

Ecologically Sustainability Development Report

BUILDING
SUSTAINABILITY
CONSULTANTS



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Milligan Group - Residential Development

To be built at:

80-88 Regent Street, Redfern, 2016

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A	16-0749	Draft ESD Report	JB	13/10/16
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This report has been prepared by Efficient Living Pty Ltd on behalf of our client Milligan Group. Efficient Living prepares all reports in accordance with the BASIX Thermal Comfort Protocol and is backed by professional indemnity insurance. This report takes into account our client's instructions and preferred building inclusions.



Client Milligan Group
Danks & Bourke, 107/20a Danks St, Waterloo NSW 2017
Phone: (02) 9699 9500 Email: jarrod@milligangroup.com.au

Report author Jonathan Bills
Phone: (02) 9970 6181
Email: jonathan@efficientliving.com.au

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1. Introduction

1.1 Introduction Efficient Living has been engaged by Milligan Group to author this Environmentally Sustainable Development Report that outlines actions to be undertaken by Milligan Group for their development at 80-88 Regent Street, Redfern, 2016.

This report will illustrate how Milligan Group has utilised the unique opportunities available during the design phase, integrating energy efficient technologies and sustainable practices



into the Regent Street development. This approach will ultimately result in a development that is functional, healthy, efficient and comfortable while simultaneously ensuring commercial viability in both the short and long term.

It will be shown that the sustainability initiatives to be adopted within the development align favourably with the 2012 Local Environment Plan of the City of Sydney and the overall planning objectives of the local area, such as Sustainable Sydney 2030.

1.2 Project Description The project consists of 79 residential units, 168m² of retail space and a 245m² childcare centre. It is part of a wider development goal to align the area with the goals outlined in the vision for Sustainable Sydney 2030, and become an exciting community with increased thoroughfares, public transport, public spaces, shops and facilities as outlined in the Local Environment Plan 2012.

1.3 Site Description The subject site is located in the heart of Redfern, around 100m south east of the Redfern Railway Station and to close proximity to the main street, and the commercial and community hubs of Redfern.

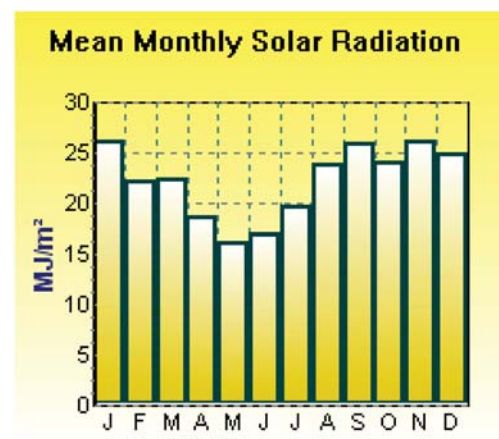
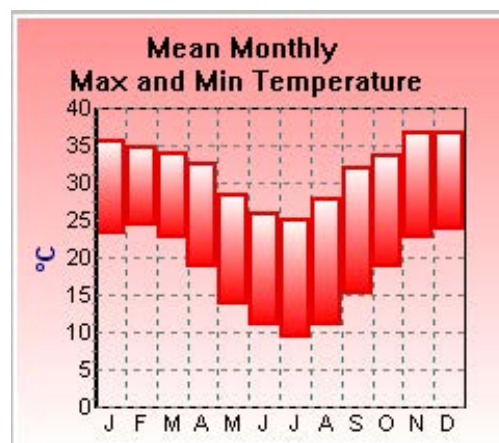
The proposed development is situated on Regent street which acts as a main arterial road that runs into the heart of the city, and is bounded by Marian Street and William Lane. The site is within walking distance of Redfern Station, the University of Sydney, the CBD and Prince Alfred Park, as well as a number of other popular destinations that Sydney has to offer.

