

PART J
Building Sustainability

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1 Introduction

Willoughby City Council is committed to environmental sustainability and contributing to the conservation of natural resources and global environmental improvement.

This part of Willoughby Development Control Plan (Willoughby DCP) considers the objectives of *Environmental Planning and Assessment Act 1979* and Clause 1.2(2)(b) of Willoughby Local Environmental Plan (Willoughby LEP) for ecologically sustainable development.

1.1 Aim

The aim of this part is to apply best practice principles in the design and construction of developments to create energy efficient and environmentally sustainable buildings.

1.2 Objectives

The objectives of this part are to:

a. improve the design to achieve sustainable and energy efficient buildings with low greenhouse gas emissions

b. reduce waste and promote the adaptable reuse of existing buildings and encourage durable design and construction that is adaptable and low maintenance

c. encourage the use of renewable energy and alternative water supply

d. improve resident and employee comfort, health and wellbeing

e. reduce natural resource consumption and source materials responsibly

f. encourage sustainable water management

g. consider climate adaptation and resilience

h. promote sustainable transport management

1.3 Statutory controls

National and state controls provide mandatory requirements to meet energy efficiency targets in the design and construction of buildings. These controls are in the State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004 (BASIX SEPP) and the National Construction Code.

The National Construction Code identifies the class of building for different types of development. Volume 1 has the requirements for Class 2 to Class 9 buildings. Volume 2 has the requirements for Class 1 and Class 10 buildings. Attachment 1 of this part has a guide to the building classifications.

1.4 Best practice

The objectives of this plan can be achieved by incorporating best practice design principles and initiatives into a development proposal. Attachment 2 includes criteria that should be considered to achieve the best possible outcome for energy efficient and sustainable developments.

The design principles in Attachment 2 will contribute to compliance with the statutory requirements and/or satisfy some of the components of a sustainability rating tool. Applying these principles is likely to reduce the need for active/mechanical heating and cooling and provide long-term cost savings by reducing energy consumption.

For more information and ideas to help integrate sustainability into a development project, see willoughby.nsw.gov.au/environment

2 Minor developments

2.1 Definition of minor developments

In this part, 'minor developments' include construction of, and alterations and additions to:

a. single dwellings

b. attached and detached dual occupancies

c. boarding houses not exceeding 300m^2 and 12 persons

d. attached dwellings of not more than two storeys

e. secondary dwellings

Alterations and additions include ancillary structures such as garages, carports, sheds, studios, swimming pools, gazebos and the like.

2.2 Building Sustainability Index (BASIX)

A BASIX Certificate must be included in a development application for all new residential construction. This includes alterations and additions to Class 1a, 1b, 2 and 4 buildings with an estimated cost exceeding $50,000. A BASIX Certificate is also required for the addition of a swimming pool or spa with a combined volume exceeding 40,000 litres.

This certifies that the residential development will meet the required environmental targets for energy, water and thermal comfort.

Notes:

- The BASIX SEPP states that a development control plan cannot include provisions that exceed the minimum BASIX standards. However, Willoughby City Council encourages proposals with sustainability initiatives that exceed minimum regulatory requirements.
- Willoughby City Council cannot approve a development application for residential development that exceeds $50,000 or a swimming pool/spa with a volume exceeding 40,000 litres if they do not achieve the minimum BASIX score.
- The BASIX certificate must be generated no earlier than three months before the development application date.

More details on BASIX are available from the Department of Planning, Industry and Environment at planningportal.nsw.gov.au/basix.

Applicants are encouraged to incorporate, wherever possible, the best practice design principles and initiatives detailed in Attachment 2.

3 Major developments

3.1 Definition of major developments

For this component of the plan, 'major developments' include construction of, and alterations and additions to:

a. residential accommodation comprising: attached dwellings with 3 or more storeys; hostels and boarding houses exceeding 300m^2 and 12 people; multi dwelling housing; residential flat buildings; seniors housing; and shop top housing

b. new buildings, alterations and additions, and refurbishment of commercial, industrial, indoor recreation facilities and institutional developments

Notes**:**

- Institutional development includes community facilities, educational establishments, childcare centres, places of public worship and public administration buildings.
- Indoor recreation facilities include gymnasiums, health studios, squash courts and indoor swimming pools.
- Depending on the size and scale, an authorised officer may determine that a proposed development is not considered ‘major development’.
- An authorised officer is an employee with delegated authority to make decisions on behalf of Willoughby City Council.

