follows:

Table 2.5.1: Primary balcony minimum dimensions

DWELLING TYPE	MINIMUM BALCONY AREA	MINIMUM BALCONY DIMENSIONS
Studio apartments	4 m ²	1m depth
1-bed apartments	8 m ²	2 m depth
2-bed apartments	10 m ²	2.4 m depth
3+ bed apartments	12 m ²	
The minimum balcony depth counted as contributing to the balcony area is 1m.		
For apartments at ground level or on a podium or similar structure, where a private open space is provided instead of a balcony, the minimum area is 15 m ² , with a minimum depth of 3 m.		

DESIGN GUIDANCE

Private open spaces and balconies

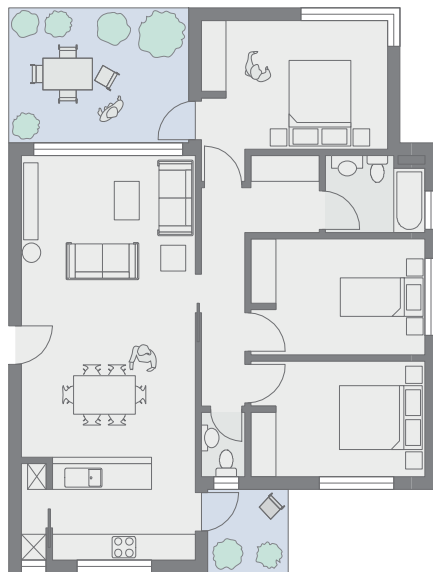
Enhance liveability for residents by:

- locating private open spaces adjacent to the living room, dining room or kitchen to extend the living space
- facing the longer side outwards, or having the private open space open to the sky to optimise daylight access into adjacent rooms
- integrating operable screens, shutters, hoods and pergolas to control sunlight, wind and noise
- providing level transitions between interior and exterior spaces, to enhance universal access and flexibility
- using external finishes for walls, floor and ceilings and connection to drainage, to distinguish these spaces from habitable rooms and ensure appropriate weather proofing

Provide balconies with minimum dimensions as shown in Figure 2.5.2 to ensure suitability for furniture. The remainder of the minimum balcony area over and above these minimum dimensions can be provided flexibly with a minimum depth of 1m.

Figure 2.5.1

Maximise balcony use by allowing access from the main living area and a bedroom. Secondary balconies provide further amenity to apartment living and are best accessed off kitchens and laundries.



To maximise protection from adverse winds, design single-aspect balconies that do not project beyond the facade.

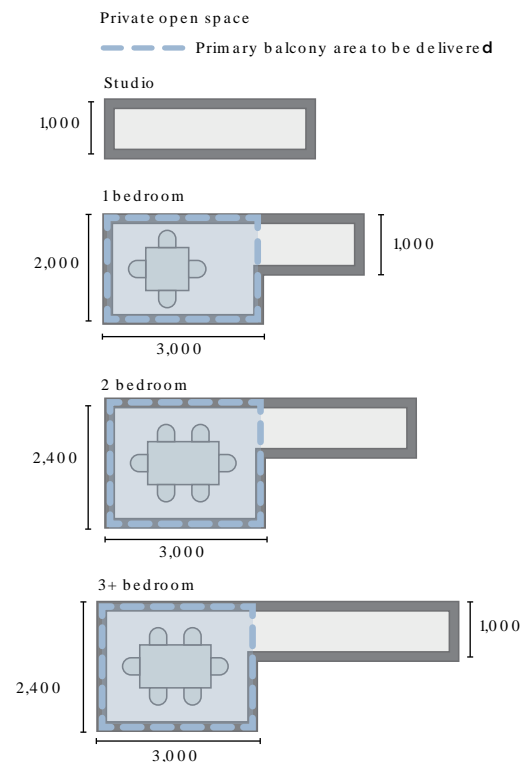
For corner balconies in exposed locations, mitigate high wind speeds using devices such as full-height impermeable screens on the most exposed aspect.

Locate sources of heat rejection, such as those from air conditioning units, in a location away from private open space, and to avoid degrading the amenity of private open space.

- The roof can be used to locate split-system condensers for up to 8 storeys immediately below, i.e. within the limits of the condensate pipework length and height difference.
- For buildings with more than 8 residential storeys, and where a rooftop location is not practical, centralise heat rejection in dedicated on-floor plant rooms (condenser decks) that are sufficiently sized to provide efficient heat rejection, and suitably screened to reduce visual and acoustic impacts.

Figure 2.5.2

Minimum balcony areas and depths ensure the balcony area is usable and can be easily accessed and furnished with appropriate furniture (see Appendix 5: Furniture schedule).



Integrate the following elements into the building's overall architectural form and facade detailing, and in alignment with the street character:

- private open space and balconies
- services including downpipes and balcony drainage
- projecting balconies and soffits.

Consider the visibility of soffits from the street.

Where clothes drying or storage areas are located on balconies:

- count these areas in addition to the minimum balcony size
- provide screening and integrate them into the building design.

Insulate the ceilings of apartments below balconies and roof terraces to avoid heat loss.

Provide water and electricity for primary balconies and private open spaces wherever possible. Ensure locations do not assist climbability.

A combination of solid and transparent materials balances the need for privacy with surveillance of the public realm. Viewed from the inside, screening increases privacy and allows for storage and external clothes drying. Llandaff St by Hill Thalys Architecture, Photo: Ben Guthrie.



Balance privacy, activity, surveillance and safety for residents and the public by:

- designing spaces to allow views and passive surveillance of the street while maintaining visual privacy and allowing for a range of uses on the balcony or within the open space
- selecting materials and treatments that responds to the location
- preferencing solid or partially solid balustrades over full-width glass balustrades, particularly at lower levels of the building
- setting back balustrades where overlooking or safety is an issue
- designing out opportunities for climbing or falls.

Incorporate shading into the design of protected balconies where appropriate. (See Part 2.6: Sunlight, daylight, shade and thermal comfort.)

Find opportunities to incorporate operable elements on balconies to enable residents to manage the level of enclosure, wind, noise and sun protection provided.

Level threshold transitions support universal and adaptable design, eliminate trip hazards and allow for easy movement of furniture from inside to outside, expanding the usability of internal rooms and private open space. Short lane by Woods Bagot, Photo: Trevor Mein.



Alternative design responses – private open space and balconies

Balcony use and amenity may be limited by:

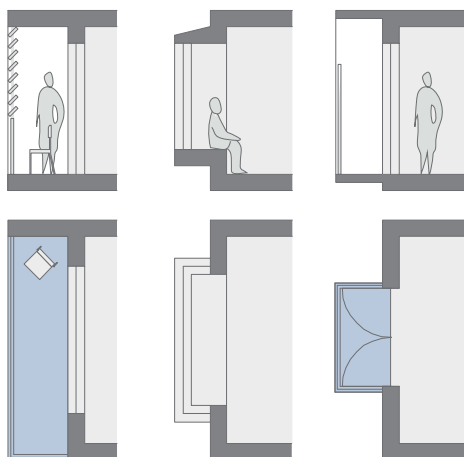
- environmental conditions including high winds or proximity to road, rail, aircraft and other sources of noise and air pollution
- heritage and adaptive re-use of existing buildings
- housing type, where alternative solutions are being considered under an applicable SEPP.

Where alternative solutions are being considered under an applicable SEPP, such as policies for affordable rental housing or build-to-rent apartments, the consent authority may be flexible in considering how a proposal complies with guidance for private open space. Design solutions include:

- where the number or size of balconies is reduced, an increase in communal area supporting a variety of functions can provide residents with an alternative onsite area for external activities and larger social gatherings
- alternatives including Juliet balconies, operable walls, partially enclosed wintergardens or bay windows may be appropriate, see Figure 2.5.3
- protected balconies can be designed as an external space with external materials, finishes and drainage
- protected balconies can include at least one enclosed side.

Figure 2.5.3

Design solutions for protected balconies. Noisy locations may require different solutions such as enclosed wintergardens, balconies with operable walls, or Juliet balconies.



Wintergardens and protected balconies

Design wintergardens to temper noise and harsh conditions but not limit natural ventilation or natural cross-ventilation within the apartment.

To allow adequate natural ventilation of the balcony and the apartment, provide the wintergarden with permanent openings at the top of the enclosure, and running the full length of the wintergarden facade. Make the size of the openings at least the greater of:

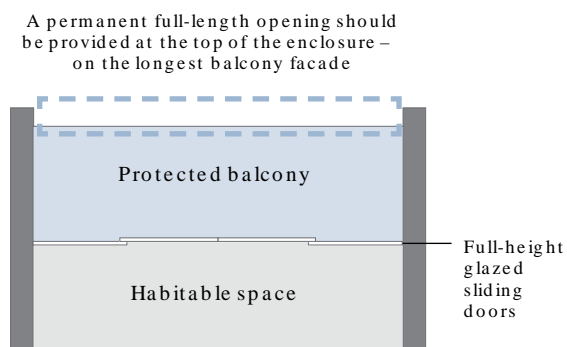
- 25 per cent of the external face of the balcony on its longest aspect
- twice the EOA required for openings from the apartment onto the wintergarden to support natural ventilation or natural cross-ventilation.

For wintergardens on a corner, provide the permanent openings to the balcony along the side alternative to the elevation being relied upon for natural cross-ventilation, and:

- where the balcony is rectangular, provide a full-height impermeable screen to the full length of the shorter facade
- for square balconies on a corner the impermeable screen can be on either aspect to suit cross-ventilation.

Figure 2.5.4

Wintergardens can improve liveability of the balcony and adjoining habitable rooms.



2.6

Sunlight, daylight, shade and thermal comfort

Sunlight and daylight access are important to ensure indoor light quality and residential amenity. They can also improve energy efficiency by reducing reliance on artificial lighting and heating.

Building orientation directly affects residential amenity including sunlight access and natural ventilation. Designing the site layout to maximise northern orientation is an important consideration and needs to be balanced with other siting and built form considerations.

By adopting passive design strategies, such as providing solar shading for glass to avoid unshaded, highly glazed facades, and choosing materials with low thermal transmittance, the thermal comfort of an apartment can be improved and the need for glare control can be reduced. Passive design strategies can also help buildings to meet the thermal performance requirements of the Building Sustainability Index (BASIX).

OBJECTIVES

2.6.1 Maximise the number of apartments that receive sunlight to living rooms and private open spaces, and have high-quality daylight access, especially where sunlight is limited.

2.6.2 Use passive environmental design strategies to optimise heat storage in winter and reduce heat transfer in summer, using low thermal transmittance construction, shading devices, and balconies.

DESIGN CRITERIA

In the Sydney Metropolitan Area, and Newcastle, Gosford, and Wollongong LGAs, the living rooms and private open spaces in at least 70 per cent of the apartments in a building receive a minimum of 2 hours direct sunlight between 9 am and 3 pm at midwinter (21 June).

In all other LGAs, the living rooms and private open spaces in at least 70 per cent of the apartments in a building receive a minimum of 3 hours direct sunlight between 9 am and 3 pm at midwinter.

No more than 15 per cent of the apartments in a building receive no direct sunlight between 9 am and 3 pm at midwinter.

Where glazing is greater than 30 per cent of the apartment facade on any individual apartment aspect (when measured on the internal face of the wall), provide external sun shading to a maximum of 30 per cent of the exposed glazing in a wall to block 30 per cent of summer sun.

DESIGN GUIDANCE

Solar access

Maximise the number of apartments with a northern aspect and minimise the number of single-aspect apartments facing south.

- Living areas are best located to the north and service areas to the south and west of apartments.

For living rooms and private open spaces, 'receiving direct sunlight' includes the following surfaces receiving direct sunlight for at least 15 minutes:

- the floor of a private open space, or the face of its surrounding walls
- the glazed opening to a living space.

To provide daylight to habitable rooms, use skylights, high-level windows (sill height of 1,500 mm or greater), courtyards or light wells as secondary sources only.

Where courtyards or light wells are used:

- make them fully open to the sky
- restrict their use to kitchens, bathrooms and service areas
- consider noise and privacy (see Part 1.2: Built form and siting, Part 2.8: Acoustic privacy, noise and pollution, and Part 2.9: Visual amenity)
- treat them as part of the building's visible external facade, including appropriate selection and detailing of materials and building services
- provide access for cleaning and maintenance from a communal area.

Alternative design responses – solar access

Where the local street grid or subdivision pattern limits potential sunlight access to a building, the minimum 2 hours or 3 hours of direct sunlight in midwinter can be received between 8 am and 3 pm (i.e. the time interval extended one hour earlier). However, consider the potential impact on satisfying Objective 1.2.2 for any future residential development on adjacent sites.

Providing sunlight access may not be possible on some sites. This includes:

- where greater residential amenity can be achieved along a busy road or railway line by orientating the living rooms away from the noise source
- on south-facing sloping sites
- where significant views are oriented away from the desired aspect for direct sunlight
- adaptive re-use of existing buildings or heritage items.

Where this is the case, demonstrate how the site constraints and orientated preclude meeting the design guidance, and how the development meets the objectives in other ways.

Orientation

Minimise overshadowing to public open space and neighbouring residential properties to ensure living areas, private open spaces and communal spaces in the affected properties continue to receive the sunlight access described in the design criteria.

If neighbouring properties are already not receiving the recommended minimum number of hours, ensure their sunlight access is not reduced by more than 20 per cent as a result of the proposed design.

Ensure solar collectors on neighbouring buildings retain a minimum of 4 hours sunlight access a day.

If the proposal significantly reduces the neighbours' sunlight access, mitigate the impact of shading by increasing the building separation beyond the minimums set out in Part 1.2: Built form and siting.

Where necessary, increase upper-level setbacks to minimise overshadowing, especially to the south or downhill.

Shading control

Where the solid material on an apartment facade in an individual aspect is 70 per cent or more, no additional shading is required for glazing on that aspect.

Where a covered balcony with a minimum depth of 1m extends across the length of a glazed facade or opening, this is considered to provide the shading necessary for all facade orientations apart from $\pm 30^\circ$ of west. A building facade located behind a covered balcony can therefore be excluded from the apartment facade calculation.

For all balconies oriented $\pm 30^\circ$ of west, incorporate operable shading to protect glazing.

If a balcony has an orientation to the north and west, only the western orientation will require additional shading.

The amount of shading required depends on the amount of glazing on that aspect. Increase or decrease shading in proportion to the glass-to-wall ratio.

Reduce direct summer sun on a glazed apartment facade through a combination of:

- solid materials and projections
- shading of the glazed facade.

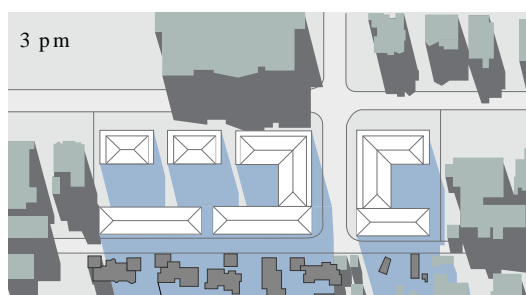
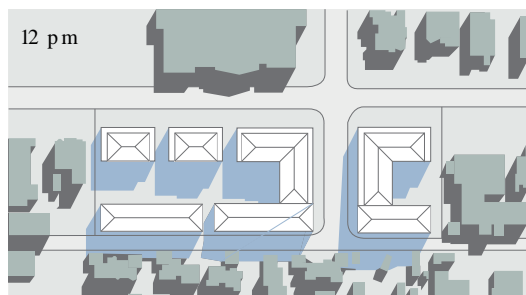
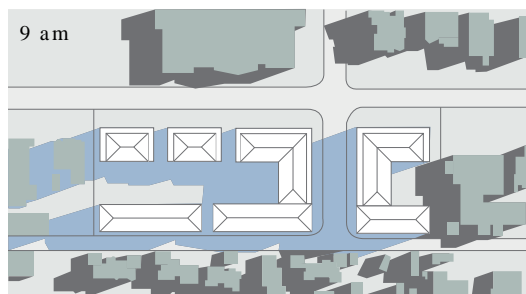
Design shading so it does not limit the sunlight access recommended for midwinter. Operable and movable shading devices are best for this situation.

High-performance solar control glazing is not suitable as a substitute for shading. Clear double-glazing and appropriately designed shading devices provide the best balance between summer sun protection and winter solar access for NSW climates.

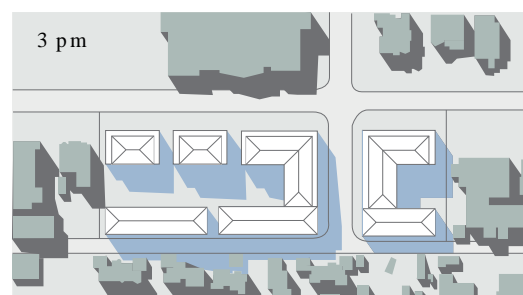
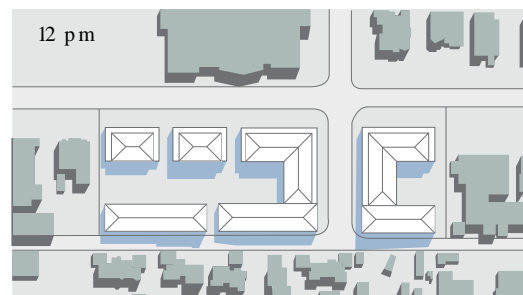
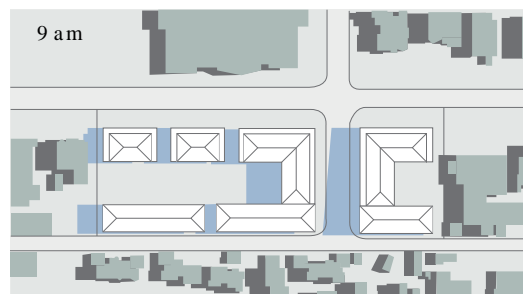
Figure 2.6.1

Shadow diagrams demonstrate the impact of overshadowing within and beyond the site.

21 June (mid winter)



22 March/September (equinox)



Consider facades on an individual aspect and per apartment basis, and measure along the internal face of the external wall. For facade calculations, exclude:

- any walls or glazing located behind a covered balcony of 1m or greater depth except where the elevation is within 30° of west
- facades facing between south-west, south, and south-east
- the area of window or door reveals
- the area between the finished ceiling height and finished floor area above
- the edge of party walls.

Elements which can be considered as providing shade for glazed areas include opaque building elements on the site or on neighbouring sites, including:

- vertical screens
- horizontal projections
- opaque balcony balustrades
- other buildings within the site.

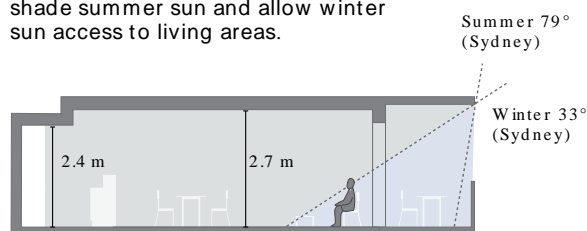
The following elements cannot be considered as providing shade to glazed areas:

- translucent built elements including glass balustrades
- opaque built elements outside the site yet to be delivered
- trees within or outside the site.

Alternative design responses – shading control

In areas of genuine constraint, good solar shading for a development can be demonstrated using seasonal testing or with a single-hour test. See Appendix 3.2: Demonstrating good solar shading.

Figure 2.6.2
Shading devices on balconies should shade summer sun and allow winter sun access to living areas.



Horizontal louvres are most effective on north-facing facades and can be angled to achieve summer shade and winter sunlight access. The Sanctuary, Turner Studio, Photo: Tom Ferguson.



Vertical louvres are ideal for east- and west-facing facades, particularly when operable. Newmarket by Bates Smart, Photo: Robert Walsh.



2.7

Natural ventilation

Access to outdoor air is a fundamental requirement in residential buildings. Natural ventilation supports residents' amenity, comfort, health and wellbeing by providing good access to outdoor air, and can safeguard occupants from illness due to lack of fresh air.

To achieve adequate natural ventilation, apartment design should consider the orientation of the building, the configuration of apartments, and the external building envelope. Sustainable design practice incorporates natural ventilation and natural cross-ventilation by responding to the local climate and reducing the need for mechanical ventilation and air conditioning, enabling energy savings and creating resilience.

Natural cross-ventilation is a wind-driven form of natural ventilation that provides significantly higher air change rates and should be maximised to allow occupants to create a comfortable indoor environment.

Apartments that are naturally cross-ventilated can offer 7 to 9 times more air change rates per hour compared to single-aspect ventilation. This increased air velocity improves thermal comfort by removing heat from the room, purging warm air in 5 to 10 minutes (whereas a naturally ventilated room would be purged in 35 to 70 minutes). This allows apartments to remain within the realms of passive design, even in the hottest temperatures, for the majority of the year.

Passive design strategies can aid natural and cross-ventilation, which can also help buildings to meet the BASIX thermal performance requirements.

OBJECTIVES

- 2.7 Provide natural ventilation to all habitable rooms and maximise apartments with natural cross-ventilation to optimise indoor air quality and thermal comfort and reduce reliance on mechanical ventilation.

DESIGN CRITERIA

Natural cross-ventilation (using exposure to wind and appropriate sizing and distribution of openings) is provided for at least 60 per cent of the apartments in the first 9 storeys of a building.

Apartments at 10 storeys or greater are deemed to be cross-ventilated only if any enclosure of the balconies at these levels allows adequate natural ventilation and balconies cannot be fully enclosed.

The overall depth of a cross-over or cross-through apartment does not exceed 18 m, measured from glass line to glass line.

DESIGN GUIDANCE

Natural ventilation

Provide an equivalent open area (EOA) of ventilation openings equal to at least 5 per cent of the floor area served.

For EOA calculations, include an allowance for flyscreens, regardless of whether they are provided, and opening restrictors, if required for fall prevention.

For courtyards or building indentations, provide a width-to-depth ratio of less than 2:1 to ensure effective air circulation and avoid trapping pollutants.

To improve natural ventilation to non-cross-ventilated apartments:

- provide high-level and low-level window openings or use full-height louvres
- maximise the distance on plan between windows to harness wind pressure differences across the facade.

Use ceiling fans to improve air circulation within standard-height habitable rooms.

Avoid light wells as the primary air source for habitable rooms.

Where possible, use windows to provide natural ventilation for bathrooms and kitchens to reduce moisture build-up, disperse smells, and provide ventilation if an exhaust fan breaks down.

Window opening restrictors for fall protection and flyscreens severely limit available airflow.

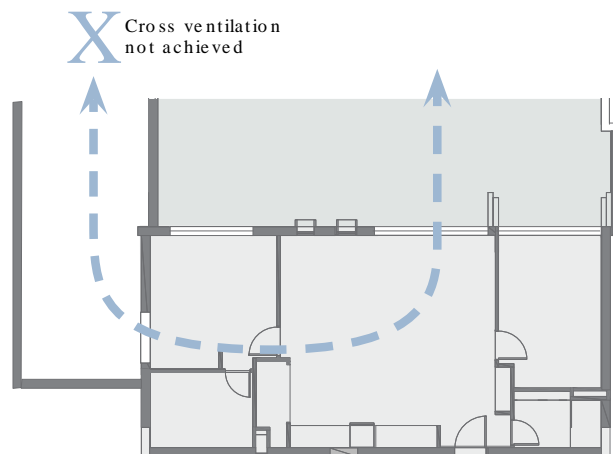
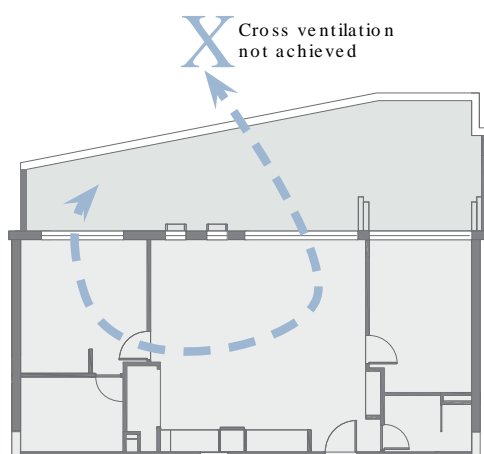
— When calculating the amount of ventilation available, it must be based on the geometric open area (GOA) of the window, which takes the restrictor into account.

— In addition, the reduction shown in Table A4.1 (see Appendix 4) must be applied to the geometric open area to calculate the EOA, allowing for loss of airflow due to flyscreens.

— Even if flyscreens are not installed from the outset, the calculations must allow for future installation of flyscreens. (See Appendix 4 for calculation of EOA.)

Figure 2.7.1

Treatments to a single facade aspect, including slots and recesses, do not provide adequate wind exposure to create a pressure differential and generate natural cross-ventilation.



Natural cross-ventilation

Acceptable solutions for providing natural cross-ventilation include:

- cross-through, corner and roof-window apartments consistent with wind exposure achieved through minimum separation
- limited obstruction to wind from the building
- appropriate sizing and distribution of openings (see Appendix 4.2: Natural cross-ventilation decision tree)

Where facade exposure is inconsistent with acceptable apartment types, achieve exposure to wind by:

Providing unobstructed access to 225° of wind exposure to openings, measured from the centre of the openings (see Figure A4.2.2 in Appendix 4)

and:

Maintaining adequate separation distances between buildings:

- 9 m minimum separation between buildings if space between buildings is open at both ends and has unobstructed airflow

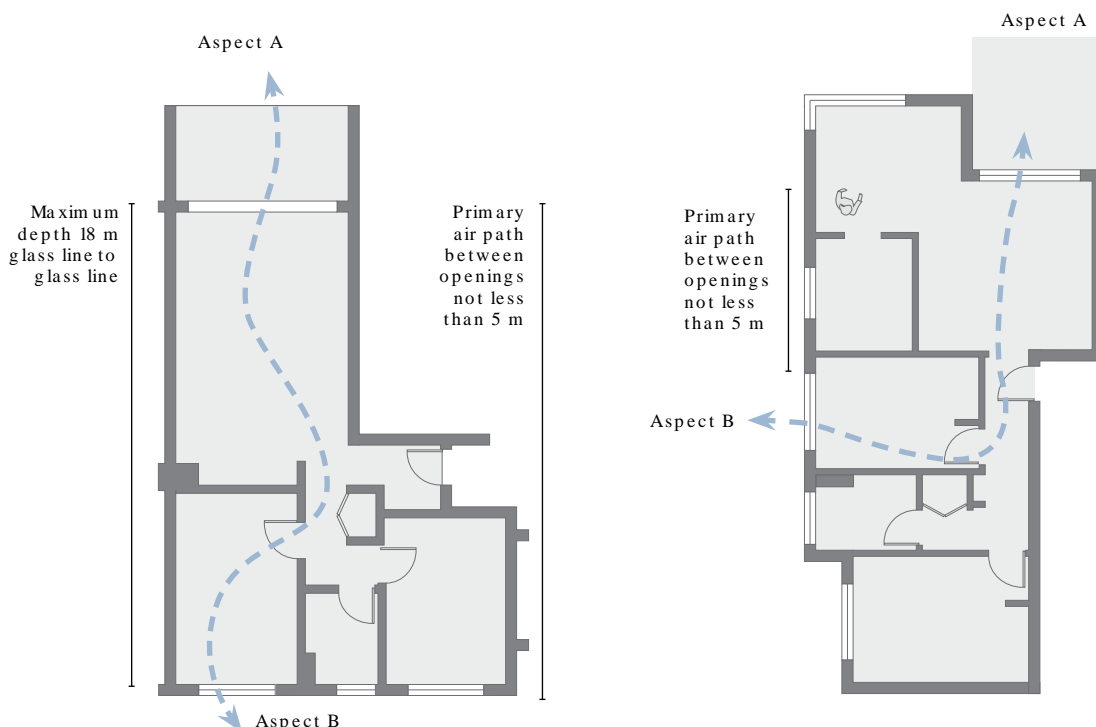
- 6 m minimum separation between buildings if space between buildings is open at both ends and has unobstructed airflow, and the adjacent building facade is the same length or shorter
- minimum habitable–non-habitable separation distance if the apartment opens to a courtyard
- in all other cases, assume building separation distances between habitable rooms as set out in Part 1.2: Built form and siting (see Figure 1.2.1).

Achieve appropriate sizing and distribution of the natural ventilation openings by:

- providing openings with a total EOA of not less than 5 per cent of the total habitable floor space of the apartment
- balancing the openings between facades, with no facade having openings with an EOA of less than 2 per cent of the total habitable floor space if the apartment has dual aspects, or 1.5 per cent of the apartment has three aspects

Figure 2.7.2

Accepted cross-through and corner apartments consistent with the window orientation and wind exposure achieved.



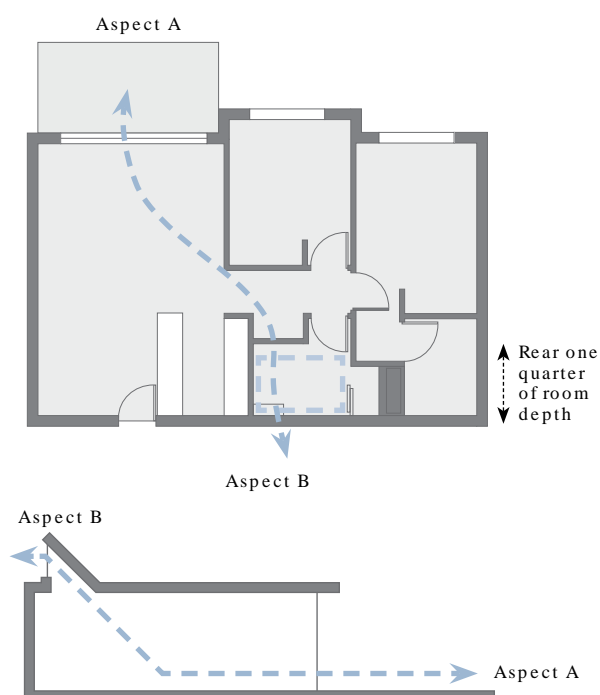
Making the primary air path between the openings:

- not less than 5 m
- pass through the primary living space and n-1 bedrooms (where n is the number of bedrooms) and pass through no more than one single doorway
- not pass through any common circulation or communal area other than gallery access.

Indentations, slots and other similar facade treatments do not provide adequate exposure to different wind direction and natural cross-ventilation.

For the purposes of calculating natural cross-ventilation and 225° of wind exposure to the openings, elements projecting less than 600 mm from the facade of the apartment, for example for solar shading, are considered not to be creating an obstruction.

Figure 2.7.3
Accepted clerestory roof-window apartment consistent with the window orientation and wind achieved.



Alternative design responses – natural ventilation and natural cross-ventilation

Where apartment developments are unable to achieve this design guidance due to ambient noise and pollution, consider alternative solutions for:

- sunlight and daylight access
- private open space and balconies
- natural cross-ventilation.

An alternative natural ventilation pathway can be applied which allows a smaller area of opening to be acoustically attenuated, with the balance of the 5 per cent EOA to be provided via unattenuated openings. See Appendix 4.1: Natural ventilation.

An alternative design response for natural cross-ventilation requires confirming the performance through testing using the verification methods described in Appendix 4.

To comply with guidance on designing apartments that will be affected by rail corridors and busy roads see Part 2.8: Acoustic privacy, noise and pollution.

Responding to the local climate reduces the need for mechanical ventilation and air conditioning and improves the liveability of an apartment. Operable louvres provide the maximum required effective open areas for natural ventilation in the smallest frame size. Llandaff St by Hill Thalys Architecture, Photo: Ben Guthrie.



2.8

Acoustic privacy, noise and pollution

Acoustic amenity provides residents with a comfortable and healthy environment and helps people to work and study from home. Acoustic amenity and privacy depends on the site context, surrounding uses, building separation, the location of public and private open spaces, and the arrangement of internal spaces in a building.

Properties located near major roads, railway lines and beneath flight paths can be subject to noise and poor air quality. Hostile and noisy environments such as industrial areas, substations or sports stadiums can also affect residential amenity. Careful design solutions can help to improve the quality of life in affected apartments by minimising the impacts of noise and pollution.

Development near rail corridors and busy roads

For guidance on designing apartments that will be affected by rail corridors and busy roads see *Development near Rail Corridors and Busy Roads – Interim Guideline* (DoP 2008). This is cited by *State Environmental Planning Policy (Infrastructure) 2007*.

OBJECTIVES

- 2.8 Minimise the impact of noise and pollution on residential amenity by careful site and apartment planning, using appropriate noise shielding or attenuation in design detailing, material selection and construction quality.

DESIGN GUIDANCE

External noise and pollution

Use appropriate siting to separate the development from noise sources, minimise propagation of noise through the site, and minimise noise reaching habitable rooms and private open spaces. See Part 1.2: Built form and siting.

In mixed-use developments, minimise noise transfer from commercial operations into apartments through planning, acoustic mitigation measures, and suitable noise controls such as business operating hours.

Locate noisy activities such as gyms and loading docks away from apartment habitable rooms.

Locate non-residential buildings so they provide an acoustic buffer between noise sources and residential buildings or communal open spaces.

Design window and door openings in habitable rooms so they are oriented perpendicular to a noise source, and shielded by other structures where possible.

Use landscaping to act as a filter for air pollution from traffic where residential uses are adjacent to a busy road.

Use external acoustic treatments such as reducing the extent of flat reflective surfaces, increasing building articulation, or designing vertical projections, balcony soffits and wintergardens to minimise the need for alternative natural ventilation.

For developments near a busy road, obtain a site-specific acoustic and air quality assessment to determine the existing noise and air quality environment and inform potential mitigation strategies.

Where necessary, embed acoustic treatments and controls on structure-borne noise in the building or in caveats for operators of non-residential uses.

Figure 2.8.1

Although barrier buildings can be effective in shielding residential uses from noise sources, take care to avoid reflections and reverberation between buildings.

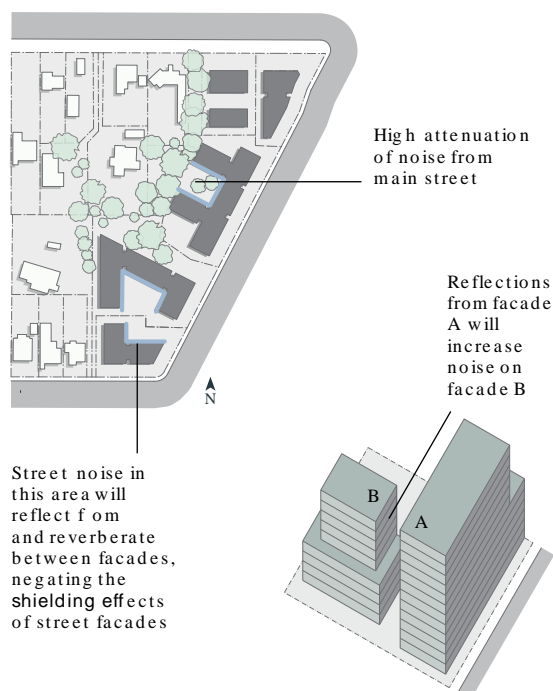
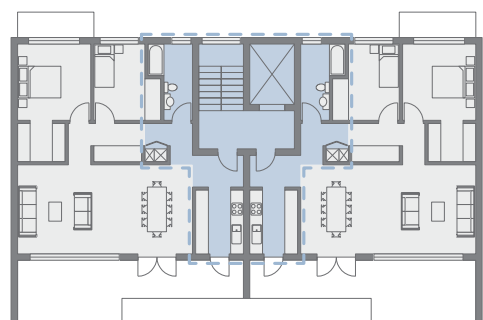


Figure 2.8.2

Configure the building layout to ensure amenity impacts from noise are reduced to both living areas and bedrooms. The plan here locates living spaces away from noisy common circulation.



Internal acoustic separation

Minimise noise impacts from the floors of apartments below, above or next door.

Locate noise sources such as garage doors, driveways, service areas, plant rooms, mechanical equipment, communal open space and circulation areas at least 3 m away from bedrooms.

For all habitable rooms, including where an alternative solution for natural ventilation is necessary, refer to the noise level criteria with windows closed in *Development near Rail Corridors and Busy Roads – Interim Guideline*.

Alternative design responses

For noisy environments where planning is constrained, or other design guidance may need to be compromised to provide acoustic amenity, consider alternative solutions for:

- sunlight access
- natural cross-ventilation.

Apartments that require an alternative natural ventilation solution to meet acoustic amenity requirements may be removed from the total count of apartments used to calculate provision of natural cross-ventilation and sunlight access.

Figure 2.8.3

To achieve consistent acoustic attenuation over floor levels, setbacks are required at each level. Greater setback will result in greater noise reduction.

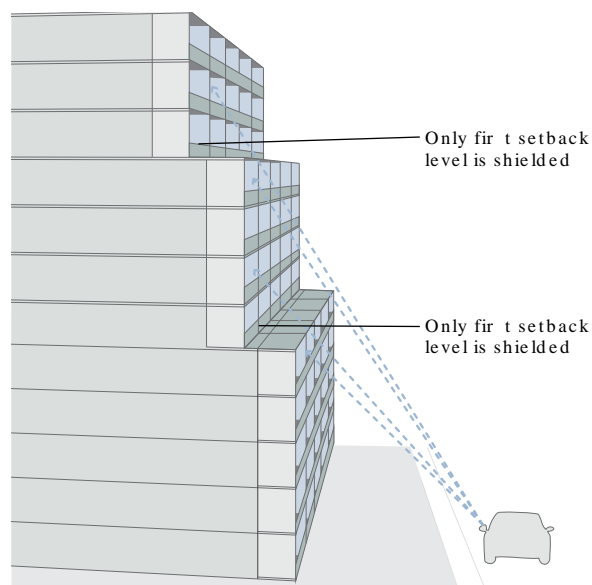
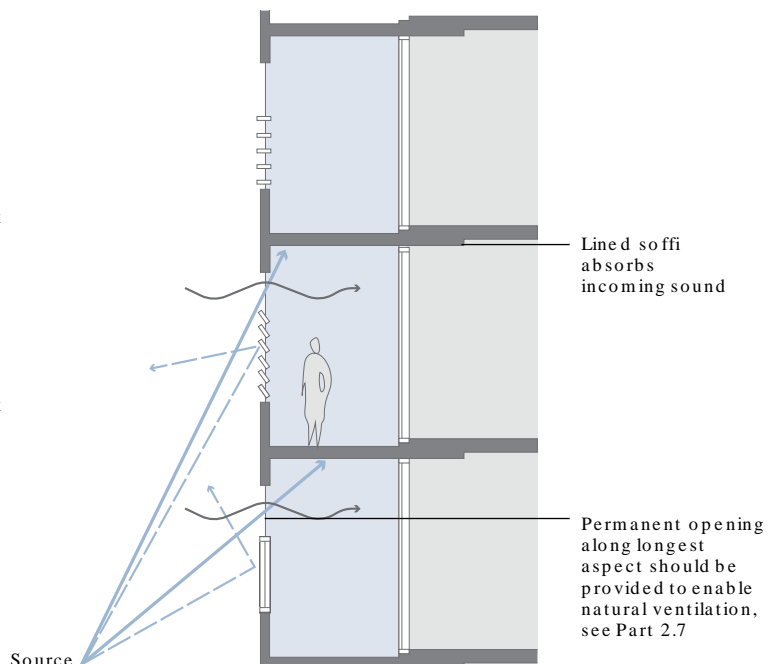


Figure 2.8.4

Enclosing balconies to function as wintergardens is an effective means of reducing road and rail noise.





Wintergardens and other types of protected balconies can be an excellent way to mitigate unpleasant noise and environmental exposure. Central Park by Ateliers Jean Nouvel and PTW, Photo: Brett Boardman.

2.9

Visual amenity

Visual amenity supports residents' quality of life and wellbeing. It balances the important need for outlook with the need for privacy and environmental comfort, including ventilation, sunlight and daylight access.

Visual amenity needs to be considered for both current and future residents, and for occupants of surrounding properties.

A high-quality outlook includes long-distance, middle-distance and shorter distance views of the sky and surrounding environment.

OBJECTIVES

- 2.9 Provide privacy to apartments without compromising outlook, access to daylight and natural ventilation, or visual connections to surrounding public realm.

DESIGN GUIDANCE

Outlook and views

Optimise the quality of outlook for each apartment by thoroughly considering its orientation, configuration and floor-to-ceiling heights to ensure:

- apartments have a view of the outside environment including sky, open space, landscape and elements within or beyond the site
- openness and appropriate outlook is balanced with protection from overlooking, noise, sun and wind.

Soften the visual impact of built form interfaces and use green infrastructure including tree canopy and landscaping to provide a high-quality outlook.

Refer back to the site and context analysis and if public viewpoints were identified as siting considerations, consider them in the detailed building design too.

Building configuration

Locate, orientate and configure buildings to carefully balance the need for outlook with the need for visual privacy between buildings on the site and for neighbouring buildings. See Part 1.2: Built form and siting. Design solutions include:

- using site layout and building orientation
 - such as staggering and angling built form, or increasing setbacks and building separation – to minimise privacy impacts and enable view sharing
- using the general arrangement of the built form to maximise visual separation and increase apartments with different outlook and views
- offsetting and orientating windows and balconies away from the windows and balconies of adjacent buildings and apartments to avoid direct lines of sight
- using recessed balconies or vertical fins between adjacent balconies and private open spaces to provide separation and privacy.

Landscape design within adequate building separation distances can provide a quality outlook and enable trees to contribute to visual amenity and privacy. 906 Bourke St by Bligh Voller Nield Architecture, Photo: John Gollings



Achieving privacy through design

Maximise the visual amenity that can be achieved by scaling and configuring the development and apartment layouts in response to the adjacent context, topography and activities in spaces where overlooking may occur.

Mediate visual and privacy impacts without compromising the design quality and safety of communal and public spaces by relying on blank walls, high-level windows or fixed screens.

Separate private open space and windows to apartments, particularly the primary windows to habitable rooms, from common circulation areas, communal spaces and public spaces. Design solutions include:

- providing solid or partially solid balustrades to balconies and private open spaces
- raising apartments or private open space above the public space or communal open space, keeping distance above to 1 m or less
- using landscape design including trees and vegetation to separate spaces, and planter boxes incorporated into walls and balustrades to increase visual separation.

- providing operable or fixed screening devices and louvres
- providing bay windows or pop-out windows to provide privacy in one direction and outlook in another
- using pergolas or shading devices to limit overlooking of lower apartments or private open space.

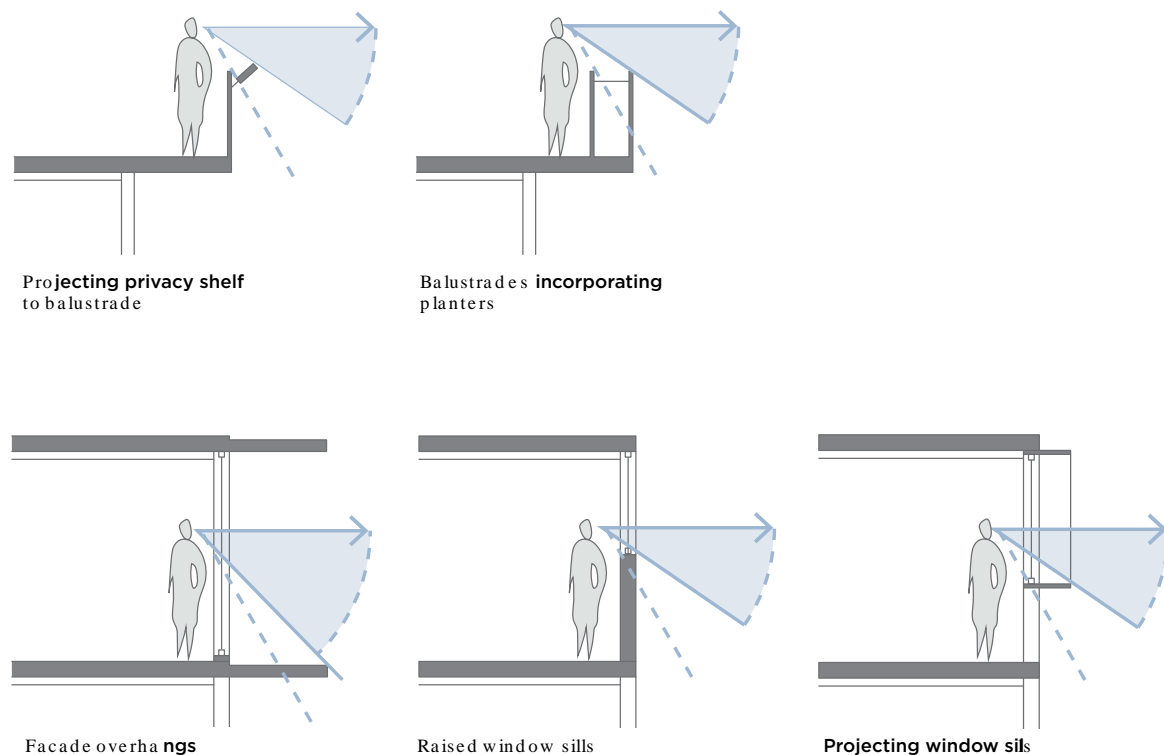
Alternative design responses – visual amenity

On constrained sites where it can be demonstrated that building layout opportunities are limited, provide fixed louvres or screens to windows or balconies where required to provide privacy. Balance this with the amenity of habitable rooms in apartments, including their:

- sunlight and daylight levels
- natural cross-ventilation
- outlook (where possible), including long-distance and middle-distance views of the sky, surrounding context, communal open space, public space and landscaping.

Figure 2.9.1

Examples of design solutions to control outlook and achieve visual privacy.





Good visual amenity for an apartment combines adequate privacy with a pleasant outlook that includes sky views, middle-distance and shorter distance views. Wellington by Studio Johnston, Photo: Brett Boardman.

2.10 Storage

Adequate storage is an important component of apartment design. It provides residents with suitable spaces to store everyday household items that need to be readily accessible, as well as larger or less frequently used items that households acquire over the longer term and which need to be accessed less frequently.

Storage needs to be provided in proportion to the size of the apartment. Well-located and designed storage means apartment developments can support a diversity of households and their whole-of-life residential needs including families with children, the elderly, and the mobility impaired.

OBJECTIVES

2.10 Provide conveniently located and accessible storage, both within and external to an apartment, to support the whole-of-life needs of the residents.

DESIGN CRITERIA

In addition to storage in kitchens, bathrooms and bedrooms, apartments have the following volume of storage. Any storage in addition to minimum storage volume within apartments can be provided within or external to the apartment.

Table 2.10.1
Minimum storage volumes for apartments in addition to storage in kitchens, bathrooms and bedrooms

DW ELLING TYPE	MINIMUM STORAGE VOLUME WITHIN APARTMENTS	TOTAL
Studio apartments	2 m ³	6 m ³
1-bed apartments	3 m ³	8 m ³
2-bed apartments	4 m ³	10 m ³
3+ bed apartments	5 m ³	12 m ³

DESIGN GUIDANCE

Storage schedule

To demonstrate adequate storage has been provided:

- prepare drawings that highlight, dimension and label the volume allocated for internal and external storage for each typical apartment layout
- include a summary table outlining the volume and location of the storage provided for each apartment, as a schedule to a drawing, or as part of the design verification statement.

Storage within apartments

Provide one storage space with the following minimum dimensions:

Table 2.10.2

Minimum dimensions for one internal storage space within each apartment

DWELLING TYPE	MINIMUM VOLUME
Studio apartments	0.6 m deep x 0.9 m wide x 2.4 m high
1-bed apartments	
2-bed apartments	0.6 m deep x 1.2 m wide x 2.4 m high
3+ bed apartments	

Provide a main bedroom wardrobe 0.6 m deep x 1.8 m wide at a minimum. Provide all other bedroom wardrobes at least 0.6 m deep x 1.5 m wide.

Provide storage cupboards and wardrobes that are no less than 2.4 m high and extended to the ceiling or underside of bulkheads where possible.

Make storage accessible from either circulation or living areas.

Where storage is provided on a balcony or other private open space, the volume:

- does not count towards the storage volume provided within an apartment
- is in addition to the minimum size of the balcony or private open space
- is integrated into the building design, screened from view from the street and weatherproof.

Use left-over space such as under stairs for storage, provided it is functional and easily accessible.

For adaptable apartments, consider flexible provision for storage or circulation to accommodate mobility devices including mobility scooters or electric wheelchairs. Provide a charging point for mobility devices.

Storage outside apartments

External to apartments, provide storage that is:

- a minimum height of 2.1m
- a functional shape and size to suit various needs
- suitable for larger and less frequently used items
- weatherproof, easily and safely accessible, secure and clearly allocated to specific apartments.

Consider providing storage:

- in common areas with lockers or cages
- at the rear or side of car spaces, with the allocated car parking remaining accessible. Only car spaces on the same title as the storage can be traversed to obtain access.

If communal storage rooms are provided, make them accessible from the building's common circulation areas, integrated into the overall building design, and not visible from public space.

Avoid locating storage behind columns or in areas with limited visibility to increase security and safety.

Class A bicycle parking spaces (see Part 1.6: Parking) can contribute to minimum storage volumes external to apartments if they are on the title of an individual apartment.

External storage provides space for sporting goods, unused furniture or bicycles, avoiding the need to bring them through common internal circulation to the apartment, and releasing internal area for living space. WBTC by Turner Studio, Photo: Tom Ferguson



Alternative design responses – storage

Where alternative design solutions are being considered under an applicable SEPP, such as policies for affordable rental housing or build-to-rent apartments, the consent authority may be flexible in applying the design guidance for internal storage, and instead consider whether provisions for storage outside apartments (as set out above) will meet the needs of the residents.



Minimum provision for internal storage meets resident needs and makes apartments more liveable. One30 Hyde Park by Bates Smart, Photo: Anson Smart.

2.11

Building articulation

The design of facades contributes greatly to both the visual interest of a building and the character of the local area.

Facades facing the street contribute to the experience of public space, while side and rear facades often influence the amenity of neighbouring buildings and communal and private open spaces. The composition and detailing of a facade is important to the appearance of a building, including its perceived scale.

A well-designed roof provides a positive addition to the character of an area and can form an important part of the skyline. Roofs can also provide opportunities for communal and landscaped space where appropriate, and can add to the sustainability performance of a building (see Part 3.1: Energy efficiency).

OBJECTIVES

- 2.11 Design articulated apartments with services and design features integrated into the overall development.

DESIGN GUIDANCE

Facades

Design the building form, facades and roof holistically, so they are cohesive and well-resolved.

Respond to human scale and proportion as well as the streetscape.

Consider the desired character of the area.

Integrate building services and maintenance infrastructure.

Integrate sustainability features including clerestory windows, ventilation systems, skylights and controls for sunlight access and shade.

Use building articulation, texture, materials, detail, colour and shadow to provide visual interest and reduce the visual bulk of development.

Express building functions to support wayfinding and passive surveillance:

- Clearly define building entries
- Express apartment layout externally.

Select materials which are robust and durable, graffiti-resistant, easy to clean, and appropriate for the environmental conditions and use.

Avoid large areas of painted surfaces such as painted render or concrete, as these can detract from the building's appearance over time.

Building articulation such as balconies and deeper window reveals contribute visual interest to a facade. Bourke St Apartments by McGregor Westlake Architecture, Photo: Brett Boardman.



Consider the potential impact of glare from glazing on adjacent properties.

Detail the building to age well and provide protection from weathering. Design solutions include:

- roof overhangs to protect walls
- hoods over windows and doors to protect openings
- detailing horizontal edges with driplines to avoid surfaces becoming stained
- methods to eliminate or reduce planter box leaching
- appropriate design and material selection for hostile locations.

Roof design

Relate the building facades and roof form to the key datum lines of adjacent buildings by using upper-level setbacks, parapets, cornices, awnings or colonnade heights.

Maximise opportunities for habitable roof spaces for private or communal use, subject to visual, acoustic, comfort, privacy, safety and security considerations.

For apartments located on the top floor or in habitable roof space, consider incorporating operable skylights, or dormer or clerestory windows, to maximise access to daylight, natural ventilation and natural cross-ventilation.

Consider how rooflines will be viewed against the sky and integrate into the overall built form detailing. Newmarket by Smart Design Studio Photo: Martin Siegner.



Integrate roof treatments with the building design:

- design the roof in relation to the overall building size, scale and form
- use roof materials that complement the building
- integrate service elements.

Adaptive re-use

Retaining existing buildings has many benefits, including sustainability, aesthetics, character and valuing their social and cultural significance. Adaptation of an existing building for a new residential use provides for its repurposing and should be approached in a way that acknowledges the past and respects its sense of place.

Non-residential buildings often have dimensions, layouts and orientations that were not designed for residential use. Adapting them requires achieving a balance between the benefits of retaining an existing building and the quality of the residential amenity that can be achieved.

For new additions to existing buildings:

- complement the existing character, siting, scale, proportion, pattern, form and detailing of the existing building
- enhance the sense of place
- be contemporary
- allow for the interpretation and future evolution of the building.

Make additions to heritage items clearly identifiable from the original building, and reversible where appropriate. Provide residential amenity without precluding future adaptive re-use.

Seek opportunities to re-use materials from demolished buildings on site in the proposed new development.

Alternative design responses – adaptive re-use

Some proposals that adapt existing buildings may not be able to achieve all of the design objectives. Consider alternative solutions for the following situations:

- where there are existing higher ceilings, increasing depths of habitable rooms by demonstrating adequate access to natural ventilation, cross-ventilation (when applicable), and sunlight and daylight (see Sections 2.6: Sunlight, daylight, shade and thermal comfort, and 2.7: Natural ventilation)
- providing deep soil where less than the minimum requirement is currently available on the site
- providing building and visual separation by demonstrating alternative design approaches to achieving privacy
- common circulation
- car parking
- private open space and balconies.

Well-designed building facades have an appropriate scale, rhythm and proportion relative to the streetscape. 81 Foveaux by SJB Architects, Photo: Brett Boardman.



Distinguish new building elements from the original. Flour Mill of Summer Hill by Hassell, Photo: Mark Syke.





Well-considered adaptive re-use respects the original building fabric and facade rhythm. Newcastle by Durbach Block Jaggors. Photo: Tom Roe

PART THREE

Environmental considerations

3.1

Energy efficiency

Energy efficiency is a primary factor in making buildings ready for net zero emissions. Net zero readiness requires buildings to have the best possible energy performance, including providing infrastructure to support foreseeable future needs, and avoiding locking in future environmental impacts.

Providing alternative sources of energy, such as solar hot water, photovoltaics for energy generation and batteries for storage, will reduce overall energy consumption.

The guidance in this section supplements the BASIX sustainability requirements applying to the building's thermal performance, potable water use and greenhouse emissions. It also provides further guidance, not covered by BASIX, such as provisions for EV charging, all-electric buildings, and use of other rating systems to promote better design practice.

Design guidance on passive environmental and energy-efficient design for managing thermal comfort is provided in Sections 2.4: Apartment configuration, 2.6: Sunlight, daylight, shade and thermal comfort, and 2.7: Natural ventilation.

OBJECTIVES

- 3.1.1 Use low-carbon, low-emission systems, construction processes and materials to deliver energy-efficient apartment developments, where possible.
- 3.1.2 Maximise environmentally sustainable energy consumption and facilitate energy production, where practical.

DESIGN GUIDANCE

Low-carbon low-emission materials and processes

Select sustainable materials, landscaping, building systems and construction methods to minimise embodied greenhouse gas emissions, construction waste, and maintenance costs.

Preference use of local, robust, durable and easy-to-maintain materials with low embodied energy and low environmental impact over their life cycle.

All-electric building

Preference electricity as the power source for all energy requirements associated with normal operations.

Consider induction cooktops to reduce overheating of apartments, cooling loads and air pollutants.

Locate heat pumps in a central location to reduce urban heat-island effects.

Rooftop solar

Provide maximum solar energy generation on roof space that is not allocated to common open space or roof gardens, to reduce ongoing energy costs for residents and the body corporate.

On low-rise, large-footprint buildings, rooftop solar panels should be provided for each apartment, directly connected to provide power behind the meter.

In all other buildings, rooftop solar collection should be connected to the distribution board that supplies common services and be sized to maximise energy contribution to common services while avoiding the need for export.

Integration of green roofs with solar panels has been demonstrated to increase the efficiency of power generation by reducing roof temperatures.

For guidance on roof design see Part 2.2: Communal spaces and Part 2.11: Building articulation.

Electric vehicles

Planning for residential buildings to allow future overnight charging of EVs will accommodate anticipated market growth in this area and can also leverage the diversity of load in apartment buildings, eliminating the need to augment onsite electricity infrastructure.

Make provision for EV-ready connection for each car parking space allocated to residents.

Provide EV distribution boards of sufficient size and quantity in each storey of the car park to allow connection for EVs, complete with a charging control system and connection to the main switchboard.

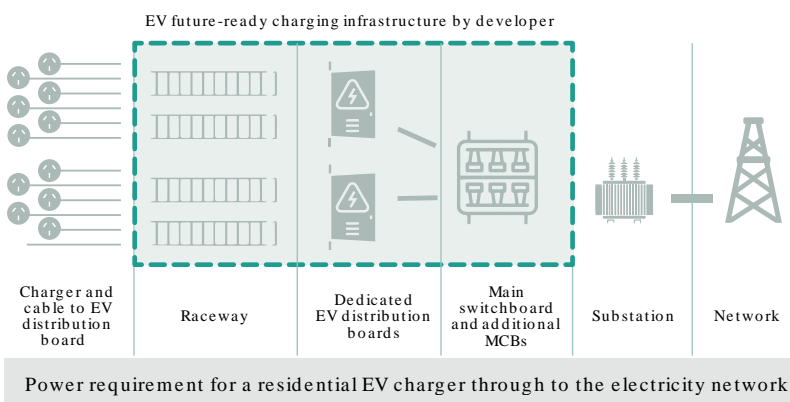
Make provision for cable trays to support the future installation of 32A single-phase final subcircuits for each EV car parking space and allow space for this when designing for other services.

Locate EV distribution boards so any future EV charger will require a cable of no more than 50 m from the parking bay to the EV-ready connection.

Provide a shared EV connection for all car share spaces.

Where EV-ready provision is made for visitor parking, a minimum of 7 kW AC EV chargers should be installed (see Part 1.6: Parking).

Figure 3.11
Essential EV charging infrastructure for a net zero ready building.





Integrating rooftop solar collection with a green roof significantly improves performance.

3.2 Water

Continued water security for a growing population and a changing climate requires an integrated approach to urban water management. A fit- or-purpose approach to water use in new residential developments can provide a valuable non-infrastructure contribution to water security.