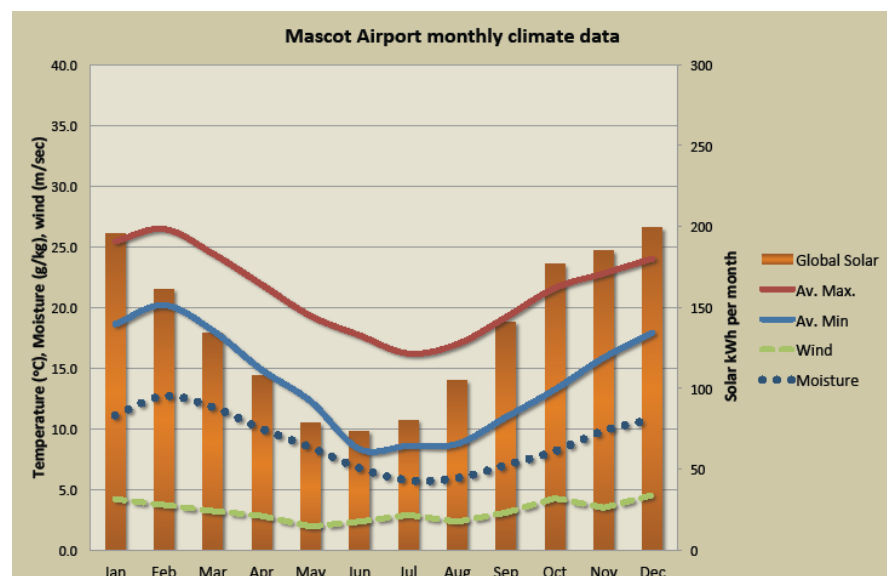
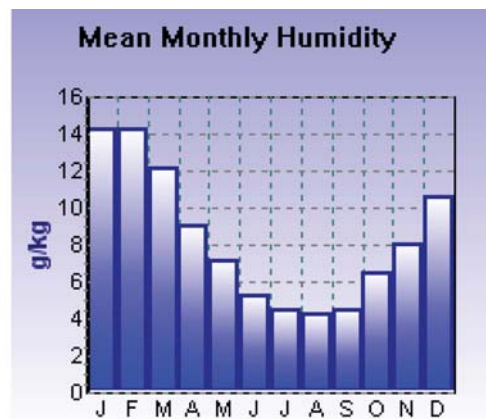


1.4 Local Topography and Climate The site is located approximately 3km south of Sydney Harbour and the CBD, at an elevation of around 35m above sea level and is situated relatively flat coastal plateau. Typically winds in Sydney come from the north west, west and a lesser extent the south, and the site will be subjected to turbulent breezes and will also experience the consequences of a mild heat island effect. The mean temperature in Sydney during 2015 was 19.1°C with an annual mean

high and low temperatures of 22.3°C and 13.5°C respectively. The mean annual rainfall was 1083mm (recorded at Sydney Airport located approximately 5km to the south).

The site falls into climate zone 56 of the NatHERS software, in a warm temperate climate that is characterised a moderate diurnal temperature range with four distinct seasons. It the region experiences mild winters with low humidity, hot to very hot summers with low to moderate humidity, and widely variable solar access and cooling breeze patterns and directions. Generally there will be a greater need for winter heating than summer cooling in this area. The figures below detail the average conditions associated with the relevant NatHERS climate zone 56.





2. ESD Initiatives

The regulatory framework that applies to this development is BASIX, a tool that encourages sustainable practices in new residential developments, and Section J of the BCA which outlines objectives to reduce greenhouse gas emissions in a commercial development. While both are excellent in establishing a basis for sustainable development, they are limited in their scope and ability to provide a completely sustainable solution. In order to go above and beyond in this sense, a developer is required to show initiative, responsibility and creativity in order to create a truly sustainable product. Therefore, general principles are accompanied by other important facets of sustainable development that not only increase the scope but also drive innovative design and planning that will enable sustainable development to go far beyond the status quo.

These initiatives have been broken down into nine general categories and are described as:

1. Indoor Environment Quality
2. Water Efficiency
3. Energy Efficiency
4. Stormwater Management
5. Building Materials and Operation
6. Transport
7. Waste Management
8. Urban Ecology
9. Innovation



3. Indoor Environmental Quality

Indoor Environment Quality is one of the most important aspects of a dwelling and is directly related to how comfortable you will be within your living space. There are several aspects to creating a comfortable indoor environment such as daylight, ventilation, thermal comfort, orientation, external views, internal noise levels and product choice. The development will aim to incorporate a number of these principles in its design to ensure a high level of indoor environmental quality is achieved.

