

Kristin Gabriel
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City of Sydney
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SYDNEY NSW 2001

Submitted via email to: kgabriel@cityofsydney.nsw.gov.au

11 June 2015

Dear Ms Gabriel,

RE: CITY OF SYDNEY RESIDENTIAL APARTMENTS SUSTAINABILITY PLAN

Thank you for the opportunity to provide comment on the *Residential Apartments Sustainability Plan (Plan)*. The Green Building Council of Australia (GBCA) commends the City of Sydney (City) on the *Plan* which aims to achieve improved environmental performance in new and existing apartment buildings. The *Plan* outlines actions which if adopted could reduce greenhouse gas (GHG) emissions in the City by 40 per cent and water consumption by 7 per cent by 2030, as well as divert 70 per cent of waste from landfill by 2021.

The GBCA applauds the great work that the City is currently undertaking in energy efficiency, in particular the *Smart Green Apartments* program, *Residential Apartments Sector Sustainability* group, work of the *Better Buildings Partnership* and *CitySwitch*. The GBCA is pleased to support these initiatives and to assist in any way we can to help them meet their objectives.

As part of a considered planning approach, it will be important to integrate the eventual *Plan* with the other recently released City plans, including the overarching *Sustainable Sydney 2030* and the *Draft City of Sydney Energy Efficiency Master Plan*. We note that the *Plan* identifies that apartment buildings are currently responsible for approximately 10 per cent of the City's GHG emissions, 38 per cent of potable water consumption and 14 per cent of the City's total waste generation. The *Plan* identifies that up to 60 per cent of an apartment building's total energy can be used in common areas and on average, apartment buildings energy consumption can be reduced by 30 per cent, water use by 25 per cent and waste management improved significantly, all through cost-affective measures.

This submission provides an overview of two of the Green Star rating tools (Green Star - Design & As Built and Green Star - Performance). The City has an opportunity to lead the way by encouraging new apartment buildings to be certified under Green Star - Design & As Built and encourage owners corporations to consider using Green Star - Performance to measure and assess the operational performance of existing apartment buildings. There are currently 1900 apartment buildings in the City and of these, 30 per cent are high-rise buildings (six storeys or above). The GBCA encourages the use of Green Star - Performance for high-rise apartment buildings, as these buildings typically have larger common areas and may also have a dedicated manager in charge of the site who is familiar with strata arrangements.

The GBCA understands that it is not just the City that can lead by example and take responsibility; industry must also lead the way. The GBCA would like to work closely with the City to identify opportunities to work collaboratively to achieve the objectives of the *Plan* in the residential apartment sector. Government has a responsibility to provide visionary leadership, in particular by setting contemporary benchmarks and rigorous standards. Third party certification, such as that offered by Green Star, ensures that government and industry can meet community expectations and demonstrate long-term fiscal responsibility and accountability for new and existing apartment buildings that are developed.

About the GBCA

As you are aware, the GBCA is the nation's authority on sustainable buildings, communities and cities. Our mission is to accelerate the transformation of Australia's built environment into one that is healthy, liveable, productive, resilient and sustainable. We work together with industry and government to encourage policies and programs that support our mission. We educate thousands of people each year on how to design and deliver sustainable outcomes for our buildings, communities and cities. We operate Australia's only national voluntary and holistic rating system for the sustainable buildings and communities – Green Star.

The Green Star rating system

The first Green Star rating tool was released in 2003 in response to market demand for a rating tool that would evaluate the sustainable design and construction of buildings as well as establish a common language for buildings. Green Star rating tools can be applied to almost all building types, with over 860 projects having now achieved Green Star certification across Australia.

The Green Star rating system is designed to take an holistic approach within each class and building sector, addressing nine categories in total; Management, Indoor Environment Quality (IEQ), Energy, Water, Materials, Land Use and Ecology, Emissions, Transport and Innovation and defining 'best practice' in each.

