Ashfield Council

Interim Development Assessment Policy 2013

Part D2

Building Design & Sustainability

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PART D2 - BUILDING DESIGN & SUSTAINABILITY

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SECTION 1 PRELIMINARY

Introduction

Part D2 is an advisory section on Ecologically Sustainable Development (ESD) and Building Design.

There are national and state laws which have development controls that affect building design and have mandatory requirements for meeting ESD targets. A Policy or Development Control Plan cannot contain any controls which require a higher standard than these laws. The purpose of part is to identify these national and state laws, but also explain that applicants can choose to design buildings which go above the standards set by this legislation.

The legislation is found in BASIX (Building Sustainability Index – currently under review) which is NSW State law, and the Building Code of Australia which is a Federal law. BASIX applies to residential development and requires certain information to be submitted at Development Application Stage. The Building Code of Australia (BCA) applies to other building types and requires certain information to be submitted at Construction Certificate stage. More information on these is given below.

How to use this Part of Ashfield Interim Development Assessment Policy 2013

Ashfield Interim Development Assessment Policy 2013 is a multi-layered document. The objectives and development standards of this Part of Ashfield Interim Development Assessment Policy 2013 cannot be read in isolation. A development application must consider all relevant Parts of Ashfield Interim Development Assessment Policy 2013.

Part A contains an index of the parts and sections in the Ashfield Interim Development Assessment Policy 2013 and guidelines on how to use the Policy; including the steps you need to follow before you prepare your development application.

Relationship of Part D2 to other planning documents

Council will assess a development application according to:

(a) Section 79C of the Environmental Planning and Assessment Act, 1979;

(b) State Environmental Planning Policies;

(c) Ashfield Local Environmental Plan 2013;

(d) Ashfield Interim Development Assessment Policy 2013;

(e) Section 94 Contribution Plans;

(f) Ashfield Stormwater Management Code;

(g) Policies, legislation or studies adopted or recognised y Council that are relevant to the development application.

Lodging a Development Application

Our development application forms can be downloaded (www.ashfield.nsw.gov.au) or contact Council on 9716 1800. The form contains a self-assessment checklist to help you complete your application.

You should also check whether your proposal is 'exempt' (no application required) or is a 'complying development' (can be certified by Council or a private certifier).

Note: If you are proposing a major or complex development or if your proposal is likely to have significant heritage impacts, you should make an appointment to see our pre-lodgement development advisory panel or use our heritage advisory service before you lodge your development application. Call Council on 9716 1800.

SECTION 2 BASIX AND RESIDENTIAL DEVELOPMENT - INCLUDING HOUSES, DUAL OCCUPANCIES AND FLATS

2.1 BASIX (Building Sustainability Index)

Building designs for new houses, alterations to houses, dual occupancies and flat buildings are required to comply with the **BASIX** State Environmental Planning Policy (SEPP). A SEPP is a state planning law that has requirements that cannot be overridden by "lesser" planning laws such as Local Environmental Plans and Development Control Plans.

Council is unable to approve a development application for residential development that does not achieve the minimum BASIX ratings. BASIX sets out requirements on how to achieve water conservation and energy efficiency targets for residential development. These factors affect the architectural composition of a house, they will include principles such as passive solar design, and selection of appropriate building materials for thermal insulation. Rainwater tanks are also one way to achieve the water conservation ratings. Detailed information on this is located on the Department of Planning's BASIX website at www.basix.nsw.gov.au. The website includes an explanation of building design and how this affects environmental targets, sample building design checklists, and a sample of the BASIX checklist form.

A BASIX certificate is required to be submitted to Council with each development application and this certificate certifies that the dwelling proposal will meet the required environmental targets.