Best practice considers water measures at all stages of the project and maximises the collection, retention and re-use of water available on the site. Rainwater collected from the roof is suitable for non-human-contact uses in apartments, common areas and building services. Stormwater collected on the site is best suited to landscape and infiltration. Stormwater flows off the site can be reduced through passive detention and maximising deep soil areas.

Water-sensitive urban design is the integrated management of water in urban areas. It takes into account all of the elements of the urban water cycle including potable (drinking-quality) water, rainwater, wastewater, stormwater and groundwater.

BASIX ensures all new dwellings are designed to minimise potable water use and reduce greenhouse gas emissions. To support the BASIX requirements, a number of planning and design considerations are relevant to apartment developments.

Water-sensitive features effectively filter and re-use stormwater on site, and can be attractive landscape elements. Marrickville by Tonkin Zulaikha Greer, Photo: Murray Fredericks.

OBJECTIVES

3.2.1 Minimise use of potable water and use alternative water sources for non-potable uses, where possible.

3.2.2 Incorporate sustainable water management systems for water storage, retention, and stormwater to minimise impacts on receiving waters.

3.2.3 Integrate flood management systems and water-sensitive urban design into site design.



DESIGN GUIDANCE

Rainwater re-use

Maximise recovery and re-use of rainwater by collecting, storing and re-using rainwater on site.

Connect rainwater to all non-human-contact uses (third pipe or purple pipe), including toilets and washing machines. Laundry tubs should be connected to potable water.

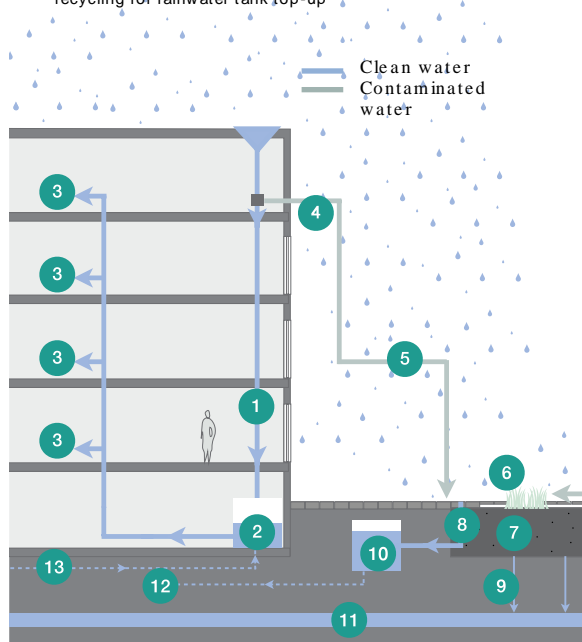
Size rainwater tanks to intercept a 10 per cent annual exceedance probability (AEP) 6-hour storm and to allow full use of all rainwater collected in this event.

Provide for top-up of rainwater storage from the water mains.

In metropolitan areas, enable the top-up of rainwater to be switched to recycled water infrastructure with minimum cost and disruption.

Figure 3.2.1
Onsite water management using fit-for-purpose principles.

1. Down pipes
2. Rainwater tank
3. Laundry/toilet flushing
4. First flush diversion valve
5. First flush roof water (15 mm)
6. Pavement run-off
7. Biosink/wetland filter system irrigation
8. Overflow from courtyard detention
9. Infiltration to water table
10. Detention tank
11. Water table
12. Municipal stormwater system
13. Future connection to the municipal water recycling for rainwater tank top-up



Stormwater discharge

Minimise stormwater discharge from the site.

Use passive onsite retention to maximise recharge of soil and groundwater wherever soils are suitable.

Employ water-sensitive urban design systems including rain gardens designed by suitably qualified professionals.

Size passive retention to intercept a 10 per cent AEP 6-hour storm.

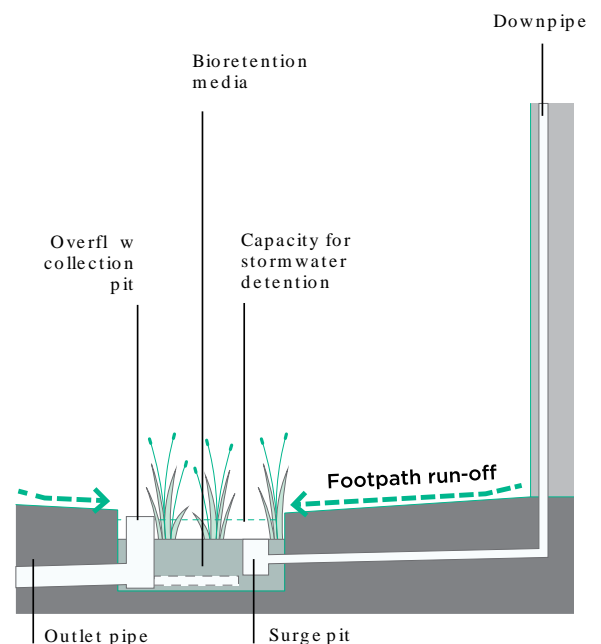
Maximise use of porous and open paving materials on the ground, particularly with minor pathways over deep soil.

Locate detention tanks under paved areas, driveways or in basement car parks.

Design open spaces to provide temporary onsite detention basins.

Consider grey or black water treatment to generate additional water suitable for non-human-contact uses; this is particularly suited to larger and mixed-use development.

Figure 3.2.2
A rain garden improves water quality by using plants to treat roof and surface water run-off.



3.3 Waste

Effectively managing the collection, storage and removal of waste is an important function in an apartment development.

Waste management is relevant throughout the life cycle of a development, and is best considered early in the design process. Integrating waste management infrastructure into a development, and effectively managing apartments' domestic waste, contributes to residents' and neighbours' visual and physical amenity and limits potentially harmful environmental impacts.

Well-designed infrastructure for safe and convenient collection and storage can help to minimise waste by promoting best practice management, including separation of waste streams for recycling.

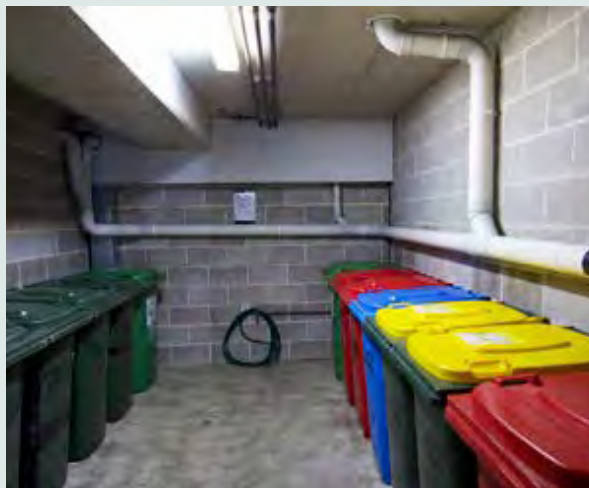
The *Better practice guide for resource recovery in residential developments* (NSW EPA 2019) provides good practice guidelines for waste management.

Well-designed, easily accessed waste and recycling rooms improve the collection and management of household waste.

OBJECTIVES

3.3.1 Minimise waste storage impacts on the streetscape, building entries and amenity of residents.

3.3.2 Minimise occupants' waste to landfill by providing safe and convenient onsite organic and inorganic waste and recycling facilities.



DESIGN GUIDANCE

Waste collection

Encourage waste separation at the source, ideally in the kitchen, by providing a dedicated waste storage area within each apartment to accommodate 2 days' worth of waste, recycling and organics.

Integrate waste management infrastructure to facilitate separation of waste, recycling and organics at the point of disposal – for large buildings, on each residential level.

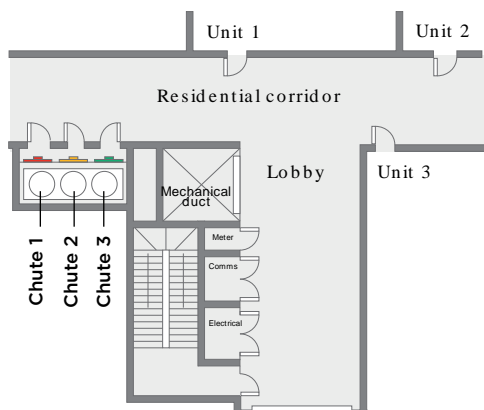
Prepare an operational waste management plan for residents (and other occupants in mixed-use developments) addressing waste collection, separation and storage, including locations of collection points, bin cart routes and equipment such as chutes.

For safety, limit direct resident access to any areas that house chute systems and compactors.

Integrate all waste management facilities and collection infrastructure within the built form of the development to improve amenity for residents and the neighbourhood.

Figure 3.3.1

Waste chutes for separate waste streams can offer spatial efficiencies in larger apartment buildings and provide for convenient collection and disposal of waste and recycling. Diverter systems offer further efficiencies and can be arranged with multiple compaction systems within the waste collection room. Providing a dedicated waste room on each floor can help to minimise impact on the amenity of adjacent apartments. Ensure universal access is considered.



Waste storage

In mixed-use developments, separate residential waste infrastructure from commercial waste infrastructure to facilitate secure management.

Allocate communal space for residents to temporarily store unwanted bulky items such as furniture, appliances and mattresses awaiting disposal through council's clean-up service, or to be available for re-use by other residents.

Locate communal waste and recycling storage rooms in convenient and accessible locations for each vertical circulation core.

For onsite waste storage facilities, provide:

- hot and cold water
- drainage connected to the sewer
- self-closing, sealed and outward-opening dual doors
- automated lighting
- mechanical ventilation
- waterproofing.

Where applicable, allow for vehicle access (as required by Australian Standards) on site for local council or contracted waste collection service vehicles.

Locate collection infrastructure for council waste collection services wholly within the development's basement and within close proximity to the onsite loading dock to permit unobstructed access for collection contractors.

Figure 3.3.2

Integrated waste rooms for separated streams offer considerable space savings compared to manual bin storage.

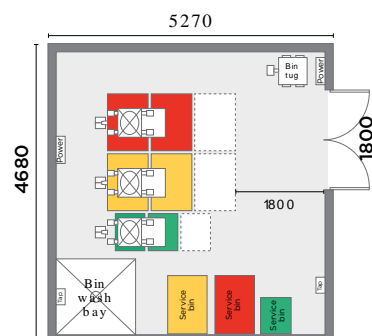
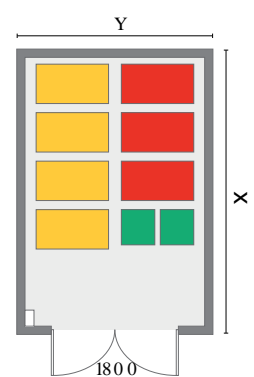


Figure 3.3.3

Waste collection room bin infrastructure for each waste stream: residual, recycling, organics.



3.4

Materials and maintenance

Careful design and sustainable use and selection of materials can minimise carbon footprint and operational emissions and reduce the long-term maintenance obligations of apartment development.

In addition, effective ongoing maintenance can ensure the longevity and viability of buildings and green infrastructure, sustaining the value of the property and reducing the life-cycle cost to owners.

The BASIX Materials Index requires applicants to specify materials to be used in a building's construction and calculate embodied emissions.

OBJECTIVES

3.4.1 Incorporate protection from weathering and ease of access for maintenance in the detail design of the building.

3.4.2 Select materials that reduce ongoing running and maintenance cost as well as environmental impacts of construction, maintenance, and operation.

Roof overhangs, hoods and drip lines protect walls from the elements (rain, sun and wind) reducing maintenance costs. Illume Little Bay by MAKO, Photo: Brett Boardman.



Preference materials that are long-lasting and will weather well over time, such as brickwork, tiles and glass, in preference to materials with applied finishes like paint that will require ongoing maintenance. Short Lane by Woods Bagot, Photo: Trevor Mein.



DESIGN GUIDANCE

Building maintenance

Integrate service and maintenance access for all building elements and landscaped areas into the design of the building, for aesthetic reasons and ease of ongoing maintenance.

Provide for centralised maintenance, services and storage for communal open spaces.

Detail and construct building and landscape components to protect from weathering and daily wear (see Part 2.11: Building articulation).

Preference manually operated systems over mechanical systems for fittings and fixtures such as blinds, sunshades and curtains.

Where possible, enable windows and glass balustrades to be cleaned from the inside of the building.

Avoid needing external scaffolding for maintenance access. Consider permanent mountings for access systems where they are required for regular maintenance, particularly at roof level and for planting on structures, to minimise safety risks.

Provide wall-mounted rather than soffit-mounted lighting on balconies to facilitate safe servicing by residents.

See Appendix 7: Maintenance schedules.

Design building layouts to provide easy access for maintenance and inspection of services and plant equipment. Surry by Candalepas Associates, Photo: Brett Boardman.



Landscape maintenance

Use planting schemes that consider long-term viability and ongoing maintenance.

Identify areas highly vulnerable to water loss, and nominate measures to address survival of planting through periods of drought.

Consider species' life span and their replacement schedule.

Consider plants at mature size and potential future maintenance requirements, e.g. pruning.

Provide irrigation appropriate for the site conditions and seasons to ensure the ongoing health of planting.

See Appendix 7: Maintenance schedules.

Environmental performance of materials

Choose colours that are light-fast and suitable for exterior use.

Preference light-coloured materials to reduce heat absorption. Consider reflectivity and whether this needs to be mitigated to reduce impact on surroundings.

To improve environmental performance, consider using:

- engineered wood products in place of concrete or steel
- industrial waste products or geopolymers in place of Portland cement
- structural steel with a high recycled content.

Maximise the retention of existing buildings, structures, materials and landscaping where possible.

Where possible reduce construction waste by:

- using prefabricated components and designing for offsite construction
- using standardised systems and components.

APPENDIX 1

APPLICATION REQUIREMENTS

Design verification statement — template

This template can be used as a guide to help design teams prepare a design verification statement. Under the Environmental Planning and Assessment Regulation 2000, this statement is required to be submitted to the consent authority as part of a development application for a residential apartment building.

DEVELOPMENT PROJECT:

Project address:

**Applicant's name
and contact details:**

**Architect's name and
contact details:**

Registration no.

I confirm that I was responsible for designing the development, and that the development is consistent with the relevant principles of *State Environmental Planning Policy (Design and Place) 2021*(DP SEPP) and the objectives of the *Apartment Design Guide* (ADG).

Signature of architect

Non-discretionary development standards: design consistency

Following is a summary of the 3 non-discretionary development standards in the DP SEPP that apply to the development.

The table below describes how the proposed development meets the

non-discretionary development standards or, where they are not met, how the proposed development balances this with other design objectives and provides the best possible design response.

Evidence is either provided in this table, or a reference is provided to explain where the evidence can be found. The evidence could be an image, drawing, table or report.

CAR PARKING

DRAFT ADG PART 1.6

NON-DISCRETIONARY DEVELOPMENT STANDARD

DESIGN RESPONSE

For apartments in the following locations:

—on sites that are within 800 m of a railway station or light rail stop in the Sydney Metropolitan Area, or

—on land zoned, and sites within 400 m of land zoned B3 Commercial Core, B4 Mixed Use or equivalent in a nominated regional centre*

the minimum car parking requirement for residents and visitors is set out in the *Guide to Traffic Generating Developments*, or the car parking requirement prescribed by the relevant local council, whichever is lower.

*The nominated regional centres are Albury, Ballina, Batemans Bay, Bathurst, Bega, Bowral, Cessnock, Charlestown, Coffs Harbour, Dapto, Dubbo, Glendale–Cardiff, Gosford, Goulburn, Grafton, Lismore, Maitland, Morisset, Newcastle, Nowra, Orange, Port Macquarie, Queanbeyan, Raymond Terrace, Shellharbour, Tamworth, Taree, Tuggerah–Wyong, Tweed Heads, Wagga Wagga, Warrawong and Wollongong.

APARTMENT SIZE

DRAFT ADG REFER PART 2.4

NON-DISCRETIONARY DEVELOPMENT STANDARD

DESIGN RESPONSE

The internal area for each apartment is equal to, or greater than, the following minimum internal areas:

MINIMUM INTERNAL AREA (INCLUDES ONE BATHROOM)

Studio	35 m ²
1 bedroom	50 m ²
2 bedroom	70 m ²
3+ bedroom	90 m ²

CEILING HEIGHTS

DRAFT ADG PART 2.4

NON-DISCRETIONARY DEVELOPMENT STANDARD

DESIGN RESPONSE

The ceiling heights for the building must be equal to, or greater than the following:

MINIMUM CEILING HEIGHTS FOR APARTMENTS AND MIXED-USE BUILDINGS

Habitable rooms	2.7 m
Non-habitable rooms and kitchens	2.4 m
2-storey apartments	2.7 m for floor containing main living area 2.4 m for second floor, where its area does not exceed 50% of the apartment area
Attic spaces	1.8 m at edge of room with a 30° minimum ceiling slope
Ground floor non-residential uses	3.3 m

Apartment Design Guide objectives: design responses

The table below describes how the proposed development satisfies the ADG objectives – by following the ADG design guidance or by using alternative solutions – and how the proposed development balances all the ADG objectives to provide the best possible design response.

Evidence is either provided in this table, or a reference is provided to explain where the evidence can be found. The evidence could be an image, drawing, table or report.

DP SEPP PRINCIPLE 1:

Deliver beauty and amenity to create a sense of belonging for people

Considerations:

— Overall design quality

— Comfortable, inclusive and healthy places

ADG OBJECTIVES	
2.1 COMMON CIRCULATION	DESIGN RESPONSE
2.1 Maximise the amenity of common circulation areas and provide services for maximum building occupancy to create socially inclusive, secure, and safe circulation spaces.	
2.2 COMMUNAL SPACES	DESIGN RESPONSE
2.2.1 Provide suitably sized and thoughtfully located communal open spaces that provide opportunities for plentiful landscaping and enhanced amenity.	
2.3 APARTMENT MIX AND CONFIGURATION	DESIGN RESPONSE
2.3 Provide a range of apartment types, sizes, mix and configuration to promote flexible housing that caters for current and projected housing needs of the community.	
2.5 PRIVATE OUTDOOR SPACE AND BALCONIES	DESIGN RESPONSE
2.5.1 Locate appropriately sized private open space to optimise internal amenity, outlook, and privacy, and providing opportunities for gardening, clothes drying, outdoor entertaining and passive surveillance of common and public areas.	
2.5.2 Design and detail private open space and balconies that contribute to the overall architectural form and detail of the building.	
2.8 NOISE AND ACOUSTIC PRIVACY	DESIGN RESPONSE
2.8 Minimise the impact of noise and pollution on residential amenity by careful site and apartment planning, using appropriate noise shielding or attenuation in design detailing, material selection and construction quality.	
2.11 BUILDING ARTICULATION	DESIGN RESPONSE
2.11 Design articulated apartments with services and design features integrated into the overall development.	

DP SEPP PRINCIPLE 2:**Deliver inviting public spaces and enhanced public life to create engaged communities****Considerations:**

- Culture, character and heritage
- Public space for public life

ADG OBJECTIVES	
1.1 SITE AND CONTEXT ANALYSIS	DESIGN RESPONSE
1.1 Base design decisions on comprehensive site analysis, strategic planning priorities and the site's contextual opportunities and constraints.	
1.2 BUILT FORM AND SITING	DESIGN RESPONSE
1.2.1 The built form responds to the historic, cultural, and planning context, streetscape and open spaces with appropriate building height, bulk, setbacks, and separation.	
1.2.2 Minimise built form impact on neighbouring sites and properties, limit overshadowing in winter, and protect the privacy of adjacent properties.	
1.3 SITE ACCESS AND ADDRESS	DESIGN RESPONSE
1.3.2 Entries are clear, visible, safe, and accessible, and contribute to the life and activity of the street.	
.	
1.4 RELATIONSHIP TO THE STREET	DESIGN RESPONSE
1.4.1 Provide building and landscape interfaces with the street that deliver safe, secure, and high amenity building entries and ground floor apartments.	
1.4.3 Integrate awnings and signage into the built form to provide orientation and wayfinding.	
2.9 VISUAL AMENITY	DESIGN RESPONSE
2.9 Provide privacy to apartments without compromising outlook, access to daylight and natural ventilation, or visual connections to surrounding public realm.	

DP SEPP PRINCIPLE 3:

Promote productive and connected places to enable communities to thrive

Considerations:

- Vibrant and affordable neighbourhoods
- Sustainable transport and walkability

ADG OBJECTIVES

1.3 SITE ACCESS AND ADDRESS	DESIGN RESPONSE
1.3.1 Any pedestrian link should prioritise walking and cycling and provide access to streets and connection to local destinations.	
1.4 RELATIONSHIP TO THE STREET	DESIGN RESPONSE
1.4.2 Maximise street activation and passive surveillance of the public realm through appropriate active street frontages or ground floor apartments.	
1.6 PARKING	DESIGN RESPONSE
1.6.1 Minimise car parking and provide access to alternative transport facilities such as car sharing and cycling, where appropriate.	
1.6.2 Support cycling for transport with bicycle parking.	
1.6.4 Minimise conflicts between pedestrians and vehicle access to the site and create high-quality streetscapes.	
2.2 COMMUNAL SPACES	DESIGN RESPONSE
2.2.2 Provide safe and resilient communal spaces that support a range of activities and contribute to the wellbeing of residents.	
2.3 APARTMENT MIX AND CONFIGURATION	DESIGN RESPONSE
2.3. Provide a range of apartment types, sizes, mix and configuration to promote flexible housing that caters for current and projected housing needs of the community.	

DP SEPP PRINCIPLE 4:

Deliver sustainable and greener places to ensure the wellbeing of people and the environment

Considerations:

- **Green infrastructure**
- **Resource efficiency and emissions reduction**

ADG OBJECTIVES	
1.5 GREEN INFRASTRUCTURE	DESIGN RESPONSE
1.5 Provide and retain sustainable landscaping, planting, and trees, including planting on structures and in deep, connected soil.	
3.1 ENERGY EFFICIENCY	DESIGN RESPONSE
3.1.1 Use low-carbon, low-emission systems, construction processes and materials to deliver energy-efficient apartment developments, where possible.	
3.1.2 Maximise environmentally sustainable energy consumption and facilitate energy production, where practical.	
3.3 WASTE	DESIGN RESPONSE
3.3.1 Minimise waste storage impacts on the streetscape, building entries and amenity of residents.	
3.3.2 Minimise occupants' waste to landfill by providing safe and convenient onsite organic and inorganic waste and recycling facilities.	

DP SEPP PRINCIPLE 5:**Deliver resilient, diverse places for enduring communities.****Considerations:**

- Resilience and adaptation to change
- Optimised and diverse land use.

ADG OBJECTIVES

2.6 SUNLIGHT, DAYLIGHT, SHADE AND THERMAL COMFORT	DESIGN RESPONSE
2.6.1 Maximise the number of apartments that receive sunlight to living rooms and private open spaces, and have high-quality daylight access, especially where sunlight is limited.	
2.6.2 Use passive environmental design strategies to optimise heat storage in winter and reduce heat transfer in summer, utilising low thermal transmittance construction, shading devices, and balconies.	
2.7 NATURAL VENTILATION	DESIGN RESPONSE
2.7 Provide natural ventilation to all habitable rooms and maximise apartments with natural cross-ventilation to optimise indoor air quality and thermal comfort and reduce reliance on mechanical ventilation.	
2.10 STORAGE	DESIGN RESPONSE
2.10 Provide conveniently located and accessible storage, both within and external to an apartment, to support the whole-of-life needs of the residents.	
3.2 WATER	DESIGN RESPONSE
3.2.1 Minimise use of potable water and use alternative water sources for non-potable uses, where possible.	
3.2.2 Incorporate sustainable water management systems for water storage, retention, and stormwater to minimise impacts on receiving waters.	
3.2.3 Integrate flood management systems and water-sensitive urban design into site design.	
3.4 MATERIALS AND MAINTENANCE	DESIGN RESPONSE
3.4.1 Incorporate protection from weathering and ease of access for maintenance in the detail design of the building.	
3.4.2 Select materials that reduce ongoing running and maintenance cost as well as environmental impacts of construction, maintenance, and operation.	

APPENDIX 2

SITE AND CONTEXT ANALYSIS

A2.1

Site and context analysis

Site and context analysis

Outlined below is a 3-step site and context analysis process, relevant to a specific site.

Step 1: Gather

To gain an understanding of place, including what makes it unique, special, or suitable for change, carefully consider the approach to gathering, layering and interpreting relevant site and contextual information.

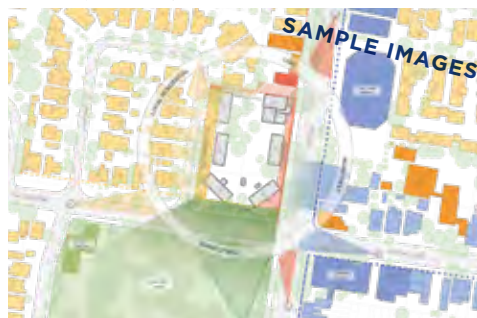
The best way to capture the site and context information to inform the design process is to spatialise the data across 3 scales: catchment, neighbourhood and site.

Figure A2.1.1 Examples of site analysis diagrams

Site analysis - Catchment



Site analysis - Neighbourhood



Site analysis - Site



Step 2: Synthesise

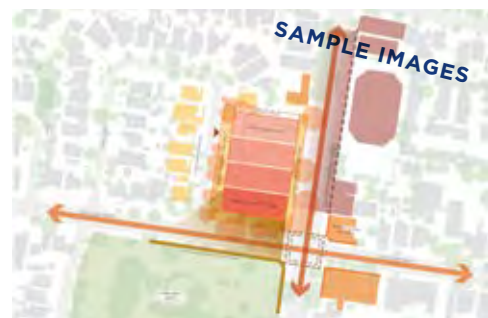
Gaining a holistic understanding of a place involves a process of synthesising information. It extends beyond compiling a description of physical elements and site conditions to focus on identifying the opportunities and constraints that will shape a place-specific design response.

Depending on the complexity and sensitivity of the site and its context, the process of analysis and synthesis will benefit from collaboration with a range of technical consultants to flesh out the key design strategies that will fundamentally influence the project. At a minimum, a qualified landscape architect should be a core member of the design team from the outset. Other key consultants might include environmental and contamination specialists, hydrologists, geotechnical engineers, planners or heritage and interpretation experts.

The findings of the synthesis phase should be unique to the site and reflect the nature and scale of development being proposed, but not so specific that alternative approaches are ruled out too early. The potential of the site and its setting should remain fluid for as long as possible, providing scope for the design testing phase (see below).

Figure A2.1.2
Examples of opportunities and constraints diagrams

Site analysis – Constraints



Site analysis – Opportunities



Step 3: Interpret

Once a site's unique characteristics and place qualities have been identified and spatially represented, the next step is interpretation of the data to identify the key design strategies that will lead to an optimal outcome.

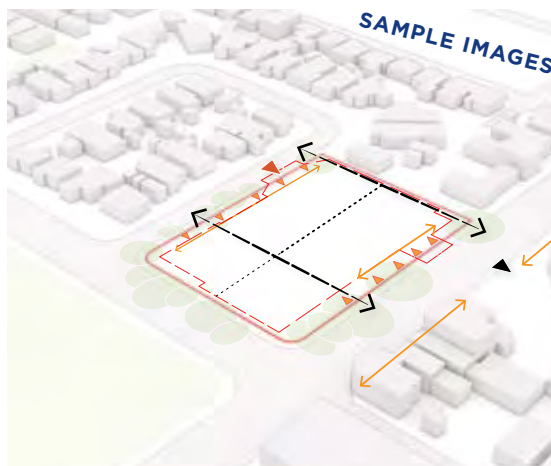
The design strategies are the bridge between the analysis of the site data and the proposed design. The process of interpretation balances understanding of the place with the needs of the development, including considering proposed land uses, service requirements, active frontages, internal amenity and needs of future residents.

Figure A2.13 Examples of design drivers or strategies

Driver 1 – retain trees and provide additional setbacks



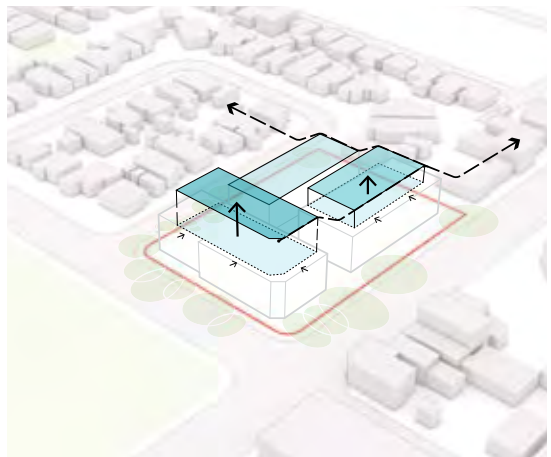
Driver 2 – limit vehicular access and prioritise pedestrian movement



Driver 3 – scale of built form responds to local context, use, grain and setbacks



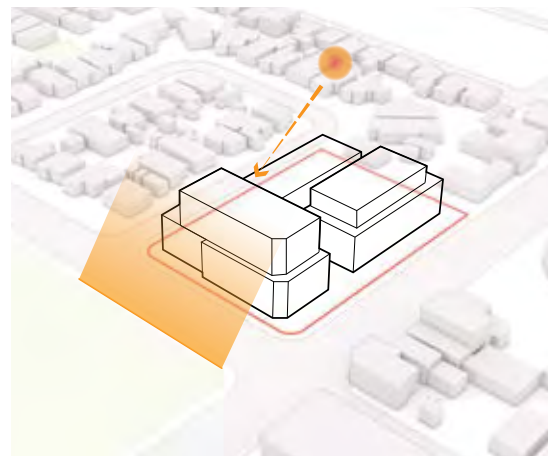
Driver 4 – focus height to south and transition to the north and west



Driver 5 – provide additional landscaping and internal amenity



Driver 6 – preserve solar access to the public space in all cases



Design testing

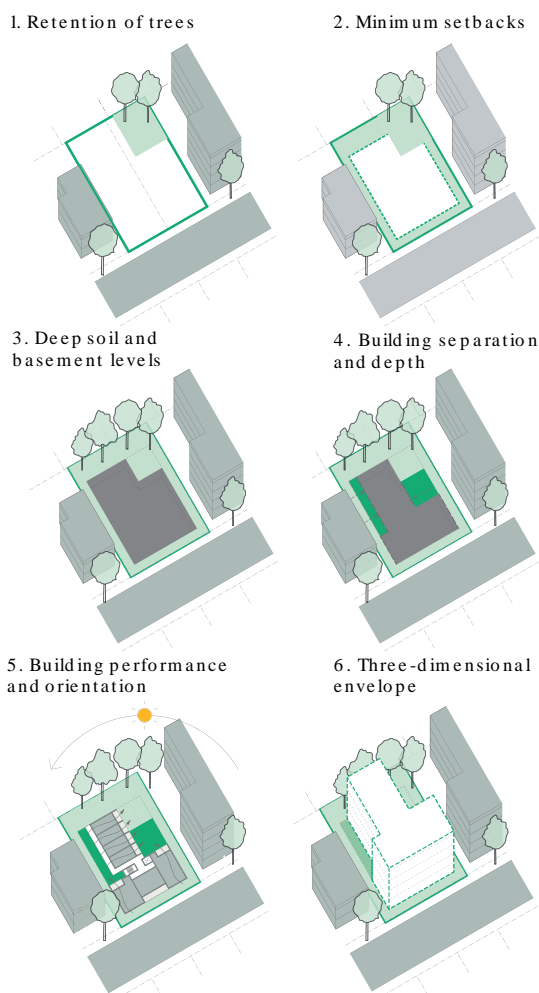
Once the key design strategies have been identified through the process of site analysis, undertake a process of design testing, in which various options are interrogated against findings from the site analysis.

The design solutions which emanate from the design strategies may be further developed from a detailed understanding of strategic planning documents and by exploring the application of particular typologies (see Appendix 8 for examples). The goal is to select a building type that marries a response to the unique qualities of the place with the client's objectives. The choice of building type may yield similar development outcomes but result in very different impacts and contributions.

The design team can continue to test the suitability of the design response by understanding the extent to which it makes a positive contribution to the place, both within and external to the site. This testing and exploration is critical to arriving at an optimal solution, and to illustrate the rationale for a specific design approach.

Figure A2.14

Key considerations when testing development controls and establishing a three-dimensional building envelope



Documenting the design process

Capture the design process – the process of progressing the project from the site analysis, to design solutions, through design testing and refinement, to the selection of a preferred approach – in the design verification statement. The statement is a required deliverable as part of the design documentation for an apartment building planning application under the Environmental Planning and Assessment Regulation 2000. It is critical to inform understanding of the rationale and decision-making process behind a proposed design outcome.

The statement should include diagrams, photos, sketches and written content explaining how the design of the proposed development has been generated from the site and context analysis, and is therefore responding to place. Without duplicating other required reports:

- include any key advice from technical consultants that has shaped the response
- include the various design responses considered
- illustrate how the selected design solution maximises the opportunities of the site and contributes positively to the site's context.

The design verification statement should clearly and concisely summarise the process in a way that allows the assessor and stakeholders to track how the site and place-specific considerations are reflected in the design. The statement becomes a useful tool to communicate the design process, either as part of a design review process, or in a formal discussion with council before submitting a development application.

A2.2

Site and context analysis checklist

DOCUMENTATION	REQUIRED INFORMATION	PROVIDED	
		YES ()	NO (X)
COUNTRY The approach to connecting with Country, as appropriate for the scale and significance of the project. For a smaller scale project this might involve recognition of the Traditional Custodians, and for larger projects this might expand to engagement with Traditional Custodians, knowledge-holders, local Aboriginal land councils (LALCs), or other representative organisations nominated by the community.	What were the site attributes before 1788?		
	Who are the Traditional Custodians of the land where the site is located?		
	What is the Aboriginal history within the area of the site?		
	How will you acknowledge the past and living cultural heritage of the place?		
SITE LOCATION AND WIDER LOCAL CONTEXT Broad map or aerial photograph showing the development site location in relation to its wider surrounding context, including centres, shops, community facilities and transport. Plans and sections showing the site in relation to existing features of the wider context, including adjoining properties and the other side of the street, and including retail and commercial areas, community facilities and transport services. This includes but is not limited to:	Pattern of buildings, proposed building envelopes, setbacks, and subdivision pattern		
	Land use and building typologies of adjacent and opposite buildings in the street		
	Movement and access for vehicles, servicing, pedestrians and cyclists		
	Topography, landscape, open space and vegetation		
	Significant views to and from the site		
	Significant noise sources in the vicinity of the site, particularly vehicular traffic, train, aircraft and industrial noise		
SITE SURVEYS AND PLANS, INCLUDING ADJOINING CONTEXT Plans, sections, and written material as appropriate, showing existing site features and including properties that are adjoining and on the other side of the street. Information may include but is not limited to:	Boundaries, site dimensions, site area, north point		
	Topography, showing relative levels and contours at 0.5-m intervals for the site, and across site boundaries where level changes exist, and including any unique natural features such as rock outcrops or watercourses, existing cut or fill, and adjacent streets and sites		
	For major trees on the site, as well as street trees and adjacent property trees close to the shared boundaries, identify species, location, height, diameter and relative levels (RLs) at base of trunk		
	Location and use of existing buildings or built features on the site		
	Location and important characteristics of adjacent public space, communal space and private open space		
	Location and height of existing windows, balconies, walls and fences on adjacent properties facing the site, as well as parapet and ridge lines		
	Pedestrian and vehicular access points, driveways, and features such as service poles, bus stops, fire hydrants etc.		
	Location of utility services, including easements and drainage		
	Location of any other relevant features		
SITE AND CONTEXT ANALYSIS:			
BUILT FORM AND LAND USE Plans, photographs and other relevant material that synthesises and interprets information about the site and its context, documenting opportunities and constraints that generate design parameters, in relation to the following:	Overall height (storeys, metres) of existing built form, planned future heights, important parapet and other datum lines, awnings, colonnades and other building elements – for existing buildings on the site and adjacent buildings		
	Pattern of buildings, proposed building envelopes, setbacks and subdivision pattern – including era of development		
	Relationship to and interface with adjacent properties		
	Land use and building typologies of adjacent and opposite buildings		
	Location and use of existing buildings or built features on the site		
	Location and height of existing windows, balconies, walls, parapets, roof lines and fences on adjacent properties facing the site		
	Patterns of building frontages including street setbacks and side setbacks, presentation to the street, active street frontages		
	Public space interfaces and connections, permeability, safety		
	Proposed building entries		
	Proposed building footprint location		
	Proposed car park footprint and depth		
	Proposed communal open space and public open space		

DOCUMENTATION	REQUIRED INFORMATION	PROVIDED	
		YES ()	NO (X)
MICROCLIMATE	Orientation and aspect		
	Wind tunnels and downdraft (especially in areas with multiple towers)		
	Overshadowing of the site and adjoining properties by neighbouring structures (excluding vegetation), showing the winter sun path between 9 am and 3 pm on 21 June		
	Contribution of shading elements, and impacts arising from their removal (e.g. mature trees)		
	Spaces (internal and external) relying on existing direct sunlight (e.g. living rooms, primary outdoor spaces, swimming pools), including seasonal variations		
	Prevailing winds		
	Average maximum and minimum temperatures, and urban heat mapping		
	Other microclimate indicators such as natural ventilation for the site and immediate neighbours		
LANDSCAPE, TREES AND PLANTING	Landform and topography, including natural features		
	Landscape, vegetation and open space		
	Landscape character, including significant views to and from the site		
	Geotechnical characteristics of the site and suitability for the proposed development		
	Topography, showing relative levels and contours at 0-5 m intervals for the site, and across site boundaries where level changes exist, including any unique features such as rock outcrops, watercourses, and existing cut or fill		
	Soil zones		
	Details of trees on the site and adjacent properties, including street trees. Include species, species type (e.g. endemic) location, maturity, size, height, canopy coverage, health, including an arborist report on the health of significant trees		
	Bushfire risk and asset protection zones – ideally sourced via a centralised point		
WATER	Erosion zones		
	Catchment area		
	Overland flow, stormwater, drainage infrastructure		
	Waterway health		
	Flood risk		
BIODIVERSITY	Coastal erosion		
	Endemic and threatened species of native plants and animals in the area		
	Biodiversity surveys and mapping (sourced from local council GIS resources)		
	Existing and potential habitat zones and corridors		
OPEN SPACE AND GREEN INFRASTRUCTURE	Location, quantity and important characteristics of adjacent public, communal, and private open space		
	Proximity and access to local, district and regional open space		
	Quality, diversity and usability		
	Local streetscape quality and characteristics, including verges, setbacks and landscape		
	Green infrastructure networks and connections, and active transport networks		
HISTORY, CULTURE AND HERITAGE	Significant social and cultural attributes, assets and places		
	Heritage items		
	Conservation areas		
	Transition zones (curtilage around heritage items)		
OTHER	Character and materiality		
	Technical advice from specialists involved in the development process including community engagement consultants, urban planners and designers, transport planners, landscape architects, arborists, air quality specialists, geotechnical engineers, contamination specialists where applicable		

APPENDIX 3

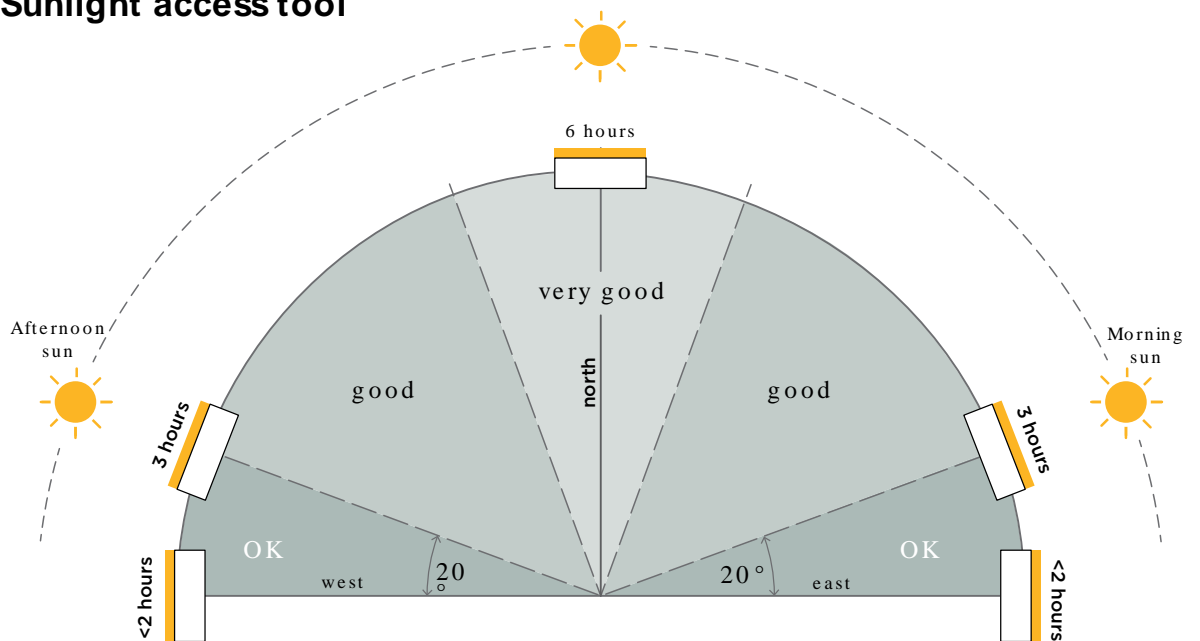
SUNLIGHT ACCESS ANALYSIS TOOL

Appendix 3.1

Solar access analysis tool

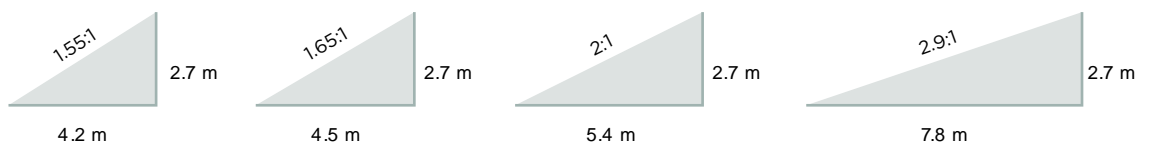
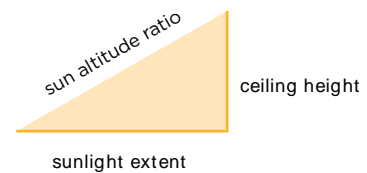
To achieve 2 hours of direct sunlight in midwinter, a good test is to check whether the sun can 'see' the living room window and private open space between 11 am and 1 pm in plan view.

Sunlight access tool



Sun altitude ratios

The ratios below can be used to determine how far sunlight extends into apartments at a given time of day, according to the ratios indicated on the sunlight access tool above.



Appendix 3.2

Demonstrating good solar shading

Seasonal performance of shading

A project can demonstrate seasonal shading performance by testing each hour that the sun would reach an otherwise unshaded facade for the entire summer period.

For fully glazed facades, this involves demonstrating that external solar shading will block more than 70 per cent of direct sun that would otherwise reach the glazing over the summer period.

The percentage of direct sun required to be blocked by shading can be reduced proportionally from 70 per cent for a fully glazed facade to 0 per cent for a facade with only 30 per cent glazing.

The percentage shading required can be derived from the graph (Figure A 3.2.1) or determined by the formula (glazed percentage minus 30 per cent). For example, a facade with 50 per cent glazing will require 20 per cent of that glazing to be shaded: $50\% \text{ (glazed percentage)} - 30\% = 20\%$.

Figure A3.2.1:
Seasonal shading requirement

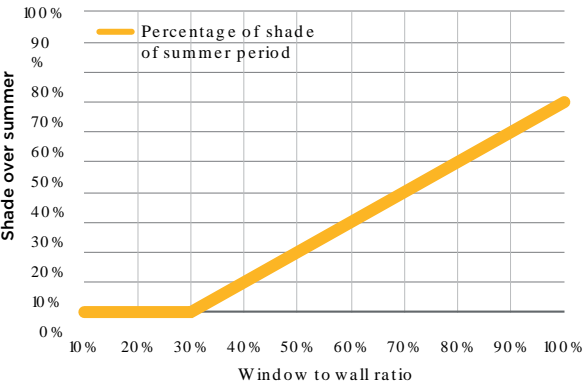


Figure A3.2.2:
Single-hour shading requirement

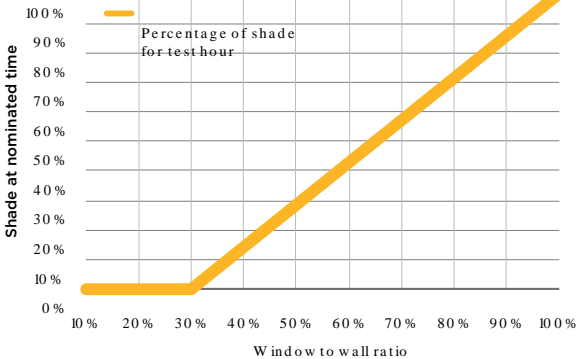


Figure 26. Single hour test shading requirement

Single-hour test

A project can demonstrate shading with a single-hour test using shadows cast onto an elevation or from a sun's eye view at the nominated time.

The percentage of shading required at the nominated test hour can be reduced proportionally from 70 per cent for a fully glazed facade to 0 per cent for a facade with only 30 per cent glazing.

The percentage shading required at the test hour can be derived from the graph (Figure A 3.2.2) or determined by the formula (glazed percentage minus 30 x 142). For example, a facade with 50 per cent glazing will require 28.4 per cent of that glazing to be shaded: $50\% \text{ (glazed percentage)} - 30\% \times 142 = 28.4\%$.

Figure A3.2.3:
Times of year for single-hour shadow test

ORIENTATION OF GLAZING	DAY	HOUR
N	Jan 24	1:15 pm
NNW	Jan 14	4:45 pm
NW	Dec 10	4:20 pm
WNW	Dec 22	6:00 pm
W	Dec 22	6:00 pm
WSW	Feb 25	4:45 pm
SW	Jan 22	4:45 pm
SSW	—	—
S	—	—
SSE	—	—
SE	Jan 22	9:30 am
ESE	Feb 25	9:35 am
E	Dec 22	7:45 am
ENE	Dec 22	7:45 am
NE	Dec 10	9:15 am
NNE	Jan 14	9:25 am

Submission requirements – sunlight access

Provide a plan indicating which apartments achieve the required hours of direct sunlight access, along with a schedule showing overall percentages, and one of the following:

- view from sun diagrams at midwinter between 9 am and 3 pm with apartment numbers shown on the building facade, or
- elevations with shadows at midwinter between 9 am and 3 pm with apartment numbers shown on the building facade.

Provide shadow diagrams (midwinter, equinox and midsummer) to demonstrate the potential impact of development on neighbouring properties.

Detailed analysis of the proposed overshadowing impact on neighbouring properties may need to be demonstrated. Where requested by the consent authority, prepare one of the following sets of diagrams to demonstrate compliance with the design criteria:

- sunlight hour diagrams which illustrate the hours of direct solar access achieved between 9 am and 3 pm at midwinter on the impacted facade of a neighbouring building
- view from sun diagrams between 9 am and 3 pm in midwinter with a supporting table outlining the hours of direct sunlight access achieved by apartments within the affected neighbouring property under the existing and proposed settings.

APPENDIX 4

ALTERNATIVE DESIGN RESPONSES

FOR NATURAL VENTILATION
AND CROSS-VENTILATION

Appendix 4.1

Natural ventilation

Minimum performance requirements

Provide a system of natural ventilation for each apartment that delivers an average hourly volume flow rate equivalent to the greater of the following criteria:

- 10 litres/second/person (where the number of persons is equal to the number of bedrooms in the apartment +1), or
- 0.3 litres/second/m² of floor area of the apartment

for:

- 85 per cent of all hours in the year for cross-through and cross-over apartments, or
- 90 per cent of all hours in the year for all other apartments.

For this calculation, the definitions of cross-through and cross-over apartments are consistent with the definitions set out in the ADG glossary. Applying the definitions is limited to apartments where the total area of openings proposed for natural ventilation is evenly distributed across at least 2 opposite facades with differences in orientation of $180^\circ \pm 35^\circ$.

Provide effective natural ventilation for each habitable room and ensure the distribution of ventilation between different rooms is proportional to reasonable expectations about the use and occupation of each room.

For apartments affected by noise: providing additional unattenuated openings

To comply with guidance on designing apartments that will be affected by rail corridors and busy roads (see Part 2.8: Acoustic privacy, noise and pollution), an alternative natural ventilation pathway can be applied which allows a smaller area of opening to be acoustically attenuated, with the balance of the 5 per cent EOA to be provided via unattenuated openings.

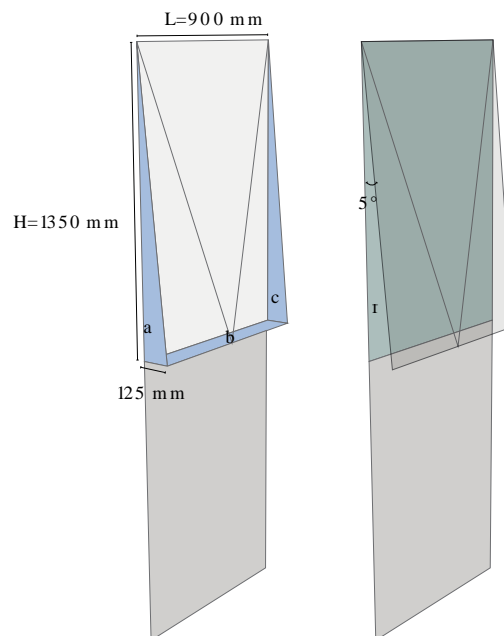
Provide additional unattenuated openings for each habitable room by determining the difference between the size of the attenuated natural ventilation system proposed and the EOA corresponding to 5 per cent of the floor area, as set out in Part 2.7: Natural ventilation.

The alternative pathway provides for natural ventilation. It does not offer an alternative means of providing natural cross-ventilation.

Calculation of window EOA

Figure A4.1.1:

Glazing example demonstrating losses for fly screens for windows with restricted openings



1. Geometric open area (GOA) = a + b + c
2. Loss due to resistance to airflow (f) = Table A4.1
3. Equivalent openable area (EOA) = GOA - (f*GOA)

Example for EOA calculation:

$$GOA = 0.084 + 0.112 + 0.084 = 0.28 \text{ m}^2$$

$$f = 17\%$$

$$EOA = 0.28 - (0.28 * 0.17) = 0.232 \text{ m}^2$$

Table A4.1:

WINDOW OPENING ANGLE	LOSS DUE TO RESISTANCE TO AIRFLOW (F)		
	L/H<0.5	0.5<L/H<1	L/H>1
<7.5°	30%	17%	5%
7.5° – < 12.5°	45%	20%	15%
12.5° – < 20°	50%	52%	35%
20° – < 45°	55%	55%	40%
45°+	55%	55%	55%
Sliding doors or windows	50%		

Alternative natural ventilation pathway – assessment requirements

To satisfy the minimum performance requirements, testing and reporting needs to demonstrate hourly natural ventilation over a full year. Dynamic thermal simulation is suitable for hourly natural ventilation modelling and is required where the alternative proposal includes single-aspect apartments or buoyancy-driven natural ventilation.

Where the alternative proposal does not include single-aspect apartments, thermal chimneys or other devices relying on stack effect, wind tunnel testing may be used as an alternative to demonstrate the minimum performance requirements have been met.

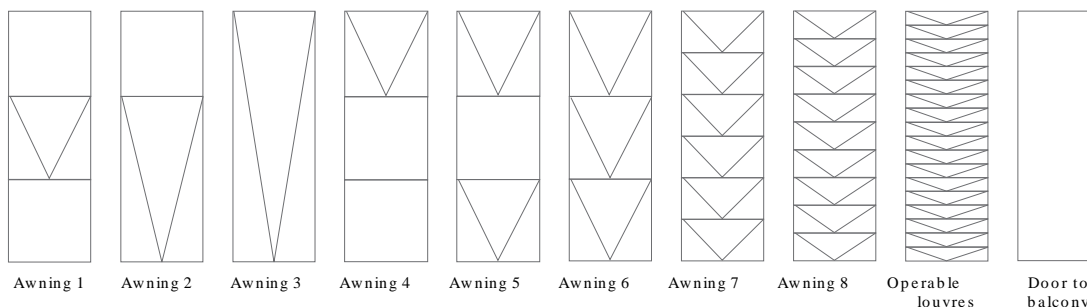
Requirements for natural ventilation modelling

- Each unique apartment design is discretely tested, and testing demonstrates each habitable room meets the minimum performance requirements.
- Apartment buildings with a similar plan but a difference in height of more than 6 storeys are considered unique. Where multiple floors are represented by a similar plan, the lowest floor apartment is used in the modelling.
- Arrangement and features of apartments modelled or tested are consistent with the architectural drawings.
- The calculations must factor in the loss in 'equivalent open area' and aerodynamic performance characteristics of any attenuated ventilation device's air path, including louvres, grilles, control dampers, insect screens and similar components.
- Performance is calculated by predicting average hourly airflow rates each hour of the year, i.e. 24 hours x 365 days.

Figure A4.2: Glazing examples demonstrating EOA losses due to fly screens for windows with restricted openings

	AWNING 1	AWNING 2	AWNING 3	AWNING 4	AWNING 5	AWNING 6	AWNING 7	AWNING 8	OPERABLE LOUVRES	DOOR TO BALCONY
Window assembly	1x restricted 900 mm sash	1x restricted 1800 mm sash	1x restricted 2700 mm sash	1x unrestricted 900 mm sash	1x restricted 900 mm sash + 1x unrestricted 900 mm sash	2 x restricted 900 mm sash + 1x unrestricted 900 mm sash	6 x restricted 450 mm sash	9 x restricted 300 mm sash	18 x restricted 150 mm louvres	1x unrestricted 900 mm opening
Total geometric open area (m ²)	0.225	0.337	0.450	0.540	0.765	0.99	10.14	1.350	1.944	2.43
Area of flyscreen (m ²)	0.81	1.62	0.2.43	0.81	1.62	2.43	2.43	2.43	2.43	2.43
Loss from flyscreen	19%	24%	24%	47%	39%	34%	24%	34%	45%	50%
Equivalent openable area (m²)	0.183	0.257	0.344	0.285	0.468	0.651	0.768	0.891	1.069	1.215
Size of room that window + flyscreen can provide natural ventilation (m ²)	3.66	5.14	6.88	5.7	9.36	13.02	15.36	17.82	21.384	24.3

Notes
Restricted openings are limited to 125 mm.
Unrestricted openings are assumed to 300 mm openings. Larger opening distances will be more effective.
Flyscreens are estimated with 50% loss over area of flyscreen.



- All neighbouring buildings are assumed to be the full height and massing allowed by the planning controls, even if currently built at less than that full potential.
- Additional point-of-time testing is required using either computational fluid dynamic (CFD) or wind tunnel testing where alternative natural ventilation systems proposed incorporate a device to enhance performance that is not able to be supported with manufacturer performance data relevant to a natural ventilation context.
- Natural ventilation openings that comprise the alternative proposal are assumed to be open at all times and all other openings are assumed closed.

For dynamic thermal simulation

- Multi-zone airflow modelling using dynamic thermal simulation software is used to verify the performance of the alternative proposal.
- Annual weather data suitable to the location and with typical wind conditions is used.
- Wind is modelled using city terrain type for velocity profile modification.
- Local shelter for openings is nominated in accordance with the proposed planning and proximity of neighbouring buildings.
- Specific facade pressure coefficients may be determined using wind tunnel or CFD testing which more accurately accounts for the surrounding features (buildings, streets, topography).

For wind tunnel testing

- Quantitative testing is performed in a boundary layer wind tunnel capable of simulating the atmospheric boundary layer and appropriate profiles.
- Physical modelling of the proposed development is done at an adequate scale, and appropriate levels of the surrounding natural and built environment for at least a 300-m radius around the proposed development site are taken into account.
- Measurements are taken at each unique apartment in locations representative of the alternative proposal's openings.
- Measurements are taken for at least 16 wind directions.
- 10 years of reliable continuous wind climate data from Sydney Airport (corrected for the local terrain conditions at the airport anemometer and corrected again for the local site conditions) is required.

Where CFD modelling is used to supplement dynamic thermal simulation or wind tunnel testing

- Solver and meshing are appropriate to the scale of testing.
- Measurements are taken at each unique apartment in locations representative of the alternative proposal's openings.
- Measurements are taken for at least 16 wind directions.
- Extent of modelled domain includes all relevant context.

Minimum level of reporting

For reports submitted using the alternative natural ventilation pathway to support an application, show the percentage of annual hours that are predicted to meet or exceed the minimum performance requirements. Also show the annual distribution of predicted average hourly ventilation rates to demonstrate the full year has been tested.

Commission a suitably qualified or experienced person to prepare the report, and include in the report a full list of assumptions that affect the prediction of performance, including but not limited to:

- modelling methods used including any details of any simulation tools used
- schedule of compliance with the relevant assessment requirements listed above
- all inputs, assumptions and outputs used in the testing that are relevant to predicted results
- manufacturers' published performance criteria relied upon for any equipment selection.

Also include in the report:

- consistent naming of openings, plenums, chimneys or stacks and other system constituents between drawings and reports
- a summary schedule of EOA requirements for each component of the alternative proposal
- design of plenums, chimneys, stacks and other system constituents, detailed to a sufficient level that confirms they are:
 - adequately sized
 - coordinated with the planning
 - providing all necessary allowances for components and parts
 - providing adequate access for cleaning and maintenance.

Appendix 4.2

Natural cross-ventilation

Alternative solutions for providing natural cross-ventilation can be considered to provide adequate natural cross-ventilation if they are tested and shown to provide a level of natural cross-ventilation equivalent to that prescribed by the design guidance.

Minimum performance requirements

Acceptable alternative apartment layouts providing natural cross-ventilation provide ventilation rates at least 7 times greater than a single-aspect apartment in the same location, due to 2 or more openings on separate facade aspects being exposed to a wide range of wind directions.

The improvement in ventilation rates is measured over a year and is demonstrated by testing the first quartile of average air changes through the apartment per hour over a typical year for alternative and reference apartments.

Reference single-aspect apartment

Test a reference single-aspect apartment for each alternative apartment layout to provide a context-relevant baseline of ventilation performance.

Use a reference single-aspect apartment orientated with the same facade aspect as the longest facade of the proposed alternative apartment layout, and in the same location as the alternative apartment on plan and in section.

The reference single-aspect apartment must have natural ventilation that meets the natural ventilation design guidance.

Verification requirements

To demonstrate the minimum performance requirements have been met, test and report on hourly natural ventilation rates over a full year.