The GBCA released the Green Star – Multi Unit Residential v1 rating tool in 2009 to promote the design and construction of high-performance green residential developments. Within the City, there are currently eight Green Star – Multi Unit Residential v1 certified buildings.

As of December 2015, the older Green Star rating tools (now referred to as Legacy rating tools), which includes Green Star – Multi Unit Residential v1, will no longer be available for registration. Green Star – Multi Unit Residential v1 will be discontinued from that date and Green Star – Design & As Built will be the sole rating tool for the design and construction of new buildings.

Green Star – Design & As Built

In October 2014, the GBCA launched Green Star – Design & As Built into the Australian market. Green Star – Design & As Built has been developed to rate the design and construction of any building including offices, public buildings, retail centres, aquatic centres and multi unit residential buildings. The GBCA congratulates the City on registering the Gunyama Park and Aquatic Centre for Green Star certification under this rating tool, which demonstrates how diverse projects can be. Green Star – Design & As Built certification identifies projects that have demonstrated the achievement of a set of industry-agreed best practice sustainability benchmarks.

The *Plan* reports that approximately 20,000 dwellings are expected to be built in the next eight years within the City, of which over 90 per cent will be new high-rise building developments. This represents a great opportunity for the City to achieve two actions within the *Plan of Fostering Innovation in sustainable design and construction of new apartment developments* and raise the bar by *advocating for increased minimum environmental performance targets in new buildings*.

The Green Star – Design & As Built 'Energy' category aims to reward projects that are designed and constructed to reduce their overall operational energy consumption below that

of a comparable standard-practice building. Such reductions are directly related to reduced greenhouse gas emission, lower overall energy demand as well as reductions in operating costs for building owners and occupants. Through the 'Energy' category, Green Star – Design & As Built aims to facilitate reductions in GHG emissions by facilitating efficient energy usage and encouraging the utilisation of energy generated by low-emission sources. The *Greenhouse Gas Emissions* credit aims to encourage the reduction of GHG emissions associated with the use of energy in building operations.

The Green Star – Design & As Built 'Water' category aims to encourage and reward initiatives that reduce the consumption of potable water through measures such as the incorporation of water efficient fixtures and building systems and water re-use. Reductions in operational water consumption may be achieved through maximisation of water-efficiency within a project, as well as through the utilisation of reclaimed water sources. The *Potable Water* credit aims to encourage building design that minimises potable water consumption in operations.

The Green Star – Design & As Built 'Materials' category aims to address the consumption of resources within a building construction context, by encouraging the selection of lower-impact materials. The category also encourages absolute reductions in the amount of waste generated and recycling of as much of the waste generated as possible. The *Construction and Demolition Waste* credit aims to reward projects that reduce construction waste going to landfill by reusing or recycling building materials.

One Central Park in the city, which comprises two residential towers that rise above Sydney's Central Park development, achieved a 5 Star Green Star – Multi Unit Residential Design v1 rating representing 'Australian Excellence'. Sustainability forms an integral part of Central Park's design, with each building within the development committing to a 5 Star Green Star rating. One of the major showcases of this development is the housing of the largest Membrane Bioreactor recycled water facility in the world. This will see residents using between 40 – 50 per cent less drinking water resulting in low-impact energy and water supply.

Other examples of Green Star-certified multi unit residential buildings include Antias at Jacksons Landing, which achieved a 4 Star Green Star – Multi Unit Residential Design v1 rating. The Quay Haymarket also achieved a 4 Star Green Star – Multi Unit Residential Design v1 rating as has Easts Village Residential. Please also find attached with this submission a case study for the Redfern Housing Redevelopment project, which achieved a 5 Star Green Star – Multi Unit Residential PILOT rating.

Green Star – Performance

Green Star – Performance assesses the operational performance of existing buildings across nine impact categories. Green Star – Performance enables building owners and managers to identify pathways to improve the environmental and financial sustainability of their assets over time. Unlike the other Green Star rating tools which award from 4 Star Green Star to 6 Star Green Star, Green Star – Performance certification ratings range from 1 Star Green Star – representing 'Minimum Practice', through to 6 Star Green Star – representing 'World Leadership' in sustainable building operations. Projects are encouraged to use Green Star – Performance to benchmark current practice and performance and identify opportunities for incremental improvement.