2.2 BASIX and the Building Code of Australia.

A second part of the approval process is to obtain a Construction Certificate, which is an approval to build. Documentation for a Construction Certificate must comply with the Building Code of Australia (BCA), and this has technical building requirements for meeting Environmentally Sustainable Design criteria. Many of the BCA design criteria relating to energy conservation will have been met by complying with BASIX, the difference being that the Construction Certificate architectural documentation will supply more technical detail, for example referencing Australian Standards, and providing more drawing information related to building materials and structural components.

BASIX requires that the architectural and landscape documentation on the Construction Certificate must also reflect the BASIX commitments shown on the Development consent drawings.

2.3 Where do you find BASIX and what do you do?

A **BASIX** data checklist is required to filled out on an "on-line tool" (electronically on the Department of Planning's web page), and this electronic checklist computes whether or not the required rating is being achieved by the building design.

The electronic link is at www.basix.nsw.gov.au.

The BASIX checklist may be completed by any person who sufficiently understands building design data. The likelihood of meeting the required BASIX environmental

target scores depends in the first place on whether the required environmental principles have been incorporated into the building design. This requires knowledge of environmental building science by the building designer.

When all the information is inputted into BASIX , a BASIX certificate is issued online . This certificate can be printed out on your home or office printer, and then submitted with your development application.

2.4 Environmental Building Design and going "Beyond BASIX"

Ashfield Council encourages applicants to go BEYOND the requirements of BASIX, and to incorporate as many sustainable design principles as possible, see below for examples.

For houses these design principles are shown on attached **Diagram 1**, for flats the design principles are shown in the **Diagram 2.**

2.5 Particular environmental devices

Solar Hot Water System

Power used for Water heating is one of the largest energy consumptions of a house. Solar Hot Water systems, used in combination with photovoltaic cells, will result in a large reduction in a house's external (power grid) energy consumption.

Solar hot water devices are usually comprised of a flat plate solar collector panels, and an insulated water storage tank, which is usually placed on a roof, or within a roof. Their location needs to be carefully selected.

Gas Hot Water System and Gas Heaters

An energy efficient Gas Hot Water System can be used instead of, or as a booster to, a Solar Hot Water system. Gas heating is also a more environmentally friendly source of heating compared to electricity.

Photovoltaics

These are devices that convert sunshine into electricity using solar cells. They produce a direct current, and the electricity can be used as required during the day or night, or the electricity can be fed into the grid to reduce household energy costs. Photovoltaics can be put in any position on a site that is exposed to the sun. However their location needs to be carefully selected to minimise visual impacts on the streetscape or heritage conservation areas for the same reasons as apply to solar hot water systems.

Rebates may be currently available for photovoltaic installations. Go to

http://www.aglsolarenergy.com.au/solar-power/solar-power-rebates/#recs

for more details.

Rain water tanks

Rainwater tanks can be installed without Council approval provided they meet maximum capacity and certain prescribed development standards set by the State Government.