3.2 General requirements

As a minimum, all major developments must consider the best practice design principles and initiatives outlined in Attachment 2.

Depending on the scale of development, the following requirements apply:

a. for developments with an estimated cost between $750,000 and $5 million, a sustainability performance statement must be included with the development application

b. for developments with an estimated cost between $5 million and $30 million, projects should seek to achieve a minimum 4-star rating using the most recent and relevant Green Star rating tool (or equivalent)

c. for developments with an estimated cost over $30 million, projects should seek to achieve a minimum 4-star rating and aspire to achieve a 5-star rating using the most recent and relevant Green Star rating tool (or equivalent)

Note**:**

- See section 3.3.5 for more information on Green Star requirements.

3.3 Sustainability performance statement

A sustainability performance statement must be prepared by a suitably qualified person and include details of the proposed method intended to be used to achieve an energy efficient and sustainable development. The statement must justify not including any of the design principles and initiatives in Attachment 2.

Willoughby City Council requires a compliance statement before a construction certificate is issued. The compliance statement must be prepared by a suitably qualified person. It must verify the construction certificate plans include the provisions agreed to in the sustainability performance statement.

Note:

- Instead of a sustainability performance statement, applicants may choose to provide a Green Star rating report or similar rating tool.

3.4 National Construction Code

Section J of the National Construction Code requires the design of certain non-residential buildings to satisfy minimum standards to improve energy efficiency. These provisions relate to Class 3 and Class 5 to 9 buildings.

Compliance must be shown at the construction certificate stage. However, the design of an environmentally sustainable building needs to be resolved at the development application stage.

A compliance statement, prepared by a suitably qualified person, must be included with the development application for all Class 3 and Class 5 to 9 buildings. This is to confirm that the energy targets can be achieved in line with the 'deemed to satisfy' or 'performance solution' provisions under Section J of the code.

Notes:

- The Green Star rating tool or NABERS Commitment Agreement can be used to satisfy the 'performance solution' provisions under Section J of the code.
- Where BASIX is not applied to alterations and additions to Class 1 and 2 and Class 4 parts of buildings, the Section J provisions apply to ensure energy efficiency measures are incorporated.

3.5 Green Star

Green Star is a rating system for buildings and fitouts. The design and construction are assessed against nine categories, including energy, water, waste, and indoor environmental quality. A 4-star rating represents 'best practice', a 5-star rating is 'Australian excellence' and a 6-star rating is 'world leadership'.

For developments between $5 million and $30 million, Willoughby City Council encourages the use of Green Star or similar rating tool. If one of these tools is used for these types of development, a copy of the report must be included with the development application. We expect developments to achieve a minimum 4-star Green Star rating or a 'best practice' standard using a similar rating tool.

For developments that exceed an estimated cost of $30 million, applicants must show the design of the proposed development can achieve a minimum 4-star Green Star rating or a 'best practice' standard using a similar rating tool. We expect developments to achieve a minimum 5-star ('Australian excellence') rating under a Green Star or similar rating tool.

Note**:**

- Willoughby City Council requires a compliance statement to verify the Green Star rating can be achieved before a construction certificate is issued. The compliance statement must be prepared by a suitably qualified person.

3.6 National Australian Built Environment Rating Scheme (NABERS)

The commercial building disclosure program is a regulatory program that requires energy efficiency information to be provided in most cases when commercial office space of 1,000m^2 or more is offered for sale or lease. The program requires an up-to-date building energy efficiency certificate. This must be done by an accredited assessor in line with the National Australian Built Environment Rating System (NABERS).

The NABERS Energy for offices rating is a national rating system that measures building performance on a scale of zero to six stars. A zero-star rating means the building is performing well below average and has plenty of scope for improvement. A five-star rating is 'excellent'. A six-star rating is for market leading performance, with half the greenhouse gas emissions or water use of a five-star building.