The Green Star – Performance 'Management' category encourages and rewards the adoption of practices and processes that enable and support best practice sustainability outcomes throughout a buildings ongoing operation. It is intended that credits within this category will improve a project's sustainability performance by influencing areas where decision-making is critical. This category rewards the implementation of policies, procedures, targets, strategies and actions to ensure that the building will operate optimally. The *Metering and Monitoring* credit aims to recognise the operational practices which facilitate the effective ongoing monitoring of water and energy consumption.

The Green Star - Performance 'Energy' category aims to reward building owners for implementing strategies and taking actions to measure and reduce a building's operational energy use, below that of comparable standard-practice building. Such reductions are directly related to reduced greenhouse gas emissions, lower overall energy demand as well as reductions in operating costs for building owners and occupants. The *Greenhouse Gas Emissions* credit aims to encourage the reduction of greenhouse gas emissions associated with the use of energy in building operations.

The Green Star – Performance 'Water' category aims to encourage and reward initiatives that reduce the consumption of potable (drinking) water in building operations associated with cooling, irrigation and occupant amenities, below that of a comparable standard – practice building. Through the 'Water' category, Green Star – Performance aims to facilitate reductions in potable water use through the efficient design of building services, and water reuse and substitution with non-potable water sources such as rainwater or greywater. The *Potable Water* credit aims to encourage the reduction of potable water use associated with the operation of buildings.

The *Plan* identifies one key barrier to implementing cost-effective and quality sustainability upgrades is that there is no suitable benchmark of environmental performance for occupied apartment buildings. The GBCA believes that Green Star – Performance appropriately addresses this issue for existing high rise apartment buildings within the city that have substantial common areas. Whereas BASIX improves the minimum performance in new buildings and major renovations, Green Star – Performance measures the operational performance of existing buildings. The GBCA believes that the high volume of new high rise apartments expected to be built in the city provides a significant opportunity to secure long-term environmental performance, as well as lower running costs for strata managers and occupants through encouraging commitment to Green Star – Performance.

In 2013, via the City's *Smart Green Apartments* program, the Hyde Park Towers' building manager participated in the beta testing of Green Star – Performance. This assistance allowed the rating tool to be further refined for the apartment building context, prior to its release as a PILOT and subsequent Green Star – Performance v1.

In 2012, the GBCA conducted a study of data from Green Star-certified buildings in order to quantify the overall impact of the rating system on greenhouse gas emissions, operational energy usage, operational water consumption and construction and demolition waste. The study compared data from 428 Green Star-certified projects with buildings that just meet average or minimum practice standards. The methodology and findings have been peer-reviewed for accuracy and independent consulting firm Net Balance. Please find enclosed a copy of the *Value of Green Star: A Decade of Environmental Benefits, Research Key Findings (2013)* report. Key findings of the report include:

- On average, Green Star-certified buildings produce 62 per cent fewer greenhouse gas emissions than average Australian buildings
- On average, Green Star-certified buildings use 66 per cent less electricity than average Australian buildings
- On average, Green Star-certified buildings use 51 per cent less potable water than if they had been built to minimum industry requirements.
- The higher the Green Star-certified rating of a building the greater the environmental savings across all key areas – greenhouse gas emissions, energy use, water consumption and construction and demolition waste.

Working collaboratively

The GBCA is keen to work with the City to find ways to encourage new and existing apartment buildings to go beyond minimum standards. We encourage the City to meet with us to discuss innovative ways in which Green Star can be encouraged and applied.

The GBCA commends the work the City has undertaken on this *Plan*. The City of Sydney demonstrates great leadership in sustainability through its work on developing policies and guidelines such as this *Plan*, supporting and encouraging sustainable development within the City and also through its valued membership of the GBCA. Please do not hesitate to contact me on 02 8239 6200, or via email at luke.farr@gbca.org.au, for further information.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Luke Farr', with a long, sweeping flourish extending to the right.