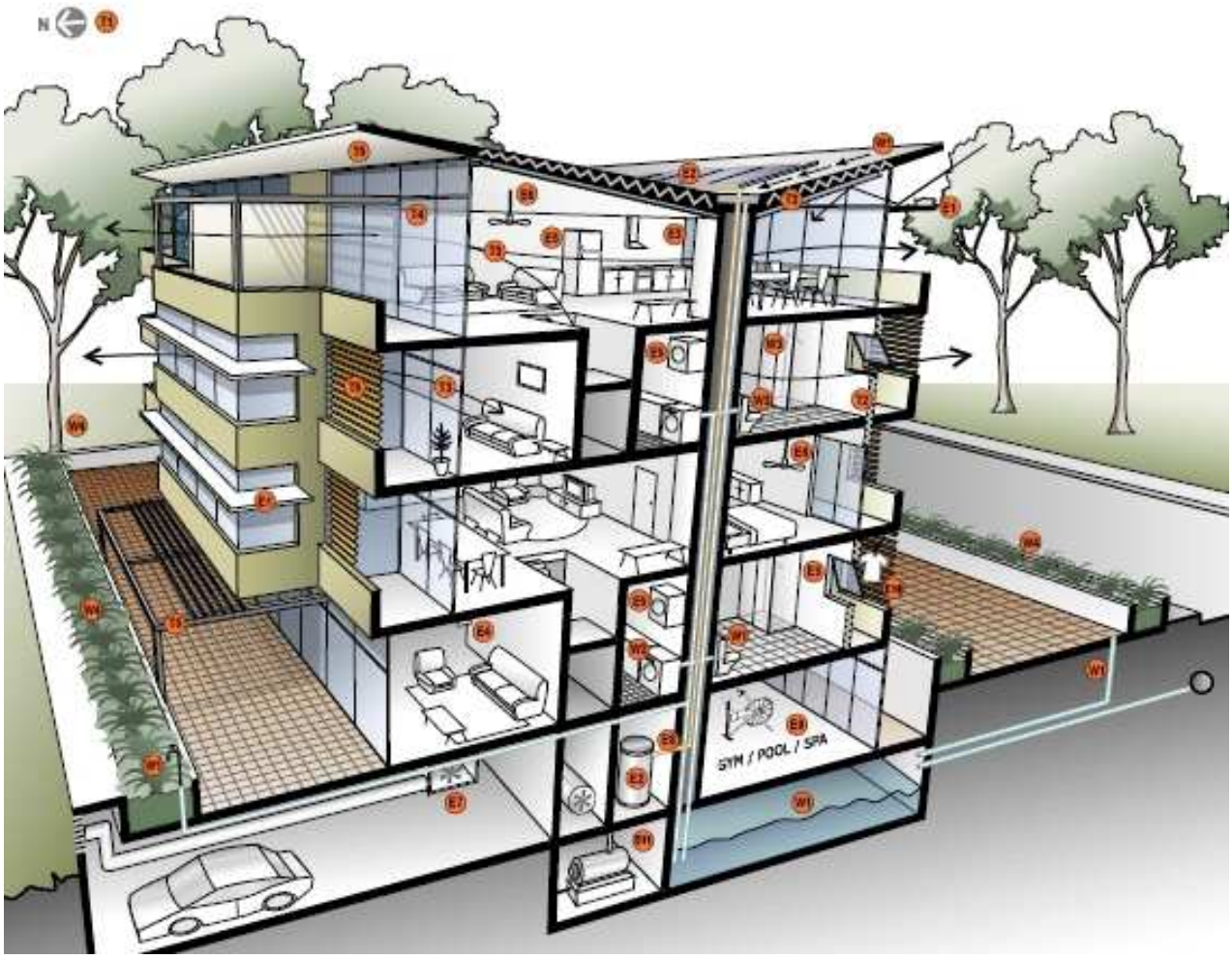
Larger water tanks can be considered and may be placed underground, as shown in **Diagram 2**. These larger tanks (Council approval required) are suitable for flats or mixed use/commercial developments. They have the potential to store large amounts of water, and can be used in combination with "stormwater detention systems" (which are required for stormwater engineering reasons to regulate the water flow rate into the public/street gutters). The tanks can provide water for such things as car washing, grey water for toilets and laundries, washing of pavements, and landscape maintenance.

2.6 BASIX and its relationship to other (architectural) controls

There are many matters that will affect the architectural composition of a dwelling, and BASIX forms one component. Any external "BASIX" building design principles will also need to be compatible with the type of architectural composition required to meet the other controls in this Policy, e.g. streetscape considerations.