Calculate wind and resulting facade pressure coefficients for the full range of wind directions. Requirements for calculating facade pressure coefficients are as follows:

For wind tunnel testing

- Quantitative testing is performed in a boundary layer wind tunnel capable of simulating the atmospheric boundary layer and appropriate profiles.
- Measurements are taken for each alternative apartment type in locations representative of the alternative apartment's ventilation openings.
- Measurements are taken for at least 16 wind directions.

For CFD modelling

- Solver and meshing are appropriate to the scale of testing.
- Measurements are taken for at least 16 wind directions.
- Extent of modelled domain includes the entire building and sufficient domain external to the building to ensure the wind flow is adequately developed.

Requirements for calculating resulting ventilation rates

- A typical wind year is used that has increments no larger than 1 hour and is representative of the annual distribution of coincident average hourly wind speed and direction.
- No thermal effects are considered in the calculation of natural cross-ventilation.
- Wind-driven ventilation is calculated as average ventilation rate through the apartment assuming windows are open to the full extent proposed.

Minimum level of reporting

In reports submitted using verification requirements to support an application, show the comparative wind-driven ventilation performance of the alternative apartment and the reference single-aspect apartment for the first quartile of average hourly ventilation over the year. Also include a comparison of the annual distribution of predicted average hourly ventilation.

Commission a suitably qualified or experienced person to prepare the report, and include a full list of assumptions that affect the prediction of performance, including but not limited to:

- modelling methods used including any details of any simulation tools used
- a schedule of compliance with the relevant assessment requirements listed above
- all inputs, assumptions and outputs used in the testing that are relevant to predicted results.

Also include in the report a summary schedule of EOA requirements for each opening in the alternative proposal.

Figure A4.2.1: Decision tree

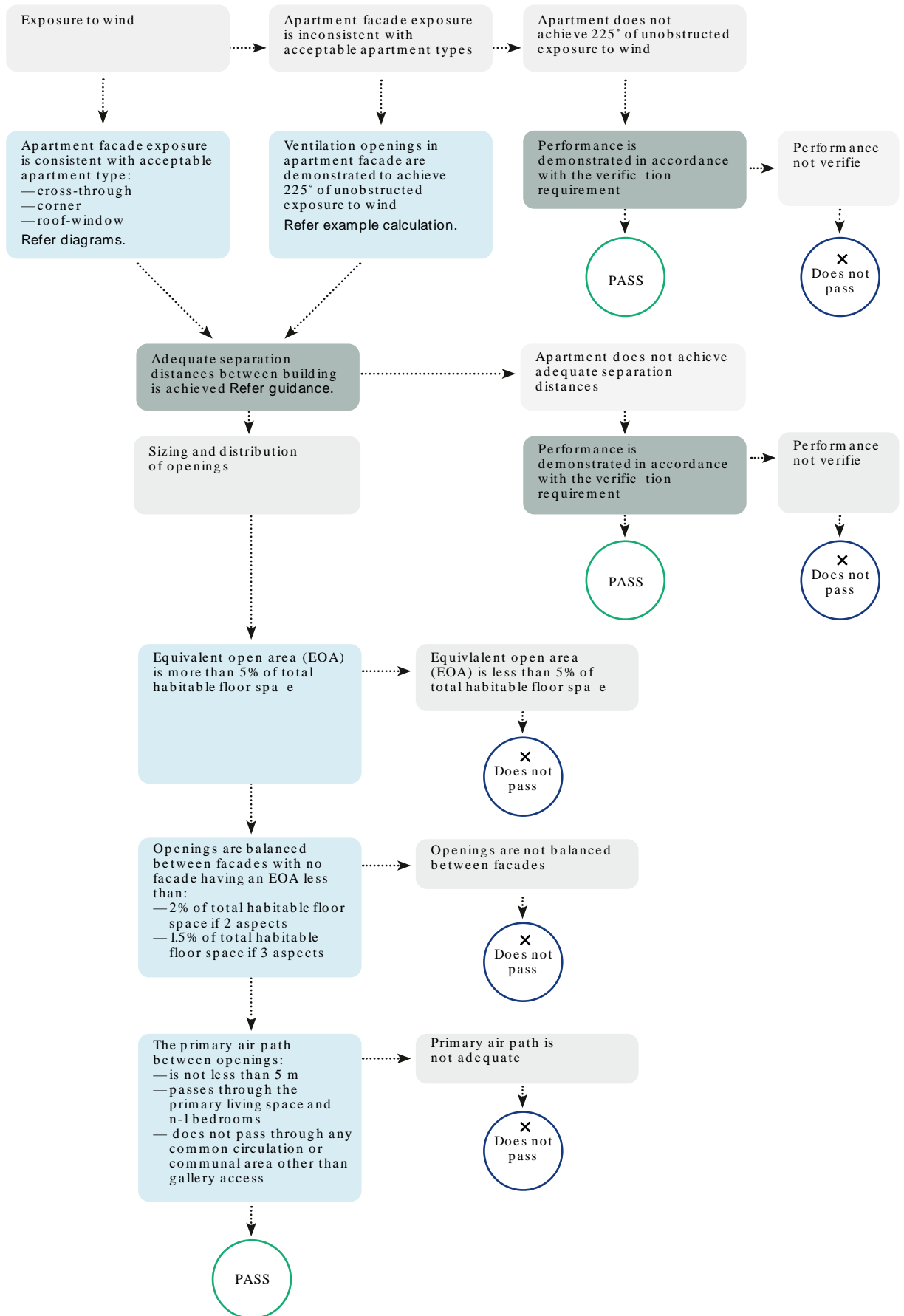
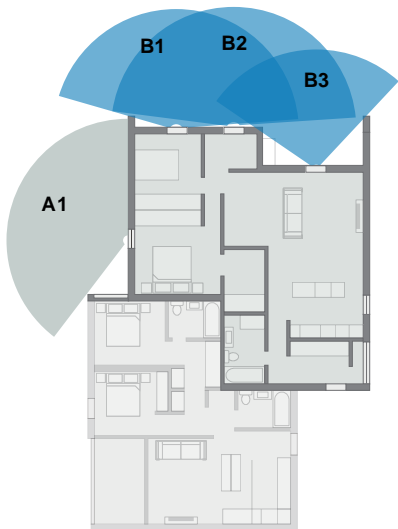
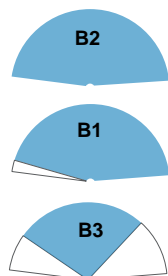


Figure A4.2.2: 225 degrees of unobstructed exposure to wind – how to use this tool

1. Evaluate angle between obstructions for all windows on the facade aspects providing natural cross-ventilation



1b. Columns, shading elements less than 600 mm deep and similar can be ignored

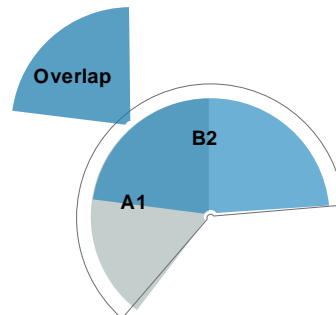


1c. Consider total exposure for each contributing aspect by overlaying the angles



B1 and B3 provide no additional exposure to wind than B2 on this aspect of the apartment and are therefore excluded

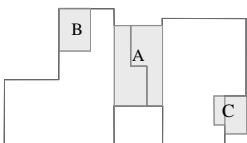
2. Add the angles that are unique to each window or facade and deduct any overlap



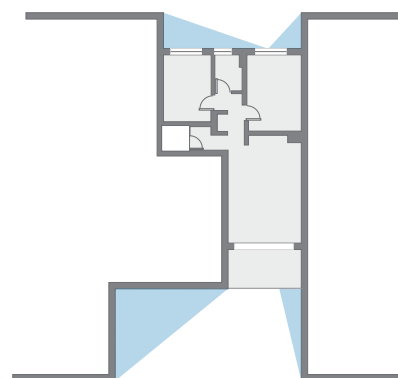
Total unobstructed wind exposure $A1 + B2 - \text{overlap} = 225$ degrees or greater

Figure A4.2.3 Examples of when to apply the 225-degree unobstructed wind exposure tests

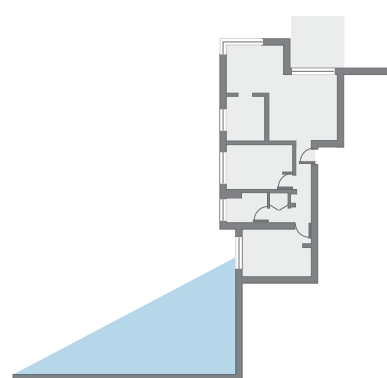
Plan – Scenario A, B, C



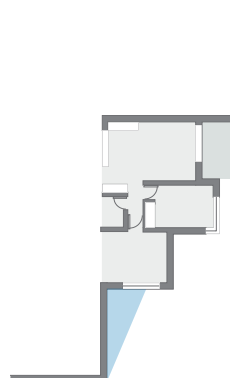
A
Dual aspect apartment is deeply set back and has limited line of sight exposure to wind



B
Corner apartment where line of sight to wind is blocked by deep return in building plan



C
Dual-aspect apartment is not on the outermost corner so the line of sight to wind is blocked by immediate stepping of form



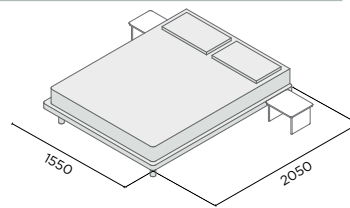
APPENDIX 5

**FURNITURE
SCHEDULE**

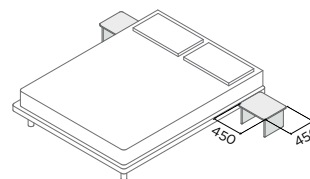
Appendix 5.1

General furniture schedule

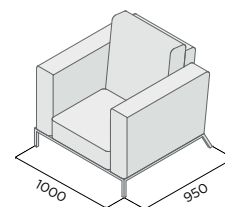
ROOM TYPE	APARTMENT TYPE	MINIMUM FURNITURE	DEPTH (M)	WIDTH (M)	HEIGHT (M)
Main bedroom	All dwellings	Queen-size bed	2.05	1.55	n/a
		Wardrobe	0.60	1.80	2.4
		2 x bedside tables	0.45	0.45	n/a
Second bedrooms	All dwellings	Queen-size bed	2.05	1.55	n/a
		Wardrobe	0.60	1.50	2.4
		2 x bedside tables	0.45	0.45	n/a
Living room	Studio	2-seater lounge	0.95	1.80	
		Coffee table	0.50	0.90	
		Coffee table round	0.60		
	1 bedroom	2-seater lounge	0.95	1.80	
		Coffee table	0.50	0.90	
		Coffee table round	0.60		
		Armchair	0.95	1.00	
		Entertainment unit	0.45	1.20	
	2 bedrooms	3-seater lounge	0.95	2.40	
		Coffee table	0.50	0.90	
		Coffee table round	0.60		
		Armchair	0.95	1.00	
		Entertainment unit	0.45	1.20	
	3 bedrooms	3-seater lounge	0.95	2.40	
		Coffee table	0.50	0.90	
		Coffee table round	0.60		
		2 x armchair	0.95	1.00	
		Entertainment unit	0.45	1.20	
	4+ bedrooms	3-seater lounge	0.95	2.40	
		2-seater lounge	0.95	1.80	
		Coffee table	0.5	0.90	
		Coffee table round	0.60		
		Armchair	0.95	1.00	
		Entertainment unit	0.45	1.20	



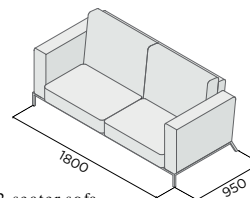
Queen-size bed



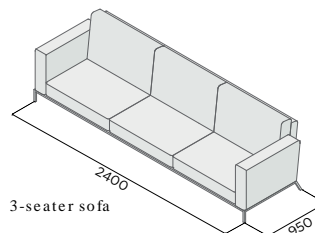
2 bedside tables



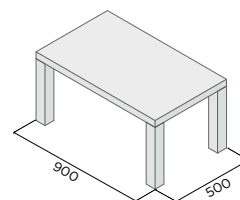
Arm chair



2-seater sofa



3-seater sofa

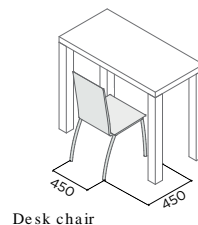
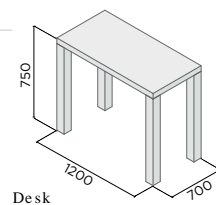
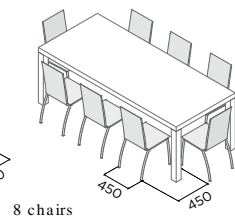
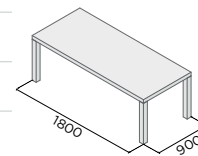
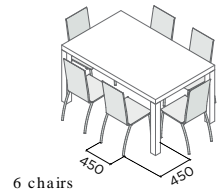
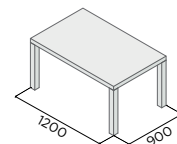
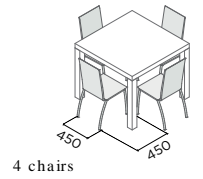
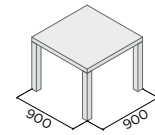
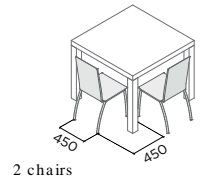


Coffee table



Entertainment unit

ROOM TYPE	APARTMENT TYPE	MINIMUM FURNITURE	DEPTH (M)	WIDTH (M)	HEIGHT (M)
Dining	Studio	Dining table square	0.75	0.75	
		Dining table round	0.80		
		2 chairs			
	1 bedroom	Dining table	0.90	0.90	
		Dining table round	0.90		
		4 chairs			
	2 bedrooms	Dining table	0.90	1.20	
		Dining table round	1.30		
		6 chairs			
	3 bedrooms	Dining table	0.90	1.80	
		Dining table round	1.50		
		8 chairs			
	4+ bedrooms	Dining table	0.90	1.80	
		Dining table round	1.50		
		8 chairs			
Study	All dwellings	Desk	0.70	1.20	0.72
		Desk chair	0.45	0.45	





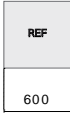
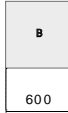



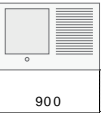
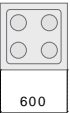
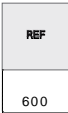



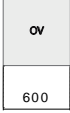
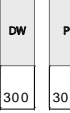
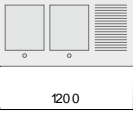
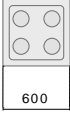
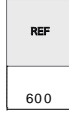




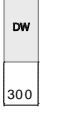
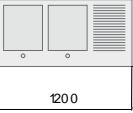
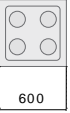
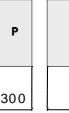
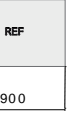



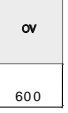
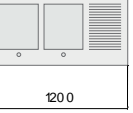
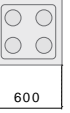
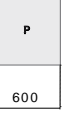
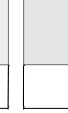


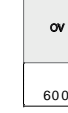
Appendix 5.2

Kitchen furniture

schedule

KEY	
DW	Dishwasher
P	Pantry
REF	Fridge
B	Benchtop
OV	Oven (optional)
WB	Waste bin
DWR	Drawer
.....	Below bench

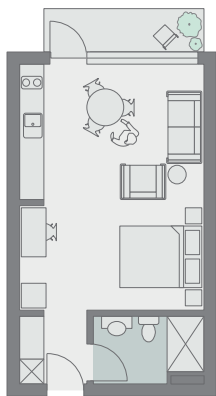
Note:
 Dimensions above are spatial allowances, not specific fixture sizes
 Minimum total length assumes dishwashers, drawers and the waste bin are located under bench
 Pantries in studios and 1 bedroom apartment types can be provided under bench
 Pantries are assumed to be full height in 2+ bedroom apartment types
 Additional bench space can be provided in lieu of a sink drainer
 Ovens should be provided as needed

APARTMENT TYPE	MINIMUM KITCHEN FURNITURE	DEPTH (M)	WIDTH (M)	INDICATIVE COMPONENTS
Studio	Minimum total length (excl. benchtop)		2.70	
	Sink + drainer	0.60	0.90	
	2-burner cooktop	0.60	0.30	
	Fridge	0.60	0.60	
	Pantry	0.60	0.30	
	Waste bin	0.60	0.30	
	Recycling bin	0.60	0.30	
	Drawers	0.60	0.30	
	Bench space	0.60	0.60	
1 bedroom	Minimum total length (excl. benchtop)		3.30	
	Sink + drainer	0.60	0.90	
	Dishwasher	0.60	0.60	
	Cooktop	0.60	0.60	
	Fridge	0.60	0.60	
	Pantry	0.60	0.30	
	Waste bin	0.60	0.30	
	Bench space	0.60	0.30	
	Bench space	0.60	1.20	
2 bedrooms	Minimum total length		3.95	
	Sink (1.5) + drainer	0.60	1.05	
	Dishwasher	0.60	0.60	
	Cooktop	0.60	0.80	
	Fridge	0.60	0.60	
	Pantry	0.60	0.30	
	Waste bin	0.60	0.30	
	Drawers	0.60	0.30	
	Bench space	0.60	1.00	
3 bedrooms	Minimum total length		4.10	
	Double sink + drainer	0.60	1.20	
	Dishwasher	0.60	0.60	
	Cooktop	0.60	0.60	
	Fridge	0.60	0.80	
	Pantry	0.60	0.30	
	Waste bin	0.60	0.30	
	Drawers	0.60	0.30	
	Bench space	0.60	1.00	
4 bedrooms	Minimum total length		4.40	
	Double sink + drainer	0.60	1.20	
	Dishwasher	0.60	0.60	
	Cooktop	0.60	0.60	
	Fridge	0.60	0.80	
	Pantry	0.60	0.60	
	Waste bin	0.60	0.30	
	Drawers	0.60	0.30	
	Bench space	0.60	1.20	

APPENDIX 6

**INDICATIVE
APARTMENT
LAYOUTS**

**Studio apartment
indicative layout**



**1 bedroom apartment
indicative layout**



1 bedroom single aspect

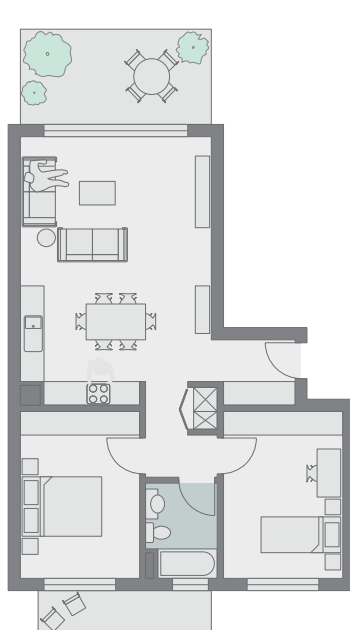


1 bedroom single aspect mezzanine

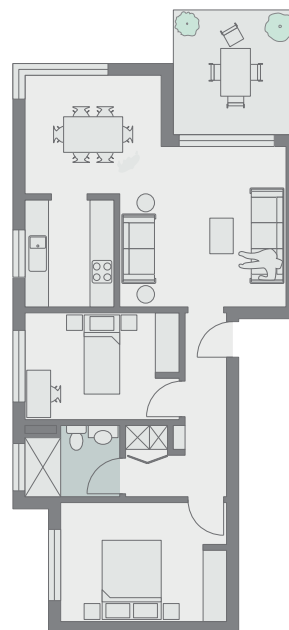
**2 bedroom apartment
indicative layout**



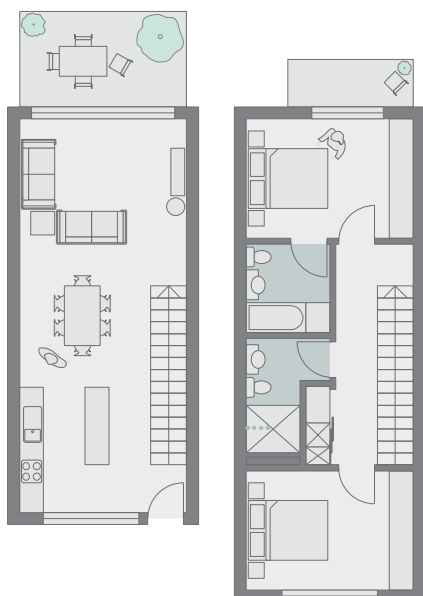
2 bedroom mid-floor plate single aspect



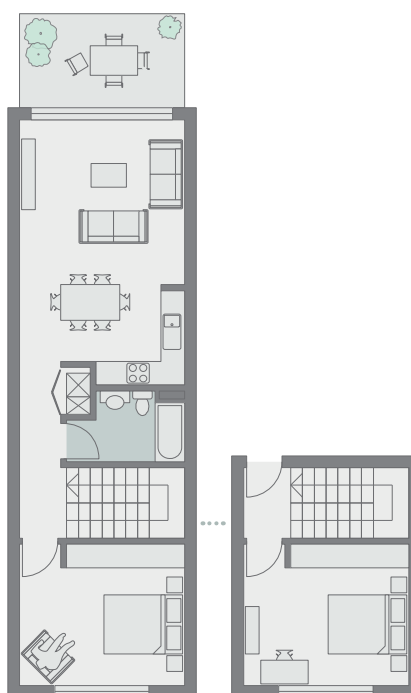
2 bedroom 'L' dual aspect-apartment



2 bedroom corner apartment



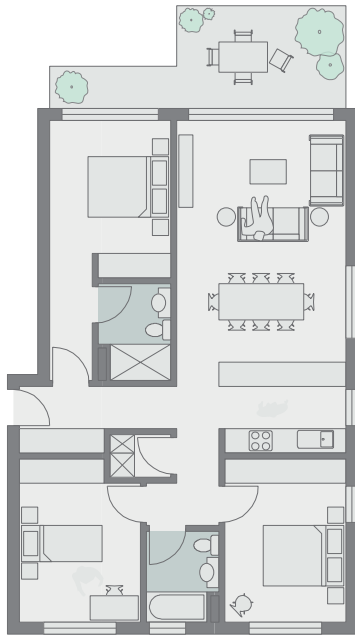
2 bedroom mid-floor plate 2 storey gallery access



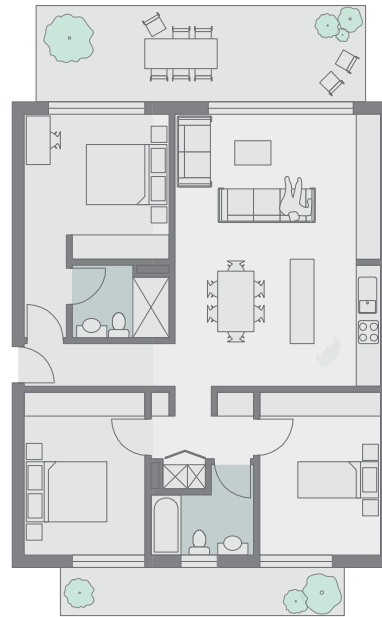
2 bedroom mid-floor plate cross-over

3 bedroom apartment indicative layout

Flexible dual key apartments allow for a variety of configurations, including use of the smaller apartment as a home office or to accommodate extended family in an intergenerational family household.
Note: these do not represent the only solutions.



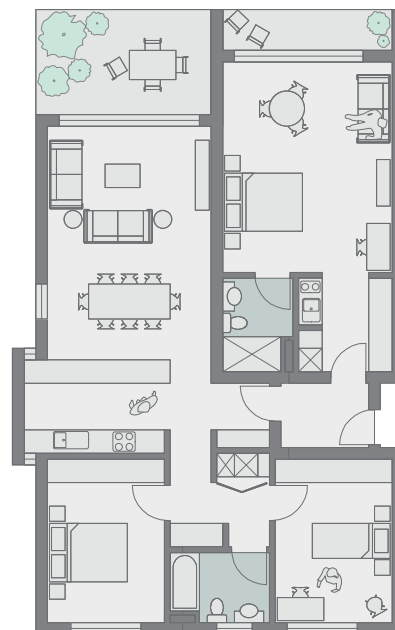
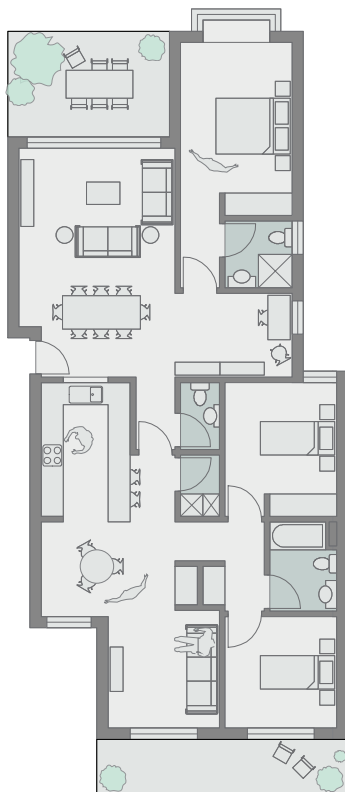
3 bedroom corner apartment



3 bedroom mid-floor plate cross-through apartment

Note: dual key apartments which are separate but on the same title are regarded as two sole occupancy units for the purposes of the BCA and for calculating dwelling mix.

'Family-friendly' apartment indicative layout



APPENDIX 7

**MAINTENANCE
SCHEDULE**

Appendix 7.1 Building maintenance

Provide a maintenance plan showing maintenance paths and entry points to access the building facade, roof, landscaped areas and outdoor communal spaces. Include a description of any maintenance equipment that will need to move through these spaces, including vehicles where required.

Appendix 7.2 Landscape maintenance

Landscape maintenance tasks include:

- weeding lawns, garden beds and pavements
- fertilising and topping up mulch for lawns, garden beds, planters and pots
- pruning, trimming and tree surgery
- adjusting tree stakes and ties
- providing pest and disease control for plants and lawns
- mowing and edge-trimming lawn areas, including collecting and removing clippings
- diagnosing the cause of failed or dead plants and recommending corrective actions
- replacing failed or dead plants and lawns
- maintaining irrigation systems
- removing rubbish and debris from garden areas
- removing leaves, mulch and organic debris from pavements and drains.

Additional maintenance tasks may be required depending on the landscape design.

Detail the maintenance requirements for green walls or roofs including:

- a maintenance plan
- soil or growing media specification
- appropriate species selection
- plant replacement strategy
- irrigation including back-up in the event of a power failure or drought
- fertilising procedure
- access for maintenance
- service life.

Landscape maintenance schedule

Monthly schedule sample – source: NATSPEC

ITEM	ACTION
Plant material	Replace failed plants Additional planting Treat disease or pests Tree surgery Fertilising generally Fertilising for specific nutrient deficiencies Thin-out planting Pruning and trimming
Soil	Returfing Seeding Treat disease Topdressing Weeding Mowing and trimming
Mulch	Top-up mulch
Irrigation	Repair system and replace parts Clean out Adjust Clean out subsurface drains
Turf	Returfing Seeding Treat disease Topdressing Weeding Mowing and trimming
Paving and pathways	Repair dips, hollows, irregularities Remove stains and graffiti Replace sections of uplift Clear main pathway drains of debris Weeding
Playground	Make sure all play structures are secure and in working order
Rubbish removal	Generally remove litter including bottles, paper, cigarette butts etc. Remove leaves and litter from pathways and paved areas
Bench/seat	Repair loose or damaged parts
Lighting	Replace blown lamps and damaged diffusers
Fencing	Repair fencing

Seasonal schedule sample – source: NATSPEC:

SPRING (Sept, Oct, Nov)	SUMMER (Dec, Jan, Feb)
Mow and trim lawns	Mow lawns; weed
Weed; trim and adjust trees and shrubs	Weed; mow lawns, trim and adjust trees and shrubs
Mow and fertilise lawns; treat plant material for pests and disease	Mow lawns; weed; treat plant material for pests and disease
Weed; top dress, condition lawns and oversow bare patches; issue maintenance report	Weed; mow and trim lawns; issue maintenance report
Fertilise all trees and shrubs in garden beds; mow and trim lawns	Mow lawns; weed
Weed; inspect mulch for deficiencies in cover; check and adjust irrigation	Mow lawns; check and adjust irrigation
Reinstate mulch as required; treat plant material for pests and disease; mow lawns	Mow lawns; weed
Weed; inspect condition of paving and furniture; issue maintenance report	Mow and trim lawns; inspect condition of paving and furniture; issue maintenance report
Mow and trim lawns	Mow lawns; treat plant material for pests and disease
Weed; mow lawns	Mow and top dress lawns
Mow and fertilise lawns; trim and adjust trees and shrubs	Mow lawns; trim and adjust lawns; weed
Weed; mow lawns; treat plant material for pests and disease	Mow, trim and fertilise lawns
Check and adjust irrigation; mow lawns; issue maintenance report	Check and adjust irrigation; mow lawns; weed; issue maintenance report
AUTUMN (Mar, Apr, May)	WINTER (Jun, Jul, Aug)
Mow lawns	Weed
Weed; mow lawns, trim and adjust trees and shrubs	Mow and trim lawns; trim and adjust trees and shrubs
Mow and trim lawn	Weed
Weed; mow lawns; issue maintenance report	Mow lawns; issue maintenance report
Mow lawns	Mow lawns
Weed; inspect mulch for deficiencies in cover; check and adjust irrigation	Mow and trim lawns; treat for pests and disease; check and adjust irrigation
Reinstate mulch as required; mow, trim and fertilise lawns	Weed
Weed; inspect condition of paving and furniture; issue maintenance report	Mow lawns; Inspect condition of paving and furniture; issue maintenance report
Mow lawns	Weed
Weed; treat plant material for pests and disease	Mow and trim lawns
Mow and trim lawns; trim and adjust trees and shrubs	Prune back trees and shrubs after flowering
Weed	Mow lawns; treat plant material for pests and disease
Check and adjust irrigation; mow lawns; weed; issue maintenance report	Check and adjust irrigation; weed; issue maintenance report



Wellington by Studio Johnston,
Photo: Brett Boardman

APPENDIX 8

**TYPOLOGIES
(APARTMENT
BUILDING
TYPES)**

Typologies

overview

Apartment development occurs in a variety of arrangements, configurations and types. Apartments can occupy different-sized lots from large redevelopment areas to small infill sites, can consist of a mix of building types or uses, and be situated in suburban, transitional or inner-city locations.

Typical apartment building types include:

- narrow infill apartments
- row apartments
- shop-top apartments
- courtyard apartments
- perimeter block apartments
- tower apartments.

Each type has particular 3-dimensional and organisational characteristics, providing a high-level overview of apartment development. This can be useful during design discussions for selecting suitable building types based on their inherent opportunities while also being aware of their attributes and potential limitations.

As basic design concepts, these building types can be used during the strategic planning phase to:

- determine the appropriate scale of future built form
- communicate how the development might contribute to the desired character of an area
- test how envelope and development controls will achieve high amenity and environmental performance.

Building types are inherently flexible and can be adapted to fit specific urban contexts. All sites are unique, and apartments buildings should be site-specific, therefore a particular site configuration may be suited to using a mix of types or uses (e.g. a shop-top courtyard building or a tower within a perimeter block).

In larger developments multiple building types may apply, providing more housing choice and design variety. It is appropriate to 'mix and match' the desirable forms and qualities of different types to improve built form outcomes.

Some sites require very specific solutions (e.g. sites on busy roads or railway lines). Some may require special technical advice, such as dealing with electricity infrastructure, or smokestacks.

Narrow infill apartments



Characteristics and context

Narrow infill apartments are typically single-core buildings with 3 to 8 levels and a lift. They are often freestanding.

In suburban areas their dimensions respond to traditional narrow and deep residential lot sizes.

They are often surrounded by a combination of detached houses that may also be potential redevelopment sites and strata flat buildings from previous eras.

They are best used:

- when a narrow lot width or frontage results in a building envelope oriented perpendicular to the street frontage
- when amalgamation opportunities of properties in the area are constrained.

Rear portions of buildings can be in varying configurations resulting in 'T', 'L' or 'I'-shaped building plans.

Considerations

Privacy impacts along side and rear boundaries need to be carefully managed to achieve minimum building separation.

A range of side setback solutions can be considered depending on the context and orientation, including:

- a minimum 3 m setback for non-habitable windows
- a minimum 3 m setback where the building form is manipulated to direct habitable room window outlook away from boundaries (e.g. using 'pop-out' or serrated elements)
- a minimum 6-m setback to habitable room windows (or a combination of these) for up to 4 storey buildings; use greater separations for levels 5 to 8.

Consider overshadowing impacts to adjoining properties, particularly when the building is long east–west.

The building height will be influenced by the area's desired future character.

Height is determined by sunlight access requirements for communal and private spaces of the development and neighbouring developments. Change in height can help to address sunlight access.

Provide setbacks for communal open space, deep soil and retention of significant trees.

Use split-level basements with short aisles running laterally to solve sites that are too narrow for double-loaded parking aisles running longitudinally.

Consider visual and acoustic privacy of ground floor units adjacent to the building entry.

Consider the visual impact of vehicle access to the car park, particularly when there is only one street frontage.

Locate circulation to optimise sunlight access to apartments.

Narrow street frontages require careful coordination of services.

Test whether the same built form can be repeated successfully on neighbouring sites without unreasonable impacts to amenity.

Opportunities

The front building faces the street and can help to create a unified streetscape.

The building entry can be prominent, and apartment balconies and windows can enable surveilling the street.

Narrower building depths allow for good natural cross-ventilation.

Row apartments



Characteristics and context

Row apartments are suited to both urban and suburban contexts. They are typically used on sites with wider frontages and shallower depths.

They are characterised by a limited number of units arranged around a core, and best used when it is desirable to:

- use a smaller footprint
- continue the street edge
- reinforce an existing vertical rhythm in the subdivision or building pattern.

Building entries, balconies and windows address the street and provide passive surveillance, while non-habitable rooms face the side boundaries.

They can be single buildings or a series of attached buildings.

Considerations

Longer building facades may require articulation.

Consider orientation for good sunlight access, particularly on north–south sites.

For long frontages to busy roads or railway lines consider solutions for noise.

Opportunities

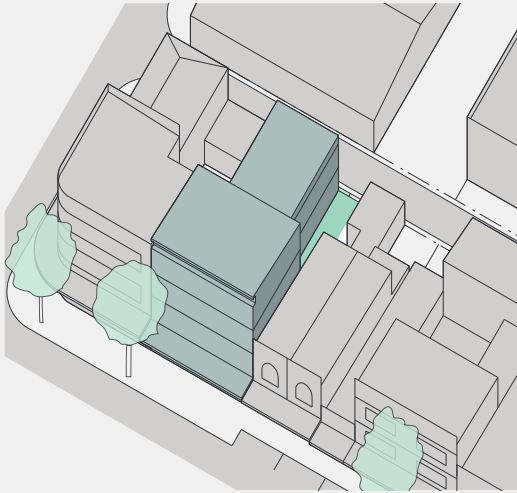
They are highly adaptable and can be used:

- when built form needs to step in response to slope
- to step in height in response to neighbouring buildings
- to accommodate existing trees on the site.

Dual aspect provides good natural cross-ventilation.

Good visual privacy for residents and neighbours can be achieved with balconies facing the street and rear garden.

Shop-top apartments



Characteristics and context

Shop-top apartments are mixed-use residential buildings, usually located in centres, on main streets or close to public transport.

They are generally an attached urban type, and can be small infill developments or larger redevelopments.

The ground floor is predominantly occupied by retail or commercial uses. Apartments are not included at the ground level.

They usually range between 3 and 8 storeys.

They are best used when:

- increased residential uses are desired in established retail and commercial areas
- the context is a traditional main street — active frontages such as retail tenancies are desired at street level
- pedestrian activity on the street is desired
- rear lane access or multiple street frontages are available.

Rear portions of buildings can be in varying configurations resulting in 'T', 'L' or 'I'-shaped building plans.

Considerations

A continuous awning can be provided if this is desired or part of the prevailing built form interface with the streetscape.

Consider the location of street trees.

Behind the street edge building, side and rear setbacks can provide amenity benefits including courtyard spaces, privacy between residents and neighbouring dwellings and access to sunlight.

For narrow sites, a range of side setback solutions can be considered:

- zero side setback for the street wall building
- a minimum 3-m setback for non-habitable windows
- a minimum 3-m setback where the building form is manipulated to direct habitable room window outlook away from boundaries (e.g. using 'pop-out' or serrated elements)
- a minimum 6-m setback for habitable room windows (or a combination of these) for up to 4 storey buildings; use greater separations for taller buildings.

Opportunities

Shop-top buildings can be used when zero side boundary walls are possible or desired to provide a continuous street wall.

They can respond to the fine urban grain of main streets, take advantage of sites located near shops and services and integrate community uses.

Apartments overlooking the street and rear lane enhance passive surveillance.

On larger sites:

- where apartments sit over 'big box' retail with high site coverage, significant planting on structures can be provided with the apartments
- there is an opportunity for multiple architects to provide variety in design
- precinct-scale solutions can be used for servicing (e.g. substations and loading docks) and environmental initiatives (e.g. solar collectors and water harvesting).

Height is determined by sunlight access requirements for communal and private spaces of the development and neighbouring developments.

For narrow sites, a change in height can help to address sunlight access.

Separate access for the residential apartments from ground floor retail, to enhance safety.

For narrow sites, use split-level basements with short aisles running laterally to solve sites that are too narrow for double-loaded parking aisles running longitudinally.

Where basements are not contained within building footprints, include planting on top of the basement structure.

Where possible, explore opportunities to create or retain deep soil zones within the side and rear setbacks.

Consider:

- heritage values of adjacent buildings and retention of streetscape character
- how existing or desired street wall height and proportion can be maintained
- interfaces between residential and non-residential uses
- visual and acoustic privacy between properties.

For apartments facing busy roads or railway lines consider solutions for noise.

Carefully coordinate services on narrow street frontages.

Test whether the same built form can be repeated successfully on neighbouring sites without unreasonable impacts to amenity.

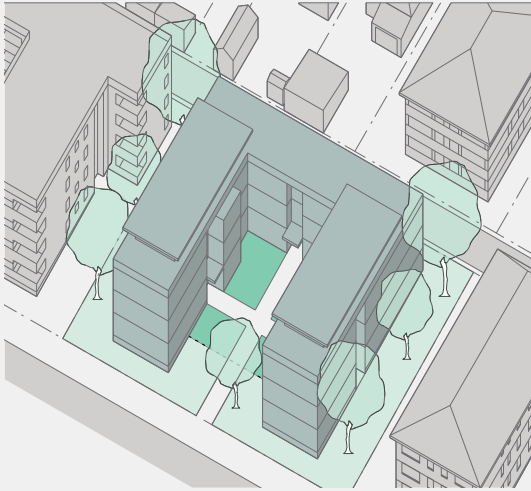
Consider ground floor pedestrian through-site links to increase permeability of block structure and increase walkability.

On larger sites:

- screen podium parking with other uses
- consider the requirements for natural light and cross-ventilation for podium parking
- locate residential cores near the perimeter to provide good residential address and avoid obstructing the non-residential floorplate.

Mitigate potential conflicts between non-residential servicing and residential components.

Courtyard apartments



Characteristics and context

Courtyard apartments provide a centralised open space area defined by buildings on the site, resulting in a 'C', 'U', 'H', 'O' or 'E' shape. On corner sites, an 'L'-shape can define the courtyard.

The buildings are generally detached, and on sites large enough to allow for separation between buildings.

They generally range between 3 and 6 storeys and have multiple cores. Taller versions generally require insets or breaks at the corners to achieve good natural ventilation and visual amenity.

Building configuration depends on context and site orientation.

Courtyard buildings are best used when the site has more than one street frontage.

Considerations

Apartments overlooking the street frontages and courtyard can enhance passive surveillance.

Clearly define all access points, and carefully consider the transition from public to private space to provide good address.

Amenity within the site depends on adequate building separation across the courtyard for attractive outlook and good daylight access. Consider the level of solidity of the courtyard facade to increase visual privacy.

Retain significant trees within deep soil courtyards or setbacks.

Carefully manage the relationships of apartments at the corners to maintain visual and acoustic privacy. Consider locating circulation cores at re-entrant corners as a way of breaking the building form.

Carefully manage the relationships of apartments at the corners to maintain visual and acoustic privacy. Consider locating circulation cores at re-entrant corners as a way of breaking the building form.

Carefully design apartments within corners to ensure they have adequate room frontage for outlook and daylight.

Locate vehicle access away from the courtyard.

Limit building height as necessary to maintain sunlight access to the courtyard and to neighbouring properties.

Vary the circulation strategy within different parts of the building based on orientation to maximise sunlight access and natural cross-ventilation.

Consider the interface of ground floor apartments with the courtyard open space.

Opportunities

Courtyard buildings are a highly adaptable building type suitable for many types of site including sloping sites.

They can be used to achieve:

- a landscaped street character by orientating the courtyard to the street
- an urban street character by orienting the courtyard away from the street.

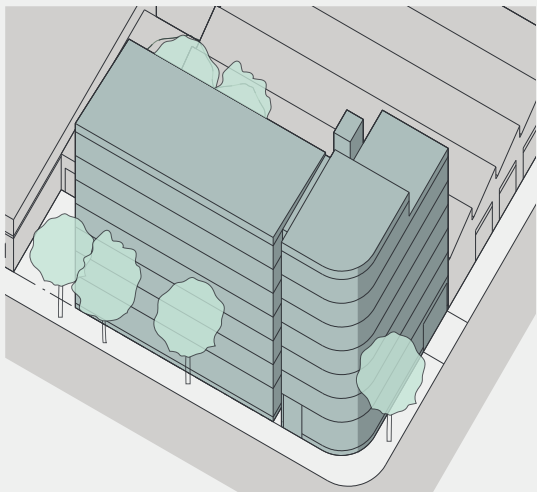
Multiple street frontages can be activated with multiple address points.

Communal courtyards increase opportunities for residents' social interaction.

The courtyard can be orientated to capture views, sunlight and breezes.

High-quality landscaping can increase amenity for all apartments.

Perimeter block apartments



Characteristics and context

Perimeter block buildings are suited to urban areas where it is desirable to integrate the building within an existing or proposed continuous street wall, and to create a protected 'inner' courtyard space. The street wall defines the edge of the building.

Perimeter block apartments typically have long rectangular plans parallel to street frontages.

They are generally built to the desired continuous street wall height for the area, and generally range in height from 4 to 8 storeys.

Apartments face to the front or rear and are typically arranged along a corridor with single or multiple cores depending on building length.

This form is best used when an increase in residential density is desired but taller tower buildings are not.

They are generally built to the side boundaries in anticipation of future development.

They can consolidate green space at the centre of a street block, across sites.

Building separation to the rear provides visual and acoustic privacy and space for a communal courtyard with deep soil zones.

Considerations

Locate vehicle access to minimise safety risks for pedestrians, and contain parking predominantly within the building footprint.

Set back upper levels to create the desired street wall proportion and allow additional sunlight into public space.

Longer facades may require articulation. Consider elements such as entries, balconies, bay windows and parapet lines to provide interest but maintain the street wall.

Consider orientation for good sunlight access, particularly on north–south sites.

For long frontages to busy roads or railway lines consider solutions for noise.

Express entries within the overall street wall to enhance address.

Coordinate with other developments to achieve through-site links and consolidate deep soil.

Consider raising the level of ground floor apartments to increase visual privacy from the footpath.

Consider the level of solidity of facades to increase visual privacy across streets and shared courtyards.

Opportunities

Perimeter blocks are a compact form that achieves high urban densities.

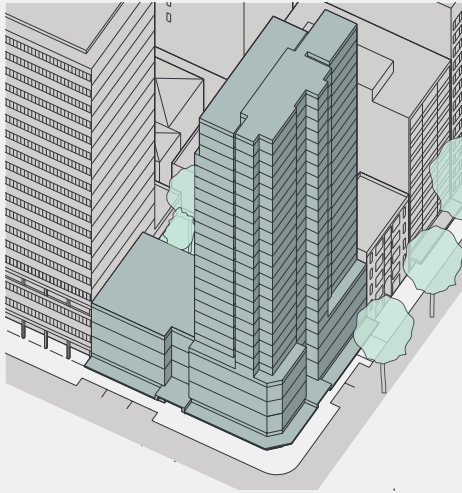
They offer high residential amenity due to shallow building depth and potential for dual-aspect, cross-through and cross-over apartments.

Corner components can be emphasised in the design.

They can:

- support a vibrant neighborhood with street life.
- be staged over time
- be used when built form needs to step in response to slope.

Tower apartments



Characteristics and context

Towers are suited to central business districts, major centres and urban renewal areas.

Towers are typically 9 storeys and over, and are vertically proportioned. In urban areas, towers are often combined with podiums of 4 to 8 storeys.

They can be freestanding in urban renewal areas.

Towers often include a range and mix of non-residential uses suitable to high-density locations.

Generally they require larger sites to allow for adequate building separation.

Considerations

Location and siting need to reflect environmental considerations such as wind, overshadowing and visual impact on surrounding properties and public space.

Make entries directly accessible from the street, appropriately scaled, and distinctly separate from retail and commercial entries.

Generally repetitive floorplates require varied facade articulation to add interest to the building.

Balconies at higher levels may need to be partially enclosed to resolve wind impact (e.g. operable louvres or wintergardens).

In urban situations with non-residential uses at lower floors, the site coverage may be high. Compensating for the lack of deep soil by planting on podiums can benefit the outlook from apartments and provide environmental benefits by improving local microclimate.

Consider the appearance and visual impact of the tower from key locations:

- reduce the visual impact of apparent bulk on open spaces
- minimise loss of views from public space and neighbouring developments, particularly to the sky
- consider how the building profile and roofscape will be viewed.

Consider how the tower form and footprint will maximise views and enable good sunlight access and natural cross-ventilation for all apartments.

Provide separation to neighbouring buildings for towers above the street wall height.

Consider the visual privacy of neighbouring development. Increase building separation as buildings get taller.

In urban renewal areas, provide ground level apartments with direct access from the street or a communal courtyard, and allow for live-work apartments and retail space facing the street.

Provide circulation corridors with access to natural light and ventilation.

Opportunities

Podiums can help to integrate towers with their context at lower levels by building to the street alignment and providing a street wall height that is consistent with the typical range in the area.

Towers provide housing in a centre or CBD, while their ground floor interfaces can encourage activation and a vibrant street life, with varied tenancy sizes allowing flexible uses.

Commercial floors above the ground floor retail can act as a buffer and vertically separate noisier retail uses from upper-level apartments.

Podiums can provide a communal open space area for residents.

Towers can be located to maximise the benefit of adjacent large open spaces, or they can be used as markers to accentuate key features of the urban or natural landscape.

The typically smaller floorplate of towers provides increased amenity to apartments.

GLOSSARY

ACRONYMS	
ADG	<i>Apartment Design Guide</i>
AEP	annual exceedance probability
BASIX	Building Sustainability Index
BCA	<i>Building Code of Australia</i> (part of NCC)
CFD	computational fluid dynamic
CPTED	crime prevention through environmental design
DA	development application
DP SEPP	<i>State Environmental Planning Policy (Design and Place) 2022</i>
EOA	equivalent open area
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EP&A Regulation	Environmental Planning and Assessment Regulation 2000
EV	electric vehicle
GFA	gross floor area
GOA	geometric open area
LEP	local environmental plan
NCC	<i>National Construction Code</i>
SEPP	State environmental planning policy
SRZ	structural root zone
SULE	safe usual life expectancy (pertaining to trees)
TPZ	tree protection zone
UDG	<i>Urban Design Guide</i>
A	
Acoustic privacy	A measure of sound insulation between apartments, between apartments and communal areas, and between external and internal spaces
Adaptable housing	Housing that is designed and built to accommodate future changes to suit occupants with mobility impairment or life-cycle needs, governed by AS 4299 Adaptable Housing, and specifically designed to allow for the future adaptation of a dwelling to accommodate the occupant's needs.
Adaptive re-use	Projects that give new life to an existing place, building or structure through sympathetic alterations, conversions and additions that enable compatible new uses and functions, while maintaining the heritage significance where applicable.
Amenity	The 'liveability', comfort or quality of a place which makes it pleasant and agreeable to be in for individuals and the community. Amenity is important in the public, communal and private domains and includes the enjoyment of sunlight, views, privacy and quiet. It also includes protection from pollution and odours. Expectations of amenity and comfort are contextual and change over time.

Aircraft noise	Aircraft noise is identified as contours on the Australian Noise Exposure Forecast (ANEF) Map. The higher the ANEF contour value, the greater the exposure to aircraft noise.
Articulation zone	An area in front of the building line that may contain porticos, balconies, bay windows, decks, patios, pergolas, terraces, verandahs, window box treatments, window bays, awnings and sun-shading features.
Attached dwelling	As defined in the Standard Instrument - <i>Principal Local Environmental Plan</i> .
B	
Bay window	A window element which projects a short way past the face of the building. It can have windows on the return walls and sometimes incorporates a seat.
Building line	The predominant line formed by the main external face of a building. Balconies or bay window projections may or may not be included within the building line, depending on the desired streetscape.
Building height	As defined in the Standard Instrument - <i>Principal Local Environmental Plan</i> .
Building depth	The overall cross-section dimension of a building envelope. It includes the internal floorplate, external walls, balconies, external circulation and articulation such as recesses and steps in plan and section.
Business zones	Land identified on a land zoning map within a local environmental plan as a B1 Neighbourhood Centre, B2 Local Centre, B3 Commercial Core, B4 Mixed Use, B5 Business Development, B6 Enterprise Corridor, B7 Business Park or B8 Metropolitan Centre zone. <i>Note: residential apartment development may not be permissible or appropriate in all business zones.</i>
Busy road or rail line	As defined in <i>State Environmental Planning Policy (Infrastructure) 2007 and Development Near Rail Corridors and Busy Roads – Interim Guideline</i> .
C	
Cadastre	The current subdivisional pattern of a locality on the ground e.g. boundaries, roads, waterways, parcel identifiers and names.
Clerestory	High-level windows that can be part of a wall above a lower roof.
Communal open space	A consolidated area of external space within common ownership. To be accessible by all residents and designed as the primary area of recreation and social interactions. Communal open space should provide amenity and recreation opportunities for all ages and abilities. Communal open space should be open to the sky, with an allowance for shade structures.

Communal indoor space	A consolidated area of internal space within common ownership to be accessible by all residents and designed as an area of recreation and social interactions. Communal indoor space should provide amenity and opportunities for all ages and abilities. It should have daylight and natural ventilation.	Dense urban area	An area where the permitted floor space ratio for development under a local environmental plan is 2.5:1 or greater.
Contiguous deep soil	Deep soil that is connected horizontally through an unbroken sequence.	Dual-aspect apartment	Apartments which have at least 2 major external walls facing in different directions, including corner, cross-over and cross-through apartments.
Core	Vertical circulation (lift or stairs, or both) within a building. A single core may include multiple lifts serving the same floor area.	Dual key apartment	An apartment with a common internal corridor and lockable doors to sections within the apartment so that it is able to be separated into 2 independent units. Under the BCA, dual key apartments are regarded as 2 sole occupancy units. They are also considered as 2 units when calculating apartment mix.
Corner apartment	A dual-aspect apartment on one level with aspects at least 100° apart. Corner apartments are located on the outermost corners of buildings.	E	
Cornice	A decorative horizontal moulding at the top of a building which 'crowns' or finishes the external facade.	Equivalent openable area (EOA)	The equivalent open area of a window for natural ventilation and natural cross-ventilation is calculated from the geometric open area (GOA) of the window and the additional resistance to airflow associated with flyscreen and the type of window opening. The allowance for a flyscreen is required irrespective of whether one is to be provided with the development.
Courtyard	Communal space at ground level or on a structure (podium or roof) that is open to the sky, formed by the building and enclosed on 3 or more sides.	Electric vehicle (EV) ready connection	EV ready typically includes a dedicated spare 32A single-phase circuit provided in an EV distribution board to enable easy future installation of cabling from an EV charger to the EV distribution board
Cross-over apartment	A dual-aspect apartment with 2 opposite aspects and with a change in level between one side of the building and the other.	Electric vehicle (EV) distribution board	EV distribution board typically includes a charging control system, additional sub main cabling to the main switchboard, outgoing circuit breaker(s) in the main switchboard and metering in the main switchboard as an input to the charging control system. EV chargers, final circuits and cable trays to the EV chargers and metering to support sub-billing at the charger level not included.
Cross-through apartment	A dual-aspect apartment on one level with two opposite aspects.	F	
D		Facade	The external face of a building, generally the principal face, facing a public street or space.
Datum point or datum line	A significant point or line in space established by the existing or desired context, often defined as an Australian Height Datum. For example, the top of significant trees or the cornice of a heritage building.	Floor space ratio	As defined in the <i>Standard Instrument - Principal Local Environmental Plan</i> .
Daylight	Consists of both sky light (diffuse light from the sky) and sunlight (direct beam radiation from the sun). Daylight changes with the time of day, season and weather conditions.	G	
Deep soil	A landscaped area connected horizontally to the soil system and local groundwater system beyond, and unimpeded by any building or structure above or below ground with the exception of minor structures.	Gallery access	An external corridor, generally single-loaded (i.e. with apartments to one side), which is not less than 50 per cent permanently open to the outside and which provides access to individual apartments along its length. For the purposes of natural cross-ventilation, 50 per cent permanent opening is to be local to any naturally cross-ventilated apartment. Gallery access circulation is required to be treated as habitable space when measuring privacy separation distances between neighbouring properties.
Deep soil zone	An area of soil within a development that is unimpeded by buildings or structures above and below ground and has a minimum dimension of 3 m. Deep soil zones exclude basement car parks, services, swimming pools, tennis courts and impervious surfaces including car parks, driveways and roof areas. Deep soil zones with a minimum dimension of 3 m allow sufficient space for the planting and healthy growth of new trees that will provide canopy cover and assist with urban cooling and infiltration of rainwater to the water table. A deep soil zone also allows for the retention of existing trees.		

Geometric open area (GOA)	The geometric open area of a sliding or hung sash window can be measured in elevation. Hinged windows such as casement, awning and hopper windows wider than 500 mm may measure the diagonal plane from the sash to the jamb and add the triangles at either end up to a total area of the window opening in the wall. Where the opening is required to be restricted for fall prevention, the restricted dimension must be measured. The reduced opening dimension is measured if a sill, reveal or local boxing obstructs the window opening.
Glass line	The inside face of windows on the external walls of a building.
Green cover	Living organisms growing in soil which have stems, leaves and roots. Green cover is open to the sky and can be located in common areas or within private open space such as balconies or roof tops. Green cover includes deep soil areas, planting on structures (rooftops, podiums, planters) and planting such as lawns and gardens in communal open space.
Green roof	A roof surface that supports the growth of vegetation, comprised of a waterproofing membrane, drainage layer, organic growing medium (soil) and vegetation.
Green travel plan	A plan prepared by a qualified transport planner or traffic engineer that details measures to promote and support the use of sustainable transport options, such as public transport, cycling and walking.
Green wall	A wall with fixtures to facilitate climbing plants. It can also be a cladding structure with growing medium to facilitate plant growth.
Guide to Traffic Generating Developments	<i>Guide to Traffic Generating Developments</i> , published by Roads and Maritime Services (formerly RTA) and available on its website.
H	
Habitable room	A room used for normal domestic activities, and includes a bedroom, living room, lounge room, music room, television room, kitchen, dining room, sewing room, study, playroom, family room and sunroom; but excludes a bathroom, laundry, water closet, pantry, walk-in wardrobe, corridor, hallway, lobby, photographic darkroom, clothesdrying room, and other spaces of a specialised nature occupied neither frequently nor for extended periods, as defined by the BCA.
I	
Integrated waste disposal infrastructure	Receptacles for the collection of separated waste streams on each residential floor. Waste chutes provide efficient collection and separated transport for mid-rise and high-rise buildings.

J	
Juliet balcony	A small projecting balcony, generally ornamental or only large enough for one person standing.
L	
Landscaped area	A part of a site used for growing plants, grasses and trees, but not including any building, structure or hard-paved area. This includes deep soil, planting on structures, rooftops and rain gardens as defined in the <i>Standard Instrument – Principal Local Environmental Plan</i> .
Livable Housing Design Guidelines	<i>Livable Housing Design Guidelines</i> , published by Livable Housing Australia (LHA) and available on its website.
M	
Midwinter	Midwinter (middle of winter) is 21 June, the winter solstice, when the sun is lowest in the sky.
Minor structures	For the purpose of calculating deep soil, the following 'minor structures' may be included in the deep soil area where they have at least 1.2 m clear width of deep soil to either side: <ul style="list-style-type: none"> (a) a path, access ramp or area of paving with a maximum width up to 1.2 m (b) essential services infrastructure (such as stormwater pipes) with a maximum diameter up to 300 mm (c) landscape structures (such as lightweight fences, light poles or seating) requiring a footing with a maximum size of up to 300 mm x 300 mm in cross-section.
Mixed-use development	As defined in the <i>Standard Instrument – Principal Local Environmental Plan</i> .
Multi-dwelling housing	As defined in the <i>Standard Instrument – Principal Local Environmental Plan</i> .
N	
Natural cross-ventilation	Wind-driven ventilation that provides ventilation rates at least 7 times greater than a single-aspect apartment in the same location, due to 2 or more openings on separate facade aspects being exposed to a wide range of unobstructed wind directions. The improvement in ventilation rates is to be achieved over a year and can be demonstrated following the natural cross-ventilation verification requirements (see Appendix 4.2).

