

NEW ZEALAND BUILDINGS

Reducing Risk and Improving Returns

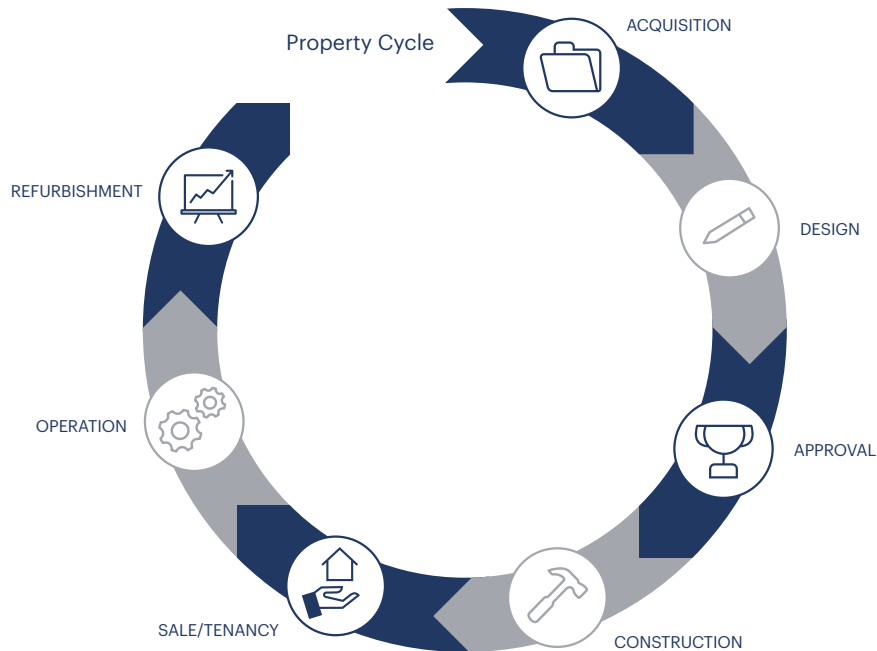
KO TE AMORANGI KI MUA,
TE HĀPAI Ō KI MURI.

TOWARDS

20
30



V2 DECEMBER 2020



HON. JAMES SHAW
Minister for Climate Change
Assoc. Minister for Environment
(Biodiversity)

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Climate change will have a significant impact over the coming decades. It's important that the building industry does what it can, not just to avoid adding to the problems, but to lead the fight against climate change.

Central to the fight is the need for resilient, low-carbon, healthy buildings. The buildings in this useful guide are the types of building that New Zealand deserves: good for occupants, good economically and good for Aotearoa.

Introduction

Internationally, it has been proven that green buildings deliver a suite of compelling economic, environmental and social benefits that conventional buildings do not. New Zealand has been moving in this direction with an expanding stock of green buildings and new tools for a greater variety of building types and projects.

Since the introduction of Green Star in 2007, the New Zealand Green Building Council (NZGBC) has been successful in mainstreaming Green Star for commercial buildings in the main centres. Building to a healthy, efficient standard is, increasingly, becoming expected by tenants and investors. And, as Aotearoa makes the inevitable shift to zero carbon, this expectation will move towards becoming an absolute requirement. That's why investors, developers, owners and tenants are increasingly requesting verification of the quality of their buildings. In 2017, there was 67% growth in the number of buildings registered. Verifying the air quality, daylight and performance of a building is useful for outlining the health benefits and high quality of the space for staff and tenants. The New Zealand Government's December 2020 declaration of a climate emergency should further accelerate the shift to zero carbon and the demand for efficient, healthy, certified buildings. Green Star and NABERSNZ will be critical tools for achieving the goal of a carbon neutral government by 2025.

Employees want to work in green buildings and students want to study in healthy, sustainable institutions. Organisations that want to attract and retain talented people are likely to find it easier to do so with Green Star certification.

Internationally, a number of studies into the costs and benefits of commercial green buildings have been completed, particularly in the United States of America (US), Australia, Canada and the United Kingdom (UK). This document goes some way towards detailing clearly the compelling value proposition for certified green buildings in New Zealand through the consolidation of international findings, reinforced with local examples.

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Investors

Property investors are key players in the development of buildings, and they also play a critical role in changing market behaviour.¹ Investors are increasingly wanting their assets to be certified as low carbon against internationally recognised standards.