DIAGRAM 1
ESD design principles for a house - Source: BASIX website Feb. 2014

DIAGRAM 2
ESD design principles for a flat building **Source: BASIX website Feb. 2014**



ENERGY

E1	Light shelves for improved natural lighting
E2	Solar hot water system
E3	Natural light in kitchen and bathroom areas
E4	Compact fluorescent lights with timers in common area lighting
E5	Energy efficient appliances such as refrigerators
E6	Ceiling fans for cooling
E7	Carbon monoxide monitoring to regulate carpark ventilation
E8	Insulated hot water pipe
E9	Energy efficient pool and spa heating
E10	Clothes line on louvred balcony to reduce need for electric drying
E11	On-site electricity and heat generation (cogeneration system)

WATER

W1	Storm/rainwater collection for toilet and garden use
W2	A4 rates appliances such as washing machines and dishwashers
W3	A3 rates water fixtures

THERMAL COMFORT

T1	Passive solar orientation
T2	Insulation in ceiling and walls
T3	Cross ventilation allowing air to flow through units, reducing the need for air conditioning.
T4	Performance glass
T5	Roof overhang, window eaves, pergolas and louvres to reduce sun's heat.

SECTION 3.0 - ENERGY PROVISIONS FOR NON RESIDENTIAL BUILDINGS - BUILDING CODE OF AUSTRALIA

3.1 General BCA requirements

The Building Code of Australia (BCA) requires certain non residential building types to demonstrate they will meet minimum criteria for minimizing energy consumption. This compliance must be shown at Construction Certificate stage. It affects what are called in the BCA Class 5 to 9 building types, e.g. office buildings , restaurants, shops and schools.

Building design considerations to minimize energy consumption will include:

- external wall design to better control heat transfer between the outside and inside of a building, and so minimise mechanical airconditioning;
- sealing buildings to maximize thermal insulation;
- building configuration which minimizes electrical lighting.

Also, the mechanical and electrical systems used in the buildings will have to meet BCA energy minimization criteria. Air conditioning, plant and lighting systems will be selected to meet those standards.

Alterations and additions to existing buildings, when the extent of work exceeds 50 percent of the area of existing building, are also affected.

3.2 Building Design at Development Application Stage and Complying with the BCA.

In order to comply with the BCA energy requirements at Construction Certificate stage, the design of new buildings will have to be resolved “upfront” at development application stage. This is fundamental for arriving at an acceptable design. Because environmental design cannot be an afterthought at Construction Certificate stage. For example, the building façade design will need to have windows with sun shading in summer, such as adjustable external louvers, in order to reduce power consumption for air-conditioning. Another example is that atriums might be used to provide greater amounts of natural daylight to office spaces, or natural ventilation.

3.3 Going beyond the BCA’s energy provisions

Council encourages applicants to go beyond the requirements of the BCA, and to incorporate as many sustainable design principles as possible, including those shown in **Diagram 3,** and the following:

Key Principles

Using the roof area .

Often buildings will have large trafficable roof areas, whose space is underutilised. This roof area can accommodate devices that will provide a degree of energy electrical power reduction. These installations can include solar hot water systems, and or photovoltaic cells. Photovoltaics can provide power for lighting common areas such as lift lobbies and carparks.

Also, usually the roof area is substantial and can be used to collect stormwater, which can be stored elsewhere on site and reused for non drinking purposes.

Cross ventilation and a slim building section

A slim building section will allow building occupants the option of using natural ventilation instead of mechanical ventilation. At suitable times of the year, on individual floors , windows can be opened, and mechanical air-conditioning turned off. An atrium space can be used to facilitate this natural ventilation. Carparking areas can also have some natural ventilation.

Larger areas of window glass and more daylight.