Net zero ready	A 'net zero ready' development has high energy performance, is EV ready, is capable of achieving net zero operational emissions and is either all-electric, or 'all-electric ready', i.e. capable of becoming all-electric and not using onsite fuels. Net zero ready requires sufficient physical space and electrical power to the meter board, and all relevant sections of buildings must be ready for current or future adoption of electric heating, ventilation and air conditioning (HVAC), induction cooking (if relevant), and electric hot water systems.	Planting	Living organisms growing in soil. This includes deep soil, planting on structures, rooftops and rain gardens.
Non-habitable room	A space of a specialised nature not occupied frequently or for extended periods, including a bathroom, laundry, water closet, pantry, walk-in wardrobe, corridor, hallway, lobby, photographic darkroom or clothesdrying room, as defined by the BCA.	Planting on structure	A landscaped area that is impeded by, or relies upon, any building or structure. Planting on structure is typically located over basements, on podiums and roof tops, on balconies and terraces, and on walls. Planting on structure is beneficial to supplement any required deep soil planting but should not replace it because it is subject to a range of environmental stresses that can affect the health and vigour of plants.
Nominated regional centres	For the purposes of the non-discretionary development standard for car parking (see Part 1.6), nominated regional centres include Albury, Ballina, Batemans Bay, Bathurst, Bega, Bowral, Cessnock, Charlestown, Coffs Harbour, Dapto, Dubbo, Glendale–Cardiff, Gosford, Goulburn, Grafton, Lismore, Maitland, Morisset, Newcastle, Nowra, Orange, Port Macquarie, Queanbeyan, Raymond Terrace, Shellharbour, Tamworth, Taree, Tuggerah–Wyong, Tweed Heads, Wagga Wagga, Warrawong and Wollongong.	Plenum	A duct or chamber, usually with grilles, that air passes through. Plenums of small cross-section tend to limit the passage of air and in relation to natural ventilation are not equivalent in performance to standard windows.
O		Podium	The base of a building upon which taller (tower) elements are positioned.
On-grade	On ground level.	Potable water	Water which conforms to Australian Standards for drinking quality.
Open plan	Apartment layouts where spaces are not divided into discrete rooms, but are open and connected to allow flexibility of use (typically living, dining, kitchen and study areas).	Primary private open space	The principal area of private open space, usually the largest consolidated area.
Operable screening device	Sliding, folding or retractable elements on a building designed to provide shade, privacy, and protection from natural elements.	Private open space	Outdoor space located at ground level (or on a structure) that is within private ownership and provided for the recreational use of the residents of the associated apartment.
Operable walls	Walls which can be moved, for example by sliding, folding, or pivoting, to allow for different room configurations or a balcony.	Primary windows	Windows to habitable rooms located on the external wall of a building. Primary windows may be supplemented by windows in courtyards, skylights, notches and along galleries.
P		Public open space	Land that has been reserved for the purpose of recreation and sport, preservation of natural environments and provision of green space. For apartment buildings, this land is vested in or under the control of a public authority.
Parapet	A low wall or horizontal barrier at the edge of a balcony or roof. Often taken to refer to the decorative element which establishes the street wall height of heritage buildings (see 'Cornice').	Public realm	The public realm is the collective, communal part of cities and towns, with shared access for all. It is the space of movement, recreation, gathering, events, contemplation and relaxation. The public realm includes streets, pathways, rights of way, parks, accessible open spaces, plazas and waterways that are physically and visually accessible regardless of ownership.
Perimeter block	Development where buildings generally define the street edge and enclose or partially enclose an area in the middle of a block.	R	
		Residential flat building	As defined in the <i>Standard Instrument – Principal Local Environmental Plan</i> .
		Roof-window apartments	Roof-window apartments provide natural cross-ventilation through a suitably located opening clerestory window in the roof.

S

Shared EV connection	Provision of a minimum level 2 40A fast charger and power supply to a car parking space connected to an EV distribution board.
Shop-top housing	As defined in the <i>Standard Instrument – Principal Local Environmental Plan</i> .
Silhouette	A building outline viewed against the sky.
Sloping site	A site with a slope of 15% or greater.
Small lots	Sites with an area of less than 650 m ² .

Soffit	The undersurface of a balcony or other projecting building element.
Solar access	The ability of a building to receive direct sunlight without obstruction from other buildings or impediments, not including trees.
Solar collector	A device that converts the energy of the sun into electricity or thermal energy for heating water.
Stack effect ventilation	Air convection resulting from hot air rising up and out of high-level openings and being replaced by cooler, denser air which is drawn in at low-level openings, or the reverse.
Street setback	The space along the street frontage between the property boundary and the building. Refer to building line or setback as defined in the <i>Standard Instrument – Principal Local Environmental Plan</i> .
Studio apartment	An apartment consisting of one habitable room combining kitchen, living and sleeping space with a separate bathroom.
Sunlight	Direct beam radiation from the sun.
Sunlight hour diagrams	A diagram showing the number of hours of direct beam sunlight received by a surface or surfaces over a nominated period of time.
Sydney Metropolitan Area	The 34 local government areas of Bayside, Blacktown, Blue Mountains, Burwood, Canada Bay, Camden, Campbelltown, Canterbury Bankstown, Cumberland, Fairfield, Georges River, Hawkesbury, The Hills, Holroyd, Hornsby, Hunters Hill, Inner West, Ku-Ring-Gai, Lane Cove, Liverpool, Mosman, North Sydney, Northern Beaches, Parramatta, Penrith, Randwick, Ryde, Strathfield, Sutherland, City of Sydney, Waverley, Willoughby, Wollondilly and Woollahra.

T

Terrace	An outdoor area, usually paved and unroofed, that is connected to an apartment and accessible from at least one room. May be on-grade or on a structure (podium or roof).
----------------	---

Tree	A woody plant able to be walked under, with a minimum canopy spread of 6 m.
-------------	---

Tree canopy	The layer of leaves, branches and stems or trunks of trees that cover the ground when viewed from above.
--------------------	--

U

Universal design	The design of homes to meet residents' needs across their lifetime. A universally designed home should be easy to enter, easy to move around and easily and cost-effectively adaptable.
-------------------------	---

Urban canopy target	A target set to increase tree canopy cover in urban areas.
----------------------------	--

W

Wintergarden	A partially enclosed balcony typically glazed and used to minimise noise impacts along busy roads, railway lines and from aircraft noise. Wintergardens provide protected open space and have permanent openings to outside to support natural ventilation and cross-ventilation.
---------------------	---



Botany Road Apartments by Candelapas Associates, Photo: Brett Boardman.

7.

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Central Park by Ateliers
Jean Nouvel and PTW,
Photo: Brett Boardman.





Draft Urban Design Guide

For urban design developments in NSW
Draft for discussion 2021

Acknowledgement of Country

The Department of Planning, Industry and Environment acknowledges the Traditional Custodians of the land and pays respect to Elders past, present and future. We honour Australian Aboriginal and Torres Strait Islander peoples' unique cultural and spiritual relationships to place, and their rich contribution to our society. To that end, all our work seeks to uphold the idea that if we care for Country, it will care for us.



Pearl Gibbs Street Art,
Dubbo, Artist: Matt Adnane.
Photo: Destination NSW

Minister's foreword



To create beautiful and thriving places that promote good health and wellbeing, we must focus not only on the quality of buildings, but the streets and public spaces between them.

To quote the urbanist Jan Gehl “First life, then spaces, *then* buildings, the other way around never works.”¹ This Guide is about the spaces in between the buildings, and ensuring these spaces support healthy, connected and thriving communities.

Getting this right upfront is critical. Streets and blocks once established can stay in place for hundreds of years. We need to ensure that our subdivisions are thoughtfully designed and developed right across NSW and that great subdivisions become the norm, rather than the exception.

The *Urban Design Guide* is NSW's first comprehensive guide for place-based design for master-planning and larger scale development proposals. Without clear objectives established from the outset, urban outcomes can be of variable quality, and we risk poorer outcomes for our new suburbs – more cars and roads, less trees and public space – or the challenge of retrofitting these at much greater cost later.

Just as the *Apartment Design Guide* (ADG) established an important benchmark of quality and amenity for apartment design in NSW, so will the UDG establish the same benchmarks for our urban places.

The ideas mapped out in this guide are fundamental to the creation of great places – get to know your site and celebrate what is special about it, ensure that there are trees and public spaces so that the

place great to live in and make sure you're creating an urban layout that makes it easy, and attractive for people to get around.

We're helping to create places with more spaces to enjoy as our cities and suburbs grow, while also responding to climate change. Targets for public space, tree canopy, density, walkability and diversity will shape our future neighbourhoods so that they can aspire to the sustainable, vibrant and diverse suburbs that are most sought after in NSW.

Focusing on providing new housing close to shops, services, transport and parks supports healthier lifestyles and also limits the homogenous sprawl and associated car dominance typical of post-war development. This means more places where people love to live, with public space, facilities, places to meet and dwell – space made for community by design.

The State Environmental Planning Policy (Design and Place) 2021 (DP SEPP), together with the UDG and ADG, will make sure that we have the right kind of policy to ensure that the people of NSW enjoy the benefits that basic good design can deliver – design that will make sure that our cities and towns are planned and designed to be sustainable and with the needs of people and the quality of places at the heart.

With a collective effort now and an investment in more sustainable ways of planning, designing and delivering our homes and urban environments, we will all reap enormous dividends in the future – better health, better connected communities, more efficient housing, and a more resilient built environment.

1. Jahn Gehl in 'The Human Scale' 2012. Documentary directed by Andreas Dalsgaard. <https://thehumanscale.dk/thefilm/>

Government Architect's foreword



Our places and buildings are for the long term. Their impacts are far-ranging, and our joint responsibility to make a positive contribution to these places is more significant than ever before.

We are faced with the urgent need for sustained economic recovery as well as having a clear focus on environmental sustainability. In the wake of the pandemic we have a whole new appreciation for how people want to work and live. We have a growing understanding about how we need to be better connected to the Country on which we reside. In this context, I am committed to ensuring the DP SEPP, together with its supporting guides, will deliver better housing and urban design outcomes for communities across NSW.

Good design plays an important role in improving peoples' mental and physical health, and the community has reinforced this understanding. We are necessarily connected to the places where we live and work, and this policy is directed at creating equitable and high-quality built spaces embedded in liveable and beautiful environments. For our neighbourhoods, workplaces, schools, hospitals and other infrastructure, this is evident in our connection to the natural environment, moments for recreation, and the ways we move around and through places and create connections. For houses and apartments, this means homes that are well-ventilated and insulated and contain ample outdoor space, with great outlook and a positive relationship to the immediate context. We want homes we love to live in – and this is even more important now as our homes are also becoming more multifunctional – they're places of work, they're our home gym, and our places to entertain.

The DP SEPP also seeks to create places that are more responsive to the environment and to our unique Australian culture. When our buildings are designed sustainably, they respond to climate, are cheaper to heat or cool, they last longer and create less waste, and are more enjoyable to inhabit. They connect to parks and walkways, they sit within cool streets that have connected soil networks and tree canopy, where stormwater is well-managed to contribute to the ecosystem rather than cause problems, and where the greater community uptake of electric vehicles is supported with appropriate infrastructure. While this reflects the NSW Government's goal to achieve net zero emissions, it also creates better places to live and work – places that have character and identity and are resilient.

The DP SEPP promotes place-based design. It focuses on the importance of sound decision-making through the use of skilled professionals, through documentation of the design process, and through participation in design review before lodgement of planning applications, fostering the optimal outcome for each site and each community.

I'm grateful for the commitment and energy of our stakeholders and colleagues across industry, government and the community, who have worked alongside us to develop a draft DP SEPP that is flexible and responsive. The policy and supporting guides that are now on exhibition will provide a clear framework to create housing, infrastructure and development that will better fit community needs now and in the future.

I look forward to continuing to work with you to finalise the policy and guides so together we can deliver the homes people want and the places they want to live, in a way that enhances the environment for us all.

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Cover image: Aerial photograph of Riverwood looking south, showing Salt Pan Creek, parklands, motorways and rail. Photo: DPIE.

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About this guide

The *Urban Design Guide* (UDG) is a resource to improve the planning and design of urban environments across NSW. The UDG is to be used in conjunction with draft *State Environmental Planning Policy (Design and Place) 2021* (the DP SEPP) to improve the design quality of urban places.

The UDG is a companion document to the *Apartment Design Guide* (DPIE 2021), which provides further guidance on the design of residential flat buildings.

Aims of the Urban Design Guide

The guide supports the principles of the DP SEPP in aiming to create healthy, prosperous places for people, communities and Country. It provides benchmarks, guidance and best practice processes for designing and assessing urban design development across NSW. The guide:

- recognises and responds to place as the foundation for all place-based decision-making
- focuses on public space to promote equitable public life as a key outcome of good urban design
- takes a strategic approach to urban design, looking beyond site boundaries to positively contribute to place
- prioritises compact, walkable, diverse and connected neighbourhoods
- provides a common framework that gives progressive certainty to proponents and assessors.

Who is the Urban Design Guide for?

The guide is for:

- urban designers, architects and landscape architects preparing designs for urban places
- professionals who contribute to the design of urban environments in NSW, including developers, consultant planners, and other built environment professionals
- members of design review panels involved in the review of development proposals
- local and State government planners who assess planning proposals, master plans and development applications
- strategic planning teams in local and State government preparing local controls, design guidelines and strategic plans.

Application of the Urban Design Guide

The guide applies to urban design development under the DP SEPP.

UDG WILL DIRECTLY INFLUENCE	THE UDG CAN INFORM
Precinct planning	City, town or neighbourhood-scaled place strategies
Planning proposals	
State significant development	Reviews of local environmental plans
Master planned developments	Preparation of development controls plans
Subdivision development applications	Preparation of supporting urban design studies and guidelines
Concept development applications	

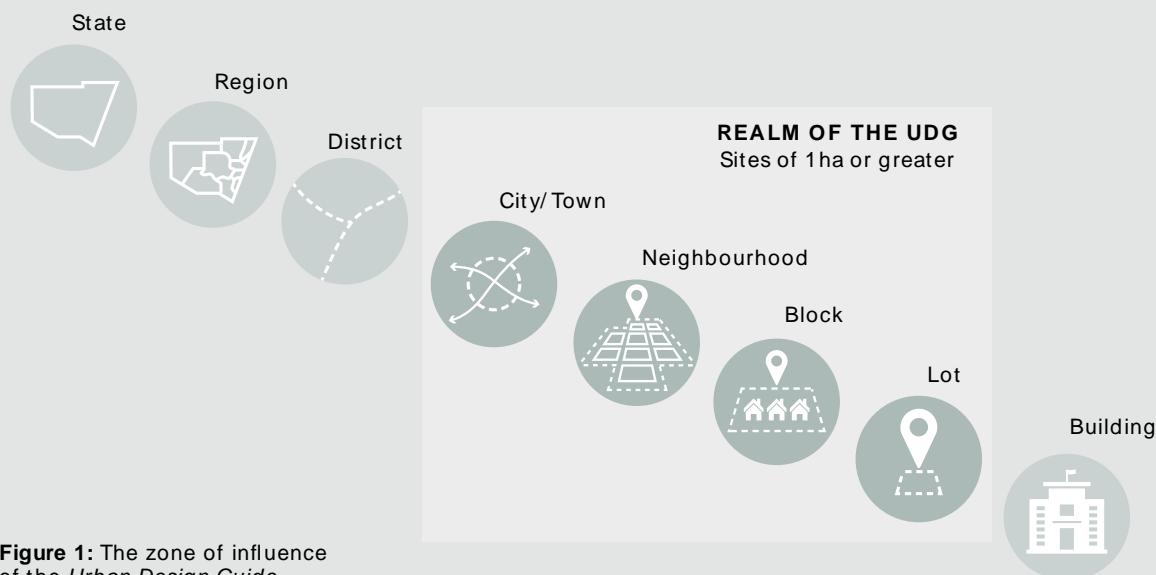


Figure 1: The zone of influence of the *Urban Design Guide*.

How this guide relates to the NSW planning process

The advice in this guide is framed around a set of objectives for urban design development. These objectives have a critical role in the development of urban design proposals and in the preparation of the documentation applicants must provide to support a development application, and the process the consent authority must use to assess the development application.

Urban design development must be consistent with the DP SEPP

The DP SEPP sets a consistent statewide policy framework for the design quality of the built environment, including urban environments. It establishes 5 design principles, 10 considerations and a range of key outcomes. Urban design development in NSW must be consistent with the DP SEPP principles and considerations.

This requirement applies to design professionals when preparing urban design proposals, to design review panels when giving advice on proposals, and to consent authorities when determining a development application.

The UDG objectives are derived from the DP SEPP principles and considerations and provide further detailed guidance applicable to the design and assessment of urban design development.

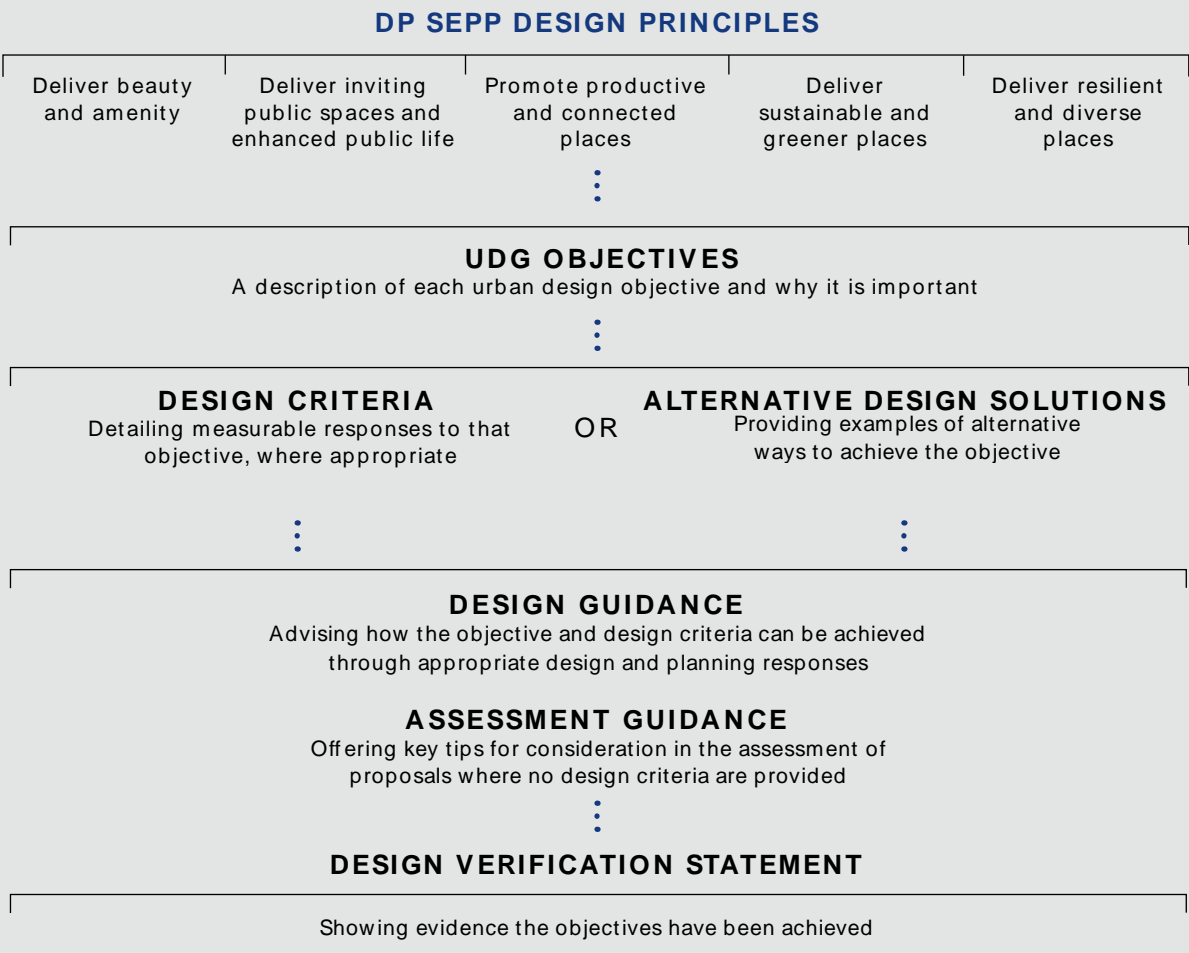
How to use this guide

Urban Design development in NSW must be consistent with the UDG objectives.

This guide includes objectives, design criteria and design guidance. The objectives are universal requirements for achieving good urban outcomes in keeping with the 5 DP SEPP principles. These are outcomes that will ultimately benefit the health, wellbeing and prosperity of our homes, places and planet.

Projects will have different responses to the objectives depending on the site, scale, design brief and typology. The objectives are not prescriptive controls, and the guide provides design criteria and detailed guidance that describe how they can be met. The design criteria are quantitative benchmarks that if met, will achieve the objective.

Figure 2: Line of sight from the DP SEPP to the Urban Design Guide.



For some objectives only design guidance applies. The design guidance offers qualitative advice for how objectives can be achieved through appropriate design responses. This guide also includes a framework for developing 'alternative design solutions' that allow designers to find the best solution for their site. Where an alternative is proposed, the development application (and specifically the design verification statement) must demonstrate how this delivers a neutral or beneficial planning outcome when assessed against the objective.

Documentation of the design process, including technical submissions or other evidence to support alternative design solutions, particularly the reference scheme and scenarios that have been considered, is critical to demonstrate a development proposal is presenting the best planning outcome for the site.

The criteria and guidance included in this guide is not exhaustive, and each site and project will have a unique response. We can't create great places by writing a rule for everything, however, we can aim to define what is important, and use skill, expertise, good processes and sound judgement to help us get there.

Application requirements

Design verification statement

The EP&A Regulation requires a qualified designer to prepare a design verification statement which demonstrates how the proposal provides the best possible design response for the site, and how it meets each of the UDG objectives.

The statement should direct the consent authority to where they can find evidence supporting the design response. The evidence can be written in the design verification statement or a cross-reference provided to a drawing, table or report.

The DP SEPP requires a consent authority to consider the design verification statement when determining a development application.

Design review

Design review is a critical part of the design and assessment process. Design review panels provide independent expert design advice to improve the design quality of developments. Early and iterative review maximises the benefits of

the design review process and is required on large and complex projects before submitting a planning application.

The NSW State Design Review Panel (NSW SDRP) applies to State significant projects. The *Local Government Design Review Panel Manual* (DPIE 2022) provides information on the review of development proposals by independent council-appointed design review panels. For further details on development types that require referral to a design review panel see the DP SEPP.

The design verification statement submitted as part of a development application requires the applicant to set out how the proposal responds to advice from the design review panel, and to justify any departures from that advice. A template for this response is included in the *Local Government Design Review Panel Manual*.

Structure of the guide

Part 1: A place-based approach explains the challenges and opportunities for designing successful urban places in NSW and explores how urban design can respond to unique contexts and shape future developments to strengthen place-based outcomes.

Part 2: Objectives for good urban design establishes 5 components of good urban design and uses these to frame 19 objectives and related guidance.

Part 3: Implementing good urban design practice describes a 3-phase process to prepare, develop and deliver good urban design, including the outputs of each phase of the design process and development application requirements.

Appendices: include the design verification statement template and technical detail to support the delivery and measurement of public open space, urban tree canopy and street dwell space.

An aerial photograph of a park area. In the center, there is a large, semi-transparent rectangular overlay. This overlay contains a faint, light blue architectural plan of a park. The plan shows various zones: a large green area at the top, a central area with colorful hexagonal shapes (pink, yellow, blue, green) representing a playground, and a lower section with a grey, textured area and more green spaces. The background of the entire image is an aerial view of the actual park, showing trees, grass, a road with a car, and a parking lot with a red car. The text 'PART ONE' is in the top left of the overlay, and 'A place-based approach' is in the center of the overlay.

PART ONE

A place-based approach

Bernie Goodwin Memorial Park
Playground, Morisset
Design: Thomas Chintapalli
Landscape Architect
Photo: Lake Macquarie City Council

1.1

Importance of place in urban design

A concerted and strategic focus on our urban environments is imperative to enable NSW to respond to the contemporary pressures of population growth, rapid urbanisation, and climate change. The social, environmental, cultural and economic impacts of new development extend beyond the scope of a single project or site boundary.

Through careful and respectful consideration of the unique qualities of the places we design and the uses and outcomes we want to enable, we can create the environments for great places to flourish.

What is a place-based approach?

A place-based approach requires understanding the physical, environmental, social and cultural attributes of a location. It requires analysing the dynamic conditions of a place that make it unique, and recognising this change will continue. This understanding informs design and decision-making. Putting place at the centre of decision-making drives the creation of urban environments that are healthy, responsive, integrated, equitable and resilient.

How can we understand place in urban design?

Place is the interdependent relationship of people and their environment, made unique by local conditions.

The successful design, planning, development and management of place is a sustained and complex collaboration between stakeholders, including government, developers, built environment and landscape professionals and the community.

A vital role for the urban designer is to establish a common understanding of a place with these many stakeholders to help shape the desired future. Great places recognise local characteristics and the qualities people value. Through analysis of existing and proposed activity, physical form, meaning and place attachment, a multidisciplinary urban design team can establish a strong understanding of place that will guide and inform place-based decision-making for the benefit of the community.

Delivering place-based urban design

Good urban design is both a process and an outcome. The UDG supports consistency by applying a universal urban design process that caters for the unique qualities of places in NSW. Good urban design process starts with an understanding of place that defines a project's parameters, sets the design intent, guides design development, and ensures genuine place-based outcomes are delivered. For further details see Part 3: Implementing good urban design practice.

Place-based planning is a design-led and collaborative way of examining the complexity of the city by viewing it as a mosaic of different places, each with unique potential and characteristics. It is a means of better understanding a place and building relationships and collaboration to deliver a vision and solutions that respond to a place's potential.

Greater Sydney Commission, The Greater Sydney Region Plan, A Metropolis of Three Cities, 2018

1.2 Public space as an urban design outcome

Public spaces are all places publicly owned or of public use, accessible and enjoyable by all for free and without a profit motive.

United Nations Charter for Public Space, 2016

What is public space?

The UDG identifies public space as a critical outcome of good urban design. It aligns with the principles of the draft *NSW Public Spaces Charter* (DPIE 2020) and the United Nations definition of public space as the combination of public land and any publicly accessible building or space, comprising 3 broad categories:

- **public open spaces:** active and passive spaces including parks, gardens, playgrounds, public beaches, riverbanks and waterfronts, outdoor playing fields and courts, and publicly accessible bushland
- **streets:** including streets, avenues and boulevards, squares and plazas, pavements, passages and lanes, and bicycle paths
- **public facilities:** public libraries, museums, galleries, civic and community centres, showgrounds and indoor public sports facilities.

Paddington Reservoir by Tonkin Zulaikha Greer is an example of landscape renewal that responds to existing heritage to enhance local character. Photo: Josef Nalevansky.



Why is public space important?

If public space is well-designed it provides the setting for a popular and prosperous place. Places with a strong identity are often the result of many people sharing and valuing similar memories of that place and its collective image. Well-planned and well-designed public spaces play an important role in positively influencing local identity and provide a stage for our public lives. These spaces evolve and may have different characters across a day, at weekends or seasonally, or when different people use them for different activities such as enjoyment, socialising, expression or commerce.

By providing public spaces for people to spend time together, public life can thrive, contributing to a vibrant quality of life for all. Shaping public space deliberately is a fundamental role of urban design in delivering quality green, open and public spaces that are essential to everyone. They are our free parks, gardens and sports fields, walkable shady streets, libraries and museums, which form the heart of our communities. Quality public spaces support our health and wellbeing, environmental resilience and local economies.

Interconnected public space networks are the result of creating and protecting the grain, composition and character of an urban area for the public's benefit. In the context of the UDG, quality public spaces are achieved at the nexus of urban structure, the movement and connection network and the natural and built environment.

Starting with Country

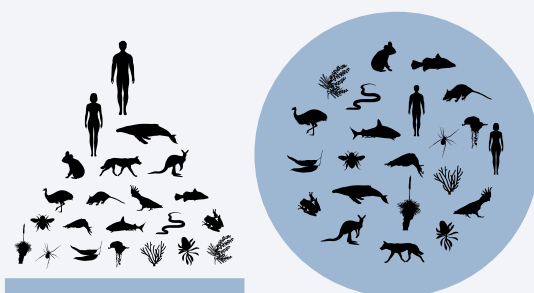
The meaningful associations we make with a place, the things which happen on or in that place, the physical characteristics of a place together allow us to understand a 'place-based' way to design.

A well-rounded and holistic understanding of place sustains and respects culture. As the Traditional Custodians of the land and waters, Aboriginal people have a deep and ongoing connection to these elements through their experience of Country. Country includes tangible and intangible aspects, knowledge, cultural practices, belonging and identity, wellbeing and relationships. Aboriginal people maintain a strong belief that if we care for Country, it will care for us.

All Aboriginal communities are responsible for nurturing narratives and sustaining memories that shape and maintain landscapes for future generations. Understanding a place is a subtle and complicated combination of strong physical and emotional interconnection to the meaning, activity and physical form of all Country. All communities of NSW can benefit and learn from this cultural understanding and bring cultural awareness and understanding to the way we consider the design of the built and natural environment.

The *Draft Connecting with Country* framework (GANSW 2020) provides more information supporting this approach, including engagement with Traditional Custodians and knowledge-holders.

Figure 3: Human-centred or Country-centred.
Image: Diagram adapted from German architect Steffen Lehmann, *Eco v Ego* diagram 2010.



1.3

Components of successful places

Urban design requires the integration of many complex and interrelated components of the natural and built environment. The UDG sets out 5 key urban components that collectively provide the framework for the guide's urban design objectives, design criteria and guidance.

The UDG objectives support the design and assessment of good urban design across NSW. They apply to all scales of urban design development, including cities, towns, neighbourhoods, blocks and lots.

The guide establishes clear expectations for urban design that will help to strengthen urban outcomes and streamline development assessment processes. These objectives require collective consideration to achieve an integrated outcome.

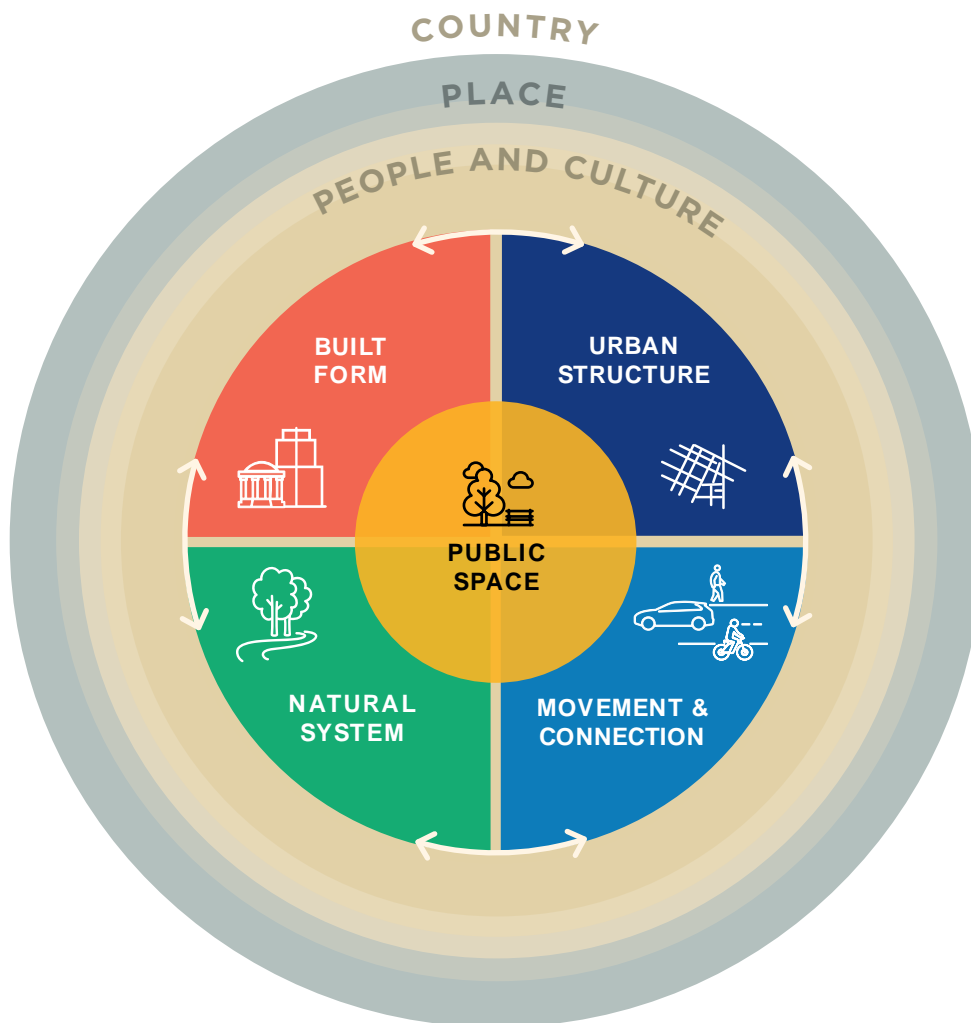


Figure 4:
Components of successful places.

URBAN STRUCTURE 	<p>The natural topography, arrangement of streets, paths, blocks, subdivision patterns, public open spaces, blue and green infrastructure, activity centres, public transport nodes, corridors and neighbourhoods</p>	<ol style="list-style-type: none"> 1. Projects start with nature, culture and public space. 2. District and local routes provide transport choice and accessibility. 3. Compact and diverse neighbourhoods connect to good amenity. 4. Place-based risks are mitigated and ecological values sustained to ensure resilient communities.
MOVEMENT AND CONNECTION 	<p>The network of transport systems for public transport, cars, bicycles, and pedestrians</p>	<ol style="list-style-type: none"> 5. Walkable neighbourhoods are vibrant and productive. 6. Block patterns and fine-grain street networks define legible, permeable neighbourhoods. 7. Walking and cycling is prioritised, safe and comfortable for people of all abilities. 8. Parking is minimised, adaptable and integrated.
NATURAL SYSTEM 	<p>The integration of the natural environment and local ecologies and their interface with green infrastructure like parks, urban tree canopy, waterways and stormwater in the design and development of new urban areas</p>	<ol style="list-style-type: none"> 9. Landscape features and microclimates enhance human health and biodiversity. 10. Tree canopy supports sustainable, liveable and cool neighbourhoods. 11. Water is retained and water quality improved in urban places.
PUBLIC SPACE 	<p>The core of good urban design, the heart of urban environments, and where urban structure, the natural system, movement and connection, and built form components can collectively create public good</p>	<ol style="list-style-type: none"> 12. Public open space is high-quality, varied and adaptable. 13. Streets are safe, active and attractive spaces for people. 14. Public facilities are located in key public places, supporting community and place identity.
BUILT FORM 	<p>The contribution and interface of built form with its broader setting</p>	<ol style="list-style-type: none"> 15. The lot layout supports green neighbourhoods and a diversity of built form and uses. 16. There is a strong sense of place structured around heritage and culture. 17. Scale and massing of built form responds to desired local character. 18. Built form enlivens the ground plane and activates and frames public space. 19. Developments use resources efficiently, reduce embodied emissions, and consider onsite energy production.

PART TWO

Objectives for good urban design

Movement, heritage and nature
coming together. Blackwattle Bay.



URBAN STRUCTURE

Urban structure is the arrangement of green and blue networks, public open spaces, paths of movement, pedestrian permeability and cycling infrastructure integrated into the pattern of blocks and streets that connects activity centres and public transport nodes to form urban neighbourhoods.

1.

Projects start with nature, culture and public space.

2.

District and local routes provide transport choice and accessibility.

3.

Compact and diverse neighbourhoods connect to good amenity.

4.

Place-based risks are mitigated and ecological values sustained to ensure resilient communities.

Centennial Parklands in Sydney provide amenity and connection for residents across multiple suburbs.
Photo: Destination NSW





OBJECTIVE 1

Projects start with nature, culture and public space

WHY THIS IS IMPORTANT

To respond to the unique characteristics of place and enable the potential of place to be realised.

To strategically identify areas for preservation and protection.

To provide green and blue spaces and networks as a key hallmark of liveability in urban areas.

To integrate natural landscapes into public life.

To support and express the natural qualities of places in development.

To increase and strengthen continuous green infrastructure networks.

To provide scenic amenity and opportunities to restore, connect and enhance urban ecosystems.

To ensure biodiversity, bushland and waterway regeneration.

ASSESSMENT GUIDANCE

The proposal demonstrates how the design response has been informed by place analysis.

The project vision and place-based principles have been developed through place analysis.

Topography and natural elements are clearly expressed, and a comprehensive, integrated and continuous green infrastructure framework informs the urban structure of subdivisions and master plans.

Areas of ecological importance and significant vegetation are retained, enhanced and connected.

Heritage buildings and significant landscape qualities are integrated into the development.

A water management strategy is appropriate to the demands of the project and context. Refer to the EP&A Regulation.

Waterways and water-sensitive urban design elements have been integrated into the green infrastructure framework.

DESIGN GUIDANCE

1.1 Base design decisions on comprehensive place analysis, strategic planning priorities and the site's contextual opportunities and constraints

Take a strategic approach to urban design, looking beyond site boundaries to positively contribute to place.

Undertake a comprehensive place analysis. Capture this analysis in the design verification statement, explaining how it has informed design decisions. See Appendix 1.

1.2 Identify, integrate and support the topography and landscape of the site in the structure of renewed or new places

Express natural elements – topography, waterways, trees, major views to natural features (such as parkland or ridgelines).

Prioritise natural elements to define the shape and structure of new elements in places. This includes using bushland and waterway corridors as the backbone of green infrastructure in public space.

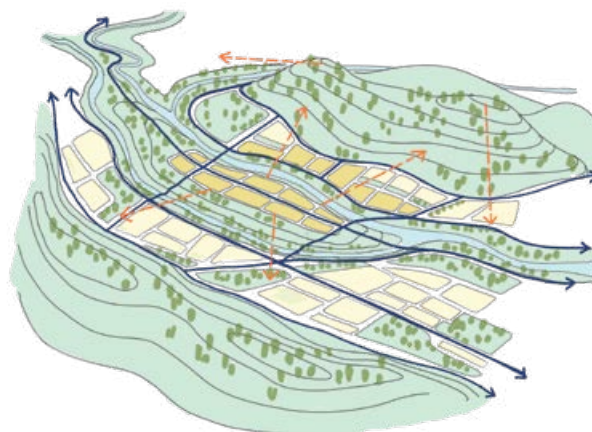


Figure 5: Natural elements structure new development.

Protect ecological areas.

Protect, conserve, enhance and connect natural waterways and watercourses, and enhance or restore engineered waterways and watercourses, particularly those classified 2nd order or above according to the Strahler system as per the *NSW Water Management (General) Regulation 2018*.

1.3 Identify and protect significant Aboriginal heritage and environmental values (tangible and intangible)

Design the urban structure to respond to existing cultural and heritage values, landscapes and built assets that are to be retained.

Protect and conserve significant Aboriginal heritage values (tangible and intangible) and environmental features within the public realm.

1.4 Establish connected public space networks that integrate and support natural features

Retain existing public space as a priority.

Establish core public space networks along natural features and connect natural elements together.

Link natural elements and public space into a connected network that creates a clear hierarchy of public spaces, including large plazas, smaller squares, parks, and viewing platforms.

Align new public space to topographic features and natural systems, maximising co-location with green infrastructure and walking and cycling networks.

Provide public access to waterways, waterfronts, cliff lines and nature reserves.

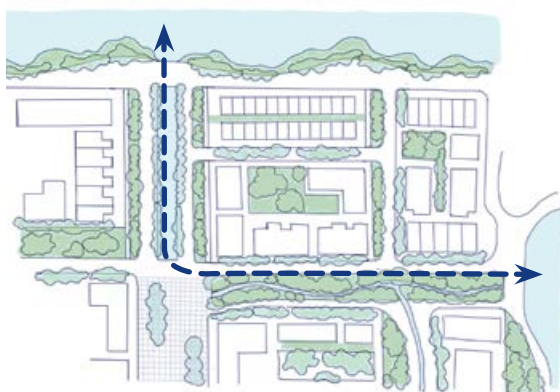


Figure 6: Blue and green connections through urban areas.

1.5 Provide an integrated and connected blue and green infrastructure framework

Ensure green infrastructure is contiguous and integrated within the public realm.

Provide for new green infrastructure along strategic links to enable the network of interconnected green infrastructure to grow over time, such as along cycleways and public access to creek corridors or other government assets (for example along Sydney Water corridors).

Co-locate green infrastructure corridors with other linear systems where possible, including walking and cycling routes.

Provide opportunities for contiguous green infrastructure within private space, such as contiguous rear setbacks or larger landscaped lots (e.g. using Environmental Living zoning).

Protect and enhance urban tree canopy (see Objective 10).



Figure 7: Blue and green networks are connected and frame urban form.

1.6 Integrate a high-quality public open space network into the urban structure to provide a forum for public life

Preserve and maintain key existing public open space areas.

Prioritise public space in the urban composition.

Ensure a clear and logical network of high-quality public open space, incorporating existing open space and including natural and movement components.

Investigate different open space types to accommodate constraints occurring across scales.



Figure 8: Public space networks give structure to urban form.

1.7 Integrate a water cycle management strategy at the neighbourhood scale

Establish a large-scale water cycle management strategy to retain more water in the landscape and to manage stormwater and water quality. Provide a network of interconnected measures such as wetlands, detention, bioretention and water-sensitive urban design measures including urban swales and passive filtration, and support urban greening.

Integrate large and neighbourhood-scale water detention, capture and re-use.

Integrate water management strategies that retain natural topography and stormwater flow paths in subdivisions.

Preference natural methods for stormwater control, integrating passive landscape elements and water-sensitive urban design in preference to engineered solutions.

Integrate water management within public spaces (public open spaces and streets) and with complementary uses such as green infrastructure corridors.

See Objective 11 for further guidance on water management, water quality and water-sensitive urban design.

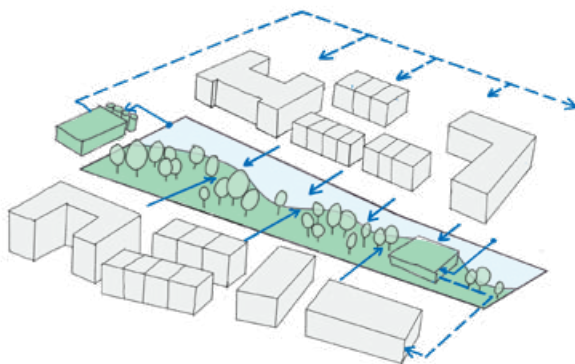


Figure 9: Neighbourhood-scale water cycle management strategies are integrated.



OBJECTIVE 2

District and local routes provide transport choice and accessibility

WHY THIS IS IMPORTANT

To integrate Movement and Place considerations into urban design and planning early in the project life cycle.

To ensure existing and proposed infrastructure is used efficiently.

ASSESSMENT GUIDANCE

The development is aligned with broader strategic planning, transport strategies and plans (See Part 3). The case for change has been adequately justified.

A Movement and Place approach has been used to understand and balance movement and place functions and inform network planning, street hierarchy and street environments within the project.

A diverse range of transport options is delivered, prioritising walking, cycling and public transport.

DESIGN GUIDANCE

2.1 Align with existing and planned transport networks

Identify and map existing, planned or proposed transport networks, key nodes, trip generators and destinations, including hospitals, schools, major and local centres set out in strategic plans, including district or regional plans, local strategic planning statements, and other relevant local strategies and plans.

Identify a local and clear movement network that connects with the broader transport network and connects to strategic or city centres, local businesses and public places.

Deliver or safeguard strategic transport corridors connected to places.



Figure 10: Understanding of the wider strategic planning context is critical.

2.2 Provide a diversity of transport modes and prioritise active and public transport connections

Identify routes that need to go around places, considering neighbourhood catchments, scale, and the potentially divisive character of large or busy roads and heavy vehicles.

Create local cycle and pedestrian connections between key destinations such as parks, urban centres, community uses, waterways, bushland and ecological areas.

Identify the local routes that need to connect places and provide for them at the neighbourhood scale and with slow speeds.

Align local routes to key destinations such as schools, workplaces, transport hubs and centres, open space and green infrastructure corridors.

Connect the routes to points of attraction in and beyond the project boundary.

Ensure multiple modes are provided to enable flexibility, choice and prioritise active travel. For example, a short local trip may be walked or cycled, and a medium distance trip cycled or taken by bus.

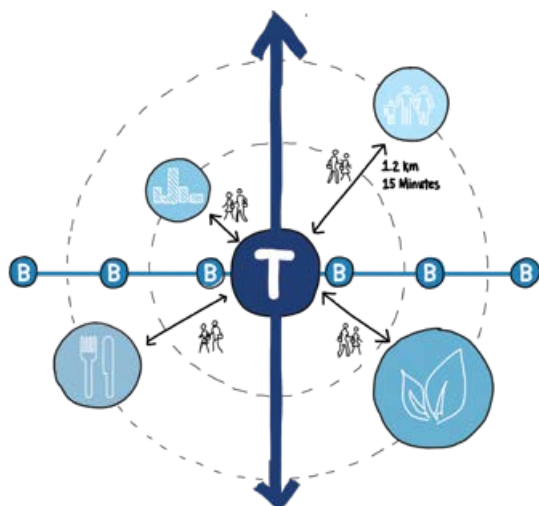


Figure 11: Consider access to a range of key destinations.

2.3 Locate and integrate development with highly accessible public transport

Integrate public transport nodes into the heart of centres and clusters.

Prioritise provision of homes in residential areas with accessible, safe and secure routes to high-service-frequency public transport within 800 m.

In less frequently serviced residential areas, locate homes within 400 m of public transport.

Integrate and plan for public transport as an integral part of the network planning.

On existing public transport routes, facilitate direct and frequent public transport that is easy and safe to access.

Locate new centres, key destinations and transport interchanges on public transport routes.

Consider adding on-road priority for public transport on streets that connect centres.

Refer to Objective 3 for further guidance on residential accessibility to public transport.



Figure 12: Integrate transport stations, stops and interchanges.

2.4 Ensure movement networks consider the existing conditions and environment

Consider the movement patterns required together with natural and built components. Adapt existing streets or design new street networks to satisfy the requirements of current and future populations.

Minimise the impact on natural systems and built form, such as using duplication of corridors or streets rather than widening, to preserve existing trees as future median trees.

Retain existing street networks where it is practical to do so, including any services which may coincide with the network. New services cannot be easily accommodated in a right-of-way; consider offsetting service corridors to create laneways or similar secondary networks.

2.5 Provide for efficient movement of goods to minimise the impact on places

Provide routes for essential strategic freight that can bypass neighbourhoods and key places where people gather.

Provide for last-mile delivery of goods that minimises loading and delivery impact on places, such as through rear-lane access, loading bays or consolidation centres.

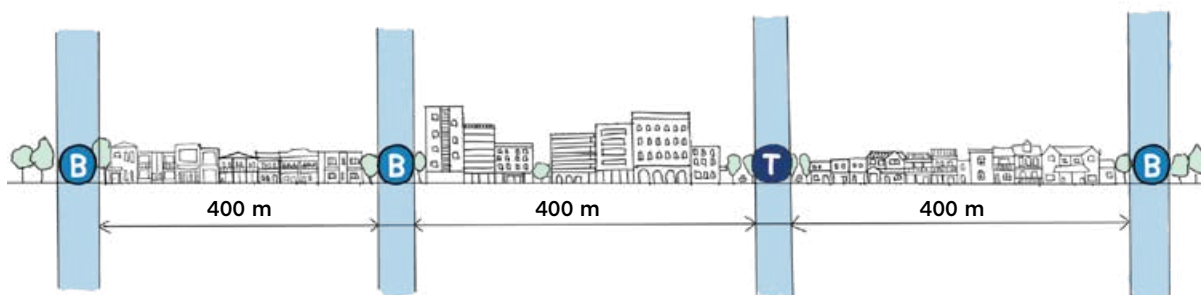


Figure 13: 400 m access to public transport.

BEST PRACTICE EXAMPLES

Urban transition

Summer Hill Mill, Sydney illustrates:

- integration of heritage and new build
- new street design
- new public space design.

Design: Hassell
Photo: Mark Syke

GOOD EXAMPLE OF OBJECTIVES:

1 2 7 12 16 17 18



OBJECTIVE 3

Compact and diverse neighbourhoods connect to good amenity

WHY THIS IS IMPORTANT

To optimise land-use efficiency.

To protect, enhance and support natural systems and agricultural land.

To ensure urban networks are connected beyond the site.

To create walkable neighbourhoods that support local living and healthy communities.

To establish dense, mixed and diverse neighbourhoods for good growth, limiting sprawling and homogenous subdivisions.

To facilitate access and connectivity of sustainable mobility.

DESIGN CRITERIA

Neighbourhood density

Minimum gross residential densities of 30 dwellings per hectare are provided:

- in and around activity centres within 5 minutes' walk of neighbourhood shops, neighbourhood centres or local centres
- within 10 minutes' walk of strategic and metropolitan centres, regional towns and cities
- within 10 minutes' walk of high-frequency public transport.

The minimum average gross residential density is 15 dwellings per hectare if not called out in the neighbourhood catchments above.

The scale and distribution of density varies within catchments according to the centre scale and form. Higher densities are likely to be appropriate in larger centres and closer to transport hubs.

DESIGN GUIDANCE

3.1 Provide a network of centres that supports a compact urban form

Deliver a clear hierarchy of activity centres of varying scales and roles that is mutually productive.

Distribute centres to minimise gaps between sustainable transport catchments (walking and cycling), and around key transport nodes.

Protect, enhance and repair existing urban environments and centres to improve their sustainability and performance.

Provide for the successful operation of centres by considering their catchment and likely patronage, integration into the broader street network, retail exposure and amenity.



Figure 14: A network of centres establishes a clear hierarchy and maximises efficiency of catchments.

3.2 Ensure key land uses are well-sited and integrated for amenity, safety and productivity

Locate sensitive land uses including residential areas, childcare centres, schools and hospitals away from noisy and busy transport corridors such as major roads, railway lines, designated freight routes, noxious uses and facilities that could have a detrimental impact on human health and wellbeing.

Absorb and integrate major retail into centres to avoid cannibalisation of existing or proposed local main street retail areas.

Leverage the placement of new major retail to create anchors for a new walkable pedestrian-focused public realm.

Ensure lot sizes enable large premises and big-box uses can be sited in accordance with Objectives 8 and 18.

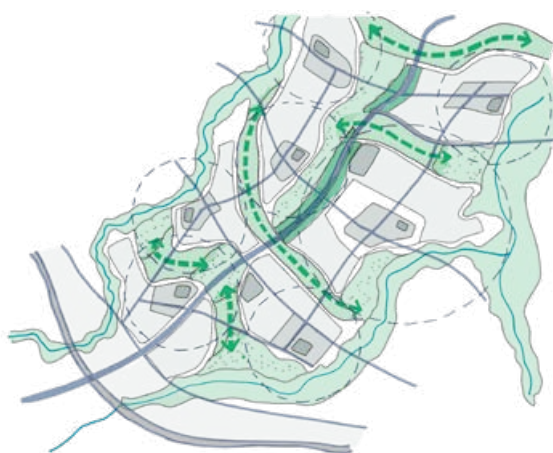


Figure 15: A mix of densities supports centres and maximises natural amenity.

3.3 Provide mixed and diverse neighbourhoods with high amenity

Provide a mix of housing types that reflect the future needs of communities and promote affordability for families and aging in place.

Locate increased density in areas of high amenity such as within walking catchments of activity centres, public transport hubs (high-frequency train and metro stations) and adjoining public open space.

Scale density to align with the hierarchy and amenity of centres and the capacity of key transport hubs.

Provide a range of residential densities that respond to amenity.

Provide various uses, types and settings to create variety, activity and interest within a neighbourhood.

In areas of greater intensity or where there are excellent active and public transport networks, development should aim for a minimum density of 30 dwellings per hectare across the entire walkable neighbourhood.

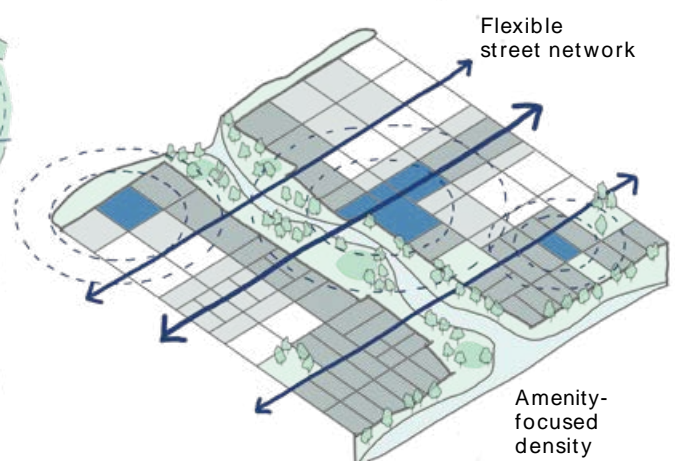


Figure 16: Density is located with amenity – around centres and public open space.

3.4 Connect and integrate urban networks with the broader context, and overcome barriers

Ensure open space and movement networks are connected conveniently through the project site where appropriate, supporting green infrastructure connectivity and increasing accessibility.

Ensure barriers such as major roads and rail, or ecological and waterway corridors, are provided with regularly spaced cross-connections for walking and cycling within walking distance of the development.

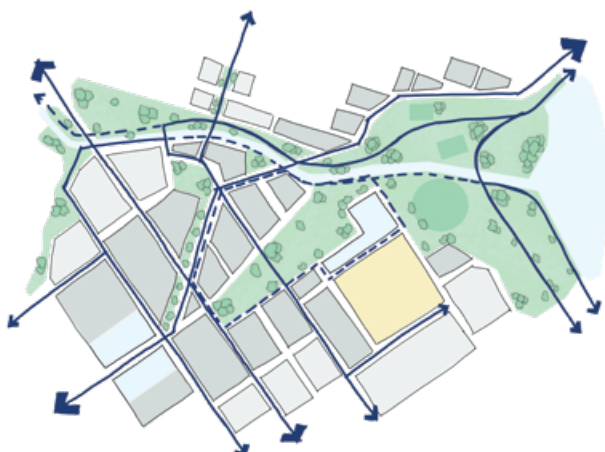


Figure 17: Open space and transport networks contribute to and connect destinations beyond the site.

3.5 Provide a compact urban footprint that minimises impact on adjacent productive sites

Design the urban footprint to:

- make efficient use of land
- minimise impact on existing agriculture, employment land and cultural areas.

Alternative design solutions

If individual blocks are not capable of meeting a density target of 30 dwellings per hectare, the development proposal needs to demonstrate the average gross residential density across the area defined in the design criteria is capable of exceeding the target, and there is a suitable transition from highest to lowest density.

Depending on the context, it may be appropriate to spread density across a wider catchment adjacent to centres or where there are multiple transport nodes.



Figure 18: Development is defined by the blue and green network to deliver a compact footprint.



BEST PRACTICE EXAMPLES

Suburb for the future

Newington, Sydney illustrates:

- a new master planned suburb developed to accommodate a future community after being the ‘Sydney Olympic Village’
- collaboration between multiple developers, a range of architects and Government
- good sustainable design, including Australia’s first solar suburb.

Design: Cox Richardson, PTW, Hassell, Eeles Trelease, Vote Associates, Tanner and Associates, Gordon and Valich, Virginia Kerridge Architects, Grose Bradley Associates, Order Architects and Tonkin Zulhaika for Mirvac and Lend Lease.

GOOD EXAMPLE OF OBJECTIVES:





OBJECTIVE 4

Place-based risks are mitigated and ecological values sustained to ensure resilient communities

WHY THIS IS IMPORTANT

To establish an integrated approach to building long-term resilience.

To consider cumulative place-based risks.

To ensure land-use planning considers resilience and the risks of vulnerable land.

To reduce the impacts of hazards such as bushfire, drought or flooding, whether natural or human-induced.

To respond to climate change effects.

To reduce consumption and depletion of natural resources.

To promote sustainable development while maximising quality of life and wellbeing.

To protect ecological areas and soil networks and build ecological resilience.

ASSESSMENT GUIDANCE

The proposal includes a design for resilience summary including:

- how development has considered the likely impacts of cumulative place-based risks (shocks and stresses)
- demonstrating how it will build community resilience.

The proposal meets the DP SEPP and EP&A Regulation requirements for urban design development and the 'design for resilience' template and accompanying guidance.

Development along the coast is informed by the *Coastal Design Guidelines for NSW* (Coastal Council 2003).

Areas of high ecological value have been mapped and are protected.

Areas of ecological value are connected.

DESIGN GUIDANCE

4.1 Address, mitigate and respond to risks

Carefully locate development, distribute land uses and site built form to minimise risk.

Implement strategies that will manage, reduce or mitigate any hazards such as bushfires, drought or flooding (whether natural or human-induced), and hazards such as air pollution, land contamination and gas or fuel pipelines.

Use hazard-prone and other environmentally sensitive areas to add value and outlook to the development, rather than by introducing barriers such as fencing.

Locate density away from vulnerable areas such as flood-prone land. Carefully plan development along the coast to ensure natural character values are maintained or enhanced; see the *Coastal Design Guidelines* for further guidance.

Use engineering tools, such as rain gardens, tree pits, swales, detention tanks and piped networks, to manage the speed and volume of stormwater. See Objective 11 for further guidance.

4.2 Ensure safety and resilience underpin new communities

Consider community resilience at all scales of development. For a new subdivision or major urban renewal, use the layout and composition of development to provide an opportunity for designated safe zones for use in emergency management. A safe zone is a designated area in case of an emergency that prioritises safety considerations.



Figure 19: Land use and built form is located to mitigate and manage risk – such as flooding or bushfire.

4.3 Protect natural ecology as a system

Provide buffers to sensitive ecological areas.

Set subdivision patterns and building setbacks to enable contiguous planting of vegetation to enhance habitat and ecology.

Improve interconnections between urban habitat areas to support ecological resilience.

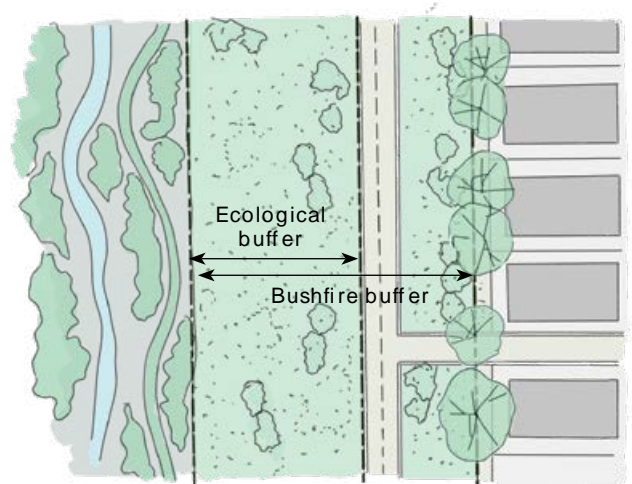


Figure 20: Example of a supportive green corridor interface.