ATTRACTIVE INVESTMENT OPPORTUNITIES

Green Star-certified buildings are demonstrating favourable performance on a range of metrics that will be attractive to investors. Data from MSCI for the period ending December 2019 showed an 8.7% premium in capital value (\$/m²) when comparing Green Star offices (Australian CBDs) with all CBD offices. Net income per m² was 22.9% higher in Green Star offices.²

RISK MITIGATION

Institutional investors, including the New Zealand Superannuation Fund (NZ Super), have told the NZGBC that certified green buildings provide new opportunities for property investors where these buildings meet risk/return hurdles. These investors are expecting property managers to give consideration to certified green buildings, the management of long-term risks from climate change and the reduction of carbon emissions.

ENHANCED MARKETABILITY

The public perceives certified green buildings as an environmentally responsible approach to construction and development. Corporations that are associated with green buildings (whether through direct ownership or via fund investment) can benefit from this perception and use it to enhance their brand positions as well as promote alignment with their corporate social responsibility (CSR) programmes.

In particular, investment funds can use this association to market and attract their own investors. Investment funds that brand themselves as socially responsible or ethical often enjoy strong consumer interest.

The work of the Task Force on Climate-related Financial Disclosures and other drivers are causing companies to be far more transparent about their climate-related risks. In the UK, for example, 66%³ of UK companies are disclosing climate-related risks and opportunities in their 2019 annual reports. Within Australia's hugely influential A\$2.2-trillion superannuation sector, a majority of funds (70%⁴) have some form of responsible investment commitment.

In New Zealand, responsible investing of \$153.5 billion is an almost threefold increase on the \$58 billion invested in responsible funds five years ago. This is being supported by our largest superannuation funds, including NZ Super, and represents 52% of the estimated \$296.3 billion of total assets under management in New Zealand.⁵

REDUCED CLIMATE RISK

In 2015, at the United Nations Framework Convention on Climate Change (UNFCCC) Conference, 195 national governments, including New Zealand, pledged to reduce their national greenhouse gas emissions in an effort to keep global temperature rise below 2°C.

The Intergovernmental Panel on Climate Change states that buildings account for 8.8 gigatonnes of carbon dioxide emissions each year, or almost one quarter of total world emissions.⁶

A 2018 report by international sustainability consultants, thinkstep, found that buildings accounted for up to 20% of New Zealand's carbon footprint, suggesting that much more must be done to tackle emissions produced by buildings in Aotearoa.⁷

While agriculture and transport may account for higher proportions (48% and 20% respectively), changes and improvements in the building sector are easier to implement.⁷

SECURING GREEN FINANCE

Providers of finance need certainty that their funds will deliver carbon savings. An accepted mechanism is to use third-party certification, such as Green Star or NABERSNZ. A useful example of this is the Green Bond issued by Argosy in 2018.

To be eligible as a Green Asset in the Argosy Green Bond, the project or building must be certified as obtaining or targeting a Green Star Built rating of at least 4 stars or a NABERSNZ rating of at least 4 stars.



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At ANZ we take sustainability seriously. We acknowledge the position of the Intergovernmental Panel on Climate Change (IPCC) that, to achieve the full ambition of the Paris commitments the world needs to transition to net zero emissions by mid-century.

Buildings represent around 30% of the world's energy use, and more than 55% of global electricity demand – hence the importance of energy efficiency in meeting the goals of the Paris Agreement. In recognition of this, we will now consider financing the construction of only those new large-scale office buildings which achieve or exceed a National Australian Built Environment Rating System (NABERS) 4.5 star standard, 'as designed'. Importantly, from a credit risk perspective, energy-efficient buildings generally have lower tenancy vacancy rates and may attract higher rents than do other buildings.

KATHARINE TAPLEY
Head of Sustainable Finance
ANZ

Developers

Developers have much to gain from going green, including benefits such as increased ROI, capital cost savings and increases in sale prices. And the benefits can be greater, and easier to realise, the earlier in the design process a commitment to Green Star is made.



SOME PROJECTS
ACHIEVE GREEN STAR
FOR LESS THAN 1% OF
TOTAL PROJECT COSTS ⁸



60% OF ASIA PACIFIC
COMPANIES WILLING
TO PAY A PREMIUM
RENT TO OCCUPY
SUSTAINABLE SPACE ⁹



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Mansons seeks to create developments that its clients thrive working within, that are compatible with the existing city environment and that are positive contributions to cities. To achieve this all Mansons developments target a 6 Green Star rating. This will ensure our tenants notice a real difference in terms of improved health, and greater productivity and operational efficiency. Mansons believes that this is essential to the long-term success of the company and to being part of a truly sustainable future.