For more information on the Australian Government program see cbd.gov.au

NABERS can also be used to rate developments such as apartments, hotels, data centres and office buildings, and to rate water, waste and indoor environment quality.

After construction and occupation, these types of development must show compliance with this plan by signing a NABERS Energy Commitment Agreement. This is an agreement to achieve a minimum five-star rating for the base building, whole building or tenancies as appropriate:

a. new residential developments comprising 10 or more apartments

b. new commercial office buildings with a net lettable floor area of 1,000m^2 or more

c. alterations and additions or refurbishment of existing commercial office buildings with a net lettable area of 1,000m^2 and estimated cost of work over $750,000

The NABERS Commitment Agreement must be submitted to the Department of Planning, Industry and Environment and a copy provided to Willoughby City Council before a construction certificate is issued.

The performance rating must be done once the building is fully operational and there is 12 months of energy data collection. A copy of the assessment report should be provided to Willoughby City Council for our records.

A NABERS Energy Commitment Agreement is not required if:

d. the upgrade works would negatively impact on the heritage significance of a heritage listed item under Schedule 5 of Willoughby LEP

e. the costs associated with the energy efficiency upgrade works are unreasonable when compared to the overall estimated cost of works for the alterations, additions and refurbishment

Notes:

- Any application that may impact on a heritage item must be supported by a heritage impact statement prepared by a suitably qualified heritage consultant.
- If it is asserted that the costs are unreasonable, the development application must be supported by a detailed cost report prepared by a registered quantity surveyor, itemising and verifying the cost of the required energy efficiency upgrade works.

For more information on NABERS see nabers.gov.au.

Attachment 1 – National Construction Code building classifications

This table details the class of building and the different types of development.

Table 1: National Construction Code building classifications

Class of building	Types of development
Class 1a	Single dwellings. This includes a detached house or semi-detached dwellings, semi-detached dual occupancies, terraces, townhouses and villa units with fire resisting walls and no basement carpark.
Class 1b	Boarding house, guest house, hostel, or the like, not exceeding 300m^2 and not more than 12 residents.
Class 2	Building containing two or more sole occupancy units. This includes dual occupancies/duplexes (where one unit is above the other), serviced apartments with a kitchen, apartments in shop top housing, and residential flat buildings.
Class 3	A residential building, other than a class 1 or 2 building, including; boarding house, hostel, backpackers accommodation, and retirement villages.
Class 4	A single dwelling within a class 5, 6, 7, 8 or 9 building.
Class 5	An office building used for professional or commercial purposes, excluding class 6, 7, 8 or 9 buildings.
Class 6	Shops and buildings used for supply of services directly to the public, including; café, restaurant, hairdresser's shop, public laundry, showroom, and service station.
Class 7a	A carpark.
Class 7b	Warehouses, storage/display of goods for sale by wholesale.
Class 8	A laboratory or building (factory) for the production, assembly, altering, repairing, packing, finishing or cleaning of goods for trade, sale or gain.
Class 9a	Healthcare building.
Class 9b	Assembly building including halls, libraries, schools, early childhood centres, church, theatre, nightclub/disco, cinema, and the like.
Class 9c	Aged care building.
Class 10a	Non-habitable building such as private garage, carport, shed or the like.
Class 10b	Non-habitable structures such as fences, retaining walls, swimming pools, or the like.

See more information at abcb.gov.au/resources.

Attachment 2 – Best practice design principles and initiatives

These design principles and initiatives should be incorporated into all new developments and where possible, into alterations and additions to existing buildings.

Objective a: Improve the design to achieve sustainable and energy efficient buildings