BEST PRACTICE EXAMPLES

Prioritising Pedestrians

EY Building, Sydney illustrates:

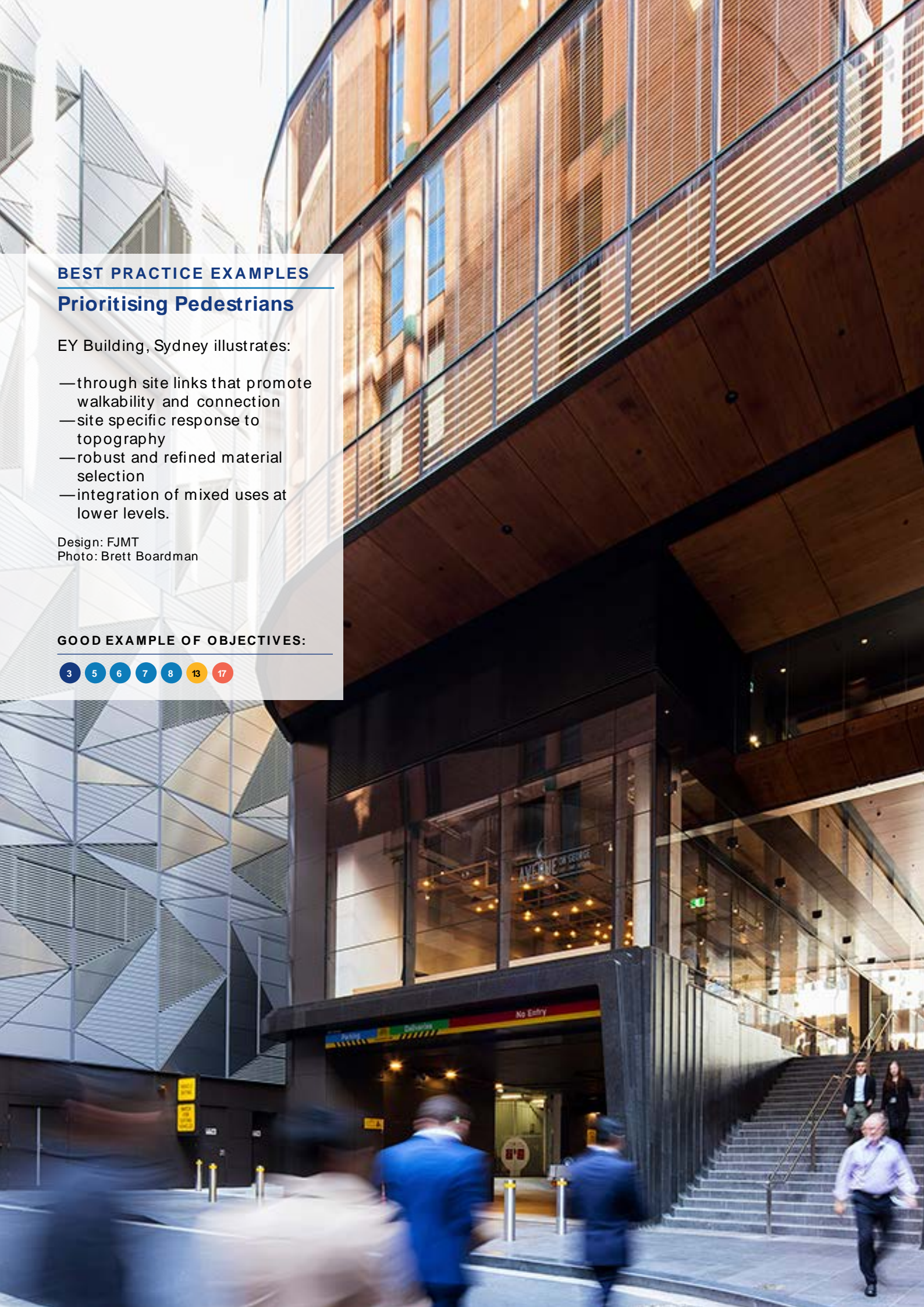
- through site links that promote walkability and connection
- site specific response to topography
- robust and refined material selection
- integration of mixed uses at lower levels.

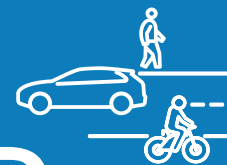
Design: FJMT

Photo: Brett Boardman

GOOD EXAMPLE OF OBJECTIVES:

3 5 6 7 8 13 17





MOVEMENT AND CONNECTION

Movement and connections to and from places, within places, and through places are critical components of successful urban environments. Movement and connectivity can be achieved through various means such as streets, plazas, public open space networks, public transport, and green infrastructure corridors.

5.

Walkable neighbourhoods are vibrant and productive.

6.

Block patterns and fine-grain street networks define legible, permeable neighbourhoods.

7.

Walking and cycling is prioritised, safe and comfortable for people of all abilities.

8.

Parking is minimised, adaptable and integrated.

Castle Hill Metro integrates high-quality public space with the brightly coloured *Light Line Social Square* metropolitan-scale public art – with distinctive high-quality station architecture. Photo: Transport for NSW.





OBJECTIVE 5

Walkable neighbourhoods are vibrant and productive

WHY THIS IS IMPORTANT

To facilitate local living, grow local economies and promote walkability.

To provide for centres and nodes that build social resilience.

To enable a shift away from car use.

To enable vibrant and productive communities including night-time economies.

DESIGN CRITERIA

Walkable neighbourhoods

All homes are within 15 to 20 minutes walk of a collection of local shops, a primary school, public transport, a supermarket or grocery store.

Public open space accessibility

Access to public open space is provided as follows:

DEVELOPMENT TYPE	NET DWELLING DENSITY	PROVIDE ACCESS TO	MINIMUM CATCHMENT AND MODE
All new residential, commercial and mixed-use development	50 dwellings/ha or greater	Small park	200 m (2–3 min. walk)
	10 dwellings/ha or greater	Local park	400 m (5 min. walk)
	All densities	District park	1,600 m (20 min. walk)
		Regional park	5 km (cycle, drive or public transport)

DESIGN GUIDANCE

5.1 Deliver neighbourhoods with a vibrant centre

Support local living by providing mixed-use developments, compact neighbourhoods and local access to shops, public facilities and services.

Promote the clustering of uses within centres so they become strong community anchors. Include a compatible mix of uses, including retail, which provide daily needs, public open spaces and public facilities or schools. For centres of all sizes provide the following daily destinations within walking distance of housing:

- local shops, for a variety of everyday goods and services such as cafes
- primary schools, for both children walking to school and onward trips by accompanying adults
- public open space for sport and recreation
- public transport, for access to wider destinations around the town or city
- supermarkets or grocers, for fresh food.

Design centres to be inclusive and diverse, fostering a sense of ownership, encouraging physical activity, and supporting social interaction.

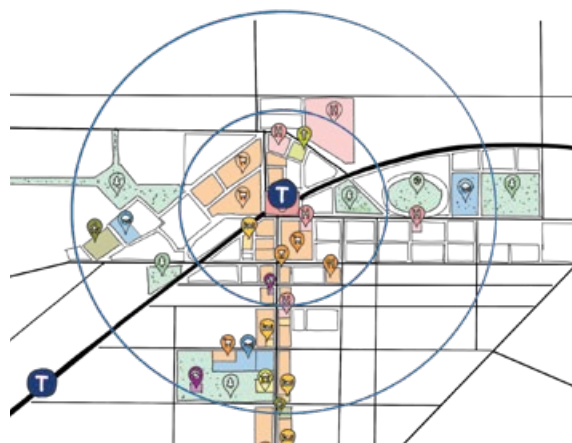


Figure 21: Co-located uses in walking catchments form vibrant centres.

5.2 Support the local night-time economy and provide more varied, well-integrated entertainment uses

Protect existing entertainment uses and protect them from encroachment (including noise complaints). Manage potential impacts by considering:

- the daily cycle and desirability of activity across the four night-time economy time periods: early evening 6 pm – 9 pm, evening 9 pm – 11pm, night 11pm – 2 am, and late night 2 am – 6 am.
- sound impacts: ambient noise can contribute to vibrancy and activation, but loud noise can adversely affect amenity. Consider buffers, enhanced noise insulation, and venue management.

Provide venues for local cultural activity such as galleries, theatres, studios and auditoriums. See Objective 14 for further guidance on public facilities.

Enable public space to cater for pop-up or temporary uses, e.g. events or markets, by providing power and water points, toilets and storage.

Support cultural activity in private venues such as bookstores or music stores that may host events, or small bars, cafes or restaurants providing live music.

Consider locations suitable for boutique manufacturing, such as artisan crafts, microbreweries and distilleries.

Consider early activation of vacant or underused premises through temporary or auxiliary uses, such as office space as a temporary gallery.

Alternative design solutions

Where residential areas cannot provide local access to a collection of all the destinations listed in this objective:

- prioritise the provision of all listed destinations within a 20-minute walk
- provide smaller clusters of destinations that form a logical sequence of everyday linked trips, such as a school and open space for after-school recreation, or public transport with a grocery shop for access to fresh food.



OBJECTIVE 6

Block patterns and fine-grain street networks define legible, permeable neighbourhoods

WHY THIS IS IMPORTANT

To deliver a highly permeable urban environment.

To maximise accessibility across urban areas.

To deliver a street and block pattern that is robust and adaptable over time.

To increase participation in active transport: walking.

DESIGN CRITERIA

Walkable block lengths

Maximum block length for industrial areas is 220–250 m.

Maximum block length for residential and mixed-use development is 160–220 m.

This is complementary to the design criteria for pedestrian and cycle permeability in Objective 7.

ASSESSMENT GUIDANCE

A variety of blocks (sizes, orientations and access arrangements) are provided.

DESIGN GUIDANCE

6.1 Provide a street network with a legible hierarchy

Build on the strategic network (see Objective 2) to develop the street pattern and street hierarchy.

Integrate new streets with the existing street pattern.

Ensure the proposed urban grain is sympathetic to the existing grain and use it to integrate the development into the wider urban pattern.

Support wayfinding by providing clear sightlines to place features such as waterways, public open spaces, landmarks and civic built form.

See Objective 13 for further guidance on street types.

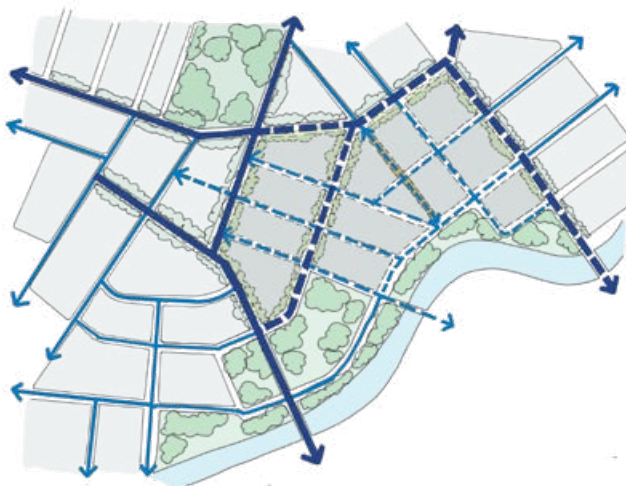


Figure 22: Street pattern provides for a hierarchy with direct sightlines to key destinations.

6.2 Create a fine-grain street layout that facilitates ease of access to key destinations

Design urban pattern in response to the intensity of population, density, and land use, with smaller blocks and streets in more intensive areas and around public transport nodes.

Provide walkable blocks and permeable street patterns; these can accommodate greater amenity and support increased density over time.

Ensure permeable and safe pedestrian movement is possible in all directions.

As a measure of ease of movement, low-scale, residential areas should generally contain at least one street intersection per ha. Intersection densities should increase and block lengths decrease in more intensive areas in proximity to activity centres and close to public transport.

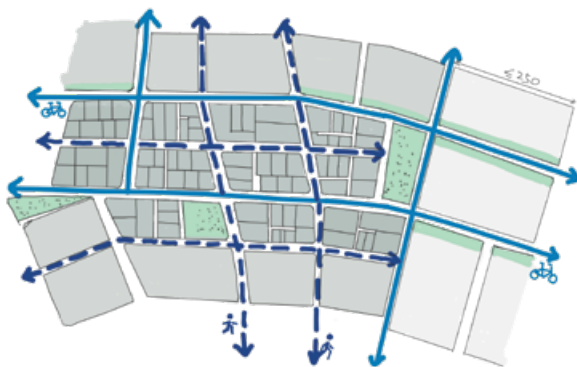


Figure 23: Clear and permeable street pattern.

Align streets with site boundaries to improve legibility, wayfinding and connection.

Avoid geometries that create wide crossings or circuitous paths on foot, cycle or by public transport. See Objective 13 for further guidance.

Avoid cul-de-sacs to support connectivity and crime prevention through environmental design (CPTED).

Provide mid-block connections – see Objective 7.



Figure 24: Public plazas and pedestrian connections add to the accessibility of the street pattern.

6.3 Provide a diversity of block patterns to suit a variety of uses

Provide an appropriate range of block sizes, orientations, access arrangements (such as laneways), and shapes, to support diverse neighbourhoods and housing choice (see Objectives 15 and 17).

Create blocks that are appropriately sized, proportioned, and orientated to support the intended function and character.

Some historic areas align main streets north–south to maximise lunchtime sun, and residential cross-streets east–west to maximise built form solar access to the north.

6.4 Design urban environments to be adaptable for future change

Where existing streets and blocks do not facilitate walkable neighbourhoods, prioritise urban repair, particularly:

- for new streets or through-site links at the block scale
- compatible uses at the lot scale where a given daily need cannot be satisfied within walking distance.

Ensure development does not preclude future increased connectivity and permeability. Take advantage of opportunities to increase connectivity (public space and green infrastructure) and permeability over time, such as providing a new through-site link along a seasonal creek line (no-build zone).

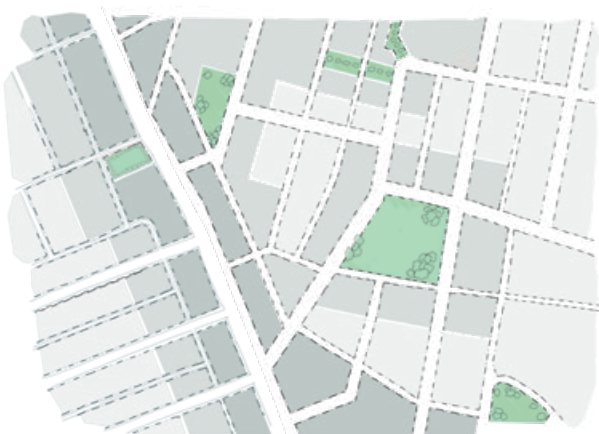


Figure 25: Provide a range of different lot shapes, sizes and orientations.



BEST PRACTICE EXAMPLES

Residential amenity

Maestro, Harold Park, Glebe illustrates:

- a lush internal garden which ensures density is next to amenity
- public space network connected into a variety of 2 and 4 storey building forms
- private outdoor spaces that are splayed to capture sunlight and street views.

Design: Eeles Trelease
Photo: Simon Wood

GOOD EXAMPLE OF OBJECTIVES:





OBJECTIVE 7

Walking and cycling is prioritised, safe and comfortable for people of all abilities

WHY THIS IS IMPORTANT

To facilitate active and sustainable transport modes and increased transport choice (walking and cycling).

To reduce car dependency and support healthy lifestyles.

To make streets and places pedestrian-friendly.

DESIGN CRITERIA

Mid-block connections

Mid-block connections and through-site links for pedestrians are provided no more than 130 m apart within walking catchments of key destinations such as centres, public open spaces, transport nodes and schools.

Dedicated footpaths are provided on both sides of street carriageways (excluding shared accessways).

DESIGN GUIDANCE

7.1 Provide fine-grain pedestrian permeability

Develop local movement strategies on the basis that walking is the natural first choice for local trips.

Ensure developments provide through-site links, including opportunities to integrate new local traffic or walking and cycling connections through large-format blocks and uses.

Provide pedestrian connections and through-site links that have clear sightlines, are open to the sky and are supported by active interfaces.

7.2 Provide pedestrian priority and amenity

For all streets, either new or adapted, give priority to pedestrian movement over cars. Point closures (e.g. bollards) are an inexpensive method of maintaining the character of open street networks while prioritising direct walking and cycling routes over car trips.



Figure 26: Pedestrians are given priority.

Continue pedestrian and cyclist networks through or alongside public open space to existing and planned destinations.

Use designs that facilitate continuous pedestrian movement, including zebra crossings and raised 'side road treatments' (including at roundabouts). See Objective 13 for further guidance on safe streets.

Where provided, ensure awnings and other facade structures are compatible with the context and local character and do not adversely impede daylight or views to the sky.

7.3 Provide low-traffic and slow-traffic streets

Integrate behavioural traffic calming within streets e.g. yield streets, narrow lanes, street trees or indented street parking bays.

Where possible, adopt speed limits that minimise the risk of fatality for vulnerable road users (e.g. 30 or 40 km/hour or less).

Integrate alternative materials in low-speed streets to aid pedestrian legibility and reinforce pedestrian priority.

7.4 Integrate safe cycling

Develop local movement strategies promoting cycling as the safe and comfortable choice for local trips up to 5 km.

Consider e-bikes and alternative mobility to address topographical constraints and extend cycle catchments.

Provide dedicated cycle facilities on streets where the speed limit exceeds 40 km/h or there are high volumes of traffic or heavy-vehicle movements are expected.

Provide cycle signals or crossings for perpendicular cycle routes across busy roads and rail to avoid the need to dismount.

Connect key locations such as transport stops or interchanges, centres, local open spaces and schools to the cycle network.

Provide supporting infrastructure in those key locations such as secure cycle parking and end-of-trip facilities.

For further guidance on urban design that supports cycling see the *Cycleway Design Toolbox, Designing for cycling and micromobility* (TfNSW 2020).



Figure 27: Integrate cycling networks.



OBJECTIVE 8

Parking is minimised, adaptable and integrated

WHY THIS IS IMPORTANT

To provide efficient and effective management of parking that will ensure functionality and safety for drivers and pedestrians.

To ensure parking is integrated with the overall design of a place and surrounding public spaces.

To promote more sustainable movement options.

To ensure car parking does not dominate urban centres.

To support new technologies such as electric vehicles and ensure charging stations are integrated into the delivery of new projects.

ASSESSMENT GUIDANCE

Car parking is minimised.

Where feasible, maximum parking rates are encouraged in setting development controls.

All parking controls and outcomes are aligned with the place vision.

Electric vehicles are supported through charging infrastructure.

DESIGN GUIDANCE

8.1 Integrate parking into urban form

Develop an integrated approach to parking in the development to reduce the need for parking overall. Consider:

- managed parking schemes for on-street parking to promote turnover of visitors and short-stay parking
- residential parking permits for on-street parking to reduce off-street parking demand
- consolidated parking structures
- micromobility or mobility-as-a-service (such as car share spaces) as a substitute for parking demand.

Ensure car parking does not dominate the urban environment and its built form is permeable to the surrounding network. Underground car parking and semi-basement car parking is preferable to above-ground parking, especially for medium- to high-density development and areas with higher land value.

Multistorey car park structures may be suitable in built-up urban areas and in suburban or town centre locations, where parking can support public transport patronage, such as near train or bus stations.

Surface parking is not suitable in centres or dense urban areas. Where surface parking is provided in suburban or office-park environments:

- provide adequate trees, landscaping and permeable surfaces
- locate parking to the rear of the site to allow buildings to define the street edge and contribute to the streetscape.

8.2 Minimise parking, manage demand and explore strategies to accommodate new technologies

Consider the total parking demand, whether it can be satisfied by on- or off-street, and look for solutions that reduce total parking.

Encourage car sharing.

Consider whether off-street parking can be consolidated or replaced with alternatives such as car share parking.

Consider integrating car share parking spaces within streets or visitor areas of car parks.

Consider maximising the efficiency of on-street parking through management strategies such as residential parking permits.

Consider reducing on-street parking oversupply to accommodate other modes such as cycle lanes.

Reduce parking for private vehicles close to transport hubs, and strategically place car share and cycle parking at key hubs to increase their catchment.

Consider preparing green travel strategies to minimise the amount of parking required.

Integrate and prioritise electric vehicle (EV) charging car spaces in key public locations.

Provide a minimum of 2 per cent of all parking spaces with EV-charging equipment (except where local controls exceed this).

Consider car share parking, with a minimum 2 per cent of all parking spaces provided for car share parking in high-density urban places.

See the DP SEPP and *Apartment Design Guide* for further guidance on parking requirements.

8.3 Consolidate access to parking, and minimise conflicts

Design and locate vehicle entrance ramps to semi-basement or basement parking so that disruption to traffic, cyclists and pedestrians is minimised, e.g. via a side street rather than the main road.

Investigate alternative ways to accommodate on-street and off-street parking to limit driveway crossovers.

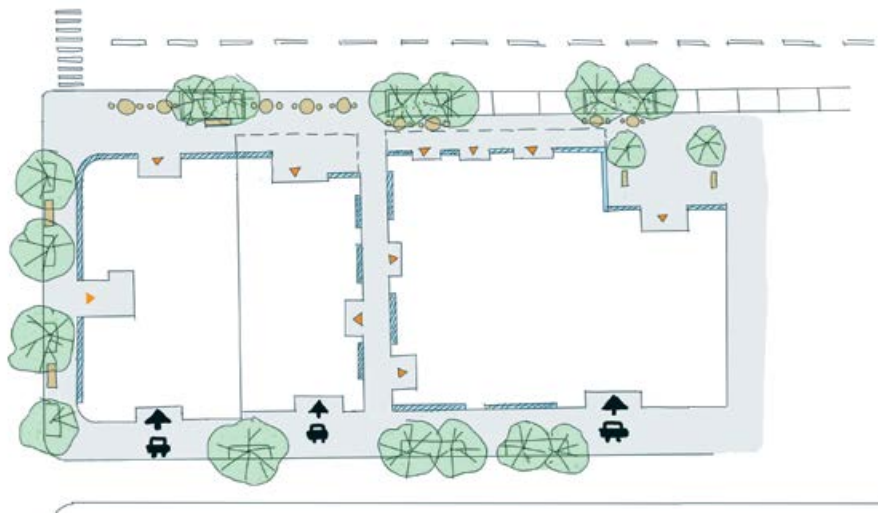


Figure 28: Vehicle access is provided away from key pedestrian spaces.

BEST PRACTICE EXAMPLES

Cycle infrastructure

Bourke Street Cycleway from Woolloomooloo to Waterloo:

- provides a 3.4-km active transport corridor across a traffic-congested area of inner city Sydney
- retains and celebrates existing mature trees and incorporates new street tree canopy
- prioritises cycling and pedestrians in a dense urban area.

Design: Pod Landscape Architecture (Group GSA) for City of Sydney Council.
Photo: CFUD Transport.

GOOD EXAMPLE OF OBJECTIVES:

1 2 4 7 9 10



8.4 Screen above-ground parking

Use sleeved parking for larger sites such as office, retail or apartments.

Sleeved parking solutions can conceal parking from public view and make the best use of outlook by locating habitable and occupied space on the perimeter of a building.

Provide sufficient depth to accommodate active uses within sleeving. As a rule of thumb, where the final use in sleeved areas is unknown, provide for a depth of around 9 to 10 m.

Provide sleeved parking with direct access from the street and not the parking lot.

Where active uses are not possible, use greening alternatives for walls and roof-sky interfaces.



Figure 29: Active uses screening above-ground car parking.

8.5 Make parking adaptable and sustainable

In neighbourhood-scale and city-scale projects, explore consolidated parking areas to allow parking to adapt and respond more flexibly to changing needs.

Encourage built form that can be readily adapted to cater for other uses over time such as:

- floor-to-floor heights that permit conversion to other uses, typically no less than 3.1m floor-to-floor for conversion to residential, and no less than 3.6 m for conversion to upper storey commercial
- using flat slab construction
- providing building depths that can cater for the insertion of courtyards
- locating ramps to the edges of parking structures
- setting back the edge of the structure to accommodate a future facade
- providing multiple building cores and access points.

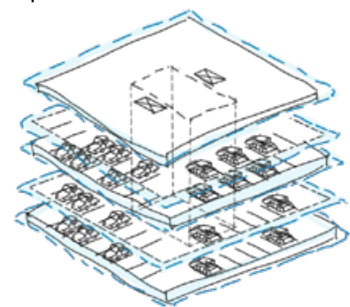


Figure 30: Flat slab construction scaled to provide for a future central void.

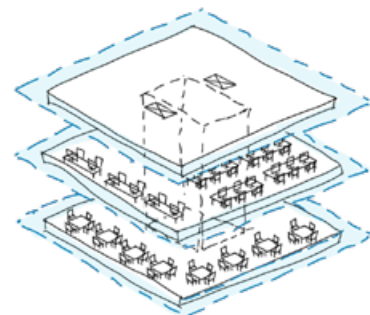


Figure 31: Generous floor-to-floor heights to cater for future changes of use.

BEST PRACTICE EXAMPLES

Urban regeneration

Sydney Park, Sydney, illustrates:

- staged investment in district parklands
- constructed wetlands on a previously contaminated site
- re-introduction of endemic species to attract local bird life
- diverse recreational opportunities.

Design: Turf Design Studio and Environmental Partnership for City of Sydney.

GOOD EXAMPLE OF OBJECTIVES:

1 2 4 7 9 10 11 12





NATURAL SYSTEM

The natural component of urban places is a system of interrelated elements including landform, soils, waterways and watercourses, ecological assets including trees and other vegetation, open spaces, vistas and views, climate, sky, wind and sun.

9.

Landscape features and microclimates enhance human health and biodiversity.

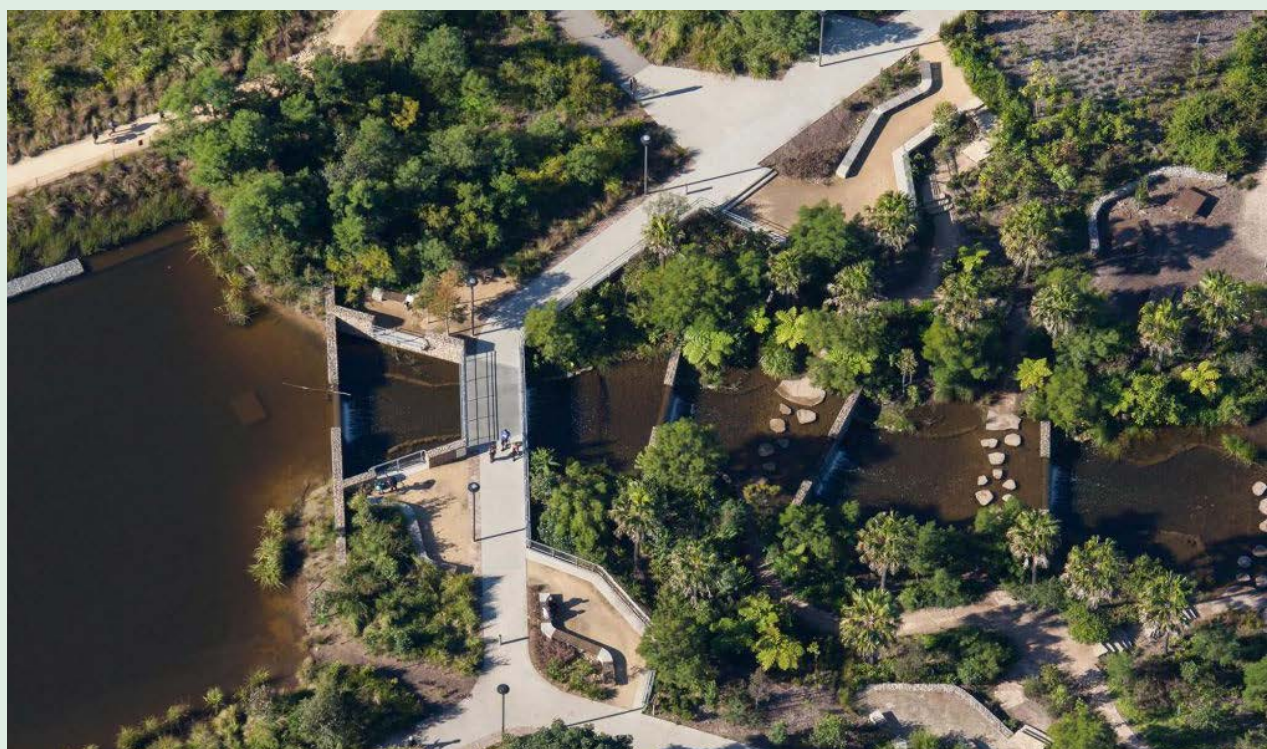
10.

Tree canopy supports sustainable, liveable and cool neighbourhoods.

11.

Water is retained and water quality improved in urban places.

Sydney Park Wetlands water re-use project by Turf Design Studio and Environmental Partnership for City of Sydney. Photo: Ethan Rohloff.





OBJECTIVE 9

Landscape features and microclimates enhance human health and biodiversity

WHY THIS IS IMPORTANT

To address and design for site-specific climatic conditions and ensure places are pleasant, inviting and memorable.

To support movement, activity and rest, and limit negative site impacts.

To ensure good thermal comfort for all ages.

To optimise the overall health and wellbeing of individuals and communities.

ASSESSMENT GUIDANCE

The proposal demonstrates adequate amenity and human comfort can be achieved.

Public open spaces include features to support human comfort and mitigate against negative sensory experiences.

DESIGN GUIDANCE

9.1 Use green infrastructure to improve human health and biodiversity

Provide trees and landscaping in public spaces as early as possible to establish long-term amenity.

Optimise local breezes and urban cooling through green infrastructure placement and street orientation to catch prevailing breezes.

Ensure landscape features are appropriate for the scale, location and use of the area.

Integrate urban greening, such as green roofs or green facades, to support urban ecology and biodiversity, reduce stormwater run-off, reduce urban heat and increase amenity.

9.2 Use nature to provide delight

Optimise key views and vistas to and along natural assets.

Use green infrastructure to mediate poor sensory experiences, such as integrating landscape features and planting to absorb noise and manage air quality.

Seek opportunities to integrate natural soundscapes and scents, such as flowing water or wildflower gardens.

Integrate water features within squares or plazas to soften noise.

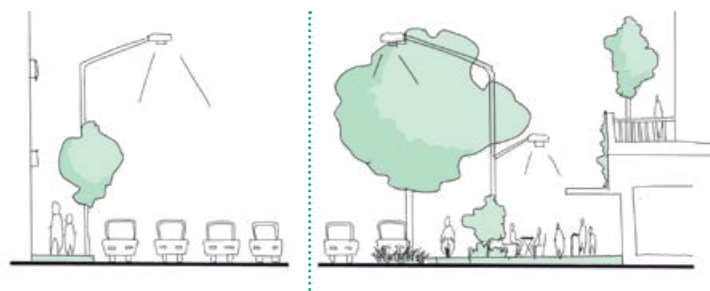


Figure 32: Examples of streets with and without supportive greening.



BEST PRACTICE EXAMPLES

Pedestrian connection

The Goods Line, Haymarket:

- provides a key strategic link and an important green space for this active part of the city
- retains significant fig trees to form green infrastructure
- provides a variety of activities along its length to cater for all generations.

Design: Aspect Studios and CHROFI.
Photo: Florian Groehn.

GOOD EXAMPLE OF OBJECTIVES:





OBJECTIVE 10

Tree canopy supports sustainable, liveable and cool neighbourhoods

WHY THIS IS IMPORTANT

To contribute to the mitigation of the urban heat-island effect.

To maximise the amenity and attractiveness of urban environments, including creating more shade and producing cleaner air.

To contribute to an integrated and connected network of green infrastructure.

To protect soil networks.

DESIGN CRITERIA

Tree canopy targets

Urban tree canopy is enhanced and supported in accordance with the following benchmarks:

Public open space tree canopy targets

Open spaces (< 5 ha) without sports courts and fields	Minimum 45% canopy cover
Open spaces (< 5 ha) with sports courts and fields	Minimum 45% canopy cover. Target applies only to areas outside the courts and fields. Where possible the area without courts and fields should exceed the 45% minimum to compensate for the areas without canopy.
Regional open space	Tree canopy is determined on a case-by-case basis. In any case, at a minimum proponents should demonstrate no net loss of canopy and a contribution to strategic canopy targets.

Street tree canopy targets

EXISTING RESIDENTIAL STREETS	OVERHEAD POWERLINES	UNDER-GROUND POWER
12–20 m reserve	Minimum 40% canopy cover	Minimum 50% canopy cover
EXISTING INDUSTRIAL STREETS	OVERHEAD POWERLINES	UNDER-GROUND POWER
20–25 m reserve	Minimum 35% canopy cover	Minimum 45% canopy cover
NEW RESIDENTIAL STREETS WITH UNDERGROUND POWER		
12–20 m reserve	Minimum 70% canopy cover	
NEW INDUSTRIAL STREETS WITH UNDERGROUND POWER		
20–25 m reserve	Minimum 60% canopy cover	

Large development tree canopy target[#]

LAND-USE CATEGORY	MINIMUM CANOPY TARGET
Residential zoned land (R1, R2, R3, R4), including streets	40%
Industrial zoned land (IN1, IN2), including streets	35%
Business zoned land (B5, B6, B7), including streets	35%
Open space (RE1), including streets	45%
Land uses not listed	Determine through site-specific analysis

[#] Use these targets for setting canopy targets for development where the street network or detailed development mix is unknown, such as for large-scale precinct planning or urban design strategies. When known, such as at master plan or concept DA stage of a project, use the targets specific to the type of development. Alternative design solutions are possible when sites are constrained (see the guidelines below).

Development category canopy targets

DEVELOPMENT CATEGORY	TREE CANOPY TARGET (% OF SITE AREA)	DEEP SOIL TARGET (% OF SITE AREA)	TREE PLANTING RATES SMALL TREE – MIN. 6 M [^] MEDIUM TREE – MIN. 8 M [^] LARGE TREE – MIN. 12 M [^]
DETACHED DWELLINGS			
Less than 300 m ²	20%	20%	For every 200 m ² of site area, or part thereof, at least one small tree
300 m ² – 600 m ²	25%	25%	For every 250 m ² of site area, or part thereof, at least one medium tree
Greater than 600 m ²	30%	30%	For every 350 m ² of site area, or part thereof, at least 2 medium trees or one large tree
ATTACHED DWELLINGS			
Less than 150 m ²	15%	15%	At least one small tree
150 m ² – 300 m ²	20%	20%	For every 200 m ² of site area, or part thereof, at least one small tree
Greater than 300 m ²	25%	25%	For every 225 m ² of site area, or part thereof, at least one medium tree
MULTI-DWELLING HOUSING			
Less than 1000 m ²	20%	20%	For every 300 m ² of site area, or part thereof, at least one medium tree
1000 m ² – 3000 m ²	25%	25%	For every 200 m ² of site area, or part thereof, at least one medium tree
Greater than 3000 m ²	30%	30%	For every 350 m ² of site area, or part thereof, at least 2 medium trees or one large tree
APARTMENTS – SEE THE APARTMENT DESIGN GUIDE			
BUSINESS PARKS			
All lots	35%	25%	For every 300 m ² of site area, at least 2 medium trees or one large tree
INDUSTRIAL			
All lots	25%	15% site area. Minimum 3 m dimension. Provide a wider contiguous portion that is a minimum 6 m wide and at least 50% of the minimum deep soil area.	For every 400 m ² of site area, or part thereof, at least 2 medium trees or one large tree
BULKY GOODS			
All lots	25%	15% site area. Minimum 3 m dimension. Provide a wider contiguous portion that is a minimum 6 m wide and at least 50% of the minimum deep soil area.	For every 400 m ² of site area, or part thereof, at least 2 medium trees or one large tree
ON-GRADE CAR PARKING ASSOCIATED WITH A BUSINESS PARK, INDUSTRIAL OR BULKY GOODS DEVELOPMENT			
Development with 5 or more car spaces	One medium tree should be planted between every fifth car parking space provided. The tree is to be in a planted zone of 13 m ² – the equivalent of a car parking bay area. Trees should be evenly distributed in a chequerboard fashion to increase shading.		

[^] mature canopy diameter

DESIGN GUIDANCE

10.1 Enhance urban tree canopy

Deliver urban tree canopy benchmarks, as set out in the design criteria for this objective. These targets should not override higher local controls.

Prioritise the retention and protection of existing tree canopy over removal and replacement of trees to achieve canopy cover.

When setting a canopy target for large development:

- ensure no net loss on the existing canopy baseline
- account for the opportunities of each development.

Deliver tree canopy for on-grade car parks by applying the development category canopy targets in the design criteria for this objective. For on-grade car parks where the benchmarks do not apply (e.g. hospitals, shopping centres) deliver sufficient canopy to mitigate the urban heat-island effect.

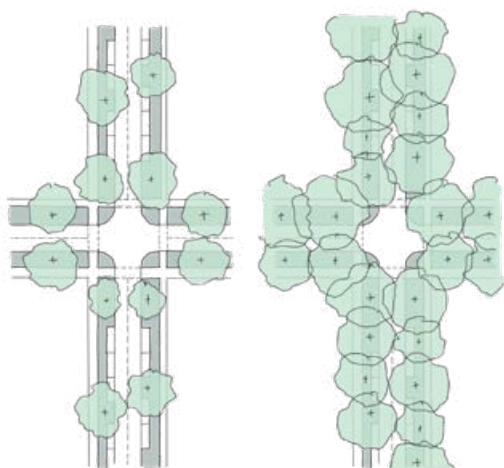


Figure 33: Examples of streets with minimal tree canopy and with UDG tree canopy.

Consider site-specific constraints and requirements when planting trees and ensure future flexibility.

For species selection, gain maximum benefits from the urban canopy by considering species suitability for the site constraints and contribution to biodiversity.

Consider the mature size of the tree canopy, assuming supportive conditions have been established.

10.2 Support urban tree canopy with deep soil

Provide sufficient deep soil to support urban tree canopy. Provide supportive conditions for vegetation and tree canopy to thrive, including contiguous deep soil and water-sensitive urban design.

Minimise barriers to tree growth by consolidating below-ground services and aligning them to paths, removing overhead cables and powerlines, and creating buffer zones.

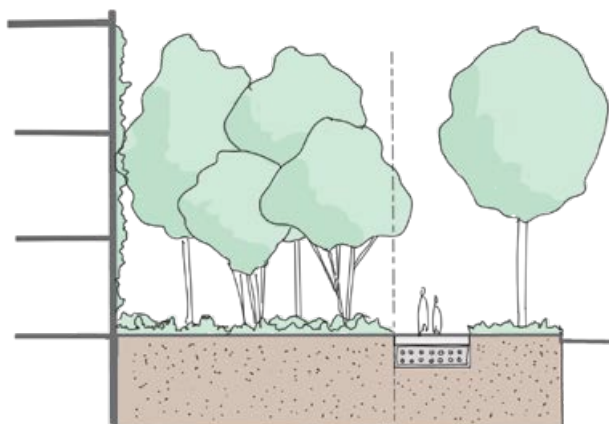


Figure 34: Support trees with sufficient deep soil and complementary greening.

10.3 Provide an interconnected soil network

Protect and integrate a network of interconnected undisturbed soil across the development that connects to the broader soil network.

Protect soils along waterways. Minimise the potential impact of creek restoration, water-sensitive urban design measures, pedestrian links, and bridges.

Minimise impact on undisturbed soil in public open spaces, including protecting soil against topographic alteration, except for localised earthworks such as for sports fields, playgrounds, or amenities.

Explore opportunities for increased continuous undisturbed soil profiles along green infrastructure corridors and in streets with generously planted verges (green streets).

Align road surfaces as closely as possible with the natural topography.

Align the surface level of private lots with the public realm.



Figure 35: Example of a street cross-section minimising cut and fill to maintaining soil networks.



Figure 36: Example of a street cross-section with an offset carriageway to retain a continuous soil corridor.

10.4 Place trees to allow for maximum canopy growth

Use tree canopy to frame significant views.

Select appropriate tree species to avoid new tree placement that blocks high-amenity views.

Place trees to allow tree growth in a balanced and healthy shape and minimise risk of pruning to an unnatural form, such as under overhead powerlines.

Consider the species and healthy mature size and shape of a tree to fit the place conditions.

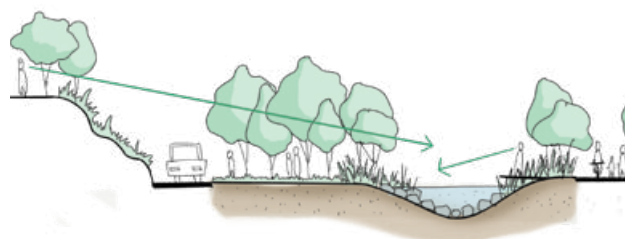


Figure 37: Integrate trees to frame views.

10.5 Ensure a diversity of street types enable tree planting

For new streets provide underground power where possible, and ample space to deliver tree canopy.

Provide the following for a typical new 20 m wide road reserve with underground power in residential areas:

- average of one large tree (10 m diameter) planted every 10 m
- street allowances:

STREET ELEMENT	INDICATIVE WIDTH
Overall road reserve	20 m
Carriageway	12 m
Verge 1	4 m
Verge 2	4 m
Typical adjoining lot widths	15 m / 24 m / 10 m
Typical driveway area	108 m ² / 8% site area

Provide the following allowance in a typical existing 15 m wide road reserve with overhead power in residential areas:

- average of either one small tree (5 m diameter) planted at 7 m intervals, or one medium tree (8 m diameter) planted at 10 m intervals, or one large tree (10 m diameter) planted every 10 m
- street allowances:

STREET ELEMENT	INDICATIVE WIDTH
Overall road reserve	15 m
Carriageway	8 m
Verge 1	5 m
Verge 2	2 m

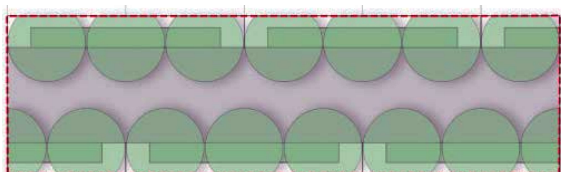


Figure 38: Typical new 20 m wide street with 70% canopy cover, with underground power, 10-m wide trees and 15 m wide adjoining lot widths.

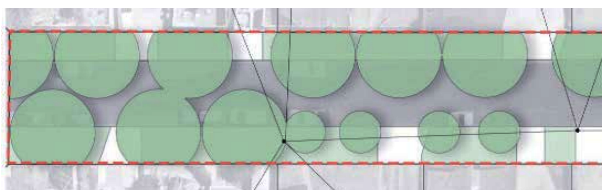


Figure 39: Typical existing 15 m wide street with 66% canopy cover, with overhead power.

Provide the following allowance in a typical existing 12 m wide road reserve with underground power in residential areas:

- average of either one small tree (5 m diameter) planted at 7 m intervals, or one medium tree (8 m diameter) planted every 10 m
- street allowances:

STREET ELEMENT	INDICATIVE WIDTH
Overall road reserve	12 m
Carriageway	5.5 m
Verge 1	4 m
Verge 2	3 m

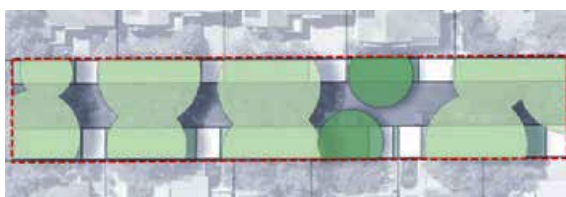


Figure 40: Typical existing 12 m wide street with 75% canopy cover, with underground power.

Alternative design solutions

Where sites are constrained (e.g. existing high-density mixed-use urban sites, existing high streets, and where there are overhead powerlines), consider greening alternatives.

Alternatives are not comparable to planting in deep soil, and if used, the quality and quantity must aim to achieve the same environmental outcomes as planting in deep soil, recognising this may not be possible on all sites.

Greening alternatives include green cover, green roofs, green walls, pergolas with climbers, podiums, planters, lawns and gardens, rain gardens, and permeable pavements.

Greening alternatives can be included on new buildings, retrofitted onto existing buildings, and can require little, if any, space at ground level.

Consider greening alternatives early in the design process to incorporate their requirements (e.g. drainage, irrigation and lighting) with other built form aspects.



OBJECTIVE 11

Water is retained and water quality improved in urban places

WHY THIS IS IMPORTANT

To reduce consumption and depletion of natural resources.

To increase water quality for human health, the environment and the recreational value of our inland and coastal waterways and wetlands.

To assist in cooling urban environments.

ASSESSMENT GUIDANCE

Water is retained in place to support urban tree canopy cover and contribute to reducing the urban heat-island effect.

Water (particularly run-off and stormwater) is retained on site or managed within the neighbourhood.

DESIGN GUIDANCE

11.1 Retain water in the landscape and contribute to urban cooling

Retain as much water in the landscape as possible.

Preference natural methods for stormwater control, integrating passive landscape elements and water-sensitive urban design.

Use water-sensitive urban design elements to support green infrastructure such as wetlands, parks, community gardens, tree canopy, corridors and bioswales to provide habitat and ecosystem services while building resilience and fostering urban cooling.

Integrate water-sensitive urban design measures such as reed beds and urban swales along green infrastructure corridors within streets and public open spaces such as parks and streets.

Support greening and reduction of urban heat by providing tree canopy in accordance with Objective 10.



Figure 41: Retain water in the landscape by integrating water-sensitive urban design measures.

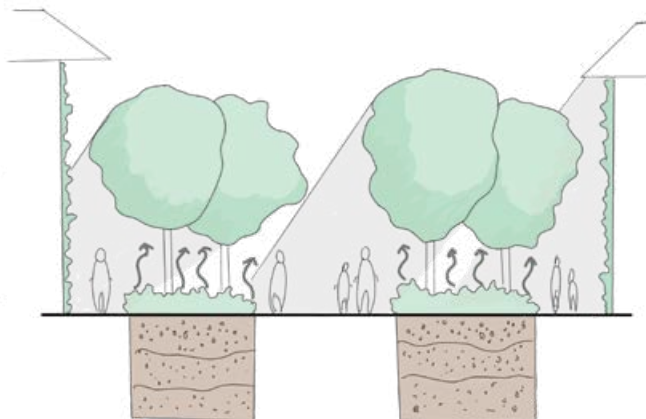


Figure 42: Integrate areas of deep soil and landscaping to assist urban cooling.

11.2 Reduce water consumption, reduce stormwater run-off and improve water quality

Reduce water consumption and contribute to water security by providing water systems that minimise use of potable water for non-potable uses and maximise water re-use.

Slow down the flow of stormwater and provide for cleaning of water on site in preference to piped stormwater infrastructure that can disrupt stream habitats and lead to erosion.

Preference natural methods for stormwater control, integrating passive landscape elements and water-sensitive urban design, such as wetlands and naturalised creek lines. See Objective 1.

Use water-sensitive design and 'soft' engineering such as swales, permeable surfaces and continuous soil networks to minimise the need for large-scale engineered water-management infrastructure.

Where large structures are necessary, such as retention basins, design these to add amenity to the subdivision and be multifunctional, cost-effective, and require only straightforward maintenance that does not place an inappropriate burden on future residents.

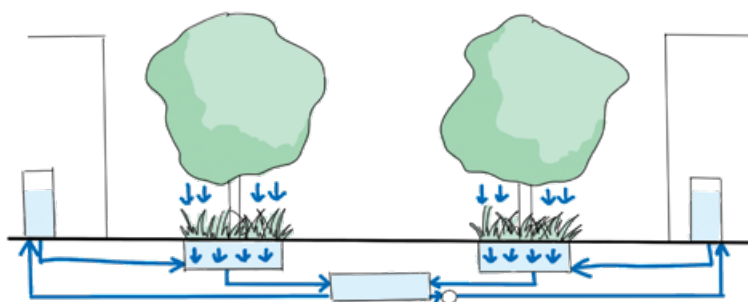


Figure 43: Integrate strategies to collect and re-use water to support green infrastructure.

BEST PRACTICE EXAMPLES

Public space for public life

Orange Regional Museum illustrates:

- response to setting including the adjacent parkland
- delivery of public space with a civic square and quality public facility
- activating the street through siting and ground floor services
- refinement of the public-private interface
- focus on entry and wayfinding.

Design: Crone Architects,
Photo: Troy Ferguson

GOOD EXAMPLE OF OBJECTIVES:

1

12

14

17

18



PUBLIC SPACE

Public space includes all places that are publicly owned, or designated for public use, that are accessible and enjoyable by all, free of charge and without a profit motive, including public open spaces, public facilities, and streets, lanes and accessways.

12.

Public open space is high-quality, varied and adaptable.

13.

Streets are safe, active and attractive spaces for people.

14.

Public facilities are located in key public places, supporting community and place identity.

Open space for recreation at Rouse Hill.





OBJECTIVE 12

Public open space is high-quality, varied and adaptable

WHY THIS IS IMPORTANT

- To create a vital network of high-quality public open space that connects town centres, public transport hubs, and residential areas.
- To create a sense of community and to encourage interaction and social cohesion.
- To ensure inclusive and equitable provision of public open space.
- To support the needs of the community by providing spaces for outdoor recreation and exercise, play, organised sport, nature and heritage appreciation, socialising, picnicking, walking and informal activities.

DESIGN CRITERIA

Public open space provision

For development over 5 ha, deliver a minimum of 15 per cent of the net developable land (NDL) as freely accessible public open space, with the majority of this as dedicated RE1-zoned land (small, local, district and linear parks). Regional open spaces are excluded from this 15 per cent calculation.

For all development, deliver open spaces of varying sizes within walking distance of all residents and workers as follows:

OPEN SPACE TYPE	MEDIAN SIZE	MINIMUM SIZE	WALKING DISTANCE (CATCHMENT)
Small park	0.45 ha	0.15 ha	200 m
Local park	2.5 ha	0.5 ha	400 m
District park	10 ha	5 ha	1,600 m
Green corridors and linear parks	15 m min. width 400 m min. length		400 m

See Appendix 2: Public open space for further detail on calculating and providing public open space, including exclusions for various site sizes and development densities.

Solar access and shading for public open space

- 50 per cent of the public open space, including public squares and plazas, has sunlight access for a minimum of 4 hours between 9 am and 3 pm on 21 June, demonstrated by shadow diagrams.
- 20 per cent of the public open space, and public squares and plazas, is protected from direct sunlight on 21 December, to provide protection against ultraviolet radiation.

Public open space is protected from adverse wind conditions, wherever possible.

DESIGN GUIDANCE

12.1 Locate public open space to be visible and connected

Protect the location of entrances and key pedestrian edges to public open space from busy roads.

Ensure public open spaces are visible from neighbourhoods and streets, and optimise the opportunity for car-free frontages where appropriate.

Positively address varying interfaces between public open space, urban edges and other natural systems.

See Objectives 17 and 18 for additional guidance on transitions and interfaces.



Figure 44: Public and private transitions are clearly defined and support incidental surveillance.

12.2 Design public open spaces that are safe and accessible for all people

Provide a variety of public open space types, to respond to the overarching local character.

Provide open space types that are inclusive and available to all (such as play spaces, youth plazas, and exercise equipment for diverse age groups).

Provide toilets and amenities located in areas of high visitation.

Provide adequate shade in accordance with Objectives 9 and 10.

Provide suitable lighting for safety and character.

Provide public open space that is free of hazards or constraints to public recreation and community use.

Locate public open space so it is not adjacent to industrial areas or utility facilities that are potentially dangerous or harmful to health.



Figure 45: Provide for a range of activities and easy, safe use.

12.3 Provide for landscaping and enhance tree canopy in public open space

Prioritise landscape repair, restoration and regeneration for ecological systems and green infrastructure corridors.

Deliver and support tree canopy in accordance with Objective 10.

Maximise tree canopy in spectator areas for sports fields and courts and along walkways and cycleways.



Figure 46: Integrate landscaping and natural systems.

12.4 Provide for sports and active and passive recreation

Through the development of a needs assessment or alignment with existing local open space and recreation strategies, provide a diversity, distribution and hierarchy of active recreation and sporting spaces such as parks and playing fields. Include a diversity of passive recreation open spaces, including civic spaces, parks and reserves, green corridors and linear parks that promote outdoor activity and street life.

Ensure the provision and diversity of sport and recreation facilities (e.g. courts, fields, exercise equipment, change rooms) meets the needs of all in the community.

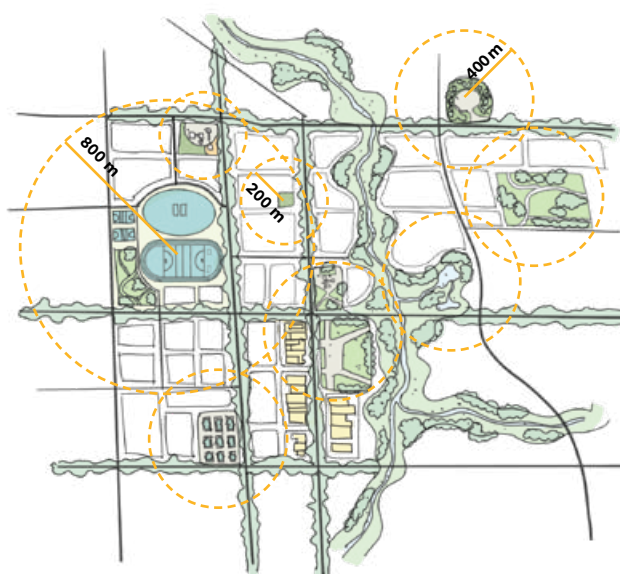


Figure 47: Deliver a range of accessible and equitably distributed public open space.

12.5 Provide flexible, adaptable and resilient public open space

Provide public open spaces that are:

- based on a detailed needs assessment of current and future requirements, in combination with the assessment of existing public open space provisions
- multifunctional, versatile and can be reconfigured to accommodate changing participation and activities
- able to be readily adapted over time.

Open spaces that are used for multiple uses such as muster points should be adaptable and resilient at times of emergency, including providing off-grid renewable energy supply and water (see Objective 19 for further guidance).

12.6 Develop design measures to protect public open space

Develop design solutions to protect existing or proposed public open space from any adverse impacts, such as overshadowing or wind.

Provide both solar access and shade to key streets and public open spaces for year-round user comfort and protection from ultraviolet radiation.

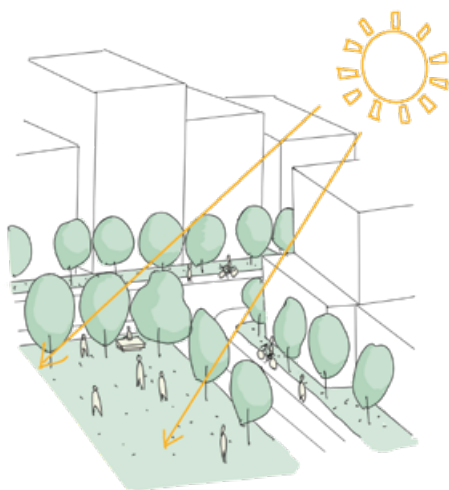


Figure 48: Protect sunlight access to public open space.

Alternative design solutions

Consent authorities may consider the 15 per cent open space criteria being partially met through existing open space located outside the development boundary, subject to a merit assessment. Any considered public open space must be within walking distance of the development, consistent with design criteria for this objective.

Consent authorities may consider the provision of publicly accessible private open space, provided it is accessible to all, free of impediment at all times of day, and appropriate management and maintenance is provided.

The provision of shade can be from natural features or human-made structures. Tree canopy should be encouraged and accepted as a design solution, however temporary built structures may be necessary to allow for tree canopy to achieve maturity.

For further detail see Appendix 2: Public open space.



OBJECTIVE 13

Streets are safe, active and attractive spaces for people

WHY THIS IS IMPORTANT

To support the safety and amenity of all users and elevate the needs of people and the community.

To create more attractive, productive and active high streets.

To deliver streets with more urban amenity and comfort that prioritise space for people.

To ensure the street design contributes to natural components of urban environments.

DESIGN CRITERIA

Street space for social interaction and comfort

Sufficient 'dwell space' is provided for activities, pedestrians, landscape and buffers in accordance with the local council requirements or as set out in Appendix 4: Street dwell space – whichever is the greater.

DESIGN GUIDANCE

13.1 Provide varied street types that respond to the street hierarchy and place qualities

Ensure that street types are varied and respond to:

- the strategic network (Objective 2)
- the land use and nature of development
- the hierarchy and role – including movement and place functions (Objective 6)
- differing characteristics of place.

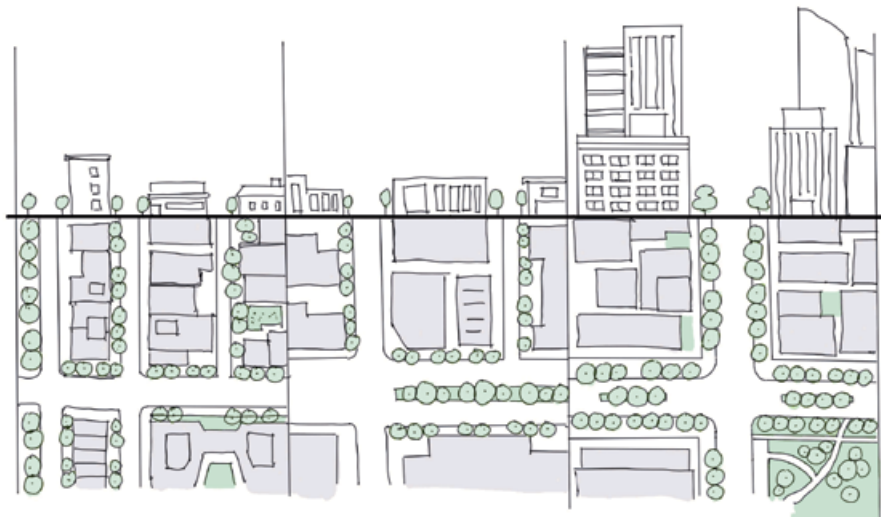


Figure 49: Street hierarchy and types respond to use and density.

13.2 Create comfortable streets that are visually pleasing and designed to encourage social interaction

Provide streets that allow for a range of activities and modes.

Provide opportunities for people to stop, rest and dwell in the streets:

- identify locations for place activities along streets, such as outdoor dining areas
- provide street furniture that supports flexible use
- incorporate benches as rest points at appropriate locations, such as every 50 m along key walking routes and in clusters in high-activity areas.

Integrate plazas, civic squares and other public spaces within the street network to connect and activate places for vibrant day and night uses.

Consider adequate solar access to key streets for human comfort and to support landscaping and street trees.

Keep the extent of the road carriageway to a minimum, where possible, so it facilitates compact neighbourhoods and doesn't visually dominate the streetscape or limit visual connections across the street.



Figure 50: Streets are generously proportioned for people.

13.3 Provide landscaped tree-lined streets that integrate services

Maximise opportunities for tree planting along new and existing streets to facilitate continuous canopy cover in accordance with Objective 10.

Design or retrofit streets to ensure trees have adequate soil volumes and sufficient dimensions, soil condition and access to water.

Ensure new streets can achieve mature tree canopy by integrating consolidated (co-located) services and locating powerlines underground.

Preference street tree species with a minimum 8 m canopy diameter, except on narrow streets.