TED MANSON
Mansons TCLM

CAPITAL COST SAVINGS

Integrated design and optimisation of building systems can lead to substantial savings in capital costs. Analysis by the Green Building Council of Australia (GBCA) indicates that in some cases, projects are achieving Green Star for under 1% of total project costs.⁸

For example, downsizing heating, ventilation and air conditioning systems through energy-efficient design not only produces savings in ductwork but, by reducing the requirement for bulky mechanical equipment, more floor space can be made available for leasing.

IMPROVED MARKETABILITY

Green buildings are often perceived by the public as being healthier, contemporary, leading edge and high quality.

These buildings often have higher profiles than other buildings and their owners enjoy the well-deserved public perception of goodwill towards employees and the community. These qualities provide an excellent basis for marketing the buildings to potential tenants.

ACCESS TO CAPITAL

Debt funding may soon become easier and less expensive for certified green buildings in New Zealand. There is often less perceived credit risk in the development of certified green buildings, as a result of their ability to command higher rents and better tenants.

ASSET PROTECTION

Government and large corporate organisations are increasingly incorporating green principles into their property requirements. Developing a certified green building anticipates potential future changes in market demand and legislation, thereby protecting expensive developments.

COMPRESSED SCHEDULE

An integrated team approach to design (as required when using Green Star) can result in fewer design conflicts and subsequent change orders.

American studies have shown that green building projects are routinely coming in on time and ahead of schedule.¹⁰ In New Zealand some local authorities, such as Wellington City Council, offer reductions in development

contributions and are considering other incentives for projects going through the Green Star process.¹¹

A Green Star-certified childcare facility successfully applied for a reduction in the development contribution charges it was required to pay to the local council by demonstrating that it would have significantly reduced impact on infrastructure compared to average new buildings. The project could prove that:

- Vehicles per day (vpd) would be 156, compared with the council's projected 357 vpd – a reduction in traffic intensity of 56%.
- Potable water demand would be 9.06 litres per person per day (lpppd), compared with the council's projected 45 lpppd – a reduction of almost 80%.
- Water discharge would be 11.5 lpppd, compared with the council's projected 40 lpppd – a reduction of 71%.

This resulted in a reduction in the development contribution charges of 67%, or \$57,373 NZD, which doesn't include the waived charges for stormwater runoff due to the project's green roof and catchment tanks.

Owners

Astute building owners are increasingly recognising that green buildings have significant benefits. Green buildings may be self-managed or managed through independent facility managers; however, in many cases, the drivers for owning them are similar.



NET INCOME
INCREASES BY 22.9% ¹²



CAPITAL VALUE
INCREASES BY 8.7% ¹²



WEIGHTED AVERAGE
LEASE EXPIRY
INCREASES BY 25.6% ¹²

LOWER OPERATING COSTS

Green buildings regularly deliver lower operating costs and because of careful consideration of materials and reducing life cycle costs, often deliver lower maintenance costs, too.¹³ These reduced costs can be realised directly by the building owners, or by way of increased rent returns when compared with rent returns from non-green and less-efficient, but otherwise comparable, buildings.¹⁴

TENANT ATTRACTION AND RETENTION

Green buildings have significant benefits for their occupants. As such, there is increased demand for space in green buildings and this is reflected in the significantly lower vacancy rates of Auckland and Wellington Green Star buildings when compared with non-Green Star buildings.¹⁵

Data from Australia shows that lower vacancy rates are indicated by an increased Weighted Average Lease Expiry of 25.6% when comparing Green Star-rated offices to the whole CBD office market.¹⁶

The added attraction of certified green buildings over 'business as usual' buildings also leads to increased retention of existing tenants.

HIGHER LEASE RATES

Tenants want environmentally sustainable, healthy and productive workspaces, which demonstrate their commitment to corporate social responsibility, and will pay increased lease rates to obtain space in these buildings.¹⁵

IMPROVED PERFORMANCE

A growing body of research globally is pointing to the financial benefits for owners and occupiers of certified green buildings.