Luke Farr
Advocacy Coordinator – Local Government



Redfern Housing Redevelopment

Green Star / Green Star Projects / Green Building Case Studies

THU 11 APR 2013



Download the [Redfern Housing Redevelopment case study](#).

The Redfern Housing Redevelopment in Sydney was only the second public housing development in Australia to achieve a Green Star rating, and was awarded a 5 Star - Green Star rating under the Multi Unit Residential PILOT in 2009.

Representing 'Australian Excellence' in environmentally sustainable design, this project for Housing NSW sets a new standard for social housing developments, and demonstrates that environmentally, economically and socially sustainable outcomes are achievable.

According to the Green Building Council of Australia's Chief Executive, Romilly Madew, the Redfern Housing Redevelopment project is a "triple bottom line success story".

"The project team took a holistic approach to the development, and addressed the social sustainability issues alongside the more commonly recognised environmental and economic ones," she says.

Where community belongs

The project involves the demolition of ten existing two and three storey public housing buildings, and the construction of new low-to-medium rise accommodation. The 106 public housing dwellings will be comprised of 66 apartments and 40 townhouses, as well as two community rooms.

The goal of the redevelopment project is to deliver new public housing with a more appropriate mix of housing types that promotes a greater level of community within the area. Specifically, the new development will provide more adaptable and accessible housing for aged and disabled members of the community.

The design features an external facade which is both contemporary and sympathetic to the existing semi-detached and historic dwellings in the Redfern area. As a result, the development will integrate into and enhance the urban landscape.

Smart savings

Green initiatives such as rainwater collection and greywater treatment, solar hot water systems, solar photovoltaic cells for lighting and passive ventilation will deliver cost savings for both Housing NSW and the low-income tenants who live in the development.

The project's design aims to reduce energy consumption by 74 per cent when compared with standard residential buildings of similar size. This reduction in CO2 emissions is equivalent to taking 100 cars off the road.

What's more, the energy efficiency measures are predicted to save around \$26,000 across the entire building in energy consumption each year alone.

Water efficient fittings and fixtures, as well as the reuse of rainwater and treated greywater, will ensure around 45 per cent of all water demand on the site is met by non-potable water. The predicted saving of 4,700 cubic metres of water a year is equivalent to 4.7 Olympic-sized swimming pools or 33,571 bathtubs. Based on current Sydney Water prices, the cost savings will be around \$7,500 a year across the entire tenancy.

Social spirit

Australia's indigenous people have a long association with Redfern, moving to the suburb in the 1920s for employment opportunities and affordable housing. They formed a strong and vibrant community which is still in evidence today.

Recognising the links between indigenous people and the suburb, a minimum of 20 construction workers on the project were required to be indigenous. This was a 'first' for a public housing project in Australia, and was rewarded with a Green Star Innovation point (INN-1).

Empowering the local community was an integral part of the sustainable development, and Housing NSW provided employment opportunities to both Aboriginal and long-term unemployed people to enhance their business skills, increase their knowledge of ESD issues and improve the social and economic conditions for both the individuals and their community.

ESD initiatives featured in the project:

Indoor Environment Quality

- All 106 apartments are naturally ventilated and there is no air conditioning in the development
- Energy
- Gas boosted solar hot water for apartment buildings and instantaneous gas hot water system for townhouses
- PV cells for common area lighting
- Use of low energy embodied materials where possible

Water

- Rainwater harvesting for toilet flushing and laundry
- Greywater treatment system for landscape irrigation

Innovation

- Exceeding the benchmarks of TRA-1 by providing significantly less car parking than the minimum - 6 dedicated disabled parking spaces are provided on the site
- There is no general parking but generous bicycle storage is provided
- Land Use and Ecology
- Remediation of a contaminated site
- Use of native landscaping.

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