1. orientate buildings for passive solar control by maximising solar access in winter and minimising heat gain in summer
2. wherever possible, locate living and work areas within the optimum range of 20 degrees west and 30 degrees east of north
3. ensure solar access to existing solar panels or photovoltaic panels on adjoining properties is maintained for at least 3 hours
4. the area of north facing windows should be at least 10–15% of the floor area of the building
5. maximise natural ventilation through adequate window openings and flow paths
6. use appropriate thermal properties/mass for glazing and building materials
7. use effective external shading structures
8. landscaping: include deciduous trees adjacent to north facing windows and a minimum 70% local native plant species
9. buildings should include roof, wall and ceiling insulation that meets or exceeds minimum requirements of Section J in the National Construction Code
10. wherever possible, minimise east and west glazing area
11. maximise natural daylight availability
12. minimise external light pollution
13. provide energy metering to monitor annual energy consumption (MJ/m^2/year) and equivalent carbon emissions per annum (energy management system)
14. provide electricity sub-metering for developments that will consume more than 10,000kWh/annum
15. provide electricity sub-metering for lighting, air-conditioning and power within each tenancy and strata unit for multi-tenant commercial and industrial developments and strata subdivision of residential apartments
16. specify LED lighting
17. install a building management system as a minimum for all major developments
18. select energy efficient systems, appliances and equipment with efficiency controls to minimise use when not required

Objective b: reduce waste and promote the adaptable reuse of existing buildings

1. if a proposal involves demolition of an existing building, demonstrate that consideration has been given to the reuse of whole or part of the existing building

2. consider waste minimisation during design, construction and operation
3. demonstrate that at least 90% of construction and demolition waste (by mass) has been diverted from landfill
4. consider durable design and construction which is adaptable (futureproof) and low maintenance
5. provide for separation and storage of major waste streams onsite during operation including recyclable waste, general waste and composting
6. ensure waste storage rooms are easily accessible
7. set a target of 70% operational waste to be diverted from landfill including compostable organics and green waste

Objective c: encourage the use of renewable energy and alternative water systems

1. reduce the generation of greenhouse gas emissions by using renewable energy sources
2. consider the installation of photovoltaic and solar thermal hot water systems
3. consider rainwater harvesting and reuse to minimise potable water consumption
4. create more resilient, futureproofed buildings by using renewable energy systems and rainwater harvesting

Objective d: improve resident and employee comfort, health and wellbeing

1. maximise daylight while mitigating glare discomfort
2. design for good thermal comfort
3. allow for effective natural cross ventilation whenever possible
4. design mechanically ventilated areas to maintain $C0_2$ levels under 800ppm
5. consider biophilic design principles including provision of indoor plants
6. ensure pollutant generating activities such as high-volume printing equipment have a dedicated exhaust system that has a 100% return air exhausted directly to the outside or printers must have a low emission certificate
7. promote sustainable transport management

Objective e: reduce natural resource consumption and source materials responsibly

1. where possible, minimise natural resource depletion and prioritise responsible materials by specifying materials that:
    - have a high recycled/reused content
    - are responsibly sourced from non-invasive renewable sources free of modern slavery
    - are locally sourced materials
    - have transparent ingredients and supply chain
    - are free of toxic chemicals
    - are free of ozone depleting chemicals

2. aim to provide a use of lifecycle assessment to assist with design decisions and material selection.

Objective f. encourage sustainable water management

1. install water efficient appliances, fixtures and fittings
2. apply drought tolerant, low water use and native landscaping
3. use drip irrigation systems with soil moisture sensors
4. apply water sensitive urban design principles
5. use rainwater collection for reuse
6. collect and reuse greywater

Note:

- For more information on water management and sustainability, see Part I (Stormwater Management) of this plan.

Objective g: consider climate adaptation and resilience

1. provide a climate adaptation plan for major developments, identifying potential risks to people and to the project
2. ensure the climate adaptation plan addresses high and extreme risk factors during the design and operation of the development
3. consider these changes over the expected lifetime of the building:
    - increased average temperatures
    - increased maximum temperatures
    - increased severity of storm events
    - longer periods between rainfall
    - increased flooding risk and sea level rise

Objective h: promote sustainable transport management

1. major developments must submit a transport management plan (green travel plan)
2. car parking areas comprising 10 or more car parking spaces must install electric vehicle charging points at the rate of 1 charging point/10 car parking spaces
3. car parking areas comprising 10 or more car parking spaces must provide at least one car sharing space
4. if mechanical ventilation is required, the mechanically ventilated systems must install carbon monoxide monitoring and variable speed fans (refer to AS 1668.1 Car Park Ventilation)

Note:

- For more information on transport management, see Part F (Parking and Transport Management) of this plan.