Deliver integrated water-sensitive urban design measures in streets in accordance with Objectives 1 and 11. Consider:

- grading hard surfaces to harvest and re-use water in water-sensitive urban design elements
- using permeable pavements to support absorption, filtration and purification of run-off
- re-using run-off and wastewater to provide passive irrigation for the landscape and urban tree canopy.

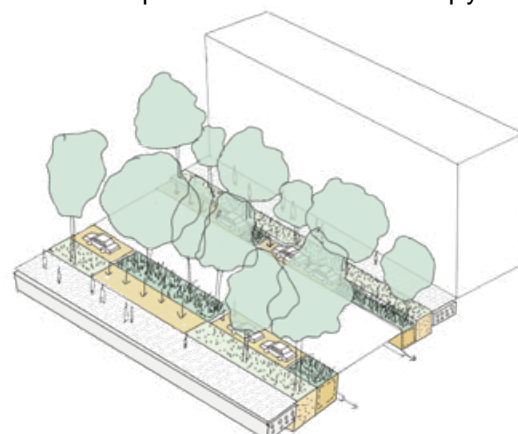


Figure 51: Integrated and co-located services maximise deep soil, landscaping and water-sensitive urban design.

13.4 Create streets which are safe, walkable, and accessible

Ensure that streets deliver legibility and ease of wayfinding with clear sightlines.

Ensure streets, paths and walkways are well-lit for safety, particularly in high-traffic areas, while avoiding glare into private residences and minimising light pollution.

Maximise opportunities for incidental surveillance of the street from adjacent land uses.

Proactively cater for walkers of all ages and abilities through measures such as level pavements, pram ramps and tactile markers at crossings, shorter crossing distances, frequent pedestrian crossings, pedestrian-prioritised traffic signals that cater for slower walk speeds, raised transitions and thresholds to minor roads, and landscape buffers to slow traffic and facilitate walking.

Consider integrating streets with shared surfaces that facilitate comfortable pedestrian movement.

Limit crossing stages and carriageways without medians to 20 m, to support people of all ages and abilities.

13.5 Design active and defined streets

Ensure the street width relates to the built form, provides solar access to the street, clearly defines the street edges, and is of a comfortable scale.

Consider the transition and interface between streets and built form to deliver activated street edges.

For development in centres or other pedestrian-oriented locations, incorporate awnings for pedestrian comfort and protection from rain, wind and summer sun.

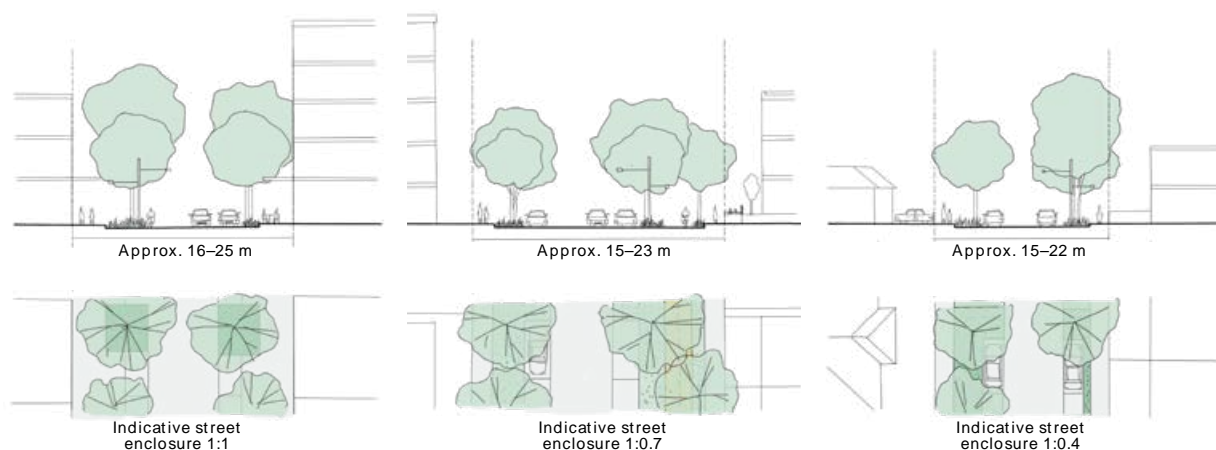


Figure 52: Local high street example – an enclosure ratio in the order of 1:1 can set expectations early in the design process.

Figure 53: Example of a local street with medium to high-density – to achieve a human scale heights may need to be limited, 6 storeys can enclose a street of 20 m to 40 m.

Figure 54: Example of a local street with low-density residential – ratios less than 0.5:1 may lack enclosure.

Alternative design solutions

Proponents may demonstrate there is sufficient space for all of the following functions:

- buffer, from buildings and fast-moving traffic
- pedestrian clear path of travel
- deep soil, wherever street trees are anticipated
- anticipated activities, such as street dining or eat streets.

See Appendix 4 for further guidance.

Where the streets by their nature allow people to stop and stand in any part of the right of way, such as shared zones, play streets or slow-speed environments that permit ‘cars as guests’, the entire right of way is considered dwell space and separate space does not need to be provided for these functions.



OBJECTIVE 14

Public facilities are located in key public places, supporting community and place identity

WHY THIS IS IMPORTANT

To provide high-quality public facilities that support community wellbeing, social cohesion and resilience.

To deliver inviting and well-used public facilities at the heart of neighbourhoods.

To ensure the long-term sustainability of public facilities.

ASSESSMENT GUIDANCE

Specialist analysis of existing and future demographic needs has been undertaken and supports the proposal — using relevant best practice benchmarks, council strategies and guidance.

Public facilities meet the needs of the existing and proposed community (which may differ by option) and are aligned with relevant strategic plans.

Public facilities are co-located with complementary uses and have direct and active interfaces with the public realm.

DESIGN GUIDANCE

14.1 Identify public facilities to meet the needs of the community

Through the development of a needs assessment or alignment with existing strategies for local community facilities, identify the public facilities required to accommodate existing and future community needs.

Provide a variety of public facilities that:

- include people of all cultures and abilities
- are designed with flexibility to cater for multiple uses and activities and for adaptability over time
- contribute to local character and sense of place.

14.2 Provide public facilities that are connected and safe

Locate and design public facilities so they are well-connected to public open space, waterways and natural systems.

Integrate public facilities into the wider public space network.

Locate public facilities to ensure their long-term viability and sustainability.

14.3 Co-locate public facilities so they activate the public realm

Co-locate public facilities with a mix of complementary uses such as public open spaces (e.g. parks, town squares, plazas), centres and other social infrastructure (e.g. schools, community centres, civic buildings, and health facilities) to:

- maximise opportunities for shared and flexible use
- contribute to neighbourhood focal points
- contribute to activation and vibrancy
- encourage use and activity throughout the day and evening.

Co-locate schools with open space, local centres, and walking, cycling and public transport networks.

Support the local night-time economy and activity in the public realm. See Objectives 5 and 18 for further guidance.



Figure 55: Co-locate public facilities with complementary uses such as schools, shops and public open space.

14.4 Make public facilities visible civic spaces

Make public facilities visible from the street, with clear and legible entries.

Provide public facilities with direct, flush connections to public space, such as the ground plane of streets or aligned with public raised courtyards.

Provide public amenities in safe and visible locations and make them accessible for people of all abilities, and parent-friendly for all family structures e.g. by providing toilets and parents' rooms.

Ensure public facilities are well-integrated into public life and support the activity of the public realm and streetscape.



Figure 56: Visible and direct interface to the public realm and connection to natural systems.



BEST PRACTICE EXAMPLES

City renewal

Newcastle East End illustrates:

- architecture from a range of designers to build character and grain
- integration with new public transport
- pedestrian-scale through-site links
- elegant architectural detailing with robust materials
- connection and sightlines to existing parkland.

Design: Durbach Block Jagers,
Tonkin Zulaikha Greer, SJB, ASPECT Studios
Photo: Brett Boardman

GOOD EXAMPLE OF OBJECTIVES:

2 15 16 17 18



BUILT FORM

Built form is the constructed environment as distinct from the natural environment. Built form encompasses all aspects of our surroundings made by people, and includes cities and towns, centres, neighbourhoods, parks, roads, buildings, infrastructure, and utilities like water and electricity.

15.

The lot layout supports green neighbourhoods and a diversity of built form and uses.

16.

There is a strong sense of place structured around heritage and culture.

17.

Scale and massing of built form responds to desired local character.

18.

Built form enlivens the ground plane and activates and frames public space.

19.

Developments use resources efficiently, reduce embodied emissions, and consider onsite energy production.

Marrickville Library establishes both civic presence and human scale through material selection and form. Design: BVN Architects with Mirvac.





OBJECTIVE 15

The lot layout supports green neighbourhoods and a diversity of built form and uses

WHY THIS IS IMPORTANT

To ensure the lot pattern responds to place.

To ensure lots are fit for purpose.

To support housing choice and diversity.

To cater for a range of lifestyles and abilities, and support aging within the community.

To deliver more varied streetscapes and neighbourhoods.

ASSESSMENT GUIDANCE

A mix of lot types and sizes is provided that supports a range of building types.

A mix of lots within each residential block is provided.

A mix of building types is provided.

DESIGN GUIDANCE

15.1 Design lots to support desired character and topography

Align lot pattern with the intended development density and character.

Design lot layouts to accommodate the appropriate building type and respond to place and climate by:

- minimising earthworks and retaining walls on sloping sites
- minimising overlooking and overshadowing
- including setbacks to the public realm and streets to enable appropriate landscape planting and to contribute to urban tree canopy in accordance with Objective 10
- maximising the ability of lots to deliver efficient and sustainable built-form massing (such as appropriate setbacks, minimising site cover, lot orientation, and deep soil provision)
- demonstrating allowable massing and proposed lot layout together
- minimising impacts of vehicle access, and the dominance of vehicle parking in the streetscape, such as providing rear-lane access to lots facing public open space, or on-street parking to lots along streets with cycle priority.

Use the location of built form to facilitate safe and efficient vehicle access without street frontages being dominated by garages, multiple wide driveways or parked cars.

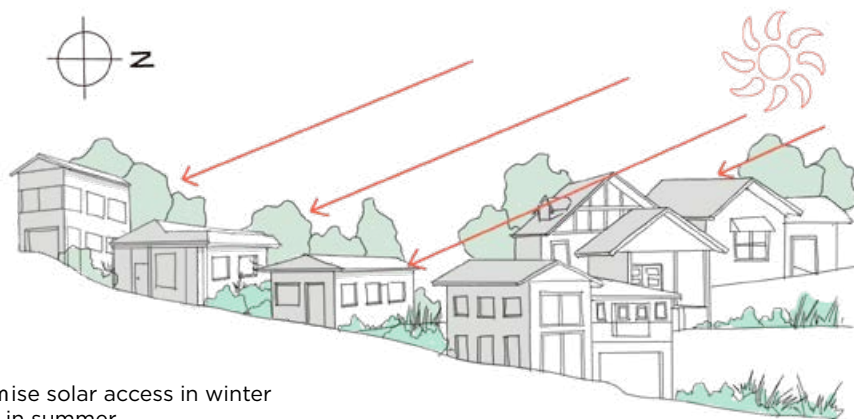


Figure 57: Lots maximise solar access in winter and consider shading in summer.

15.2 Support mixed use

Provide various uses, types and settings to create variety, activity and interest within a neighbourhood.

Design lot size and configuration to support intended retail, commercial and mixed-use development.

For large-scale lot subdivisions, produce a consolidated master plan for the location that can support the involvement of multiple developers and designers in creating diverse built form that supports flexibility over time.

Integrate large-format uses and larger lots as supporting anchors, and allow for street activation, pedestrian permeability, and integration into the adjacent land uses and street patterns.

15.3 Provide a mix and diversity of lots and buildings

For lot patterns in residential areas, include a range of lot sizes, orientations, and access arrangements to deliver a mix of building types and tenures, both across neighbourhoods and within each block.



Figure 58: Deliver a mix of lots across neighbourhoods and within each block.

In consolidated sites and higher density development, provide a mix of building types within the block, such as an apartment building on primary roads and maisonettes on side streets or mews.

Provide a mix of housing types and sizes that reflect the future needs of the community, to promote affordability for families and aging in place.

In areas of 15 dwellings per hectare (gross) or greater, aim to achieve fewer than 30 per cent detached dwellings to increase walkability, provide housing diversity, maximise the opportunity for tree canopy and landscaping on lots, and optimise land use.

15.4 Provide setbacks that support green cover and tree canopy

Scale rear or front setbacks to cater for deep soil where appropriate to support mature trees.

Ensure basements don't encroach on deep soil zones.

Where smaller lots are proposed:

- pair lots with smaller footprint and attached housing types
- consider rear setbacks of 4 m or more, to provide the same tree canopy and equivalent landscaped area as standard lots.



OBJECTIVE 16

There is a strong sense of place structured around heritage and culture

WHY THIS IS IMPORTANT

To ensure heritage buildings, cultural landscapes and places of cultural value are preserved and adapted as required.

To create living, sustainable, and resilient places through adaptive re-use of heritage buildings no longer in use, preferably for new public facilities.

ASSESSMENT GUIDANCE

Adaptive re-use of heritage buildings is considered.

Historical street patterns are considered and reinstated where possible.

Solar access is adequately protected.

DESIGN GUIDANCE

16.1 Retain and integrate elements of history to enhance the place

Retain and incorporate into the design existing built features, including built heritage, landscape and other unique features.

Adaptively re-use and activate heritage buildings that are no longer providing their former use, preferably for new public facilities.

Integrate surviving fragments of older built form and landscapes of value within the design.

Contribute to enhancing or connecting with cultural landscapes.



Figure 59: Integrate elements of heritage and history in the design of places.

16.2 Respond to existing natural and built heritage values

Where possible ensure urban grain around cultural areas is sympathetic to the existing grain of streets and paths, or the rhythm of cultural quarters, such as the orientation and scale of building clusters.

Consider the need to protect solar access to places of heritage and cultural significance to protect values, settings and materiality.

Provide positive transitions and interfaces to areas of cultural heritage in accordance with Objectives 17 and 18, including appropriate setbacks.

When designing new developments in and around existing heritage buildings and places, respect or integrate historic lot layouts, street patterns, streetscapes and landscapes into the design.

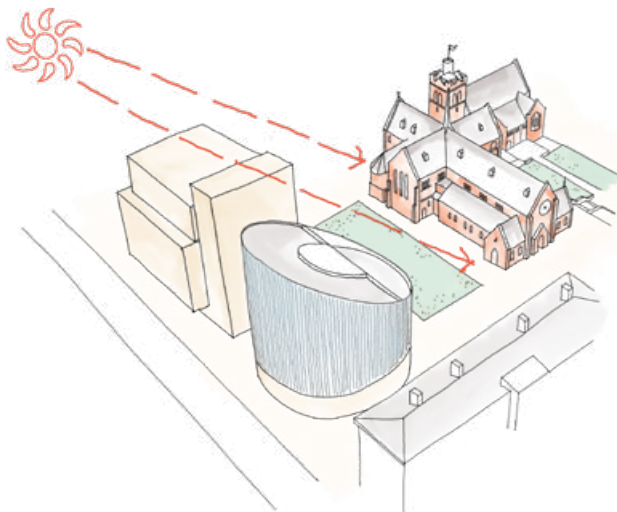


Figure 60: Protect sunlight access and the settings of heritage buildings and cultural places.



OBJECTIVE 17

Scale and massing of built form responds to desired local character

WHY THIS IS IMPORTANT

To balance built elements within the wider urban form.

To increase the quality of human experience of urban places.

To provide appropriate transitions to neighbouring areas.

To ensure different built forms are available to suit a range of uses, functions and activities.

ASSESSMENT GUIDANCE

Local conditions, datums lines and materials have informed the design of the built form.

The scale, massing and height of new development responds positively to adjoining buildings, the topography, views, vistas and landmarks to reinforce a coherent local identity.

The proposal demonstrates adequate amenity and human comfort is maintained for local public space.

Materials and detailing respond to the local character of adjacent streetscapes and parks.

Setbacks are appropriate to local conditions and deep soil (where required).

Built form elements have appropriate orientation, proportion, composition and articulation.

DESIGN GUIDANCE

17.1 Ensure built form layout responds to natural and built conditions of the place to maximise amenity

Integrate site design and placement of the buildings with natural components.

Locate building platforms above 100-year flood levels and overland flow paths.

Maximise solar amenity through siting and design of built form to protect communal and public open space and avoid artificial and engineered solutions.

Consider how built form can ameliorate existing adverse wind conditions and ensure appropriate wind comfort levels at the ground plane.

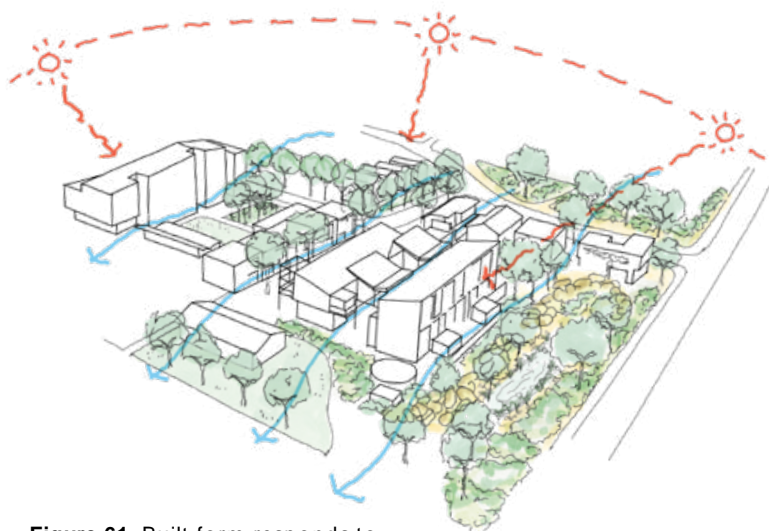


Figure 61: Built form responds to climate to maximise amenity.

17.2 Manage built form (scale and massing) transitions at edges and within the development to fit the context

Ensure the scale of the built form is appropriate for the context.

Consider the impact of development on the skyline.

Provide low-scale interfaces to low-density residential uses.

Transition heights incrementally according to a coherent height strategy that fits within the broader urban pattern.

Use sensitive scale and massing to respond to significant heritage buildings and places of cultural value.

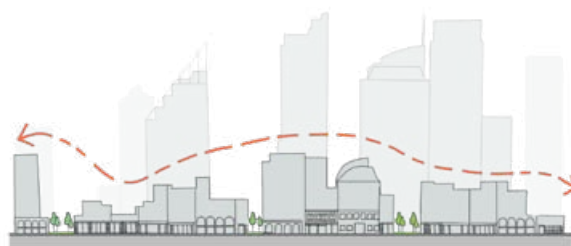


Figure 62: Ensure well-considered transitions in scale and skylines.

17.3 Consider human scale

Design street wall heights that contribute to a human-scale public realm, respect the massing and pattern of existing neighbourhoods, and align with the project vision. For example, street walls of a maximum of 4 to 6 stories overlooking public open space can define the edges of the public space and enable building occupants to communicate with people on the street. This can encourage a sense of community and connection with the public realm.

Consider upper level setbacks and appropriate building separation to respond to the scale of the context (including the streets) and enhance the human experience of places.

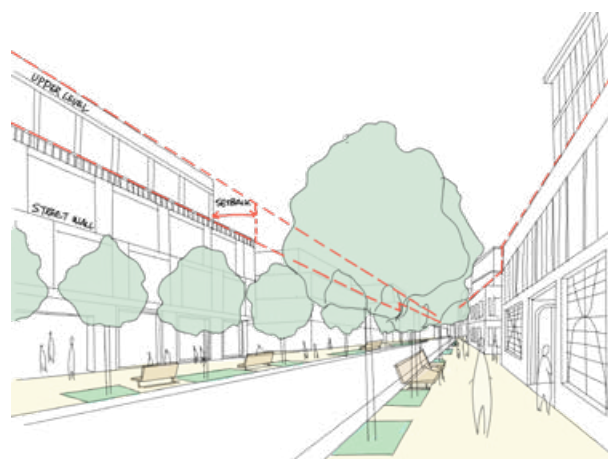


Figure 63: Scale and massing of interfaces with the public realm is human scaled.

17.4 Design massing and setbacks appropriate for adjacent public space

Make built form setbacks appropriate for the land use and density.

Consider different setbacks for the ground level, street wall and upper levels of buildings to activate and define public space, particularly main streets and public open space.

Ensure the building scale is appropriate for the adjacent elements, e.g. massing along streets and adjoining open spaces.

Consider views to the sky.

Use massing to respond to local conditions such as terminating views or landmark buildings, with additional height or variation in orientation and setbacks.

17.5 Create positive climatic conditions through layout, siting and appropriate built form

Use layout and building envelopes to positively respond to local climate and positively shape microclimates. For example, locate built form to the west of major public spaces to provide an eastern aspect over public open space and protection from western sun.

Locate built form to channel prevailing winds to maximise opportunities for natural ventilation. Avoid creating wind tunnels or local wind pockets below tall buildings.

Ensure prevailing winds are suitable for the intended uses of spaces.

The following wind comfort standards can be used to define acceptable (healthy and safe) levels of wind speed based on the intended use, such as:

- for sitting – 4 m per second
- for areas with both sitting and standing – sitting 4 m per second and standing 6 m per second
- for walking – 8 m per second.

Wind standards are measured as an hourly mean wind speed, or gust equivalent mean wind speed, whichever is greater for each wind direction, for no more than 292 hours per year measured between 6 am and 10 pm Eastern Standard Time (i.e. 5 per cent of those hours).



Figure 64: Street and upper level setbacks are appropriate for the place and conditions.

Consider using modelling to validate the future microclimates.

Minimise noise through a range of means and scales from appropriate land-use distribution, sensitive built form layout and massing, and building treatments and materials.

See Objective 18 for further guidance on built form response to place.

17.6 Ensure site coverage provides a balance of indoor and outdoor space

Use compact building footprints that provide adequate private outdoor space and retain deep soil for tree canopy.

Consider setting site coverage controls tailored to suit the scale and type of the built form. For example, low-density residential development with detached housing is generally in the order of 50 to 70 per cent. See the *Apartment Design Guide* for further guidance on residential apartment buildings.

Ensure site coverage considerations align with strategies identified at the block scale such as setbacks and consolidated planting areas.

17.7 Use materials that are appropriate for the local area and will reduce urban heat

Use building design and detailing, including materials, to complement the desired character of adjacent public space.

Where there is a local vernacular, respond to it, e.g. design a brick infill building, or consider material of a comparative scale and texture, in a predominantly brick street wall.

Incorporate low albedo materials and light colours for surfaces, especially roofs, together with urban tree canopy to reduce urban heat. See Objectives 9 and 10 for further guidance.



OBJECTIVE 18

Built form enlivens the ground plane and activates and frames public space

WHY THIS IS IMPORTANT

To deliver built form that encourages and complements public life at the ground plane.

To deliver a safe and lively public realm for the community.

To increase the quality of people's lived experience of urban places.

ASSESSMENT GUIDANCE

Built form frontages to main streets, neighbourhood centres, and public open spaces are fine grain and provide active frontages.

Materials make a positive contribution to the public realm.

DESIGN GUIDANCE

18.1 Design public-private interfaces to support the public realm

Where buildings adjoin public space and streets, clearly frame spaces and contribute to activation and natural surveillance.

Provide a clear delineation of ownership and consider the transitions between public and private space. This can be achieved using clear thresholds, articulated entries, and changing the materials or the thickness and depth of building facades.

When sleeving big-box uses and above-ground car parking, use smaller scale uses that can enhance and activate interfaces with the public realm. Active uses can increase the streetscape's vibrancy and quality and increase the transparency of the built form interface with the street. See Objective 8 for additional guidance on sleeving.

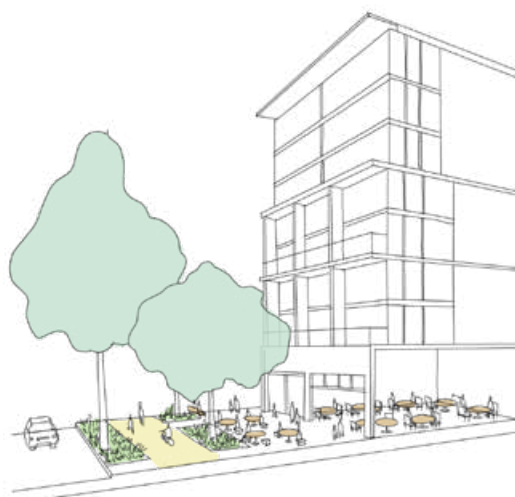


Figure 65: Design interfaces at the ground plane to contribute to, and support, public activity.

18.2 Vary and articulate built form

Provide interfaces to the public realm that contribute to the overall articulation, variation, visual interest and amenity.

Vary and articulate built form to:

- provide breaks in massing along streets
- address corners
- terminate vistas
- provide openings and protrusions such as windows, entries, balconies, awnings, canopies and transparent facades
- provide varied facade treatments and materials, particularly on larger facades, and reinforce the vertical rhythm of streetscapes.

Use varied and articulated roof forms and make use of roofs for activities, greening and renewable energy generation. Ensure built form controls permit articulation, roof access and productive use of roofs. Consider the visual interest and treatment of roofs when viewed from other buildings.

18.3 Design active frontages

Use fine-grain non-residential frontages to activate key interfaces, such as main streets and edges to plazas, squares and parks.

For retail and commercial development, provide active street frontages (entrances and glazed shop fronts) at ground level at the same general level as the footpath. Generally, aim for active frontage for around 80 per cent of the length of glazed frontages or 70 per cent of the total facade (excluding sills and structure).

Make ground floor uses directly accessible from the street.

For residential interfaces, provide pedestrian entries to individual dwellings or apartments and delineate the boundaries of public and private spaces through transitions such as landscaping, semi-transparent fencing, and raised courtyards.

Minimise blank walls, loading docks and service areas on key interfaces. Where unavoidable, mitigate visual impacts e.g. using narrow entrances and screening. For apartment buildings further guidance is available, see the *Apartment Design Guide*.



Figure 66: Provide transparency of non-residential frontages to maximise incidental surveillance and connections.

18.4 Integrate services and infrastructure

Integrate and consolidate services to minimise impact on the public realm. For example, co-locate service cabinets internal to loading, waste or parking areas where possible, and conceal servicing infrastructure within landscaping or adjacent buildings where practicable.

18.5 Consider the impacts of material choices

Use materials that are durable, low-maintenance and fit for purpose.

Use high-quality materials, and consider scale and tactility and how the materials contribute to human engagement with the place.

Avoid materials and facade treatments that result in unacceptable levels of glare or other negative effects.

Avoid ground level interfaces such as louvres and grills that diminish the human experience of the streetscape.

Articulate long lengths of glazed facades at ground level, e.g. with window frames or entrances.

Consider materials and operational requirements so interfaces can be maintained and are adaptable to changes in use over time.

See Objective 17 for guidance on using materials that are appropriate for the local area and will reduce urban heat.



Figure 67: Consider enclosures and orientations of services to minimise visual intrusion on the public realm.



BEST PRACTICE EXAMPLES

Residential greenfield development

Renwick, Mittagong illustrates:

- a new suburb which responds to its place
- a diversity of housing types within a regional setting
- high quality community amenity development which supports healthy living.

Design: Gilles Tribe Architects (masterplan), MHP Architects in association with Allman Johnston Architects (building)
Photo: Landcom

GOOD EXAMPLE OF OBJECTIVES:

1 3 5 7 12 13 15 16 18



OBJECTIVE 19

Developments use resources efficiently, reduce embodied emissions, and consider onsite energy production

WHY THIS IS IMPORTANT

To reduce energy consumption and depletion of natural resources.

To promote sustainable development.

To promote and deliver technologies and smart solutions that enrich daily living and make it more sustainable.

ASSESSMENT GUIDANCE

The proposal is a sustainable development.

The development has considered and committed to emissions targets through to implementation and considered onsite renewable energy equivalent to 20 per cent of the annual electrical energy demand.

Smart technologies and infrastructure have been integrated into the development.

DESIGN GUIDANCE

19.1 Reduce energy consumption and support renewable energy generation

Prioritise passive means for reduction of energy consumption, such as site and building orientation, solar shading, and material choice and composition, in order to reduce reliance on mechanical systems for heating and cooling.

Create opportunities to provide onsite renewable energy generation and storage.

Consider commitments to meet onsite renewable energy targets with the development.

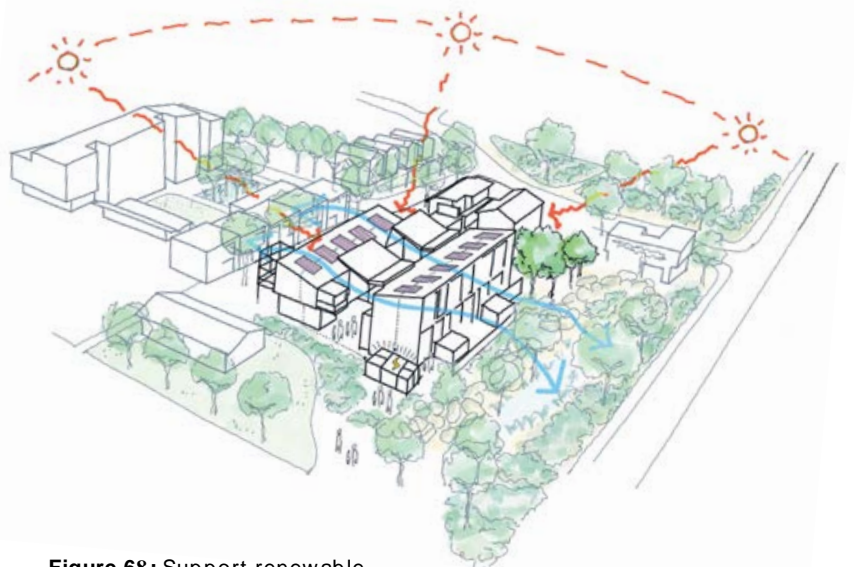


Figure 68: Support renewable energy generation at the building and neighbourhood scale.

19.2 Deliver net zero emissions neighbourhoods

Deliver net zero emissions in alignment with NSW Net Zero Plan objectives for all scales of new development (prioritising efficiency first, electrification through renewables, and elimination of reliance on fossil fuels).

Integrate holistic strategies across the 5 components of urban environments to deliver net zero emissions (urban structure, movement and connection, natural system, public space and built form).

Plan for infrastructure that enables the transition from gas to low-emissions intensive options.

Support EV-ready development. See Objective 8.

19.3 Minimise embodied carbon in materials

Reduce embodied carbon in infrastructure and built form through preferencing low-emissions materials, re-use of existing materials, or locally made materials that support the circular economy.

Disclose the embodied carbon emissions associated with the development, any commitments to environmental product declarations (EPDs) and Forest Stewardship Council (FSC) certification. Disclose whether a life-cycle assessment has been prepared and any associated data.

19.4 Consider integrating smart technologies and solutions

Design neighbourhoods so they are readily able to accommodate advances and developments in technology.

Wherever possible, consider smart monitoring equipment e.g. for water quality, ambient temperature, tree canopy cover, soil moisture and movement networks (walking, cycling, car use etc.).

Consider technology that will support efficient and sustainable operation of new infrastructure over time, such as transitions to 'intelligent' street lighting or smart metering to homes.

In key public open spaces, consider installing:

- smart lighting
- a dedicated internet/fibre connection point
- public wi-fi
- security measures
- smart bins with capacity sensors
- smart street furniture with USB charging, wi-fi etc.

PART THREE

Implementing good urban design practice

Sandpit and shaded walkway at
Pirrama Park Playground, Pyrmont,
by Aspect Studios with Hill Thalix.

3.1

The importance of good urban design process

Good urban design is intended to deliver well-designed urban environments through a collaborative and coordinated effort by multiple professionals and stakeholders, including the community.

An effective process to achieve good urban design is vital as it will ensure:

- clear and transparent expectations are identified for both designers and assessors
- design justification, testing and refinement are achieved through an iterative process, starting from the early establishment of design intent and vision
- design is aligned with strategic planning, and the design process is streamlined with the assessment process
- the urban design response is genuinely place-based and has a distinctive local character
- the involvement of stakeholders and assessors in the design process provides progressive certainty for development.

3.2

The process in practice

Urban design process outputs

The outputs of each phase of the urban design process build a clear line of sight from definition of the case for change, place analysis, setting the vision and design intent, design development including scenario and detailed options testing, refinement and finalisation of the design. Together, the urban design process outputs form a clear narrative about the evolution of the design, to be submitted as part of the design verification statement for development applications.

The level of detail required from the outputs of each phase of the urban design process will vary depending on the context, scale, complexity and the nature of each project.

Integrated urban system and accessible open space at Bungarribee Parkland and Shelters. Design: Stanic Harding and JMD Design. Photo: Simon Wood.

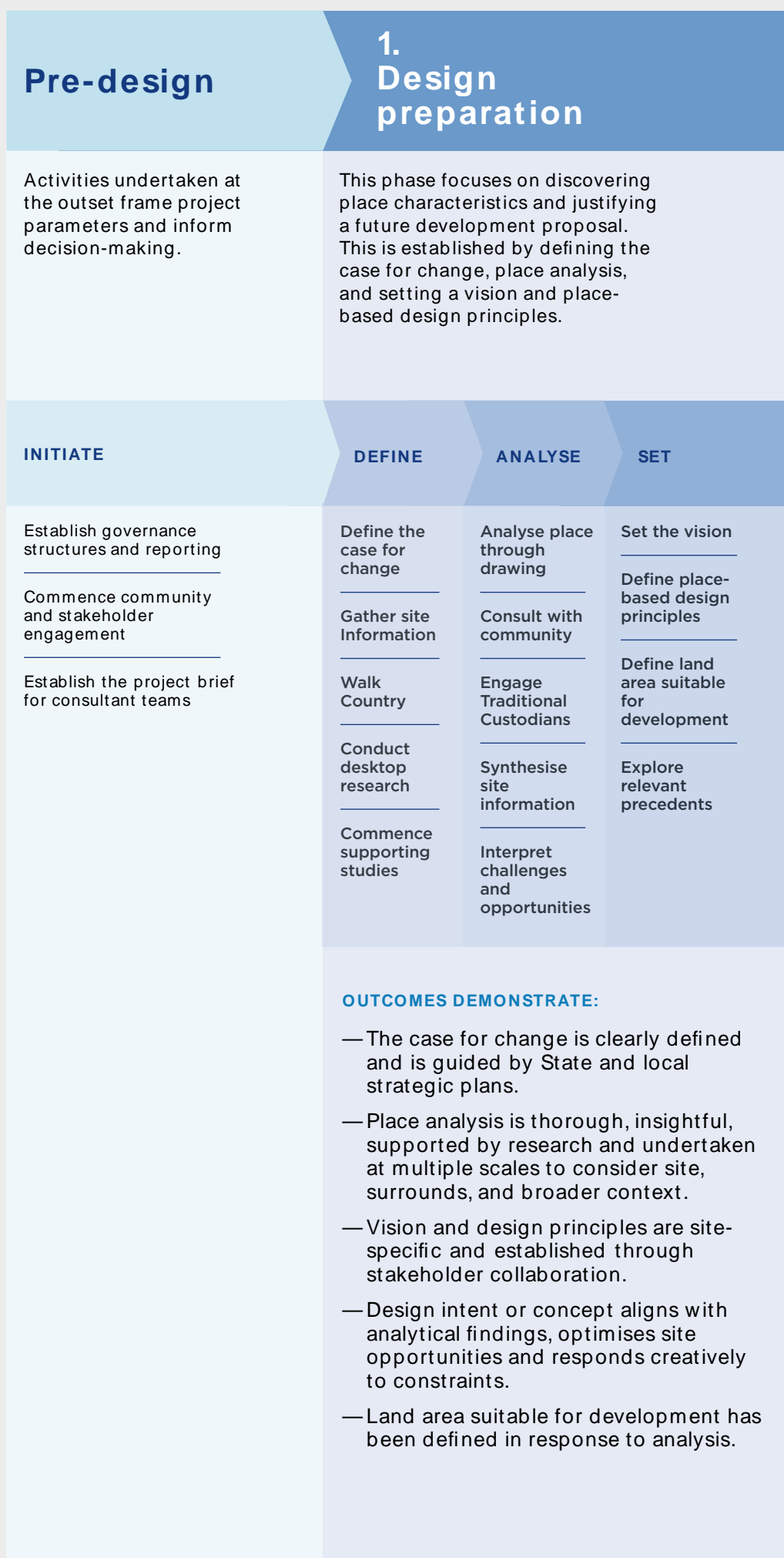


3.3

Good urban design process

Good urban design process is iterative and comprises 3 core phases. Key activities that occur before and after the core design process should also be considered and integrated into the overall approach.

Figure 3.1:
Urban design process overview



2. Design development

This phase focuses on exploring opportunities by developing various design scenarios to test different ways to deliver the design intent. This testing informs rigorous decision-making to result in a preferred design.

3. Design delivery

This phase focuses on refining and delivering the design proposal. The design will evolve through detailed testing and documentation and by considering implementation and phasing. Supporting documents are developed concurrently.

Post design

Post-design processes allow authorities and proponents to implement urban design effectively. Measurement and monitoring enable evaluation over time.

EXPLORE

Identify gaps and emerging opportunities

Collaborate across the team

Integrate specialist inputs

Develop a reference scheme

Develop and test scenarios

Participate in design review

Workshop proposal with stakeholders

DEVELOP

Communicate ideas to stakeholders

Develop a preferred proposal

Develop and test detailed options

Respond to feedback

Determine and refine the preferred design approach

TEST

Test against objectives, principles and vision

Test against specific requirements and metrics

RESOLVE

Integrate design review panel advice

Refine and resolve the design at various scales

Document the design for assessment

IMPLEMENT

Incorporate requirements for approval

Complete final documentation

Check design intent is maintained throughout

Employ design assurance strategies

Plan for implementation and staging

MONITOR

Monitor how public spaces and natural systems are managed

Monitor how the community uses and adopts design initiatives

Monitor energy generation and offsetting outcomes

EVALUATE

Evaluate business proposals

Evaluate emissions reduction strategies

Check construction and operational waste over time

Commission post-occupancy evaluations

OUTCOMES DEMONSTRATE:

- The reference scheme has been established.
- A range of scenarios have been workshopped with stakeholders and tested against the reference scheme.
- The preferred design approach has taken into account preceding analysis and testing, and is the optimal solution for the place.
- Supporting urban framework layers are communicated to inform decision-making.

OUTCOMES DEMONSTRATE:

- The proposal has evolved from the preceding phases and design intent is maintained. Key benefits and initiatives have been realised.
- Detailed options have tested specific limitations or issues to inform the refined proposal.
- The proposal is resolved at multiple scales via plan, section, model and visualisations, with detail sufficient for the project's size and complexity.
- Supporting documentation is evident including application requirements set by the consent authority.
- Design review panel advice has been addressed.

3.4 DP SEPP and UDG requirements

Application requirements for development applications

The urban design process and its outputs form a clear narrative revealing the design intent and evolution of the design, to be submitted as part of the design verification statement.

Further guidance on application requirements is set out in Table 3.1.

Planning proposals

A Ministerial direction under section 9.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) requires that planning proposals greater than 1 hectare consider the DP SEPP and the UDG.

Planning proposals are required to demonstrate how the principles and considerations of the DP SEPP and the objectives of the UDG have been met in the proposal.

Table 3.1: Typical urban design development application requirements

TYPICAL URBAN DESIGN DEVELOPMENT PROJECTS	SUPPORTED BY STRATEGIC PLANNING	APPLICATION REQUIREMENTS		
		MASTER PLAN	DEVELOPMENT CONTROL PLAN (DCP)	DESIGN VERIFICATION STATEMENT*
	This includes the district / regional plans, local strategic planning statement and supporting local strategies.	A master plan illustrates the built form intent of a development and should be informed by the UDG. Master plans may be included in a range of proposals to illustrate the design intent.	A site-specific DCP defines how the development strategy will be implemented and should be informed by the UDG. The DCP sets the development controls to guide future master plans and development applications.	The design verification statement is a formal application requirement, prepared by a qualified urban designer, to demonstrate how each objective of the UDG has been achieved.
State significant development	No	Case for change requires further justification		
	Yes		~	
Subdivision development applications	No	Case for change requires further justification		
	Yes		~	
Development applications	No	Case for change requires further justification		
	Yes	~	~	

LEGEND

Required by the consent authority
Level of detail and applicability to be defined on a project-specific basis, as required by the consent authority

* New Requirement



BEST PRACTICE EXAMPLES

Iconic architectural design

The Exchange in Darling Square illustrates:

- bold architectural design aimed at creating a landmark building
- public and commercial uses
- activated ground plane
- integrated through site links
- siting to optimise vistas throughout the precinct to and from the building.

Design: Kengo Kuma Architects
Photo: Martin Mischkulnig.

GOOD EXAMPLE OF OBJECTIVES:

1 5 6 12 14 16 17 18

APPENDIX 1

APPLICATION REQUIREMENTS

Design verification statement – template

This template can be used as a guide to help design teams prepare a design verification statement for urban design development. Under the Environmental Planning and Assessment Regulation 2000, this statement is required to be submitted to the consent authority as part of a development application or planning proposal where the Urban Design Guide applies.

Project overview

DEVELOPMENT PROJECT:	
Project address:	<i>Insert address here</i>
Lot reference number(s):	<i>Insert lot details here</i>
COMPANY	
KEY CONTACT DETAILS (NAME, POSITION, EMAIL AND PHONE)	
Applicant's name and contact details:	<i>Applicant</i>
Developer team names and contact details: Consultant team names, firm, contact details and registration number (where applicable)	<i>Developer</i>
	<i>Urban designer</i>
	<i>Landscape architect</i>
	<i>Planner</i>
	<i>Specialist consultant 1</i>
	<i>Specialist consultant 2</i>
Landowner(s)	<i>Landowner 1</i>
	<i>Landowner 2</i>
	<i>Landowner 3</i>
Urban designer's qualification:	<i>Insert a brief statement outlining the qualifications and relevant experience of the urban designer.</i>

Urban designer's statement

I confirm that I was responsible for designing the development, and that the development is consistent with the relevant principles of *State Environmental Planning Policy (Design and Place) 2021*(DP SEPP) and the objectives of the *Urban Design Guide* (UDG).

Signature of urban designer

____ / ____ / ____
Date

Demonstration of good urban design process

The table below demonstrates the quality of the urban design process. It describes the methods used for the urban design process, and how this process has informed a preferred design approach.

Evidence is either provided in this table, or a reference is provided to explain where the evidence can be found. The evidence could be drawings, reports, tables, maps or images.

GOOD URBAN DESIGN PROCESS	DESIGN RESPONSE
Case for change	<i>Describe the case for change, including any reference to strategic planning documents, local and state strategies and policies, and any existing master plans or place strategies that inform the development.</i>
The vision	<i>Define the project vision and the place-specific design principles. Outline the process used to establish these, with particular reference to place analysis and community and stakeholder engagement processes. Provide cross-references to place analysis, research and stakeholder engagement reports where relevant.</i>
Place-specific design principles	<i>Describe how the vision and place-specific design principles have been maintained or amended over the life of the project, and how these have been realised in the preferred design proposal.</i>
Land area suitable for development	<i>Define the land suitable for development, including the process used to determine this. Provide cross-references to the design for resilience statement and other supporting evidence where relevant.</i>
Response to design review	<i>A template for responding to advice from a design review panel is included in the Local Government Design Review Panel Manual, and may be appended to this design verification statement to demonstrate how the design review panel advice has been addressed.</i>

Design response to the UDG objectives

The table below describes how the proposed development meets the UDG objectives – by following the UDG design guidance or by using alternative solutions. The table demonstrates how the proposed development balances all the UDG objectives to provide the best possible design response. Cross-references are provided to supporting evidence including drawings, reports and diagrams.

Meeting the DP SEPP principles

Meeting the UDG objectives also ensures the 5 DP SEPP Principles are met:

- Principle 1:** Deliver beauty and amenity to create a sense of belonging for people
Considerations: Overall design quality; comfortable, inclusive and healthy places
- Principle 2:** Deliver inviting public spaces and enhanced public life to create engaged communities
Considerations: Culture, character and heritage; public space for public life
- Principle 3:** Promote productive and connected places to enable communities to thrive
Considerations: Vibrant and affordable neighbourhoods; sustainable transport and walkability
- Principle 4:** Deliver sustainable and greener places to ensure the wellbeing of people and the environment
Considerations: Green infrastructure; resource efficiency and emissions reduction
- Principle 5:** Deliver resilient, diverse places for enduring communities
Considerations: Resilience and adaptation to change; optimised and diverse land use

UDG OBJECTIVES		DP SEPP PRINCIPLES			DESIGN RESPONSE INCLUDING CROSS-REFERENCES TO SUPPORTING EVIDENCE
URBAN STRUCTURE	1. Projects start with nature, culture and public space	1	2	4	Describe how the proposed design meets each objective with reference to the design criteria and guidance for each objective in the UDG.
	2. District and local routes provide transport choice and accessibility		3		
	3. Compact and diverse neighbourhoods connect to good amenity	1	3	5	
	4. Place-based risks are mitigated and ecological values sustained to ensure resilient communities			4 5	

	UDG OBJECTIVES	DP SEPP PRINCIPLES			DESIGN RESPONSE INCLUDING CROSS-REFERENCES TO SUPPORTING EVIDENCE
MOVEMENT AND CONNEC- TION	5. Walkable neighbourhoods are vibrant and productive	2	3		
	6. Block patterns and fine-grain street networks define legible, permeable neighbourhoods	2 5	3		
	7. Walking and cycling is prioritised, safe and comfortable for people of all abilities	1	3		
	8. Parking is minimised, adaptable and integrated		3	4	
NATURAL SYSTEM	9. Landscape features and microclimates enhance human health and biodiversity	1		4	5
	10. Tree canopy supports sustainable, liveable and cool neighbourhoods	1		4	5
	11. Water is retained and water quality improved in urban places			4	5

	UDG OBJECTIVES	DP SEPP PRINCIPLES					DESIGN RESPONSE INCLUDING CROSS-REFERENCES TO SUPPORTING EVIDENCE
PUBLIC SPACE	12. Public open space is high-quality, varied and adaptable	1	2				
	13. Streets are safe, active and attractive spaces for people	1	2	3			
	14. Public facilities are located in key public places, supporting community and place identity	1	2				
BUILT FORM	15. The lot layout supports green neighbourhoods and a diversity of built form and uses		2		4	5	
	16. There is a strong sense of place structured around heritage and culture	1					
	17. Scale and massing of built form responds to desired local character	1					
	18. Built form enlivens the ground plane and activates and frames public space	1	2	3			
	19. Developments use resources efficiently, reduce embodied emissions, and consider onsite energy production						

APPENDIX 2

PUBLIC OPEN SPACE

This section provides further guidance on how to calculate and provide the public open space benchmarks in the UDG.

What is it?

Public open space is any open space that is publicly owned and accessible and that is planned and managed by the local, state or federal government for the community.

It encompasses parks, natural areas and linkages, foreshore areas, informal parkland, sportsgrounds and courts, children's playgrounds, active transport corridors, waterways and riparian corridors, historical sites, formal gardens, and linear walking, cycling and equestrian tracks.

Public open spaces are used for a broad range of cultural and health-related activities, including outdoor recreation and exercise, organised sport and physical activity, appreciation of nature and heritage, socialising, picnicking, walking, informal group activities, providing visual and landscape amenity, as well as biodiversity and fauna conservation.

Open space types and settings include:

- natural areas of bushland and waterways, including linkages and foreshores (creeks, rivers, lakes, wetlands, beaches)*
- parklands and gardens
- sportsgrounds (field and courts)
- civic plazas and squares
- rooftops and podiums of public facilities*
- streetscapes and shared zones*
- walking and cycling trails.

These types of open space contribute to the network of local, district and regional public open spaces.

*These open space types are not included in the 15 per cent public open space requirement.

What can be included in the public open space provision?

Two types of parks can be combined to achieve the 15 per cent public open space provision. Both types must be represented:

- parks, including district and local parks; in medium and high-density areas, small parks are also required
- linear parks and green corridors.

Requirements for public open space to contribute to the 15 per cent provision include:

- quantity:** size and distribution must be in accordance with the relevant density and development site size. See UDG Objectives 5 and 12 for details.

Open space provision must also consider:

- quality:** site selection, open space uses, amenity and comfort, inclusivity, accessibility and safety
- connectivity:** for recreational, ecological and tree canopy benefits
- public amenity:** accessibility, usability, and recreational benefit.

Provision of regional parks and metropolitan parks is considered in addition to the 15 per cent. They provide for a much larger catchment of the community and require planning at a metropolitan level and are therefore not expected to be delivered by development proponents.

The following list of open space land types (often zoned RE1) are excluded from contributing to the 15 per cent open space provision:

- drainage swales, detention basins, large waterbodies
- high-voltage powerline easements and land with limited recreational value due to easements
- inaccessible or fenced-off land
- biodiversity protection areas
- protected riparian corridor buffer zones
- road verges
- open space with little or no recreational benefit.

Open space must be located on safe land with clear and continuous public access.

Criteria for dual-use land

For areas of flood-prone land and riparian corridors, open space can be established but cannot exceed more than 10 per cent of the total provision of public open space.

(For example, if 100 ha of public open space are provided, then no more than 10 ha can be dual-use public open space.) For public open space provision, dual-use land must meet the following criteria:

- All public open space provided on dual-use land meets Objective 12: Public open space is high-quality, varied and adaptable.
- All public open space is freely and publicly accessible at all times, and available for use at all times.
- Any additional cost burden associated with delivering dual-use public open space is borne by the proponent.
- Active formal recreation (hard courts, sports fields etc.) are not located in these areas. All public open space infrastructure is designed and constructed to meet the requirements of the consent authority for flood management.
- All public open space is sited and designed to ensure user safety.
- All public open space is free of undue restrictions. Examples of undue restrictions include areas where tree planting is restricted, where sports fields and hard courts are restricted, or where there are limitations on landscape planting.
- Dual-use land applies to small and local parks only. District parks are not dual-use and are not located in riparian corridors or on flood affected land.
- The public open space provision calculation does not include standing bodies of water. However, standing bodies of water may be included if they can be used for swimming and other forms of water recreation and meet the required water quality standards for human interaction.
- In riparian corridors, land that is within the vegetated riparian zones (VRZ) as outlined in the *NSW Water Management Act 2000* cannot be included in the open space provision calculation. and aligns with the *Guidelines for riparian corridors on waterfront land* (NSW Office of Water 2012).

If the proponent is able demonstrate that high-quality and innovative open space outcomes can be achieved (such as wetlands, boardwalks and trails) the consent authority may consider the use of land such as detention basins, drainage swales and other stormwater infrastructure as public open space.

Method for providing public open space

This section outlines the 5-step process local councils and developers should use to identify the amount, location and size of public open spaces for a development precinct or site.

STEP 1: Identify opportunities

Identify all natural features and opportunities to address the UDG natural system, urban structure and movement and connection objectives.

Identify all existing mature trees and stands of vegetation.

Identify opportunities for open space to strengthen and support the UDG objectives including the potential location of corridors and links.

Figure A2.1: Step 1– Identify opportunities



STEP 2: Identify net developable land and quantify the open space requirements

Identify the net developable land (NDL) for the site. Fifteen per cent of the NDL area is required to be provided as public recreational open space.

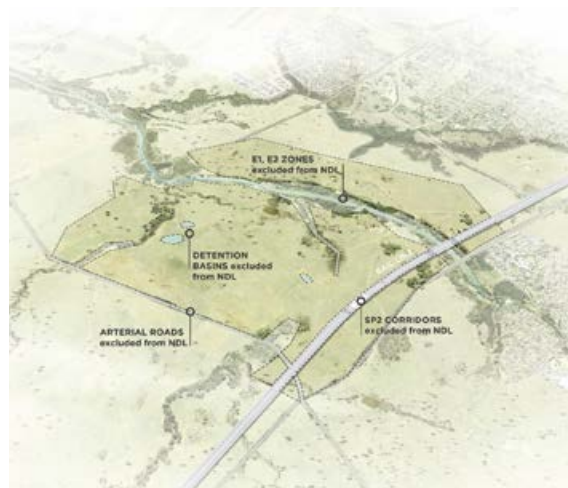
The NDL includes the following land-use types:

- residential zoning (R1–R4)
- commercial zoning (B1–B8)
- public recreational open space (RE1)
- local roads and streets
- schools (SP2)
- local hospitals, community centres and facilities
- tourist facilities (including SP3)
- car parks
- environmental and bushland zones that are publicly accessible and can be used for public recreation (E2–E3).

The following land use types are excluded from the NDL:

- roads and motorways (SP1–SP2)
- rail corridors (SP1–SP2)
- utilities infrastructure (SP2)
- drainage infrastructure (SP2)
- private recreation (RE2)
- waterways, rivers, creeks, ponds (including W 1–W 3)
- national parks (E1)
- large lot residential (R5)
- environmental living (E4)
- rural (RU1–RU6)
- industrial lands (IN1–IN4)
- universities.

Figure A2.2: Step 2 – Identify net developable land and quantify open space requirements



STEP 3: Locate parks according to size and catchment requirements

Lay out parks (local parks and district parks) in accordance with size and catchment distribution requirements.

Look for opportunity sites where open space can support urban ecosystems.

Seek to locate parks:

- near urban centres, urban attractors, or areas of natural amenity
- together with remnant trees and other existing planted areas
- where they might be joined by linear parks in the next step.

Figure A2.3: Step 3 – Locate parks according to size and catchment requirements



STEP 4 : Locate a network of linear parks

Create a linear park network that links together the following:

- opportunities identified in Step 1
- new parks laid out in Step 3
- urban centres and urban attractors including schools and community facilities.

Look for opportunities to co-locate linear parks along the fringes of landscape features including waterways, riparian corridors, high points, ridges and valleys.

Align the linear park network so it can link to adjacent development sites, other linear parks, and green grid corridors on nearby sites.

Refer to the UDG movement and connection objectives and create a network that provides active transport corridors throughout the development area and that aligns with the broader local government area priority corridors.

Figure A2.4: Step 4 – Locate a network of linear parks



STEP 5 : Check areas meet 15 per cent open space provision and revise open spaces to suit

Review the open space provided and add open space to the network as required to meet or surpass the 15 per cent public open space requirement.

This can be done in 4 ways:

1. Extend parks – some parks may benefit from being larger. This could include making the larger parks even larger or making the smallest parks larger so they can provide more uses.
2. Add new parks – provide new parks in areas that have minimal access to open space.
3. Widen linear parks – where linear parks are adjacent to major urban ecosystem corridors, or align with green grid priority corridors or local government area priorities, consider making these linear parks wider to maximise their usable space. As shown in many linear park case studies, these could become local or district parks and linear parks combined.
4. Add new linear parks – where additional corridors would increase connectivity benefits, add new linear parks. Avoid providing linear parks where these are short or do not add value to linear parks already intended for the network.

Figure A2.5: Step 5 – Check areas meet 15 per cent open space provision and revise open spaces to suit



Providing 15 per cent open space at different sizes and densities

The 15 per cent public open space provision is to be made up of a mix of parks and linear parks. The exact mix will vary depending on the site and proposed development density.

In low-density developments (8 to 20 dwellings/ha net), a mix of parks and linear parks should be provided that meet the minimum requirements. Any additional open space required to reach 15 per cent can be provided by either increasing park size or linear park provision. Low-density environments typically contain more opportunities to connect to existing ecological systems or provide linear parks through the less-connected areas of the street network.

For medium-density to high-density developments (20 dwellings/ha net or greater), open space planning should prioritise increasing the sizes of parks over linear park provision in delivering 15 per cent public open space. This is in order to maximise usability and solar access impacts from adjacent areas to significant built form. This will avoid the issue of small parks that are overshadowed for the entire day. Some linear parks may be provided, however the street network in high-density environments often has potential to provide similar benefits if designed with generous tree planting, wide footpaths, and active transport corridors. Street networks should be designed in this way to allow for parks to make up the bulk of the open space provision.

Exemptions

A series of exemptions to the open space benchmarks apply based on the site area of development. These are set out below.

Sites under 25 ha

Linear park length

Minimum length requirements of linear parks in low-density, medium-density and high-density developments of under 25 ha do not apply. Instead linear parks should be provided in a way that connects to adjacent existing or proposed linear parks, urban ecosystems or active transport corridors that are near attractors. Any linear corridors need to align with local council green infrastructure, green grid or linear green network plans.

Linear park widths

The minimum width of linear parks in high-density areas is recommended but not critical. If narrower linear parks are provided, they should generally be 8 to 15 m wide and provide tree canopy, planting, and active transport connections at a minimum.

Rather than a minimum width, it is more important that streets and linear parks are connected to the surrounding active transport corridors, connected to major links in adjacent development sites, urban attractors, high-amenity walkable local streets, or urban ecosystem corridors. Designing high-amenity streets throughout the development also needs to be prioritised.

Sites of 1 to 5 ha

Local open space median size does not apply to sites between 1 and 5 ha. Open space should be provided as a large, connected space for these sites, to maximise solar access and usable space. The open space should also act as a linear connector through the site or to adjacent attractors.

Open spaces should align with local council open space plans. If the local open space strategy does not consider open space appropriate on this site, the proponent will need to look for opportunities to provide connectivity and contribute to nearby open spaces.

Sites between 5 and 25 ha

Local open space median size does not apply to sites between 5 and 25 ha. In these instances, the approach provides one local open space as large as comfortably possible within the site to maximise solar access and usable space.

The space should also seek to act as a linear connector through the site or to adjacent attractors.

An indicative size guide for this local open space should be 15 per cent of the NDL for sites of 5 ha, up to 10 per cent of NDL for sites of 25 ha. This park should be sited prominently in the site and act as the 'main' local park.

APPENDIX 3

URBAN TREE
CANOPY
IN LARGE
DEVELOPMENTS

This section provides guidance setting tree canopy targets for large-scaled urban design development. The aim is to ensure all categories of land enhance urban canopy and contribute to an integrated and connected network of green infrastructure across NSW.

What is it?

Urban tree canopy refers to trees on public and private land within urban areas. It comprises a variety of tree types such as exotics, deciduous trees, and evergreens occupying a range of environments from busy city centres to regional main streets and suburbs.

Urban tree canopy is the leaves, branches and stems of trees that cover the ground when viewed from above. Urban tree canopy is an important element of green infrastructure.

Method for setting large-scale development tree canopy targets

1. Establish the current canopy baseline

- a. Calculate the total site area (m² or ha).
- b. Identify the current canopy area within the site boundary; canopy data from the NSW Government SEED Portal can be used.
- c. Divide the current canopy area by the total site area, to determine the percentage of canopy cover for the site.