4. Water Efficiency

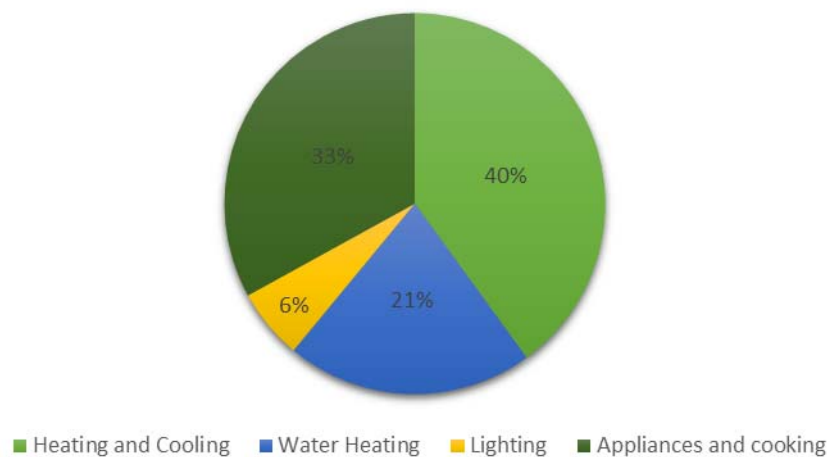
There are a number of approaches to successfully achieving water efficiency. The general aims are to reduce the total consumption of potable water, limit the amount of water lost through inefficiencies and capture and use as much rainwater as is feasibly possible. This will be achieved by ensuring efficient fixtures and appliances are used, rain water is appropriately harvested and collected and where practical, native planting and efficient irrigation methods are utilised.

5. Energy Efficiency

Energy Efficiency has become an incredibly important element of residential life in Australia. In order to be truly energy efficient, efficient appliances must be used in conjunction but proper operation practices. According to the Federal Department of the Environment the typical breakdown of household energy use is as follows:



Household Energy Use (DEWHA 2008)



To achieve energy efficiency throughout the development, a number of aspects will be examined and applied where appropriate. This will include passive building design and performance, optimal internal layout and orientation of a living space, minimising heating and cooling loads, utilising efficient lighting and hot water heating systems, and incorporating integrated control systems.

6. Stormwater Management

A storm water management system that can effectively collect and supply water to the development can save considerable amounts of water that would otherwise flow into the stormwater system and surrounding water bodies. Successful management examines ways to collect and store water runoff, and in turn, supply the water for landscaping irrigation and other general purposes. An effective stormwater management plan will be incorporated throughout this development.

7. Building Materials and Operation

Sustainability is arguably most important when it comes to the construction materials of the building and the ongoing operation of that building after it has been built. By definition, sustainability relates to the ongoing endurance of a system, in this case, the buildings themselves, the surrounding environment and occupants of the development. A number of systems will be put in place during construction, with a particular focus on the use of recycled content, materials with low volatile organic compounds and the use of a building manager to monitor and support the overall sustainability of the development and how it functions.

8. Transport

A carefully designed transport plan can significantly reduce environmental impacts associated with the development while improving the wellbeing of the residents. By using a proactive and innovative approach, the development will aim to achieve the right balance between privately owned vehicles and parking demand, access to public transport, the availability of car sharing services, cycling and pedestrian access, appropriate amenities and assist in the use of emerging technologies such as providing electric car charging points.

9. Waste Management

A waste management plan aims to reach the following outcomes:

- Avoid the unnecessary generation of waste
- Minimise the amount of waste that will be end up in landfill
- Recover, reuse and recycle as much waste generated on site as possible
- Strive to achieve the waste minimisation targets and procedures required by council

In a residential building, the success of the waste management plan is highly influenced by the behavioural practices of the residents and their active participation. Therefore, a clearly designed waste management plan will be employed to maximise the potential for recycling while minimising the impact of non-recyclable waste.

10. Urban Ecology

By creating spaces where residents can retreat from a typically busy suburban environment and congregate in a tranquil, landscaped spaces, an individual health and wellbeing can be drastically improved. The development will be designed in a way that enables proper access to urban ecology so that residents can benefit from its aesthetics and the environment it creates. In addition, common spaces will also be provided to encourage a sense of community and belonging within the local area. Features such as proper landscaping and the type of outdoor facilities provided will also be examined.

In addition, a proposed green roof will be installed that provide a number of benefits to the building, its residents, and the surrounding areas. The addition of a green roof will support local biodiversity, reduce the heat island effect while insulating the building from heat and noise, and make available open space for recreational purposes that support physical and mental wellbeing.

11. Innovation

This development will focus on future-proofing its infrastructure so that it can adapt to the changing environment such as living and working patterns. In addition, it will also make an effort to incorporate and drive the use of new technology and innovation that can significantly improve the overall sustainability of a development.

12. Conclusion

80-88 Regent Street Redfern is committed on integrating sustainable practices throughout the development by examining the following:

- Indoor Environment Quality
- Water Efficiency
- Energy Efficiency
- Stormwater Management
- Building Materials and Operation
- Transport
- Waste Management
- Urban Ecology
- Innovation

By focusing and incorporating some of the core principles related to these facets of sustainable development, a responsible approach will be demonstrated in the built environment.