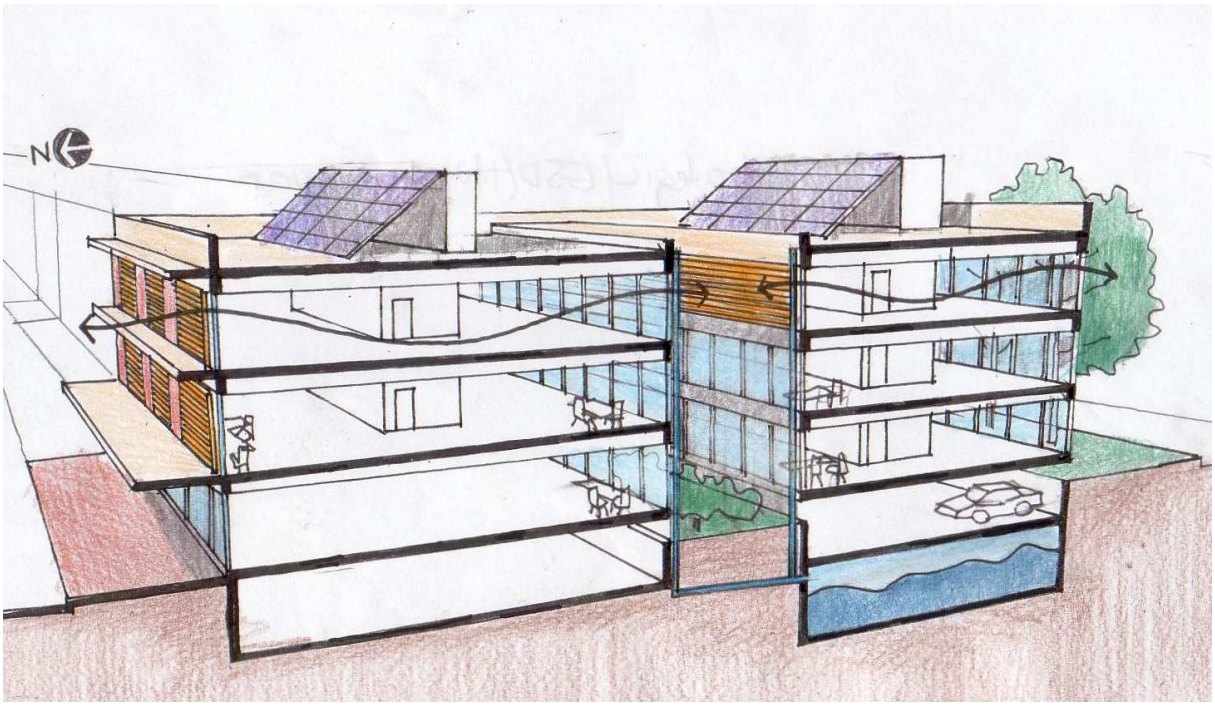
A slim building section with tall window glass panels will give usually give adequate daylight for occupants sitting adjacent those windows. Windows will also have to be shaded in summer to prevent heat build up within the building. One way to achieve this is to have an external louvre system. Those workspaces will be able to have electrical lighting turned off or reduced. Rooms only used occasionally, such as meeting rooms, can be located in the middle of the building.

3.4 BCA energy provisions and their relationship to other architectural controls at Development Application stage.

There are several matters to consider in the design of buildings, and the energy provisions of the BCA form one component. Any environmental design principles will have to be compatible with the type of architectural composition required to achieve compliance with the other parts of the Policy. A building that incorporates environmental principles does not have to have a bland technological appearance, normal architectural canons such as proportion and harmony between parts can still be employed in a building's appearance, as can urban design canons requiring compatibility with the streetscape.
DIAGRAM 3

ESD basic design principles for a commercial building
DIAGRAM 3

DIAGRAM 3 - ESD basic design principles for a commercial building



BUILDING CONFIGURATION

Floor to ceiling glass to provide natural light to workspaces
External manually operated louvers for sunshading
Cross ventilation facilitated by a slim building section
Photovoltaics on roof
Roof used to collect water, and basement water storage tank

BCA CONSIDERATIONS

Building fabric
External glazing
Building sealing
Air movement
Air conditioning and ventilation systems
Artificial lighting and power
Hot water supply
Roof and ceiling construction
Floor construction
Ductwork insulation and sealing
Insulating of heating and cooling pipes, vessels and tanks
Lighting and power control devices