2. Calculate the urban canopy target for each land-use category

- a. Calculate the area (m² or ha) of each urban land-use category proposed for the new development.
- b. Multiply the land-use category by the site target (see Objective 10 design criteria: tree canopy targets for large developments). This will give you the canopy area for each land-use category.

3. Calculate the total urban canopy target

- a. Add up the canopy area for each land-use category to give the total canopy area.
- b. Divide the total canopy area by the total site area to give an overall urban canopy target.

APPENDIX 4

STREET DWELL SPACE

This section provides further guidance on how to calculate and provide 'dwell space' behind the kerb.

This does not replace guidance by TfNSW or local councils, and is intended as a reference for calculating whether sufficient space is allocated for the purposes of Objective 13.

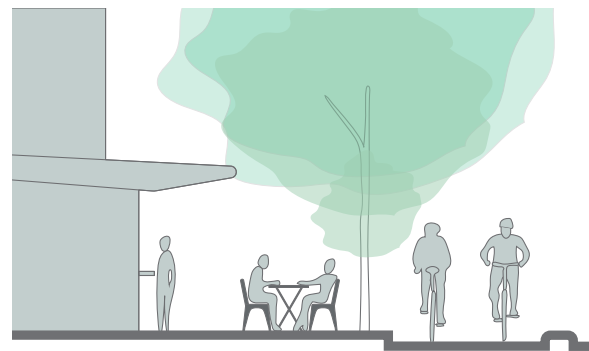
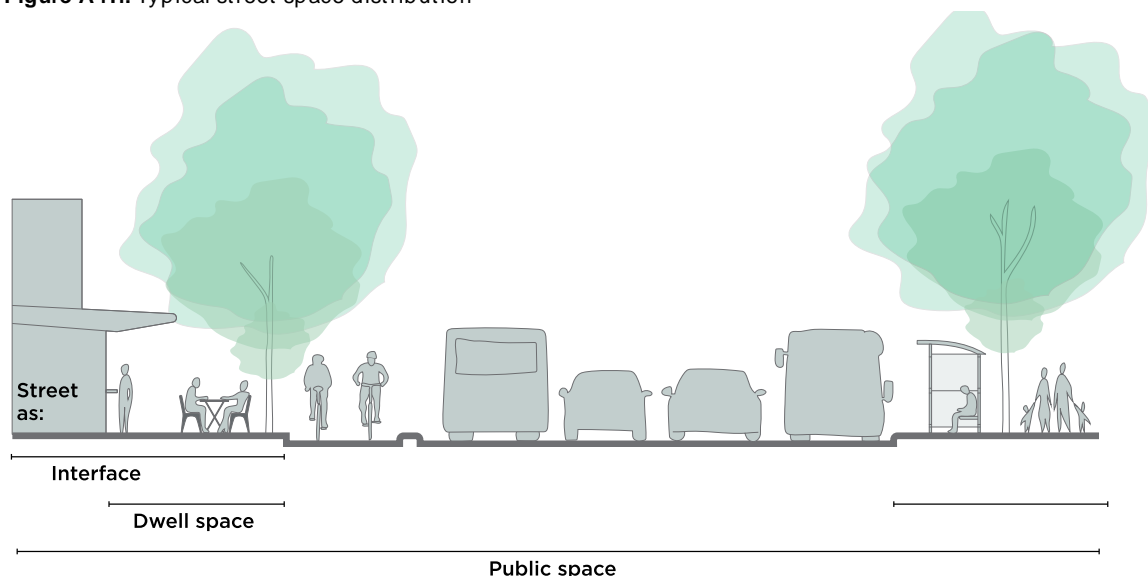


Figure A4.1: Typical street space distribution



Dwell space can be segmented into the following:

BUILDING ZONE OR GATHERING SPACE	CLEAR PATH OF TRAVEL	FURNITURE AND PLANTING ZONE	BUFFER ZONE
Space for place-based activities such as window shopping, collecting or eating take-away food, or on-street dining – this is required in addition to the clear path of travel	Space for pedestrians to walk comfortably	Space for deep soil for trees and street furniture Residual space can be used as gathering space	Additional space to reduce the friction between fast- and slow-moving modes – which may be minimised if combined with cycleways, parking and planting zones

See the *Practitioner's Guide to Movement and Place* (GANSW 2020) for further guidance.

Building zone or gathering space

Space should be sized to suit the interface with the adjacent land use. Example widths are set out in Table A4.1.

Table A4.1: Dwell space width for the building zone or gathering space. Derived from standard street furniture in NSW and buffers from the *Pedestrian Comfort Guidance for London*, Appendix C (Transport for London 2019)

As a minimum, 200 mm should be provided between a building edge and the clear footpath width. If this is omitted, such as in residential subdivisions with front setbacks, care should be taken that junction boxes are not placed in the clear footway zone.

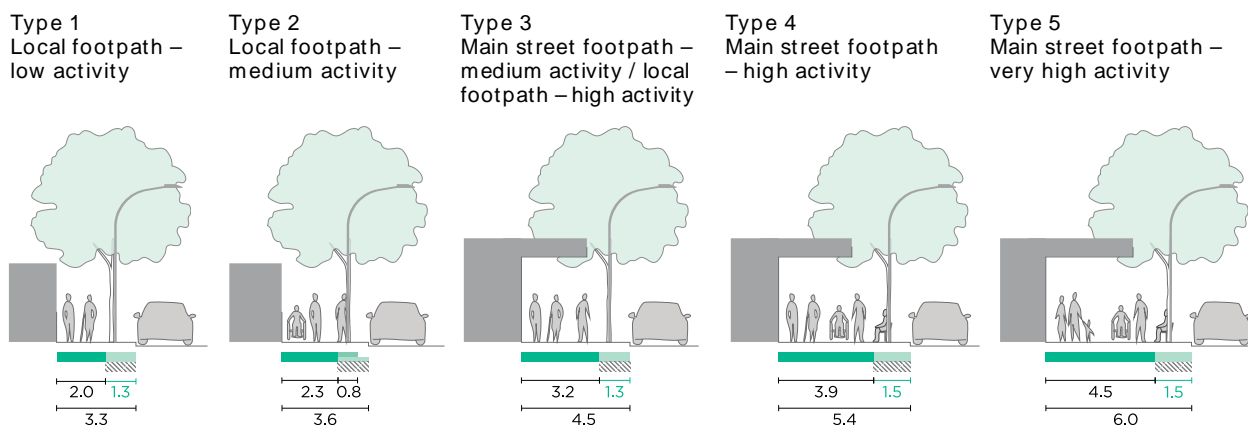
BUILDING / SHOP-FRONT	ATM / STREET VENDOR / TAKE-AWAY WINDOW (W/O QUEUE)	CAFÉ TABLE (900 MM)	BENCH FOR SITTING (500 MM)	ATM / STREET VENDOR / TAKE-AWAY WINDOW (WITH QUEUE)	STAND ASSOCIATED WITH SHOPFRONT (600 MM)	WAYFINDING SIGN OR MAP
200 mm	900 mm	1,100 mm	1,200 mm	1,500–3,000 mm	2,000 mm	2,000 mm

Clear path of travel (pedestrians)

This should be sized in accordance with the *Walking Space Guide* (TfNSW 2020). As an indication of typical widths, where a calculation of the pedestrian volumes has not been made, the following guidance is provided. Greater widths may be required for social distancing (see pp. 14–15 of that guide).

As a minimum, 2,000 mm is recommended for local streets, and 3,200 mm for main streets.

Figure A4.2: Walking space allocation



Furniture and planting zone

The planting zone should be sized to suit the selected species and deep soil requirements set out in Objective 10. Wider areas may be required to accommodate large street furniture including buffers, such as bus stops, particularly if cycle bypasses are required. As a minimum, the *Walking Space Guide* recommends allowing a landscape zone width of 1,300 mm.

Avoid linear cabling in this zone. Small junction boxes may be located in this zone in preference to the clear path of travel provided they are clear of deep soil zones and cabling remains outside the zone.

Buffer zone

The *Walking Space Guide* recommends a traffic buffer based on the adjacent traffic speed in Table A4.2. The buffer ranges from 0 m (speeds of 15 km/h, cycle lane or parking lane), 1,200 mm to 1,650 mm for local streets of 40–50 km/h respectively, and 2,150 mm for speeds over 55 km/h.

Carriageway

Consideration needs to be given to the carriageway width and how it has been allocated. To reinforce slower speeds and make room for cycling or space behind the kerb, consider reallocating existing road space in accordance with the *Road User Space Allocation Policy* (TfNSW 2021), particularly where lane widths exceed 3.2 m on regional and local roads.

Where cycling networks are specified, sufficient space should be provided in accordance with the *Cycleway Design Toolbox* (TfNSW 2020). In limited circumstances where both walking and cycling volumes and speeds are low, a shared path may be appropriate.

Table A4.2: Example calculations of dwell space

	BUILDING ZONE	CLEAR PATH OF TRAVEL	FURNITURE / PLANTING ZONE	BUFFER ZONE	BUFFER ZONE TOTAL (EACH SIDE OF THE STREET)
Local street (low fence, front setback, 40 km/h street, no parking lane)	0 m	2,000 mm	1,300 mm	0 m (provided by planting zone)	3,300 mm
Main street (take-away shops, 50 km/h, parking lane)	900 mm	3,200 mm	1,300 mm	0 m (provided by parking)	5,400 mm

GLOSSARY

ACRONYMS			
ADG	<i>Apartment Design Guide</i>	Bushland	Land on which there is vegetation which is either a remnant of the natural vegetation of the land or, if altered, is still representative of the structure and floristics of the natural vegetation. (Source: <i>State Environmental Planning Policy No SEPP 19 – Bushland in Urban Areas</i>).
DA	development application	C	
DCP	development control plan	Case study	A specific building, place or space that has been researched and analysed to demonstrate and evaluate its worthiness. A case study can help in the design of new spaces by presenting best practice and lessons learnt.
DPIE	Department of Planning, Industry and Environment	Catchment (1)	Watershed catchment or subcatchment or barriers such as arterial roads, creeks or rivers, or very steep landforms.
DP SEPP	<i>State Environmental Planning Policy (Design and Place) 2021</i>	Catchment (2)	The area from which people will be drawn to a destination. For example, district open space catchment is an area approximately 2 km x 2 km.
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>	Catchment (3)	A walking catchment is an area of land accessible from a defined destination, measured along publicly accessible streets, open spaces and linkages.
EP&A Regulation	Environmental Planning and Assessment Regulation 2000	Character	The combination of the attributes, characteristics, and qualities of a place.
EV	electric vehicle	Chronic stresses	Regular or cyclical events that over time diminish a place, community, or local environment, such as climate change or lack of affordable housing.
GANSW	Government Architect New South Wales	Context	The physical, social, cultural, economic, environmental, and geographic circumstances that form the setting for a place or building. This includes views to and from the site.
NDL	net developable land	Contextual	A building, place or space that responds to the context in which it is designed.
NSW SDRP	NSW State Design Review Panel	Continuous soil (natural component)	Unobstructed, interconnected, and undisturbed soil, derived from local geology and connected to the local groundwater system.
NSW LGDRPM	<i>Local Government Design Review Panel Manual</i>	D	
TfNSW	Transport for New South Wales	Deep soil	A landscaped area connected horizontally to the soil system and local groundwater system beyond and unimpeded by any building or structure above or below ground with the exception of minor structures (as defined below).
UDG	<i>Urban Design Guide</i>	Dwell space	Road space available for pedestrian activities, such as walking and dwelling, or landscaping – generally being the space between the edge of the carriageway (kerb) and the road reserve boundary, or the entire road in the case of shared zones.
A		E	
Adaptation	Defined in the Burra Charter as changing a heritage place to facilitate compatible new uses. This could involve alterations and additions to suit an existing use or meet current expectations of comfort and function or upgrade a building or site to respond to new needs and procedures associated with an existing function.	Episodic shocks	Sudden, short-term events that threaten a community, such as natural hazards (heatwaves, bushfires, floods, extreme weather, and coastal hazards).
Adaptive re-use	Projects that give new life to an existing place, building or structure through sympathetic alterations, conversions and additions that enable compatible new uses and functions, while maintaining the heritage significance where applicable.		
Amenity	The 'liveability', comfort or quality of a place which makes it pleasant and agreeable to be in for individuals and the community. Amenity is important in the public, communal and private domains and includes the enjoyment of sunlight, views, privacy and quiet. It also includes protection from pollution and odours. Expectations of amenity and comfort are contextual and change over time.		
B			
Built environment	Comprises the extent of our human-made environment, as distinguished from the natural environment. It includes all aspects of our surroundings made by people that provide the place for human activity. The built environment can include cities and towns, neighbourhoods, parks, roads, buildings and even utilities like water and electricity.		

Equitable	A built environment that is fair and accessible for all citizens.	Minor structures	For the purpose of calculating deep soil, the following may be included in the deep soil area where they have at least 12 m clear width of deep soil to either side: (a) a path, access ramp or area of paving with a maximum width up to 12 m (b) essential services infrastructure (such as stormwater pipes) with a maximum diameter up to 300 mm (c) landscape structures (such as lightweight fences, light poles or seating) requiring a footing with a maximum size of up to 300 mm x 300 mm in cross-section.
G			
Good design	Good design creates useable, user-friendly, enjoyable, and attractive places and spaces, which continue to provide value and benefits to people, the place, and the natural environment over extended periods. Good design brings benefits socially, environmentally, and economically and builds on these benefits over time – it adds value.	Movement and connection	Movement of people and goods by any mode whether on foot, pram, wheelchair, bicycle, car, truck, bus, tram or train – considering both mobility and local access. The total movement in a place is made up of trips through that place, to and from that place, and within that place. Movement generally occurs along dedicated 'ways', such as roads, railway corridors, or footpaths. Movement facilitates the transport of goods, services and people between urban settlements.
Green Grid	Strategic planning document for the Greater Sydney region, and a precursor to the Greener Places design framework comprising a cohesive map of green assets across metropolitan Sydney.	Multifunctionality	The ability of green infrastructure to deliver multiple ecosystem services simultaneously, providing added value, and improved health and wellbeing.
Green infrastructure	The network of green spaces (either natural or constructed), urban tree canopy in streets, continuous soil and water systems that deliver multiple environmental, economic, and social values and benefits to urban communities.	N	
Gross residential density	The measure of the overall net residential density, combined with the impact of local land use at the neighbourhood scale. Gross residential density is the ratio of the number of dwellings to the area of land they occupy. The area includes internal public streets, all areas of local open space (including parks, sports fields, drainage reserves, landscape buffers, bushfire asset protection zones) local or neighbourhood shops, primary and secondary schools, local community services, local employment areas and half the width of adjoining arterial roads.	Natural	Either existing in or produced by nature.
I			
Integration	Combining green space with urban development and grey infrastructure.	Natural environment	The natural environment encompasses all living and non-living things occurring naturally, meaning in this case not artificial.
L			
Liveable	A built environment that supports and responds to people's living patterns and is suitable and appropriate for habitation, promoting enjoyment, safety, and prosperity.	Natural hazards	The capacity of a social or ecological system to cope with a hazardous event or disturbance, responding or reorganising in ways that maintain its essential function, identity and structure, while also maintaining the capacity for adaptation, learning, and transformation. Natural hazards are predominantly associated with natural processes and phenomena.
M			
Master plan	A framework document showing how development will occur in each place and including building parameters like height, density, shadowing, and environmental concerns. It is a visual document that details a clear strategy or plan for the physical transformation of a place, supported by financial, economic, and social policy documents which outline delivery mechanisms and implementation strategies.	Network	An arrangement of related, interconnected elements that integrate to establish a wider system.
P			
		Participation	The involvement of stakeholders in the development and implementation of neighbourhood, local, district, and regional infrastructure policies and actions.
		Place	A social and a physical concept – a physical setting, point or area in space conceived and designated by people and communities. In this sense, place can describe different scales of the built environment – for example, a town is a place, and a building can be a place.

Place making	A multifaceted approach to the planning, design and management of public spaces. Place making looks at understanding the local community to create public spaces that promote health and wellbeing.
Public facilities	Libraries, museums, galleries, civic and community centres, showgrounds and indoor public sports facilities.
Public open space	Land that has been reserved for the purpose of recreation and sport, preservation of natural environments, and provision of green space.
Public open space for recreation	Recreation core provision where the primary purpose of the land is recreation, e.g. parklands (parks, gardens, reserves) or sportsgrounds (field and court facilities), civic spaces, plazas and squares; and rooftops and podiums (public space over structures).
Public realm	The collective, communal part of cities and towns, with shared access for all. It is the space of movement, recreation, gathering, events, contemplation, and relaxation. The public realm includes streets, pathways, rights of way, parks, accessible open spaces, plazas, and waterways that are physically and visually accessible regardless of ownership.
Public space	Places publicly owned, or designated for public use, that are accessible and enjoyable for all, free of charge and without a profit motive, including: <ul style="list-style-type: none"> — public open spaces – active and passive spaces including parks, gardens, playgrounds, public beaches, riverbanks and waterfronts, outdoor playing fields and sports courts, and publicly accessible bushland — public facilities – public libraries, museums, galleries, civic and community centres, show grounds and indoor public sports facilities — streets – streets, avenues and boulevards, squares and plazas, pavements, passages and lanes, and bicycle paths. <p>This definition refers to public space as a concept, not a land-use term or development type.</p>
Q	
Quality	The standard of something, measured comparatively against things of a similar kind.
R	
Reference scheme	In relation to the UDG a reference scheme is a design that implements all the UDG objectives on the site. The reference scheme is to be used to benchmark alternative scenarios and provide the rationale for design decisions.
Resilient	Able to withstand or recover from difficult conditions.

Resilience	A complex and dynamic system-based concept used differently in various disciplines referring to the ability of a system to return to a previous or improved set of dynamics following a shock. It also refers to the potential for individuals, communities, and ecosystems to prevent, absorb, accommodate, and recover from a range of shocks and stresses, including but not limited to bushfires, flooding, extreme heat and coastal hazards.
Road reserve	A legally defined area of land within which facilities such as roads, footpaths and associated features may be constructed for public travel.
S	
Scale	The relative size or extent of something – scale is a device used to quantify objects in a sequence by size, for example a city scale, or a building scale. In architecture, scale is also used to describe a ratio of size in a map, model, drawing or plan.
Setting (1)	The physical, social, cultural, economic, environmental and geographic circumstances that form the context for a site, place or building. This includes views to and from the site.
Setting (2)	The area around a heritage place, which contributes to its heritage significance and may include views to and from the heritage item. The listing boundary or curtilage of a heritage place does not always include the whole of its setting. (See Article 8 of the Burra Charter.)
Site	An area or piece of land that is being considered for future development.
Shocks and stresses	Episodic shocks and chronic stresses.
Spatial framework	A design and research document that is produced to provide background understanding and analysis for a particular area or place. It is completed before traditional design stages or master plan phases of a project. The framework follows a process of analysis, data collection and reporting in order to propose a delivery strategy and vision for the area being analysed.
State environmental planning policy (SEPP)	A statutory plan, typically prepared by the Department of Planning, Industry and Environment and endorsed by the Minister for Planning. It can be a spatial plan for particular land in NSW, or it can set policy which applies to particular land or all land in NSW.

Statutory plan	A part of the planning process that is concerned with the regulation and management of changes to land use and development.	Urban design development	Is defined as: —development on land that is not in an industrial zone that has a site area greater than 1ha, or —development on land in an industrial zone (IN1 General Industrial, IN2 Light Industrial and IN4 Working Waterfront) that has: i. a capital investment value of \$30 million or more, and ii. a site area greater than 1ha, or —development in relation to which an environmental planning instrument requires a development control plan or master plan to be prepared for the land before development consent may be granted for the development.
Strategic plan	Document that guides the implementation of a strategy for a particular area.		
Streets	Public spaces contained within road reserves, generally contained between cadastre boundaries of private lots or other publicly owned land and containing a mix of: —streets (local streets, avenues, boulevards) —public spaces within streets (civic forecourts, incidental spaces or squares and plazas) —footpaths —bicycle paths —space for street-tree planting and understorey vegetation —utilities and infrastructure.	Urban structure	The arrangement of streets, paths, blocks and lots, public open spaces, activity centres, public transport nodes and corridors, and residential neighbourhoods.
Sustainable	Relates to the endurance of systems, buildings, spaces, and processes – their ability to be maintained at a certain rate or level, which contributes positively to environmental, economic and social outcomes.	Urban tree canopy	The layer of leaves, branches and stems of a tree that provide coverage of the ground when viewed from above. Urban tree canopy refers to trees on public and private land within urban areas and comprises a variety of tree types such as exotics, deciduous trees, and evergreens.
T			
Tree	Long-lived woody perennial plant greater than (or usually greater than) 3 m in height with one or relatively few main stems or trunks (or as defined by the determining authority) (<i>AS 4970-2009 Protection of trees on development sites</i>).		
Tree planting rate	The number of trees required to be planted in deep soil.		
U			
Urban area	Comprises cities, towns or neighbourhoods where people live at high densities in a variety of housing forms supported by commercial and industrial land uses and essential infrastructure. In Greater Sydney the urban area is mapped in the <i>Greater Sydney Region Plan: A Metropolis of Three Cities</i> (Figure 51, Boundary of urban area, p. 162). For regional NSW, urban areas are typically characterised by places that contain an urban centre – including regional cities, strategic centres and local centres (or other centre types) as outlined in the Department of Planning, Industry and Environment regional plans.	Walkability	Refers to measures that support safe, comfortable, and direct walking to destinations such as footpaths, crossings, shading, protection from traffic, connected paths along desire lines and proximity, typically 1600 m or less to destinations by the shortest route.
		Waterway	Long, longitudinal water conveyance structures that do not have, as an important part of their design, significant infiltration capacities, although this might occur. Their water conveyance capabilities should be protected by selection of suitable non-erodible grasses. Normally, these outlet to the natural drainage system, either directly or indirectly. (Source: <i>Managing Urban Stormwater: Soils and Construction</i> , Landcom, Fourth edition 2004.)
		Water-sensitive urban design	Includes techniques such as raingardens, constructed wetlands, bioretention infrastructure and swales, aiming to improve the ability of urban environments to capture, treat and re-use stormwater before it has the chance to pollute and degrade creeks and rivers.

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BEST PRACTICE EXAMPLES

Inner city regeneration

Casba, Waterloo, Sydney illustrates:

- heritage and new build
- public through-site connection
- built form responding to the character of the 2 streets
- public open space within the centre of a site
- recycled and honest materials.

Design: SJB, Billard Leece Partnership
Photo: SJB

GOOD EXAMPLE OF OBJECTIVES:

1 12 15 16

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Sydney Park Skate Park provides
recreation for all ages and urban
greening. Credit: DPIE 2020





DRAFT

LOCAL

GOVERNMENT

DESIGN REVIEW

PANEL

MANUAL

GOVERNMENT
ARCHITECT
NEW SOUTH WALES





Acknowledgement of Country

The Department of Planning, Industry and Environment acknowledges the Traditional Custodians of the land and pays respect to Elders past, present and future. We honour Australian Aboriginal and Torres Strait Islander peoples' primary cultural and spiritual relationships to place and their rich contribution to our society. To that end, all our work seeks to uphold the idea that if we care for Country, it will care for us.

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About this manual

This manual provides advice on how to establish, manage and participate in a design review panel convened by a local council.

The manual supports the requirement within the *State Environmental Planning Policy (Design and Place) 2021* (DP SEPP) that certain development must be referred to the relevant design review panel for advice about design quality as part of the determination process.

Who is this manual for?

The manual is for:

- councils establishing a new local government design review panel, or reviewing their existing design review panel against the requirements of the DP SEPP
- council staff engaged in managing design review panels
- design professionals engaged as members of a local government design review panel
- development proponents and design teams whose projects will undergo design review by a local government design review panel
- others who may be involved in design review panels, for example as observers of a review session.

Which projects go to a design review panel?

The DP SEPP mandates design review by a panel for the following projects:

- a. State significant development to which the DP SEPP applies
- b. development with a capital investment value of more than \$30 million
- c. development with a capital investment value of between \$5 million and \$30 million if the development will be carried out by a council or the Crown
- d. development with a site area of at least 1 hectare
- e. residential apartment development
- f. other development specified by another environmental planning instrument as being development to which this clause applies.

For developments in category (c), review by a design review panel may not be required where the value is low and the consent authority is satisfied there will be little or no impact on the public realm. For example, low-impact infrastructure or enabling works where design review is unlikely to add value.

Design review by a panel may also apply in other circumstances:

- By mutual agreement with the consent authority, any proponent may seek advice from a design review panel before submitting a development application (DA).
- A consent authority may choose to seek advice from its design review panel as part of the development assessment process for any project after submission of the DA – whether the project is subject to design review under a planning control or not. The review must be completed within the assessment period as defined by the *Environmental Planning and Assessment (EP&A) Regulation*.

Projects that are classified as State significant development, State significant infrastructure or State significant precincts will continue to be reviewed by the NSW State Design Review Panel (SDRP).

Where a design competition is required, review by the relevant design review panel is required only where that panel is operating as the 'design integrity panel', post competition. For further information on design competitions, refer to the relevant local environmental plan or NSW Government guidelines for design excellence competitions.

How to use this manual

Part 1 explains what design review by a local panel is, where and when it applies, the protocols of good design review, and what to avoid.

Part 2 gives guidance on how to establish a local government design review panel and describes the roles and responsibilities of panel members and council staff.

Part 3 provides detail on how a panel operates, including timing and staging of tasks.

Part 4 sets out key governance issues and the scope of the two main deliverables: the design advice letter and the design review report.

Part 5 contains case studies providing examples of how design review by a local panel adds value to the development process.

Appendix A is a template for the terms of reference for a local government design review panel. Local government design review panels must comply with these terms.

Appendix B is a template agenda for a local design review panel session.

Appendix C is a template design advice letter.

Appendix D is a template design review report.

Policy context

The NSW planning system is guided by the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act), various State environmental planning policies (SEPPs) and local environmental plans (LEPs). Good design is integrated within this legislative framework in the following ways:

Environmental Planning and Assessment Act 1979

The objects of the EP&A Act include 'to promote good design and amenity of the built environment'.

State Environmental Planning Policy (Design and Place) 2021

The EP&A Act 'good design' object is supported by the DP SEPP. The DP SEPP includes design principles and considerations, and requires design review to form part of the determination process for certain development types.

The DP SEPP gives effect to this manual and provides the thresholds for which projects require design review by a design review panel. The DP SEPP also gives effect to 2 guides which may apply to projects undergoing design review:

- the *Apartment Design Guide* sets out objectives, design criteria and guidance applicable to residential apartment development
- the *Urban Design Guide* sets out objectives and design guidance applicable for urban design development specified by the DP SEPP.

Environmental Planning and Assessment Regulation 2000

The EP&A Regulation provides the legislative framework for design review panels. When fees for design review are increased to align with Consumer Price Index, these will be expanded to capture all development types proposed to go to design review by a local panel.

Local environmental plans

Many LEPs include what is commonly called a 'design excellence clause'. Typically, this clause will refer to design excellence competitions, design review, or both, as ways of improving the quality of the built environment.

DP SEPP principles and considerations

The principles and considerations apply to all development where design review by a design review panel is required.

Figure 1: DP SEPP principles and considerations

Deliver beauty and amenity to create a sense of belonging for people.

CONSIDERATIONS

Overall design quality
Comfortable, inclusive and healthy places

Deliver inviting public spaces and enhanced public life to create engaged communities.

CONSIDERATIONS

Culture, character and heritage
Public space for public life

Promote productive and connected places to enable communities to thrive.

CONSIDERATIONS

Vibrant and affordable neighbourhoods.
Sustainable transport and walkability

Deliver sustainable and greener places to ensure the wellbeing of people and the environment.

CONSIDERATIONS

Green infrastructure
Resource efficiency and emissions reduction

Deliver resilient, diverse places for enduring communities.

CONSIDERATIONS

Resilience and adapting to change
Optimal and diverse land use

PART ONE

Understanding design review panels

A design review panel is a panel of expert and independent design professionals that provides constructive feedback on the design quality of development proposals and strategic design projects.

The aim is to help proponents, design teams, local councils and consent authorities by providing expert, context-specific design advice that will contribute to improving the design quality of the built environment.

Design review panels are just one of many ways in which design review might occur. Design review can apply to any scale of project, from whole neighbourhoods to small individual buildings.

Design review done well creates benefit for all by:

- improving design quality – adding value to development for both the proponent and the community
- supporting high-quality, innovative design, particularly where a better design outcome may not be fully compliant with the planning controls
- identifying potential risks to development approval early on, streamlining the approval process and saving time and money
- facilitating an integrated evaluation of design proposals through which infrastructure, context, heritage, sustainability and planning for the future are all considered
- adding to the knowledge and understanding of good design within local councils, including accruing positive benchmarks for future development
- ensuring a balance is found between the needs of the community and commercial outcomes
- providing access to expert independent design advice on council-led strategic design projects.

The recommendations of a design review panel are advisory only. Positive feedback from a design review panel does not guarantee development approval, but the panel's advice must be considered by the consent authority as part of its assessment process.

1.1 When does design review by a local panel take place?

The advice of the panel is of the greatest value while a proposal is in the early concept and schematic design stages, as this is when positive change is most easily implemented.

Most projects will require 2 or 3 design review panel sessions. Small and simple projects that demonstrate good design quality may require only one session. For large and complex projects, or where significant design concerns are raised, more than 3 sessions may be necessary.

1.2 Design review requires collaboration

To be most successful, design review requires a collaborative and integrated approach across assessment, technical and strategic teams within councils. To support this collaboration, it may be helpful if key representatives from these council teams meet before a review panel session to discuss all aspects of the project and where relevant, make contributions to the panel briefing.

Assessment planners must be present at design review panel sessions to ensure advice is balanced with planning considerations, and that advice from the panel which might support non-compliance with planning controls is properly understood. Where possible, relevant technical and strategic staff should be kept informed of the work of the design review panel and attend design review panel sessions from time to time.

1.3 NSW protocols for good design review

Design review done well raises the quality of our built environment for the benefit of all, bringing social, environmental and economic value. The following protocols for good design review apply to the establishment, operation, monitoring, evaluation and improvement of local design review panels in NSW.



Advisory

A design review panel does not make decisions, it offers impartial advice for the people who do.



Expert

Design review panel members are experienced and respected design professionals who can clearly communicate their analysis and feedback.



Consistent

The advice received across subsequent design review panel sessions is consistent. Panel members remain the same across sessions or are well-briefed and respectful of previous advice.

Independent

Design review is conducted by people independent of any conflict of interest. Information about the terms of reference of the panel including membership and funding are publicly available.

Diverse

A design review panel is representative of diverse professional design expertise, gender, cultural background and lived experience.

Objective

The panel's feedback and analysis is objective, clear and constructive. It does not reflect the individual taste of panel members.

Timely

Design review takes place as early as possible in the design development process, is scheduled within a reasonable time frame, and design advice is issued promptly.

Respectful

All parties behave with respect towards each other and within appropriate codes of conduct.

Relevant

Design advice is relevant to the project stage, and scale, and project teams demonstrate a thoughtful and considered response to all advice.

Accessible

Design advice, presentations and reports use language and drawings that are easily understood by design teams, the proponent, the consent authority and the public.

1.4 What to avoid

Badly managed design review panels can create frustration and confusion for all parties. The process can be unsuccessful when:

Panel members give advice that is unclear, contradictory or outside the remit of the design review panel.

Panel members are not good communicators or behave in a manner that is disrespectful or ill-informed.

The members of the panel change from one review to the next, requiring presentations to be repeated and risking that advice is not consequent or mindful of previous feedback. This can result in delays and extra costs to the proponent and consent authority.

The design team is not well-prepared and presents incomplete information, or fails to respond to advice from the panel.

Design review panel sessions cannot be scheduled in a timely manner, causing delays to the project.

The assessment planners and design panel coordinators do not provide sufficient background and supporting information to the panel members.

Panel members are not sufficiently experienced in the type of project being reviewed.

The planning context for the proposal is not well-understood, and therefore advice provided is contrary to controls or legislation, without an understanding of the implications.

PART TWO

Establishing a local design review panel

This section provides guidance for local councils on how to establish a new design review panel. This advice may also be useful for councils with an existing design review panel, to help determine whether changes may be necessary to meet the requirements of the DP SEPP.

2.1 Terms of reference

The terms of reference for local government design review panels are provided as a template in Appendix A of this manual. The DP SEPP requires that all local government design review panels comply with these terms.

2.2 Roles and responsibilities

A design review panel requires the commitment of many individuals and organisations. It is most likely to be successful when everyone involved has a good understanding of their role. Figure 2 shows the relationships between the various roles. The detailed responsibilities for each role are set out in the design review panel terms of reference (see Appendix A).

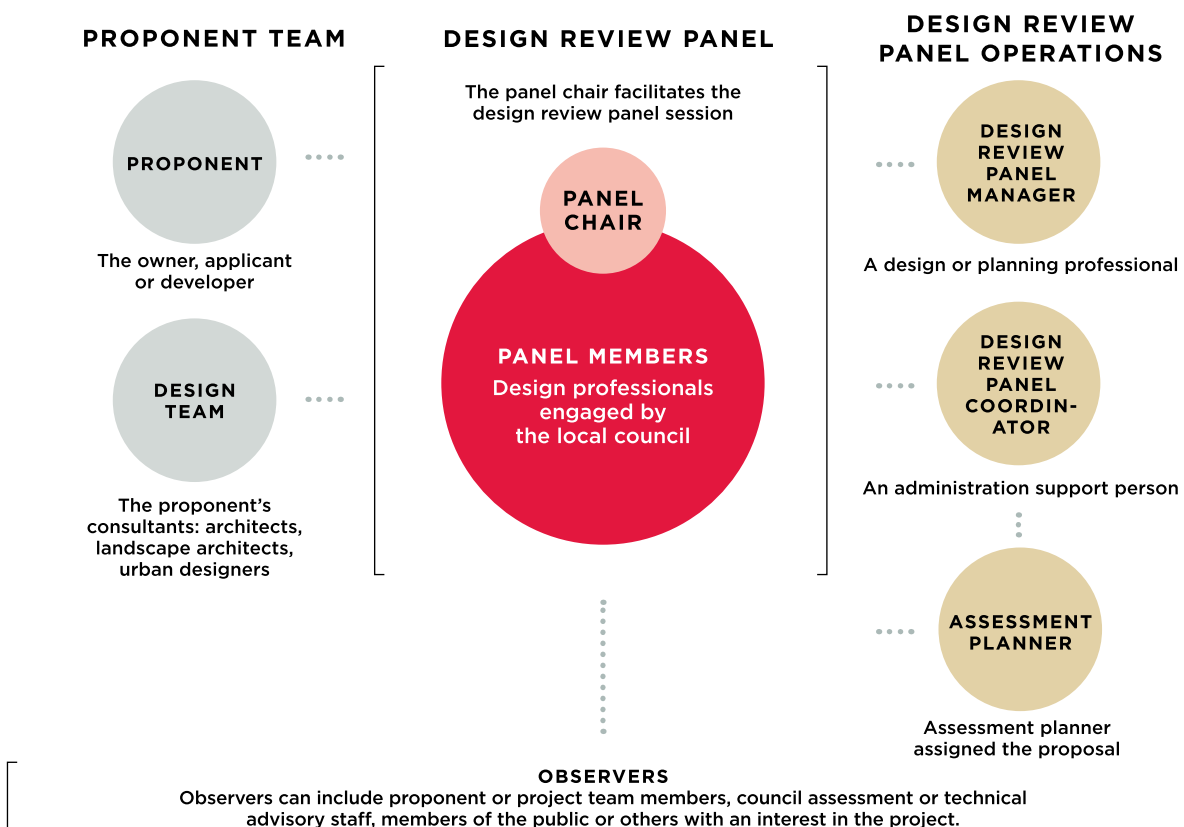
2.3 Costs

The fees the consent authority will charge to the proponent for review by a design review panel are set by the EP&A Regulation.

The costs borne by the consent authority include:

- payments to panel members
- council staff resources
- provision of the venue and any catering.

Figure 2: Roles and responsibilities of participants in the process of design review through a design review panel.



The fee paid by the proponent will not cover all the costs of establishing and managing a design review panel. In addition to paying the fee to the consent authority, the proponent will also have costs relating to the work of the design team in preparing for and presenting to the panel.

All parties should be mindful of the cost to all of conducting design review using a design review panel, and should ensure optimum value is achieved through good preparation and respectful interactions.

2.4 Appointing panel members

The selection of panel members for a design review panel is crucial to its success. Their appointment should take place through a well-publicised and targeted process seeking expressions of interest, or equivalent, to ensure members are appropriately qualified.

To convene a panel which must consist of 3 or more members, you will need to appoint a group of between 7 and 10 people to a panel pool.

A typical panel pool would be made up of:

- 3 or 4 core panellists, including the chair, who have expertise in architecture, landscape architecture or urban design
- 2 or 3 additional panel members with specialist design expertise in areas such as heritage, environmental sustainability or Aboriginal culture and heritage
- 2 or 3 ‘alternates’ may also be appointed. These are people who can stand in should a core panel member be unavailable.

This approach ensures consistency of panel members across projects while also allowing for specialist advice and accommodating some limited flexibility.

2.5 Panel member experience and expertise

Panel members should have:

- broad experience in their design discipline
- a demonstrable understanding of design
- a demonstrable commitment to projects of high design quality that benefit the public
- the ability to be analytical and critical while maintaining a constructive and professional tone
- excellent written and verbal communication skills.

Diversity of lived experience is an advantage in a design review panel as it allows for a broad understanding of the impact a development may have on the wider community. Gender and cultural background should be considered in the composition of the panel alongside professional experience. The panel pool should aim to include Aboriginal design professionals that can be called upon to provide integrated advice and an understanding of culture and Country.

2.6 Panel member training and induction

Panel members should complete an induction and training before the first session of a design review panel. As a minimum, training should cover:

- understanding conflicts of interest and codes of conduct
- confidentiality
- the NSW protocols for good design review
- how to use the DP SEPP design principles to frame a discussion and provide advice
- the local planning context
- confirmation of the panel members availability for all sessions.

2.7 Council resources supporting design review panels

People

The local design review panel will require internal resourcing by the local council. In addition, assessment planners and internal council technical advisory staff should be involved in an integrated manner with the design review panel process. Council staff should be provided with an induction and training, and time allowed for their participation.

Facilities

Face-to-face panel sessions will require a reasonable-sized room with presentation technology, and a second room to be used as a waiting room for the proponent and their design team. Design review panels have also been run successfully through online sessions.

Supporting material

Council may find it useful to prepare a set of information sheets, templates, checklists and forms to help participants understand the design review panel process and what is expected of them.

PART THREE

Design review panel operations

3.1 Timing of design review panel sessions

The scheduling of panel sessions needs to align with the stages and time frames for developing a proposal, from concept development through to DA submission, determination and beyond.

3.2 Preparing for a design review panel session

A successful design review panel process depends on good organisation, integration with planning processes, and clear communication between design teams, proponents, panel members and the assessment planner.

For details on the roles and responsibilities of the panel members and local council staff, see Appendix A: Template design review panel terms of reference.

Consistency of panel members

Consistency of panel members from one review session to the next is very important. To help with this, council's design review panel coordinator should set session dates 12 months in advance. When appointed as a member of a local design review panel, panel members are required to commit, as far as possible, to their availability for review sessions.

Information for the proponent and design team

The panel manager and coordinator must ensure the proponent and their design team clearly understand in advance what is expected of them, and that this is communicated in good time. Councils should develop a standard information pack, including:

- documentation required to be submitted
- a deadline for the submission of those documents
- a description of the length and style of the presentation and the format for submission
- a list of equipment that will be available to the project team at the review session
- what to expect regarding the design advice letter and subsequent review sessions.

Figure 3: Integration of review by design review panel with the design and approvals process

PROJECT SET-UP	CONCEPT DESIGN	DESIGN DEVELOPMENT	LODGE DEVELOPMENT APPLICATION	DEVELOPMENT ASSESSMENT	CONSTRUCTION CERTIFICATE
Is review by a design review panel required by the DP SEPP or LEP? If so, book the first design review panel session with the local council.	Design review panel session is held to discuss response to context, built form, scale, open space, public realm, and early spatial and functional planning.	Subsequent design review panel sessions held as required. Sessions address prior advice and provide an increasing level of design detail and resolution.	A design review report (tabling the panel's advice and proponent's response) is submitted with the DA.	Council considers the design review panel's advice when assessing the DA. If the proponent's response to the panel's advice is inadequate, council can request additional review panel sessions.	If necessary, council (via conditions of consent) can require further design review post approval.

Briefing panel members

Panel members should receive a briefing pack before the scheduled design review panel session, including:

- the documentation from the design team
- a summary planning paper from the assessment planner outlining the planning context and any potential planning issues
- the agenda for the design review panel session
- a conflict of interest declaration form, to be completed and returned immediately in case an alternative panel member is required
- Panel members should allow 2-4 hours to review the briefing pack for each project and prepare for the session.

Preparation by panel coordinator

The following tasks must be completed before the design review panel session:

- distribute briefing packs, including the agenda for the day and scheduled site visits where possible
- confirm attendance and resolve any conflicts of interest
- book the presentation and waiting rooms, or set up any links if conducting the session virtually.

The following tasks are required on the day:

- coordinate site visits (where scheduled)
- ensure the design team has its presentation ready and in a format that is suitable for the in-house system
- set up the room and presentation equipment, and confirm the proponent and design team have arrived 15 minutes before the scheduled start time.

3.3 What happens on the day

A typical design review panel session requires approximately 2 hours including presentation, discussion and feedback. Larger and more complex projects such as planning proposals or developments on large sites may need extra time.

Extra time may be required for site visits in the morning before the session. The organisation of a typical day is set out in Appendix B: Template agenda for a local design review panel session.

Figure 4: Design review panel preparation and follow-up

CONFIRM DESIGN REVIEW SESSIONS	AT LEAST 10 DAYS BEFORE	AT LEAST 4 DAYS BEFORE	ON THE DAY	2 DAYS AFTER	6 DAYS AFTER	WITHIN 14 DAYS
Panel coordinator confirms attendance of panel members and checks for conflicts of interest.	Proponent and design team submit presentation documents. Panel manager reviews presentation to ensure it is fit for purpose. Assessment planner reviews and assembles the summary planning paper.	Panel coordinator issues a briefing pack to panel members. Panel manager seeks internal review from strategic and technical council staff.	DESIGN REVIEW PANEL SESSION	Panel manager sends a draft design advice letter to the panel members, then helps the panel chair coordinate panel feedback on the advice letter.	Panel chair returns the approved design advice letter to the panel manager.	The proponent and their design team receive the design advice letter.

PART FOUR

Deliverables, application and governance

4.1 The design advice letter

The design review panel's advice is set out in a letter addressed to the proponent. The advice should support good design and provide suggestions to lift the quality of poorer design.

Advice should be consistent, fair and actionable. It should be consistent with the NSW protocols for good design review and follow the format shown in the design advice letter template (Appendix C) or similar.

The advice set out in the letter should remain within the framework of the design review panel terms of reference. It should include clear statements explaining:

- which design elements are supported, and a clear description of the ways in which the design proposal is considered to be successful
- which design elements are not supported, and recommendations for ways in which the design could develop to be more aligned with the DP SEPP principles and considerations
- recommended actions to be taken by the design team
- where there is a proposed non-compliance with a planning control, advice on its relative design merits
- a recommendation to the design review panel manager indicating whether the proposal:
 - requires further review by the design review panel, or
 - is supported by the design review panel, or
 - is supported by the design review panel on the condition changes are made.

Any changes requested by the panel must be clearly explained so the assessment planner is able to readily identify whether they have been implemented successfully, or whether they need be written into the development consent as conditions.

When the design advice letter has been approved by the panel chair it is distributed by the panel manager to the proponent, and copies sent to all participants in the design review panel session including the design team, panel members and council staff.

4.2 Design review report

For any project that has undergone design review by a panel, the proponent is required to submit a design review report as part of their development application. For a development application that must respond to either the *Apartment Design Guide* or the *Urban Design Guide*, a design verification statement must be prepared by a suitably qualified professional and accompany the application. For these projects, the design review report will form a part of the design verification statement. For all other project types, the design review report will be a stand-alone document.

The design review report must explain:

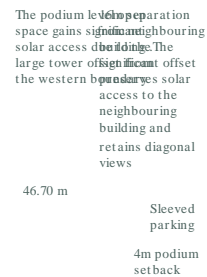
- how the advice of the design review panel has been incorporated into the design of the development
- how the proposed development remains consistent with that advice
- where it departs from that advice, how the proposal still satisfies the DP SEPP principles and considerations.

Appendix D: Template design review report may be helpful in further understanding these requirements.

The design review report should use clear and simple diagrams to explain the process of design development in relation to the advice of the design review panel.

Massing OptionsExploredOptions Explored

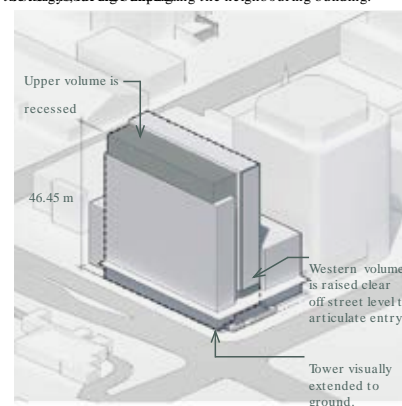
Figure 5: Example of a design responding to advice



2. Design review panel 02

tower, significantly reducing the significant built form. The significant built form into West of the North, East and West of the podium level overshadowing of the space, compromising amenity.

In order to car spaces, this proposed 120 car spaces, this option requires additional parking levels to be increased from 5 storeys to 6 storeys for the building.



4. Revised Proposal

4. Design Panel

Source: Andrew Burns Architecture.

4.3 How the design review report is used in the assessment process

The assessment planner and the consent authority must use the design review report in making a determination – this ensures the rationale provided for design decisions and the design responses to advice from a design review panel are considered in the assessment process. The design review report may be used in the following ways:

- to support the application of relevant planning controls in a flexible manner where the design review panel has identified this will achieve better outcomes
- to establish if the reasonable recommendations of the design review panel have been followed
- as evidence for refusing development permission where the advice of the design review panel has not been adopted
- to assist with understanding how the proposal achieves the DP SEPP principles and considerations in project-specific ways.

Advice from a design review panel will only be considered in connection with the assessment of that application. Consent decisions do not establish a precedent.

4.4 Advice does not indicate approval

The advice of the design review panel does not constitute approval (or rejection) of a development application. However, it is a requirement of the DP SEPP that the advice of the panel is considered by the consent authority as part of the development assessment process. Additionally, assessment teams must provide evidence to support a decision made contrary to design review panel advice on a design-related matter.

4.5 Advice does not indicate compliance with planning controls

The advice of the design review panel should be informed by a thorough understanding of the relevant legislation. The design review panel may occasionally make recommendations that will result in non-compliance with a planning control. Where this is the case, the design review panel must clearly identify the potential non-compliance, and explain how it would achieve a better design outcome and meet the objectives of the planning legislation.

4.6 Monitoring and evaluation

Councils should establish evaluation and monitoring systems for their design review panel to support continuous improvement and to capture lessons learnt.

4.7 Dealing with complaints

The panel manager is responsible for resolving any complaints to do with design review panel processes. All complaints should refer to this manual and in particular the NSW protocols for good design review (see Part 1.3) to identify the failings in the process or outcomes.

PART FIVE

Case studies



CASE STUDY NO.1

Lachlan Precinct, Green Square, City of Sydney

Dyuralya Square is a 2,000 m² community space and the civic heart of the Lachlan Precinct

The City of Sydney used design review integrated across disciplines and scales in guiding the urban redevelopment of the Lachlan neighbourhood at Green Square. The design review process extended to all elements of the area – from street and park layouts; walking, cycling, public transport and vehicular access; development controls for subdivision; building envelopes, heights and densities; essential civil infrastructure and individual buildings. These were reviewed by internal council review groups and individuals and an independent design expert panel through all stages of the development.

Design review played a critical role in creating an outcome that has been shown through longitudinal surveys to have a high level of social cohesion and community satisfaction. The City of Sydney has undertaken studies of the process and the outcomes in order to improve its methods for subsequent urban design of other areas.

The City of Sydney's process demonstrates a model that integrates advice, shares the lessons learnt across all sectors of the council, incorporates the advice of independent experts, and then analyses both the results and the process in order to improve outcomes for future projects.

Dyuralya Square, Green Square.
Photo: Kathryn Griffiths / City of Sydney.

CASE STUDY NO.2

Newcastle East End, City of Newcastle Council

Newcastle East End precinct is the first stage of a large renewal project in the Newcastle city centre.

The precinct development was a collaborative process master planned by SJB architects with individual buildings then designed by SJB, Durbach Block Jagers and Tonkin Zulaikha Greer.

The success of this project can be partly attributed to the productive relationship between the developers, architects, local community and Newcastle City Council's Urban Design Consultative Group (UDCG – a design review panel). The process developed design principles for the master plan and at the level of the individual building. These principles described agreed aims for celebrating the corners and incorporating a fine grain to the retail at street level, both of which reflect the historic and contemporary context of the Newcastle city centre.



The design review process considered the citywide impact and the detailed design of this project. It supported the development of Stage 1 of the works with a full understanding of what Stage 2 and Stage 3 will include. UDCG provided valuable local knowledge to the design teams who were not based in Newcastle.

Newcastle East End project. Buildings by Durbach Block Jagers, Tonkin Zulaikha Greer, SJB and landscape by ASPECT Studios. Photo: Brett Boardman.

CASE STUDY NO.3

Liverpool Civic Place, Mixed-use precinct for Liverpool City Council

Liverpool Civic Place is a precinct in Liverpool city centre including a library, childcare centre, council chambers, and retail and commercial spaces across a number of buildings.

Liverpool City Council used its established design review panel to help with the design development of the partly council-owned Liverpool Civic Place. In addition to formal design review panel meetings, council conducted public domain workshops to engage various interrelated industry experts in fields such as heritage, civic planning and public art.

Under construction in 2021-22, the project has been developed through a partnership between the council and a private development and construction firm. The design review panel process facilitated objective and independent discussion of the project and provided a balance between the concerns of the two major partners.



Liverpool Civic Place by FJMT Architects. Render supplied by Liverpool Council.

CASE STUDY NO.4

9–10 Fig Tree Avenue Telopea, City of Parramatta Council

The Fig Tree Avenue project is a mixed-use residential flat building and childcare centre in an area undergoing significant urban renewal and development.

The diagrams below show how a design review panel, in conversation with the consent authority and the proponent, can develop designs that might be non-compliant, but are more appropriate to the site and context, and can be supported through the planning process.

A design review panel brings local understanding and experience in urban planning to all projects, adding value to a development by considering how it relates to and responds to its wider context.

Diagrams supplied by
Parramatta City Council



ADG separation outcome
(infill development)

Site area: 1,350 m²
Floorplate: 615 m² + 350 m² (4+3 storeys)
GBA: 3,340 m²
GFA: 2,350 m²
FSR: 174 : 1
Deep soil: 370 m² / 27%

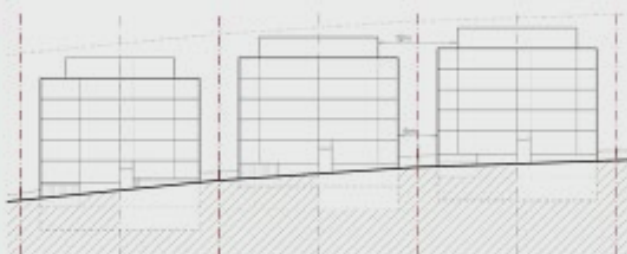


- Separation relating to height offering uncomfortable urban form (4+3 storeys).
- Buildings appear as objects in space, rather than contributing to an urban streetscape.
- Driveway needs to be located in the side setback rather than contained in the building envelope.
- Units primarily face side boundaries.



DCP suggested outcome
(infill development)

Site area: 1,350 m²
Floorplate: 615 m² + 350 m² (5+1 storeys)
GBA: 3,425 m²
GFA: 2,290 m²
FSR: 170 : 1
Deep soil: 545 m² / 40%



- Suggested urban form to help define the spaces of the street.
- Non-compliant separation distances due to increase of 'street wall' and method for maximising potential for units to primarily face street and rear.
- Aims to maximise deep soil networks to rear where existing mature trees are located.
- Driveway contained within building envelop due to greater building frontage.
- Suggest higher performing deep soil networks across a precinct.
- Encouraging lesser setbacks to move some of the mass of development away from the rear of the site, creating larger contiguous deep soil zones.

CASE STUDY NO.5

Corrimal affordable housing, Princes Highway Corrimal, Wollongong City Council

The Corrimal affordable housing project is a development in the retail zone of a low-density suburban area.

This project is a 4- and 5-storey shop-top development on a sloping site adjacent to a low-density residential area. The local design review panel worked with the design team to implement both small and large changes to the initial development. Points raised by the design review panel ranged from comments on better locations for servicing elements, cross-ventilation to common areas, to requesting a height adjustment to achieve a better fit with the height of surrounding buildings and with the sloping site.

The design review panel helped the local council by providing expert advice on design development in an area where there was no precedent for this scale of development.



Anglicare Affordable Housing development, by Group GSA.
Photo: Anglicare

CASE STUDY NO.6

City of Ryde Design Review Panel

The City of Ryde Council has been using a design review panel for over 15 years.

The local panel reviews apartment buildings as required by the *Apartment Design Guide*, boarding houses of 3 storeys or more, and large-scale commercial development. Currently there are only 2 panel members for each session, and reviews are conducted in an open and conversational manner. The design review panel manager takes the role of chair but does not participate in the discussion unless required to answer direct questions regarding council planning matters.

A week before each design review panel session, the panel manager coordinates a meeting with council staff, including traffic engineers, a landscape architect, waste officer, development engineer and contributions officer, to discuss any concerns from the point of view of their particular area of expertise.

The City of Ryde regards its design review panel as having been very successful in

improving the quality of design proposals in the local government area. Elements contributing to this success include:

- the small size of the panel, which helps with communication between panel members and with consistency of the advice
- the very good communication skills of the panel members, who are adept at prompting and guiding a discussion towards potential improvements, rather than dictating or instructing regarding the development of the design
- the long relationship the panel members have had with City of Ryde Council, enabling them to provide efficient and relevant advice based on a strong understanding of the context, the aims of the council, the constraints and opportunities of specific sites, and the relative success (or otherwise) of previous projects in the area.

The council is likely to need to make only small adjustments to its current review panel process to comply with the DP SEPP requirements, such as including a third panel member and moving the role of chair to a panel member.

APPENDICES

Template design review panel terms of reference

This template has been established to meet the requirements of the NSW *State Environmental Planning Policy (Design and Place) 2021* (DP SEPP). It sets out the terms of reference for the design review panel.

Schedule 1	SAMPLE TEXT (TO BE FILLED IN BY PANEL CONVENER)
Name of design review panel	<i>Liverpool Local Government Design Review Panel, or South West Regional Design Review Panel</i>
Local government area or region	<i>Liverpool City Council</i>
Environmental planning instruments that apply to these terms of reference, in addition to the DP SEPP	<i>Liverpool City Council Local Environmental Plan 2021, clause XX</i>
Codes of conduct	<i>Insert name of LGA code of conduct and/or refer to professional codes of conduct under the Architects Act 2003 or other legislation</i>
Conflict of interest policy	<i>Insert the appropriate policy</i>
Appointed members of the panel pool	<i>Insert names of all people appointed to the panel pool</i>
Reference documents	<i>Insert other documents the LGA considers are important for the panel members to be familiar with</i>
Panel quorum	<i>3 panel members including the panel chair, 4 panel members including the panel chair</i>
Panel member tenure	<i>3-year term plus 2 possible one-year extensions</i>
Panel member payment	<i>Half day – \$xxxx + GST</i>
Panel chair payment	<i>Full day – \$xxxx + GST</i>
Reimbursable expenses	<i>Insert expenses to be reimbursed</i>
Design review panel proposed dates	<i>Could be every 2nd Wednesday of the month, or could be a calendar of each date specifically noted</i>
Panel manager	<i>Insert name of panel manager</i>
Panel contact details	<i>Set up a dedicated email address and give the LGA main switchboard phone number</i>

1. Purpose

The role of the design review panel noted in Schedule 1a (hereafter referred to as the design review panel) is to provide independent, expert advice on the design quality of development proposals in the local government area or region noted in Schedule 1 (hereafter referred to as the LGA or region).

The purpose of the design review panel is to inform the assessment of development applications by the consent authority with the aim of improving the design quality of the built environment.

2. Scope of review

The design review panel will review projects as required by the DP SEPP and relevant LEP.

During review sessions, the design review panel will provide advice on the design quality of proposed development.

Design review will be guided by the principles of the DP SEPP and the NSW protocols for good design review.

The following protocols for good design review apply to the establishment, operation, monitoring, evaluation and improvement of local design review panels in NSW.

Advisory – A design review panel does not make decisions, it offers impartial advice for the people who do.

Independent – Design review is conducted by people independent of any conflict of interest. Information about the terms of reference of the panel including membership and funding are publicly available.

Timely – Design review takes place as early as possible in the design development process, is scheduled within a reasonable time frame, and design advice is issued promptly.

Expert – Design review panel members are experienced and respected design professionals who can clearly communicate their analysis and feedback.

Diverse – A design review panel is representative of diverse professional design expertise, gender, cultural background and lived experience.

Respectful – All parties behave with respect towards each other and within appropriate codes of conduct.

Consistent – The advice received across subsequent design review panel sessions is consistent. Panel members remain the same across sessions or are well-briefed and respectful of previous advice.

Objective – The panel's feedback and analysis is objective, clear and constructive. It does not reflect the individual taste of panel members.

Relevant – Design advice is relevant to the project stage and scale, and project teams demonstrate a thoughtful and considered response to all advice.

Accessible – Design advice, presentations and reports use language and drawings that are easily understood by design teams, the proponent, the consent authority and the public.

3. Roles and responsibilities

The roles and responsibilities of all parties are set out below.

The panel members comprise a cross-section of built environment design professionals. Panel members are eligible for registration with relevant professional bodies, and registered members are bound by the codes of conduct that apply to their profession.

Design review panel

Panel members

Design professionals engaged by the local council

Panel members are:

- respected and experienced design professionals with relevant tertiary qualifications in architecture, landscape architecture, urban design or other relevant design fields
- eligible for professional registration
- well-informed of all planning and development issues relevant to proposals
- able to communicate in a way that is clear, concise and helpful.

