

# Green Edge

## Living in a Green Star Building



### The Building

Green Edge is located at 1-3 Railway Place Cremorne. It is situated next to the Richmond Railway lines and in close proximity to Swan Street. The development comprises 38 dwellings over 9 storeys plus basement carpark.

The building achieved a certified 4-Star Green Star Design rating through the Green Building Council of Australia and a 9 Star average NatHERS energy rating. The development brief mandated that this be achieved at a nil cost premium.

The building was completed in July 2016 and has been occupied for the last two years.

### ESD Features

The building is designed to be resilient and future proof. The following initiatives were introduced to embed this philosophy in the building:

- Nil gas connection - centralized heat pump hot water and induction cooktops.
- Average 9 Star energy rating through carefully considered passive design strategies.
- Smart metering.
- High efficiency HVAC.
- Ceiling fans to all living areas and bedrooms.
- 4kW Solar PV system connected to common areas.
- Low VOC products, FSC timbers, low formaldehyde composite woods, best practice PVC and prefab construction.
- Communal rooftop terrace.

### Research Objectives

GIW Environmental Solutions (GIW) has undertaken a post occupancy study for Green Edge. Research objectives are as follows:

1. To compare the operational performance of the Green Edge apartments against the modeled performance.
2. To substantiate annual energy savings achieved as a result of increased energy efficiency.
3. To determine if the Green Star Rating was a motivation in the purchasing decision and if this leads to lower energy use.

### Methodology

A survey was conducted amongst a sample of residents (10 out of 38 apartments) to determine appliance use, purchase decision drivers and environmental consciousness. Within the survey, the residents were asked for consent to gather and analyse electricity and hot water usage for the past 12 months.

Based on the above data, energy consumption profiles for all sample apartments were developed and compared to the modeled performance and an equivalent household in Richmond. Further to this, the correlation between the energy use, level of environmental consciousness and Green Star as a purchase driver were determined.



## Findings

**Objective 1: To compare the operational performance of the Green Edge apartments against the modeled performance.**

- On average the operational performance of the apartments is in line with the predicted performance using the NatHERS tool.
- Cooling loads are under predicted in the modeling. This could be due to under prediction of solar gains, over prediction of cooling provided by natural ventilation, thermal bridging and air leakage and / or higher actual external temperatures.

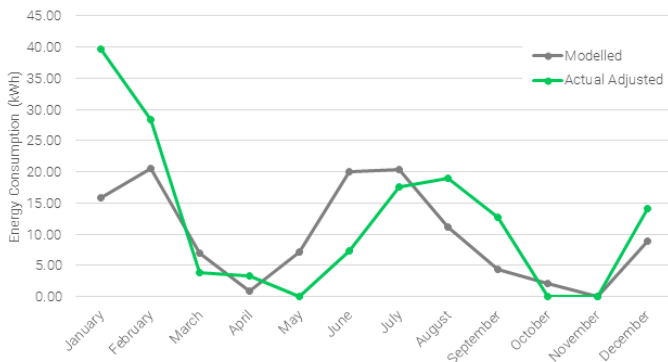


Figure 1: Average modeled consumption vs. Average adjusted measured performance

**Objective 2: To substantiate annual energy savings achieved as a result of increased energy efficiency.**

The average energy consumption of an apartment at Green Edge is on average 56% less than the average consumption for the equivalent household in Richmond. This indicates that the design goals were largely achieved and the tools applied in design and construction of the building were effective.

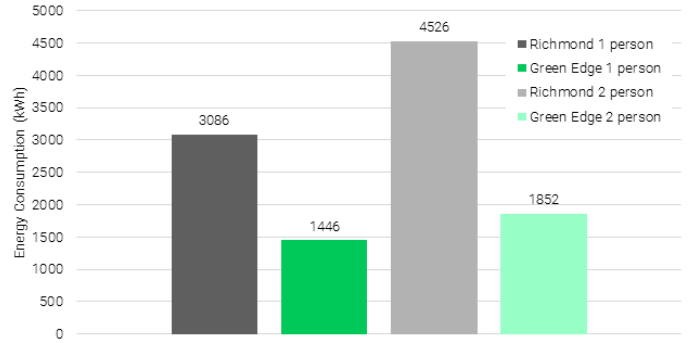


Figure 2: Apartment average total annual energy consumption

**Objective 3: To determine if the Green Star Rating was a motivation in the purchasing decision and if this leads to lower energy use.**

There is a clear correlation between those purchasing with the Green Star rating as a determinant and their energy consumption. The results demonstrate that purchasers who placed high value on the Green Star rating had on average a 40% lower energy usage than the average building occupant.

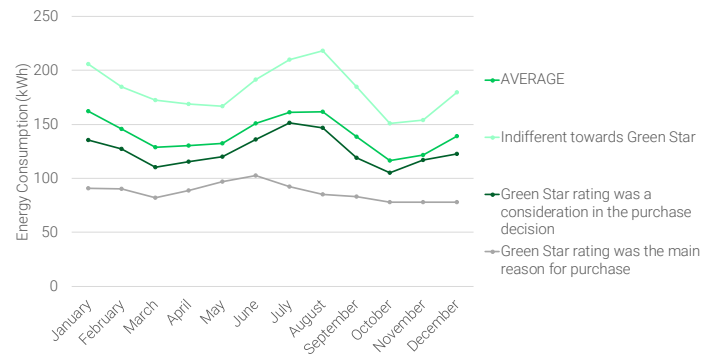


Figure 3: Average building energy consumption versus self-reported Green Star purchasing decision.



## Living in a Green Star Building

We organised a barbecue at the rooftop terrace of Green Edge and asked a number of follow-up questions to the residents:

- Did the Green Star rating play a part in your purchasing decision?
- What is your favourite feature of the building?
- Is the building comfortable and healthy to live in?
- Do you find you save money on utilities by living in this building?

Residents responded as follows:

*"I haven't turned my heater on since 2016"*

*"You know it's a good apartment if you are willing to stay indoors for 3 days in a row"*

*"I wouldn't have bought it if it wasn't a Green Star rated building"*

*"The resale value will always be higher, naturally lower energy consumption, lower bills, etc."*

*"I have an enclosed balcony which goes the length of my apartment, that's why I have really good views. But it also lets me have an extra layer that I can use - it's kind of indoor / outdoor. It's nice and light and during the shoulder months it remains warm."*



Figure 4: Green Edge - Communal Rooftop

## Enhanced Resale Value

In 2016 a typical mid-rise 2 bedroom, 2 bathroom, 1 car space unit, was sold for an average value of \$642,000. The average resale value for this unit type was \$695,000 to date. This represents an 8% increase in the value of this unit type.

When comparing the current resale value for Green Edge to the 2018 average sales price of \$646,500 for a 2 bedroom, 2 bathroom apartment in Richmond, a 7% market premium is achieved.

A typical 2 bedroom, 2 bathroom, 1 car space unit is rented at \$585 per week which represents a 6% increase relative to a similar apartment in Richmond.

It can be concluded that whilst Green Edge was designed, built and sold at competitive market rates, the building now delivers a higher than average return on investment.