Panel members must:

- provide independent, impartial, constructive and respectful feedback and advice
- meet deadlines for the review of draft design advice letters
- declare any conflicts of interest and, where there are conflicts, not participate in the review process
- commit to the scheduled dates for design review panel sessions and allow appropriate time before and after the session for preparation and review of

- the design advice letter
- abide by the appropriate codes of conduct.

Panel chair

The panel chair is a panel member nominated for this role. The panel chair facilitates the design review panel session and is responsible for ensuring:

- the discussion stays within the framework of the panel's terms of reference and is constructive, clear and relevant
- the discussion is respectful
- where a proposal requires more than one review session:
 - the advice given across the series of sessions is consistent and consequent
 - the advice does not introduce entirely new areas of focus or concern, except where this is a result of new information being provided
- the session runs on time with all panel members having the opportunity to express their views.

After the review session the panel chair is responsible for final approval of the design advice letter.

The proponent team

Proponent

The owner, applicant or developer

The proponent is responsible for:

- contacting the local council to make bookings for design review panel sessions
- supporting the design team in preparing for the design review panel sessions and in responding to the panel's advice
- reporting on the design review process as part of the development application.

Design team

The proponent's consultants: architects, landscape architects, urban designers

The design team must:

- present clear and relevant information about the proposal and respond to panel advice
- participate constructively in the design review process.

Local government authority

Design review panel manager

A design or planning professional employed by the local council

The panel manager:

- manages the design review process
- reviews information submitted by the proponent and the design team before the review session to ensure it is fit for purpose
- coordinates pre-session briefings with other council staff (such as assessment planners)

- attends the panel sessions
- prepares the draft design advice letter
- manages feedback from design teams and proponents
- evaluates the panel's outputs and processes to ensure compliance with the terms of reference and continual improvement.

Design review panel coordinator

An administration support person employed by the local council

The panel coordinator:

- manages design review panel session bookings and agendas
- distributes information before and after the design review panel sessions.

Assessment planner

The council assessment planner who has been assigned the proposal for the development assessment process

The assessment planner:

- reviews information submitted by the proponent and design team
- provides a summary planning briefing
- conducts an in-person briefing for the panel on relevant planning matters
- attends all panel sessions as an observer.

4. Panel management

The design review panel is established and operates in line with the recommendations of the *Local Government Design Review Panel Manual*, the NSW protocols for good design review, and the requirements of the DP SEPP.

The local council convenes the design review panel and determines the appropriate location of the review sessions, or conducts the sessions virtually.

Panel members are appointed through an open expression of interest process, or similar, to ensure they are appropriately qualified.

Panel member tenure is set out in Schedule 1. At the end of this tenure period (i.e. the initial term plus the possible extensions), members may be invited to accept reappointment. Additional or new panel members may be recruited as required.

5. Sessions and advice

The design review panel is convened regularly. All dates for review sessions are set 12 months in advance, and each date may involve up to 4 design review sessions per day.

The panel must be attended by enough panel members to fulfil the quorum listed in Schedule 1. For larger and more complex projects, additional panel members may attend. Except in extraordinary circumstances, the panel members are consistent for all panel sessions relating to a project.

Each session allows reasonable time for:

- site visits (where practical)
- pre-session briefing by the panel manager (panel and council staff only)
- welcome: acknowledgement of Country
- introduction by the proponent
- presentation by the design team
- questions and clarifications
- review
- summary by the panel chair
- post-session discussion (panel and council staff only).

Final advice and recommendations are recorded by the panel manager and endorsed by the panel chair after consultation with other panel members. The advice takes the form of a design advice letter and is distributed to attendees within 14 working days of the review panel session.

If a proposal requires subsequent design review panel sessions, this is stated in the design advice letter and the first available session booked.

6. Design review panel session requirements and attendance

The proponent must submit the required information to the panel manager no less than 10 days before the scheduled design review session. If the panel manager is not satisfied the quality of the submitted material will enable a constructive discussion and review, they may postpone the design review panel session until adequate information can be supplied, and another panel session is available.

A panel session includes participants who have an active role in the process and observers.

Participants:

- design review panel members and chair
- proponent
- design team
- assessment planner
- panel manager.

Observers:

- other local government authority representatives, including assessment

- planners, technical advisory staff
- members of the public
- proponent team members including the design team
- any other attendees.

The panel chair may invite observers to attend any or all of the design review panel sessions. The panel manager or chair should approve all observers before the session.

Observers watch and listen to the proceedings but do not participate unless specifically invited to do so by the panel chair.

7. Codes of conduct

All participants and observers must conduct themselves in accordance with the codes of conduct listed in Schedule 1.

8. Design review panel briefing pack

The design review panel briefing pack is distributed to panel members including the chair no less than 5 working days before the design review panel session.

The panel briefing pack may be distributed to additional observers at the discretion of the panel chair in consultation with the panel manager.

9. Conflicts of interest

All panel members must comply with the conflict of interest policy listed in Schedule 1.

10. Confidentiality

All information relating to any proposal undergoing design review is provided to all attendees in the strictest confidence. After a development application for a project has been submitted, the panel's final recommendations and advice will be publicly available during the assessment exhibition period.

11. Payment of panel members

Panelists must be paid. Payment should cover the time spent participating in the design review panel session and before or after the session, e.g. time spent on preparation or on reviewing and finalising the design advice. Panel members should be reimbursed for expenses that are listed in Schedule 1 and agreed to beforehand.

Template agenda for a local design review panel session

A timeline for the day

One day of a design review panel may contain up to 4 sessions. A possible timeline might be:

9.00 – 10.30	Site visits
10.45 - 12.00	Session 1
12.15 - 1.30	Session 2
2.15 - 3.30	Session 3
3.45 - 5.00	Session 4

More complex proposals may need to be reviewed across 2 sessions.

Site visits and briefing by planning assessment officers

Site visits to each of the sites by the panel members accompanied by the design review panel manager (recommended) or individually.

Pre-session briefing and discussion *20 minutes*

The panel manager and assessment planner provide a short presentation covering the briefing material and the planning, physical and historic context of the site, and respond to any queries. The panel discuss key issues and agree, where possible, on the areas of focus for the discussion. The panel chair should confirm there are no conflicts of interest regarding the upcoming sessions.

Welcome and acknowledgement of Country *5 minutes*

Panel chair acknowledges Country and facilitates introductions.

Introduction by the proponent *5 minutes*

The proponent introduces the project describing its background and the overall objectives.

Presentation by design team *15 minutes*

The design team's presentation should be concise and focus on issues of design quality and public impact. Where projects are returning for a follow-up session, the presentation should focus on how the design has been developed to respond to advice from the previous session, or to other advice and feedback (such as from council, government agencies, local residents, etc.).

Clarifications *15 to 30 minutes*

The panel should then ask for clarification, without giving comment. This allows the design team additional time to introduce information that is of interest to the panel.

Review *10 minutes*

The panel chair facilitates a discussion between the panel members on the merits of the proposal. Other attendees do not participate unless specifically asked to do so by the chair.

Allow a few minutes at the end of the session for the design team and proponent to respond.

Summary *5 to 10 minutes*

The panel chair summarises the advice arising from the review discussion.

Post-session discussion **(closed session: panel members and panel manager only)** *20 minutes*

The panel, led by the chair, confirm and agree on the recommendations arising from the design review panel session. If new issues are raised at this time, these can be included in the design advice letter but should be noted as matters arising post session. Introducing new issues post session should be avoided wherever possible.

Template design advice letter

The design advice letter records the outcomes of the design review panel session and the subsequent discussion by the design review panel members. See Part 4.1 for a general description of the design advice letter.

The design advice letter should be clear on what is commentary, and does not require any action, and what is advice and therefore has a clearly stated action linked to that advice.

The design advice letter should be structured to group advice under headings relevant to the project:

- If the project is subject to the *Urban Design Guide* (UDG), it will be useful to structure advice using the UDG components of successful places as headings.
- If the project is subject to the *Apartment Design Guide* (ADG), it will be useful to structure advice using the ADG objectives as headings.
- Where neither of these documents apply, the design advice may use a structure specific to the project or be grouped under the DP SEPP principles and considerations.

The headings should be consistent across subsequent design advice letters and in the design review report where possible. The design advice letter should also adopt a clear and consistent numbering system for advice.

Following is a sample design advice letter. The advice in the sample letter does not relate to any particular project, and is provided only as an example of language, style and tone.

SAMPLE

PROJECT: [Project name]
DATE : [Insert date]
RE: [Insert name], Design Review Panel – [date of review] –
[First/ Second/ third etc] review

Dear name of person representing proponent,

Thank you for the opportunity to review the above project *at an early stage / a second time*. Below is a summary of advice and recommendations arising from the design review panel held on DD/MM/YYYY.

The objective of the proposal for *providing an affordable boarding house* is supported and commended. However, further design development is recommended, particularly in relation to *insert primary concerns*.

The design review panel supports:

- *the early engagement by the proponent with the Aboriginal community in order to develop appropriate ways of engaging with Country as a driver of the design*
- *the proposal to adopt a generous tree canopy target*
- *the potential for the proposed design to be a sustainable project*
- *the careful response to the brief as set by the end-users.*

Summary of advice

To support design development, the panel has provided the following advice:

Heading 1

1.1 *Develop 3-4 diagrams to test and analyse other siting options for the site.*

Heading 2

- 1.4 *The proposed height is not supported due to the negative impact on the public park to the south at peak times of use during winter. Reduce the height and provide shadow diagrams to demonstrate good solar access during peak use times.*
- 1.5 *Reconsider the building alignment to better align with the existing street pattern.*

Heading 3

- 1.8 *Provide drawings and diagrams to demonstrate the stated performance in terms of solar access and shadowing can be achieved.*
- 1.9 *Provide further details on material selections in line with the ambitious and commendable sustainability goals for the project.*

Concluding remarks

The panel recommends further review of this project as the design progresses. The issues outlined above should be addressed and presented at the next available design review panel session.

- Or** *The panel's support for this project is subject to the above advice being incorporated into the project design development.*
- Or** *The panel supports the development proposal as presented.*

Note: examples of primary concerns include the public realm, response to Country and context, ground floor and amenity.

Note: insert the key elements of the project which can be supported by the design review panel; some examples are included here.

Detail the panel advice in this section. Use headings to organise the content consistently in all letters.

Note: it may be useful to develop standard responses for this part of the letter.

Sincerely,
Name of Panel Chair

Template design review report

The design review report must be submitted by the proponent as part of the development application. It should summarise the design review process and provide a response to the advice of the design review panel.

For further information on the design review report and its role in the assessment process see Part 4.

Summary table

PROJECT TITLE		
ADDRESS		
NAME OF DESIGN REVIEW PANEL		
Design review panel session 1	Date	Panel members
Design review panel session 2	Date	Panel members
Design review panel session 3	Date	Panel members

Design review panel session 1

ADVICE NUMBER	DESIGN REVIEW PANEL ADVICE	DESIGN RESPONSE
1.1	Copy the exact advice from the design advice letter here.	The design response should aim to be as brief as possible. Refer to diagrams and drawings wherever possible. An example of a diagram is shown in Part 4.2.
1.2		
1.3		

Design review panel session 2 (as required)

ADVICE NUMBER	DESIGN REVIEW PANEL ADVICE	DESIGN RESPONSE
2.1	It is recommended that the session number is used as the first digit in the numbering to make sure each piece of advice is identifiable.	
2.2		
2.3		

Design review panel session 3 (as required)

ADVICE NUMBER	DESIGN REVIEW PANEL ADVICE	DESIGN RESPONSE
3.1		
3.2		
3.3		

Credits

GANSW would like to acknowledge and thank the many local councils, industry groups and agencies who supported the development of this document through stakeholder workshops, working groups and other forums.

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Research and document development

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Stakeholder engagement

JOC Consulting

Design

Christie Fearn

Photography

All imagery by Government Architect New South Wales and Department of Planning Industry and Environment unless stated.

Advice and document review

We are grateful for the advice and feedback on a draft version of this document provided by:

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Rebecca Habchy
Rory Toomey
Victoria Hamilton

DESIGN AND PLACE SEPP

Sustainability in Residential Buildings

Proposed changes to BASIX

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. We are proposing some changes to BASIX standards and processes as part of the integration with the Design and Place SEPP. This document outlines the proposals that have been included in the proposed Design and Place SEPP.

Increasing the standards for energy and thermal performance

We are proposing to increase the standards for energy use and thermal performance. The proposed changes are consistent with the NSW Government's Net Zero Plan and the proposed increases to the National Construction Code.

The proposed standards are the result of a rigorous cost benefit analysis. We plan to review these standards every few years to meet the Government's net zero objectives and its commitment to the national Trajectory for Low Energy Buildings.

Introducing a new requirement for embodied carbon emissions

To assess the embodied carbon emissions of the material used to build each home, we plan to add a new BASIX materials index. It will be similar to the three existing BASIX components. That is, the developer will need to enter some additional information about

the development and meet a standard for the embodied carbon emissions.

Introducing an alternative merit assessment pathway

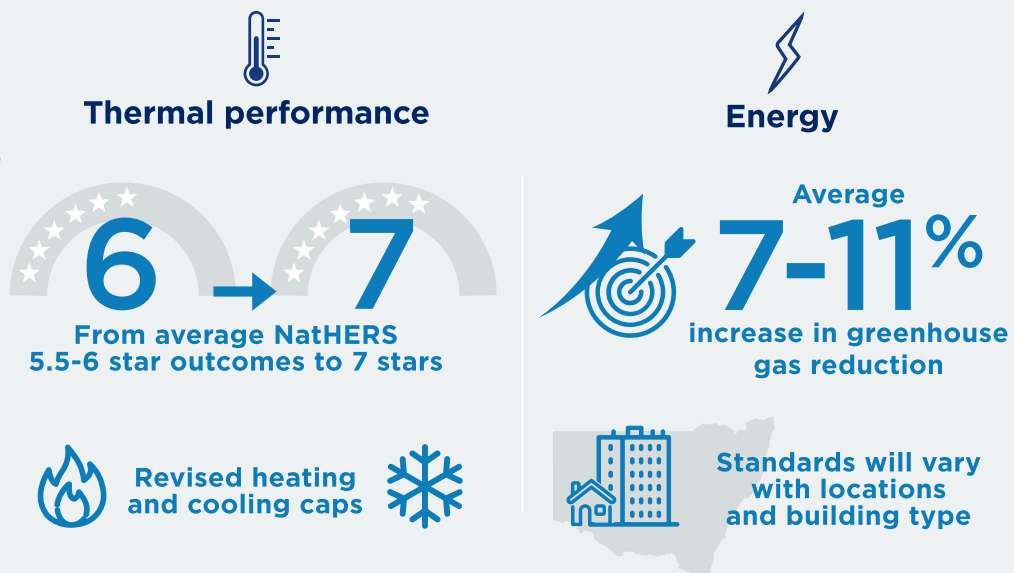
To provide greater flexibility in demonstrating that a development has met the NSW sustainability requirements, we plan to introduce a merit assessment pathway. This will allow a recognised professional to complete a sustainability assessment using other accredited modelling software. Assessments using this pathway can be submitted as part of a development application as an alternative to a BASIX assessment.

Updating the BASIX Tool

To improve the user experience, we are rebuilding the BASIX Tool to integrate it with the Planning Portal. As part of this, we are updating some of the BASIX methodologies (e.g. for lifts, lighting and appliances) to reflect ongoing innovation and feedback from our stakeholders.

The consultation on the proposed higher thermal performance and energy efficiency standards commenced on 17 November 2021 and will continue throughout the exhibition of the draft Design and Place SEPP.

Figure 1:
Proposed
increases
for energy
and thermal
performance
standards.



Increased BASIX standards – Frequently asked questions

1. What is BASIX?

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 also sets thermal performance requirements to ensure that homes stay cool in summer and warm in winter without using a large amount of energy.

BASIX was introduced on 1 July 2004. Since its introduction, more than half a million homes in NSW now meet BASIX water and energy saving standards. These homes are collectively estimated to have saved 340 billion litres of potable water, and reduced emissions equivalent to 12.3 million tonnes of carbon dioxide (CO₂). That is equivalent to 135,000 Olympic swimming pools, and the CO₂ offset from planting 40 million trees.

2. Why is the NSW Government increasing BASIX standards?

Current BASIX thermal performance and energy standards have been in place since July 2017.

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-ready buildings. The national plan proposes making cost-effective increases to the energy efficiency requirements of the National Construction Code for residential buildings from 2022.

The NSW Government is committed to the Trajectory for Low Energy Buildings and sets an aspirational net zero emission target by 2050. The government is also committed to halving emissions from 2005 levels by 2030 in its latest implementation update for Stage 1 of the Net Zero Plan.

NSW is bringing BASIX thermal performance and energy standards in line with the proposed changes to the National Construction Code, which are planned to begin in 2022. The higher energy standards will also deliver strong government action towards our net zero target.

BASIX water saving standards will stay the same.

3. Does the government propose higher standards across NSW?

The government proposes increasing the BASIX standards for thermal performance and energy for all new residential buildings across NSW except for:

- homes in the North Coast climate zones
- small apartment buildings of up to 5 storeys in NSW.

For homes in the North Coast climate zones and small apartment buildings in NSW, modelling from the cost-benefit analysis by ACIL Allen shows that the benefits of energy bill savings from households that meet higher standards are not enough to cover the extra upfront costs.

4. When will the higher standards apply?

The higher standards will apply from late 2022. For now, we are upgrading the BASIX assessment tool, which will be available when the revised standards begin.

5. What changes does the government propose?

We propose higher BASIX thermal performance and energy standards, except for homes in the North Coast climate zone and small apartment buildings of up to 5 storeys in NSW.

The higher BASIX thermal performance standards will be at least 7 stars, based

on the star-rating scale defined by the Nationwide House Energy Rating Scheme.

This is consistent with what the Federal government proposes for the National Construction Code for 2022. Currently, homes that comply with BASIX have been achieving 5.5 to 6 NatHERS stars on average.

The higher energy standards proposed will vary with location and building types. 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 energy sources. We plan to recognise this in the proposed new energy standards by updating the greenhouse emissions factor when we calculate the energy consumption.

6. Does the government propose changing the BASIX water standard?

BASIX water standards will stay the same across NSW and will be carried across into the proposed new BASIX assessment tool.

7. How can developers and home owners meet the higher standards?

Developers and home owners can choose from a range of measures to meet the proposed higher thermal performance and energy standards as part of the design for development approval. Measures* for a typical home to meet the higher standards may include:

- installing more insulation, improving the performance and location of windows, as well as using good air flow, shading and sunlight to cool and heat homes naturally
- selecting a more energy-efficient hot water system such as an electric heat pump or a solar hot water system
- installing photovoltaic panels to supplement a 5-star gas hot-water system commonly used to meet the current energy standards
- choosing a more efficient heating and cooling system, such as a 3-star reverse cycle air-conditioning system.

The free Design for Place designs from Your Home can help you meet the proposed higher thermal performance standards.

*Refer to Figures 2, 3 and 4 to find out the new ways to satisfy the higher standards.

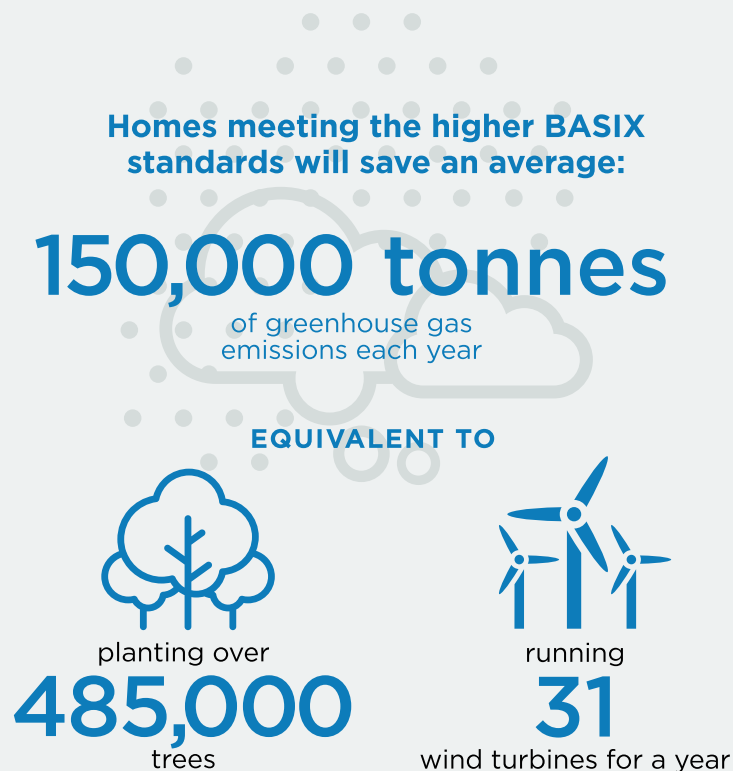




Figure 2:
Example of a home that includes features to satisfy current BASIX requirements.

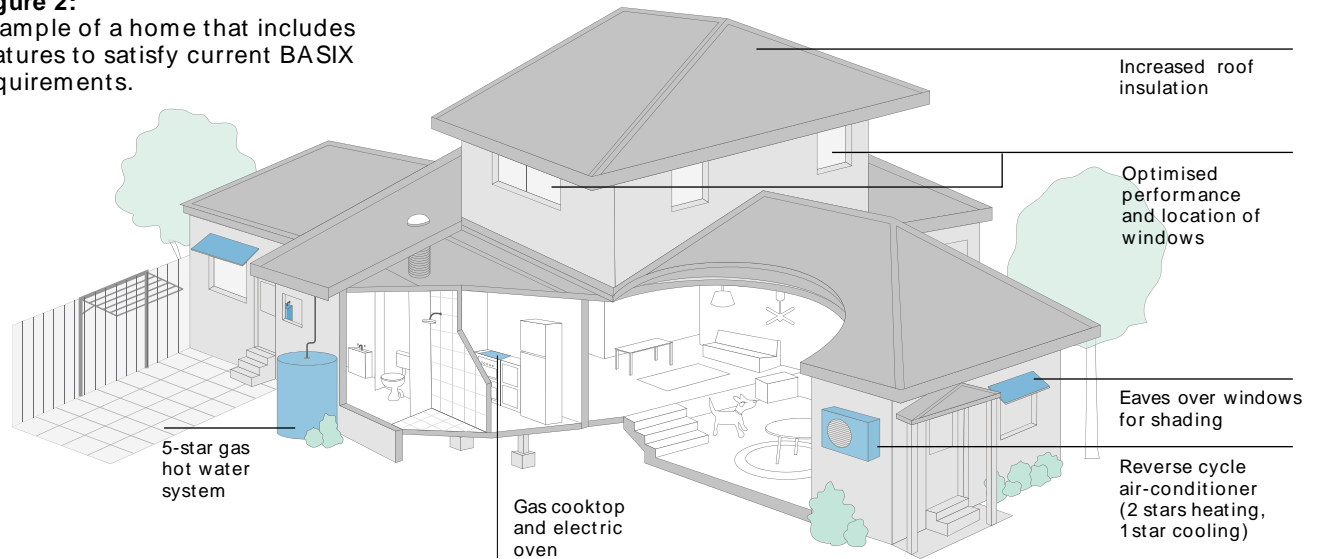


Figure 3:
Example of a home that includes 'all electric' appliances to meet proposed higher BASIX requirements.

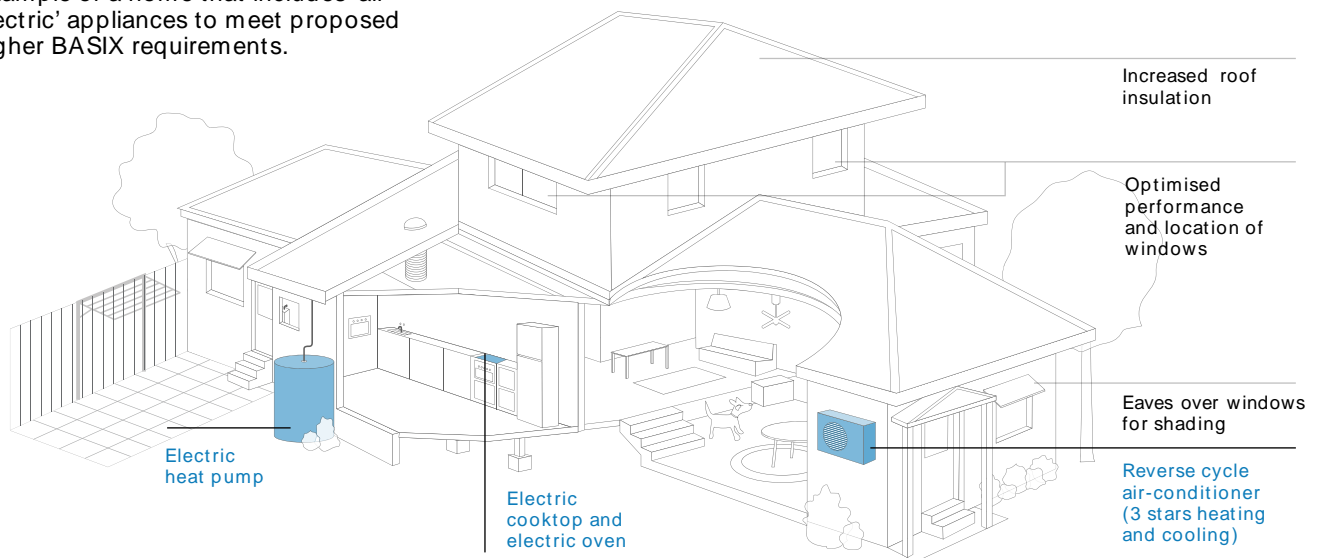
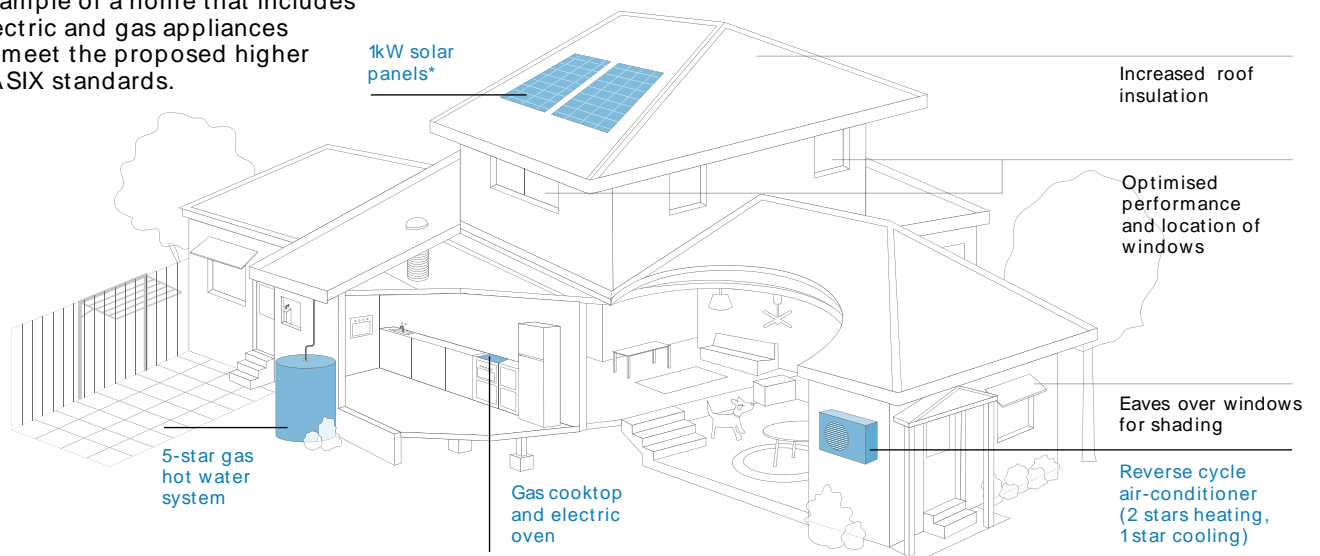


Figure 4:
Example of a home that includes electric and gas appliances to meet the proposed higher BASIX standards.



*Actual size depends on location and efficiency of other appliances

8. Will the higher standards increase the cost of construction?

Modelling from the cost-benefit analysis by ACIL Allen found that an average house in Western Sydney will cost an additional \$7,152 to build, and an average high-rise apartment unit an additional \$831 to \$953 to satisfy the higher standards. However, these costs over the lifetime of a mortgage are offset by the lower ongoing energy bills, which will also increase the household's disposable income. Examples of projected energy bill savings are outlined in the response to Question 9 below.

9. What are the benefits of the higher standards?

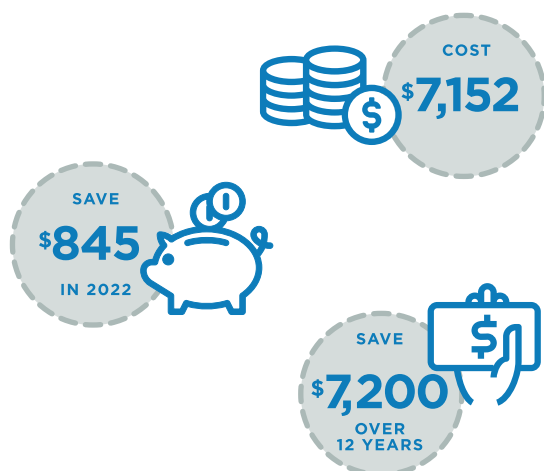
Cheaper energy bills

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

- Occupants of new high-rise apartment blocks in suburban Sydney could save between \$91 and \$196 on yearly energy bills.
- Occupants of houses in Western Sydney can save \$840 to \$850 on yearly energy bills in 2022. Those living in large houses in Western Sydney could save \$365 on yearly energy bills.
- Energy bill savings for people living in regional areas varies with locations. Those in Wagga Wagga will save \$330 and those in Dubbo could save \$981 on yearly bills.

The energy bill savings will also reduce financial stress on households.

An average home meeting the higher BASIX standards will:



More comfortable homes

Homes meeting the proposed 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.

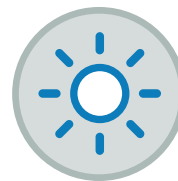
Lower carbon emissions

The proposed 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:



Save money



Be more comfortable



Feel better

10. Does the proposed higher BASIX standard allow all-electric homes?

Yes. Homes with electric heat pump hot water systems, efficient reverse cycle air conditioners and induction cooktops can achieve the higher BASIX standard. These homes are net zero carbon-ready as renewable energy systems such as solar panels can offset their greenhouse gas emissions.

Cost-benefit analysis – overview

ACIL Allen prepared a report that investigates the costs and benefits of increasing BASIX standards. Frequently asked questions about the report are answered below.

1. What is the purpose of the cost-benefit analysis?

The purpose of the BASIX cost-benefit analysis is to evaluate the advantages and disadvantages of setting higher thermal performance requirements and energy standards for buildings. These proposed BASIX standards align with the proposed increases in energy-efficiency requirements in the National Construction Code, which are planned for 2022.

In its analysis, ACIL Allen follows a similar methodology to the Consultation Regulation Impact Statement for the proposed increases in National Construction Code 2022 requirements, released on 20 September 2021.

2. What options did the analysis consider?

BASIX cost-benefit analysis models the extra upfront costs and benefits from the higher thermal performance and energy standards based on the 2 options (Options A and B). Table 1 summarises the specifications for the 2 options.

The BASIX water standards stay the same and are not considered in the cost-benefit analysis.

3. What does the analysis show?

The cost-benefit analysis estimated the costs and benefits associated with the higher BASIX standards at the statewide and individual household levels.

The cost-benefit analysis found that both Options A and B produced a benefit-to-cost ratio (BCR) of less than one at the statewide level. A BCR of less than one means that the option is not cost beneficial and results in a net cost.

Option A has a BCR of 0.36 after benefits from energy savings, carbon emission offsets and quantifiable health benefits are included. In other words, Option A is estimated to bring \$0.36 of benefits to NSW from each dollar spent.

The BCR of Option B is lower at 0.16, or a benefit of \$0.16 from each dollar spent.

Table 1. Options A and B in the BASIX cost-benefit analysis

OPTIONS	SPECIFICATIONS
Option A: A higher increase in standards	Thermal performance: — Equivalent to 7 stars, as defined by the Nationwide House Energy Rating Scheme (NatHERS) Energy standards: — 30% lower energy use budget than Option B — Two scenarios with gas and electric hot water systems were considered
Option B: A lower increase in standards	Thermal performance: — Equivalent to 7 NatHERS stars Energy: Consider the outcomes equivalent to the central case specifications in the Consultation Regulation Impact Statement for the National Construction Code: — Heating and cooling equipment: equivalent to 3-star rated air conditioners — Hot water system: 5-star gas instantaneous system — Lighting: 4 Watts per square metre

In contrast, the BCRs of the options at an individual household level are much higher, especially under Option A. The BCRs for dwellings considered in the cost-benefit analysis are higher than one, except for the house modelled in Ballina (North Coast climate zone) (DH9*) and the low-rise apartment building (LR*) across NSW.

BCRs between the statewide and individual household levels are significantly different because:

- wholesale energy prices are used to estimate the benefits of reduced energy consumption at the statewide level, while retail prices are used to measure BCR at the household level
- other energy users may need to pay more in energy bills to compensate for the bill savings from households in new homes that meet the higher standards, as energy retailers need to recover the fixed network costs and other overhead costs
- the cost-benefit analysis does not quantify some of the benefits to health and wellbeing of occupants, and indirect effects on the energy system and public spending.

Based on results at the individual household level, higher BASIX standards could apply to locations and building types with BCRs higher than one under Option A – that is, new homes across NSW, except houses in the North Coast climate zone and apartment buildings of 5 storeys and lower.

4. Are there any differences between the National Construction Code impact statement and the BASIX cost-benefit analysis?

Yes. The BASIX cost-benefit analysis examines the effects of the proposed increases in more detail. This includes;

- expanding the dwelling sample to cover more locations in NSW.
- investigating the extra costs and benefits relative to the current BASIX requirements in NSW.

Apartment buildings

The BASIX cost-benefit analysis considers the energy standards for apartment buildings. This includes the energy efficiency of units as well as shared services. For example, central hot water systems and solar panels.

The impact statement for the National Construction Code considered apartment units only.

**These are codes used in the CBA report*

Proposed changes to the National Construction Code 2022 only cover the energy efficiency requirements of units.

Calculations in the BASIX cost-benefit analysis are consistent with the impact statement for the National Construction Code.

The BASIX calculation method was used to calculate energy savings between the options and the business-as-usual scenarios. The calculations will be different from those reported in the impact statement for the National Construction Code.

Appendix B of the BASIX cost-benefit analysis explains how it differs from the impact statement for the National Construction Code.

5. Does the BASIX cost-benefit analysis use the same base case as the National Construction Code impact statement?

For thermal performance, yes.

For thermal performance, the BASIX cost-benefit analysis has the same base case as the National Construction Code impact statement. The base case is set at 6 NatHERS stars for all jurisdictions. Both the BASIX cost-benefit analysis and National Construction Code impact statement recognise that there is a level of over-compliance, and many dwellings are built at ratings higher than 6 stars.

For energy usage, no.

The base cases used in the BASIX cost-benefit analysis were higher than the baseline for the National Construction Code impact statement because:

- the 2019 National Construction Code provisions do not have the same performance-based requirements for energy usage that covers the entire house as BASIX does
- base cases in BASIX cost-benefit analysis were determined by how BASIX-affected buildings satisfy the current BASIX standard for energy.

6. What greenhouse gas emission factor did the analysis use for grid electricity?

ACIL Allen used the 2021 emissions factor from grid electricity in NSW to calculate the greenhouse gas emissions from operation of the base-case buildings.

They used projected emission factors from 2022 onwards to estimate emissions from the operation of buildings considered under Options A and B.

Emission factor from grid electricity is the amount of greenhouse gas (for its carbon dioxide equivalent, CO₂-e) emitted from a unit of electrical energy generated and transmitted through the grid to households.

7. What energy prices did the analysis use?

Wholesale energy prices were used for the economy-wide modelling of benefits. Retail energy prices were used to model benefits at the household level.

These energy prices were also used in the Consultation Regulation Impact Statement for the National Construction Code.

8. Did the analysis model prices of gas and electricity over time?

Yes. ACIL Allen modelled the price of gas and electricity going up over time from 2022 to 2061. The forecast prices of gas and electricity generally increase from 2022 to 2040 and remain steady from 2040 to 2061.

9. How do the options in the analysis compare with homes being built in NSW now?

The comparisons vary for locations across NSW.

For a detached house in Sydney:

- 10% of homes have BASIX energy scores equivalent to Option A or higher
- 15% of homes have BASIX energy scores equivalent to Option B or higher.

For houses in Ballina, however:

- 70% of homes have BASIX energy scores equivalent to Option A or higher
- All homes achieve BASIX energy scores equivalent to Option B.

10. How do hot water systems and air conditioners in the analysis compare with homes being built in NSW now?

Approximately 76% of houses in NSW have gas instantaneous hot water systems that meet current BASIX requirements.

The analysis considered that most of the houses would still specify gas instantaneous systems in Options A and B.

Less than 5% of houses in NSW have specified air conditioners with the same efficiency as the 3-star rating. The analysis considered that 3-star air conditioners will be specified in Option A (electric hot water system) and Option B.

The heating and cooling system specifications in Option A (gas hot water system) are typical in houses over-compliant with current BASIX requirements. Around 20% of the houses in Sydney are over-compliant with current BASIX requirements.

11. Does Option B require air conditioners? Homes with good passive design do not necessarily need them.

A home with good thermal performance has a reduced need for heating in winter and cooling in summer.

We have assumed in the cost-benefit analysis modelling that installing an efficient air conditioner will service the modest heating and cooling needs of a NatHERS 7-star home. Of course, installation of an active heating and cooling system (such as an air conditioner) is a choice for those building a new home. Upfront costs could be reduced by relying on the sun to warm the home in winter, and shading and good air flow to cool in summer.

12. Did the analysis consider how the extra costs might be offset, such as choosing to build smaller houses?

The extra upfront cost of meeting the proposed BASIX standards has little effect on disposable income when factored into the average mortgage over 25 years. This is because a small increase in monthly mortgage payments is offset by energy bill savings.

A smaller build would reduce both the upfront cost of construction and energy bills because less energy would be required to heat and cool the home.

Materials index

1. Why are we introducing a materials index?

The NSW Government's Net Zero Plan aims to reduce greenhouse emissions from buildings. To do this, we need to reduce the embodied emissions of the materials used in constructing new buildings 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.

2. How will the materials index work?

The BASIX materials index calculates the embodied emissions of a home and compares it to a benchmark. This is also how the other BASIX indices work.

The home's embodied emissions must not exceed a BASIX score of 12.5 tonnes CO₂ per person for houses, and 9.4 tonnes CO₂ per person for apartment buildings.

The BASIX materials index will calculate the embodied emissions of a home by:

- estimating the volume of different materials used in the home's construction, based on materials selected
- applying an emissions factor for that material.

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 will be based on the well-recognised EPiC database.

3. What can I do to make my design meet the materials index requirements?

To improve the materials index score (i.e. reduce the embodied emissions), the building designer can either:

- use less of a particular material. For example, changing the home's design, or
- substitute one building material for another building material with lower embodied emissions.

4. Do I need to use the default factors?

In most cases, yes. However, if your material isn't included in the BASIX materials index you can use the BASIX alternative assessment process to submit information verifying the emissions factor of your material. We will review the documentation and if approved, we will substitute the emissions factor into the calculation for you.

5. Won't using lower embodied emissions materials like timber reduce the home's thermal performance?

No, the design will still have to meet all the other BASIX requirements such as thermal performance, energy and potable water use.

BASIX provides flexibility for the designer to choose the materials, appliances and other design elements for the home to meet all the BASIX requirements.

The materials chosen will affect the cost, embodied emissions and the thermal performance of the home.

6. Will the standards change?

The standards have increased moderately and could change as we gather more information. We will consider increasing the standard as demand for low embodied emissions materials grows.

Demand for lower embodied emissions materials is still developing as the building design and construction industry adjust to these changes.

For these reasons, we have set the initial standard at a relatively modest level. Over time, as we gather more data, and the market for low embodied emissions materials develops, we will examine increasing the standard.

Merit assessment pathway

7. Can I trade off the materials index requirement by achieving a higher score for (operational) energy use?

No, meeting the materials index standard will be a standalone requirement. This means that you won't be able to trade-off by achieving a higher score for (operational) energy or any of the other BASIX components.

As we gather more data about embodied emissions, we will investigate the possibility of linking the embodied emissions and operational emissions requirements.

8. How will the selected materials be checked?

The certifying authority will check the materials with other commitments on a BASIX certificate. This happens at the construction certificate and/or occupation certificate stage.

The materials selected by the designer in the BASIX assessment will form part of the commitments in the BASIX certificate.

9. Why aren't you including 'end of life' emissions?

- There is less data available to generate reliable estimated emissions
- The current BASIX requirements regulate the design of a new home but do not specify requirements at the end of a home's life.

We recognise the effect that the reuse, recovery and recycling of materials can have on a home's embodied emissions at the end of its life. This is being investigated by areas government and industry to understand the 'end of life' issues in more detail.

1. What is the Merit Assessment Pathway?

The Merit Assessment Pathway (MAP) gives the flexibility to use other methods to assess the sustainability compliance of a residential design.

The same residential sustainability standards apply whether the design is assessed using the BASIX tool or the MAP.

These standards are specified in Schedule 1 of the Design and Place State Environmental Planning Policy. It includes standards for thermal performance, energy and water use and embodied emissions.

2. Why are we introducing the Merit Assessment Pathway?

The Merit Assessment Pathway has been introduced to broaden the options for designers to demonstrate compliance with residential sustainability standards in the planning system.

3. Who can use the Merit Assessment Pathway?

The Merit Assessment Pathway can be used for any residential development that requires a BASIX certificate. Including, houses, townhouses and apartments.

Only a qualified person can assess and declare that the proposed development meets the residential sustainability standards. The qualified person must be

- a Registered Architect
- a Chartered Professional Engineer
- an accredited Member of AIRAH

Declarations will be made in the NSW Planning Portal. A report demonstrating how the sustainability standards have been achieved must be uploaded to support the declaration. They will be bound by the code of conduct from their professional accreditation in undertaking this assessment and declaration.

4. I'm an Accredited NatHERS Assessor, am I a qualified person?

No. Accredited NatHERS assessors are accredited under the Nationwide House Energy Rating Scheme to conduct thermal performance simulations using NatHERS accredited software.

NatHERS simulations of thermal performance are accepted as inputs to the BASIX tool. These assessments must be performed by a NatHERS accredited assessor.

If using NatHERS to demonstrate compliance, development proponents should use the BASIX tool, not the Merit Assessment Pathway.

5. Which modelling software can I use with the Merit Assessment Pathway?

To demonstrate compliance with the thermal performance and energy standards, only energy modelling software that meets the international technical standard (ANSI/ASHRAE standard 140-2017) may be used. This standard is used to assess whether a software program or tool is an accurate and reliable energy modelling tool.

NatHERS accredited software and Passive House software cannot be used for the Merit Assessment Pathway as this software can already be used to generate a BASIX Certificate.

Modelling of sustainability parameters must be undertaken using the *Merit Assessment Pathway Modelling Rules* which are being developed and will be available before the proposed new SEPP commences.

If you are unable to find alternative software to simulate the consumption of potable water per occupant, you can use the BASIX software. We will make a standalone BASIX water calculator available to those who wish to use it for the Merit Assessment Pathway before the proposed new SEPP commences.

We are not specifying any particular software for simulating embodied emissions and water. However, standard inputs and assumptions are to be used in all calculations.

6. What do I need to demonstrate compliance under the Merit Assessment Pathway?

1. A qualified person assesses the design using approved modelling software to check compliance with the BASIX sustainability standards.
2. Each of the design elements that contribute to the sustainability standards should be nominated in the Planning Portal.
3. A checklist is created for the accredited certifier. The checklist ensures that the sustainability attributes are shown on the development application (DA) and construction certificate (CC) plans. And that they are built as promised for an occupation certificate to be issued.

For example, if rainwater harvesting is used in calculations to reduce the consumption of mains-supplied potable water, the appropriately sized rainwater tank must be shown on the DA and CC plans and listed as a sustainability commitment on the Merit Assessment Report. This also applies to complying development.

4. Once assessed as compliant, the qualified person will declare that the design meets the BASIX sustainability standards specified. They will then generate a Merit Assessment (BASIX-equivalent) report in the Planning Portal.
5. The Merit Assessment report will be lodged with the development application (or complying development certificate). This can all be done electronically using the NSW Planning Portal.

7. What commitments do I need to show on the plans for Merit Assessment?

The design inclusions such as materials, solar panels, hot water system and glazing specifications will need to be shown on the DA (or CDC) and construction certificate plans.

8. Does anyone check the compliance of the design?

Yes. The Department of Planning, Industry and Environment will be auditing reports submitted through the Merit Assessment Pathway to check for compliance with the assumptions prescribed in the modelling rules.

BASIX sandbox tool

1. What is the BASIX sandbox tool?

The BASIX sandbox tool is a new beta version of the BASIX tool which is integrated into the Planning Portal. We are developing the new tool in stages and plan to launch it in late 2022 to replace the existing BASIX tool. The new tool includes the higher proposed energy and thermal performance standards.

RELEASE NUMBER	RELEASE DETAILS	TIMING
1	Single dwellings only	Dec 2021
2	Release 1+ multi-dwellings	Early 2022
3	Operational	TBC 2022

2. Can I try out the BASIX sandbox tool?

Applications to use the first stage of the BASIX sandbox tool have closed. We will invite applications to use Release 2 of the sandbox tool in February 2022.

3. How can I test the effect of the proposed higher standards on my design?

You will be able to test the effect of the higher standards at different stages of the sandbox tool's development:

- Stage 1 – test how proposed higher energy standards affect the design of single dwellings (i.e. houses and townhouses)
- Stage 2 - test how proposed higher energy standards affect the design of multi-dwellings (i.e. apartment buildings)
- the Materials Index and DIY method for calculating thermal performance will be available when the new BASIX tool is live in late 2022.

4. How can I use NatHERS accredited software to understand proposed thermal performance changes?

To estimate how the proposed higher thermal performance standards will affect your design, NatHERS accredited assessors can simulate the design using existing NatHERS accredited software to meet the relevant higher standards.

Note: NatHERS software only indicates what is required for the home. Key NatHERS inputs, such as the climate files, are being updated. To understand the true impact of higher BASIX thermal performance standards on an individual design, you will need to wait until new versions of NatHERS accredited software are released. We understand this will occur during 2022.

Alternatively, summary information about the effect of the higher thermal performance standards on a range of different building designs in different locations can be found on the NatHERS website.

Transition arrangements

1. If I already have a BASIX certificate will I need a new one?

The new BASIX standards are proposed to apply from late 2022. Any BASIX assessments completed after that time will need to meet the new BASIX standards. If you generate a BASIX certificate before that time, you do not need a new BASIX certificate, provided you lodge it with your development application or complying development certificate within the three-month certificate validity period. In line with the current rules, you can revise the lodged certificate during the assessment period or after receiving development consent.



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General Policy Overview FAQs

How are Class 2 building requirements in the Design Building Practitioner's Regulation and the Environmental Planning and Assessment Regulation aligned?

The requirement to use a registered architect for residential apartment development (3 or more storeys and 4 or more dwellings) has been carried over from SEPP 65 to the DP SEPP. The DBP Regulation already took account of this requirement in its drafting, and no further restriction on the skills required by the DBP Regulation has been made. Conversely, the skills, knowledge and experience required of architects for the purposes of the DBP Regulation (which is broader than the qualifications in SEPP 65) will now be reflected in the policy package to ensure alignment.

How will development under the Codes SEPP be harmonised?

The policy package does not amend the Codes SEPP, nor will it apply to development permitted under that policy. Any future updates of the Codes SEPP will consider the DP SEPP principles and considerations where appropriate.

How does a green travel plan work?

A public transport accessibility level (PTAL) map showing the relevant PTAL measures across NSW will be published on the Department's Spatial Viewer. The Application Form will also provide specific information on the PTAL that applies to the site address entered. Where part or all of the site is within a PTAL 6 area (either 6a or 6b), the applicant may submit a Green Travel Plan in respect of that area which sets out the strategies for accessing the site by various transport modes.

To the extent that a Green Travel Plan justifies less car parking, the applicant cannot be held to higher minimum parking numbers. Maximum parking numbers will continue to apply. Conditions of consent may be included to enforce the measures proposed by the Green Travel Plan – for example if 10 car spaces are proposed to be replaced with 1 car share space, the consent authority may impose conditions designating the car space, the engagement of a car share provider, and any other reasonable conditions such as the hours or means of access.

This mechanism does not automatically eliminate the need for developments to provide parking – the Green Travel Plan will still need to justify the parking rate by reference to the local context, and the development will need to deliver any offset measures that are relied on.

What changes will I need to make to a Statement of Environmental Effects?

Applicants will need to provide consent authorities with a description of how the principles of the DP SEPP have been addressed, by reference to the considerations. The intent is for applicants to use the principles and considerations to thematically group the content of their SEE, rather than as an additional layer of information.

These changes focus this information on specific issues to be addressed and directs assessment to the qualitative outcome sought rather than compliance with a given list or criteria.

What changes will I need to make to a design verification statement?

Where a DA is lodged for residential apartment development, it must be accompanied by a design verification statement that:

- is prepared by an architect (within the meaning of the SEPP),
- verifies the signatory is a registered architect who designed or directed the design of the development,
- explains, with reference to the ADG, how each of the objectives in that guide have been achieved, either by meeting the criteria and guidance of the ADG or using an alternative design solution that meets the objective to the satisfaction of the consent authority.

Where a DA is lodged for development to which the UDG applies, it must be accompanied by a design verification statement that:

- is prepared by an urban designer (within the meaning of the SEPP)
- verifies the signatory that the urban designer has the requisite precinct or master planning experience and either designed or directed the design,
- explains, with reference to the UDG, how each of the objectives in that guide have been achieved either by meeting the criteria and guidance of the UDG or using an alternative design solution that meets the objective to the satisfaction of the consent authority,
- in the case of State significant developments, explain the involvement of Aboriginal stakeholders and how they have had input to the development,
- in the case of State significant developments, explains how the development respects and acknowledges the intellectual property of local Aboriginal communities.

Where a DA is lodged that involves public or common spaces greater than 1,000 square metres (e.g. an open space or park), or a master plan, it must be accompanied by a design verification statement that:

- is prepared by a landscape architect (within the requirements of the SEPP)
- verifies the signatory is a landscape architect who designed or directed the landscape design or master plan,
- explains, in terms of the Urban Design Guide, where relevant, how each of the objectives in that guide have been achieved, either by meeting the criteria and guidance of the UDG or using an alternative design solution that meets the objective to the satisfaction of the consent authority,
- in the case of State significant developments, explain the involvement of Aboriginal stakeholders and how they have had input to the development,
- in the case of State significant developments, explains how the development respects and acknowledges the intellectual property of local Aboriginal communities.

There are additional requirements that should apply to development required to go to a design review panel, and for which a design verification statement must be prepared. In this situation, the design verification statement must also demonstrate:

- that the design of the development incorporates the advice of the panel,
- how the proposed development remains consistent with that advice, and

- where it departs from that advice, how the proposal still satisfies the principles and considerations of the SEPP.

How do the principles get used in assessment?

The considerations of the DP SEPP provide specific means for assessing whether the principles have been met. Each principle has two considerations that address the primary concerns that the consent authority must be satisfied with in order to give consent. These are necessarily general as they apply to a range of development types and scales.

The principles and considerations are also cascaded into typology-specific objectives in the guides. This recognises the design parameters that are specific to the typology or scale of design. An apartment owner (unlike, say, the owner of a house) cannot reconfigure their dwelling to change its outlook or landscaped area, and so specific objectives for this typology relating to solar access and balcony size ensure applicants and assessors provide this amenity to future owners and occupants 'by design'. Likewise, it is difficult to deliver public space and walkability or reveal Country on a site-by-site basis, and getting these parameters right on a neighbourhood scale, informed by urban design objectives, and then enshrining context-specific outcomes in development control plans, makes the delivery of the high-level principles straightforward in downstream development.

Apartment FAQs

Can I still use the ADG design criteria?

Apartment developments must be consistent with each of the ADG objectives. To demonstrate this consistency, a proposal can choose from two options: meet the ADG's design criteria and guidance, or proposal an alternative design response that delivers a neutral or beneficial planning outcome and meets the objective to the satisfaction of the consent authority.

What happens if I don't meet one of the criteria?

If it is not possible to satisfy the design criteria, for example, due to site constraints, the development application must demonstrate how a proposed alternative design response will still achieve the objective; the ADG's design guidance can help with this.

Documentation of the design process and response, including technical submissions or other evidence to support alternative designs where relevant, is critical to support a development application by demonstrating that the proposal delivers the best planning outcome for that site.

Urban design FAQs

Do I need to prepare a master plan and a site specific DCP?

Where the consent authority requires a site specific DCP, and or a master plan, you will need to deliver these requirements as detailed by the consent Authority. All urban design development will require a qualified urban designer to prepare a design verification statement to demonstrate how a proposed design meets the UDG objectives set out in Part 2 of the guide.

Are there exceptions?

A DCP will not be required if a DCP is already being complied with that applies to the site.

What are the key design criteria that are being introduced for sites above 1ha?

The Urban Design Guide will include design criteria for the following:

- Minimum gross residential densities of 30 dwellings per ha are provided in and around:
 - o Activity centres within 5 minutes' walk of neighbourhood shops, neighbourhood centres or local centres, and/or
 - o 10 minutes' walk of strategic and metropolitan centres, regional towns and cities.
 - o 10 minutes' walk of high frequency public transport
- The minimum average gross residential density is 15 dwellings per ha if not called out in the neighbourhood catchments above.
- All homes are within 15minute to 20minute walk of a collection of local shops, primary schools, public transport, supermarkets or grocery stores.
- Sunlight and shade provisions for Public Open Space, and sunlight provisions for significant places of heritage and cultural significance.
- Percentage (15%) of net developable area as freely accessible public open space.
- Public open space of varying sizes within walking distance of all residents and workers, achieving access benchmarks
- Street design to include dwell space and buffers in accordance with the local council requirements or as set out in the Urban Design Guide.
- Urban tree canopy benchmarks achieved
- Maximum block length of 160-220m in residential and mixed use areas, with industrial areas 220-250 metres and mid-block connections no more than 130m apart within walking catchments of key destinations and centres

Where can I find more information on the tree canopy targets and open space provision?

The UDG provides guidance on urban tree canopy and public open space provision in section two of the guide and the appendices. Specific objectives have been established to deliver tree canopy (see Objective 10). The provision of public open space is detailed in Objective 12. These objectives are supported by design criteria and guidance.

Does advice relating to Greener Places apply to sites under 1ha as well?

The Draft Greener Places Design Guide is not a guidance document under the DP SEPP, but is a reference tool for the planning, design and delivery of Green Infrastructure in urban areas across NSW.

How are the SEPP and UDG addressing density and amenity?

The DP SEPP asks consent authorities to consider of how development over 1 hectare is making efficient use of land. Specifically, the consent authority is prompted to consider whether the design controls of residential land (R1 to R4) and mixed use centres are capable of achieving a minimum density – that is, whether the primary development controls of permissible uses, height, FSR and

site coverage, when taken together, enable walkable vibrant areas to be created. Not every site will achieve this density – nor is that desired as housing diversity within the permissible range is sought.

In areas of higher amenity and accessibility, the density target is higher. This is because access to centres and public transport determines access to a range of opportunities, including work, goods and services and destinations such as health precincts, high schools and universities, parks and beaches. The target does not apply to non-residential or mixed-use, as offices, shops, parks and schools also support residential, and themselves may be destinations accessed by that same public transport.

These density targets must be read together with the other design criteria of the Urban Design Guide that foster amenity – such as locating dwellings within 20 minutes of shops, district parks and schools, and within 5 minutes of local parks.

BASIX FAQs

Do the new BASIX standards align to proposed National Construction Code 2022?

The NCC is proposing new energy performance requirements in 2022 for residential development and we have modelled similar options to NCC for BASIX. We are aiming to align with the NCC requirements, however their proposed targets for 2022 remain subject to separate consultation, as is the case for BASIX.

Sustainability FAQs

How will the Design and Place SEPP support NSW commitment to achieve net zero by 2050?

The proposed measures in the SEPP will help ensure buildings in NSW will operate at net zero well before 2050.

The proposed new measures for buildings encourage earlier consideration of net zero design features through the requirement of a 'Net Zero Statement' and by enabling the charging of electric vehicles.

The SEPP also provides the settings for new developments to move towards net zero embodied emissions. Under business-as-usual, embodied emissions will be responsible for 85 per cent of total carbon emissions in 2050 from Australia's buildings.

The SEPP will enable important data to be captured on quantities of materials and construction practices which will help inform benchmarks and future targets. The proposed SEPP is an important step change for buildings in NSW to meet our net zero objectives. The new settings provide improved flexibility and ability for industry to lead and respond to the requirement to achieve net zero emissions and move towards a circular economy.

How will these sustainability provisions be updated over time?

The NSW planning system does not currently capture or monitor modelled operational emissions, water or embodied emissions performance for new non-residential buildings. These proposed sustainability performance standards and compliance pathways will enable NSW to gain access to new or improved data that will inform future benchmarks and targets in the SEPP and other planning and regulatory settings.

The SEPP will be updated periodically to drive high performance and align with industry best practice. The stringency of performance requirements will likely increase in future SEPP reviews as various markets mature. For example, the market for low emissions materials is anticipated to grow over the next few years as NSW develops a framework for measuring and setting targets to reduce embodied emissions of building materials through the Accelerating Net Zero Buildings program. Similarly, the electric vehicles market is expected to grow substantially in the next few years, providing for additional data that can be used to better plan for public electric vehicle charging infrastructure.

Why are there different requirements for residential and non-residential development?

The SEPP asks for resource efficiency and emission reduction to be considered in all new developments including commercial development. In NSW, residential sustainability design is regulated and informed by BASIX and the Apartment Design Guide. Non-residential developments are regulated by the National Construction Code and informed by NABERS and Green Star.

Residential and commercial developments are quite different in size, occupancy, use requirements, building materials, fabric and volumes, and are built for fundamentally different purposes and at various scales. The SEPP provides an opportunity to gather relevant information to set performance settings that are fit-for-purpose for non-residential developments and in our New South Wales policy context.

The scale of non-residential buildings and the increased sophistication of professional asset owners and operators creates the opportunity for non-residential assets to cost-effectively achieve net zero more quickly.