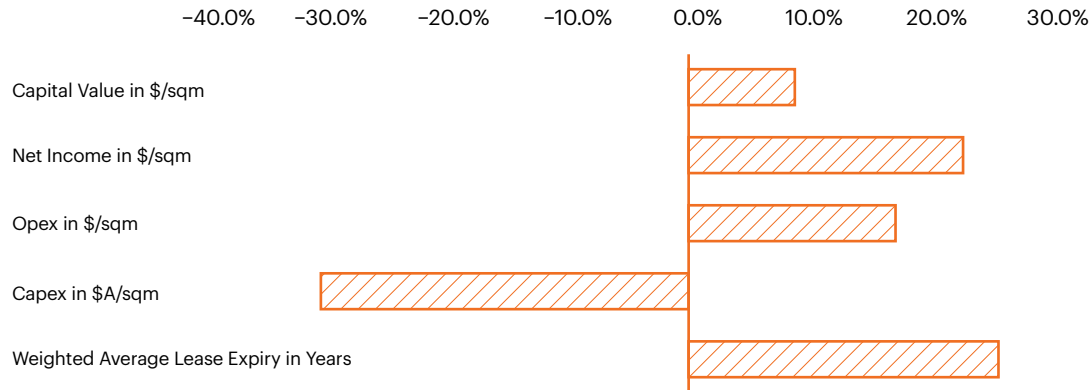
In the US, a report released in 2018 by Morgan Stanley¹⁷ suggested that "a typical office building that integrates sustainable practices could help reduce building expenses by 3% to 30%, creating US\$3.5 billion to US\$34.9 billion of asset value in the top 10 US markets in the process".

Closer to home, the latest Australian MSCI analysis (December 2019), comparing Australian 4 to 6 Green Star-rated office buildings with the broader Australian 'All Office' market, shows green buildings outperforming on a number of key financial and market metrics. In particular, the numbers point to lower capex, longer lease terms, and better rental and value premiums.¹⁸

AUS: GREEN STAR (CBD) VS ALL OFFICE (CBD)

SOURCE: MSCI

RESULTS FOR QUARTER ENDING DEC 2019



SCOTT PRITCHARD
Chief Executive Officer
Precinct Properties New Zealand Limited

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Green Star is very much a mark of quality. Not only does it indicate that a building is highly sustainable, it also has a high specification that is upheld during construction and you benefit from that. Perhaps more important, though, is the productivity of a green-certified working space, which significantly benefits the businesses that occupy that building.

Ensuring the buildings we develop have real sustainability benefits is a major objective for this business. Personally, I'm very invested in it.

01

CASE
STUDY



82 Wyndham Street, Auckland

Argosy is one of New Zealand's largest diversified property companies listed on the NZX.

Argosy green projects started with the historical refurbishment of Te Puni Kōkiri House, achieving the first 5 Star Green Star Built rating in Wellington. The building initially achieved a 4 Star NABERSNZ rating, but has improved to achieved a 5 star whole building rating, 5.5 star base building rating and a 5 star tenancy rating for Panuku.

This was followed with the impressive art-deco-styled building at 15 Stout Street, Wellington: another 5 Green Star Built rating and 5 Star NABERSNZ whole building rating.

The most recent project completed is 82 Wyndham Street, a 5 Green Star Office Built rated development. Argosy's projects show it is possible to reuse existing facades and structures and deliver very energy-efficient buildings. This is additionally beneficial because of the embodied carbon saved.

Argosy's environmental strategy reflects its long-term ambition to create vibrant, sustainable workplaces for its tenants.

Argosy's Green Bonds issuance shows real leadership. It is the first by a listed property vehicle and only the fourth green bond issued in New Zealand. NABERSNZ and Green Star are used as the methodologies for verifying that sustainability standards will be met.



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We believe that green buildings have the potential to provide a number of key business benefits, including: increased marketability, higher rental rates, lower operating costs, higher occupancy, improved worker productivity, improved occupant health and well-being, and lower regulatory risks. We are invested in this for our buildings and with the ways in which we attract finance.

PETER MENCE
Chief Executive
Argosy Property Limited

02

CASE STUDY

Aorangi House, Wellington

In Wellington, Aorangi House is proof that age is no impediment to being one of the most energy-efficient buildings in the country.

The 1970s' office building underwent a major refurbishment with a host of energy-efficient and sustainable design initiatives incorporating passive solar design principles and natural ventilation. This positioned Aorangi House as a success story of rejuvenation, smart energy performance and low greenhouse gas emissions. It was awarded a 5 Green Star Office Design rating and has achieved a market-leading 5 Star NABERSNZ base building rating, demonstrating a 50% energy improvement when compared with an average New Zealand office building. It also achieved one of the highest New Zealand scores in a post-occupancy evaluation (undertaken by Victoria University of Wellington), which indicates that occupants felt more comfortable and were more productive.¹⁹

In 2018, the Molesworth Street building, home to engineering consultancy Beca, won an international green award for Leadership in Sustainable Design and Performance from the World Green Building Council, who called it a 'well-deserved winner', and a 'stellar example' of a green building.²⁰



03

CASE STUDY

Pita Te Hori Centre/ King Edward Barracks Buildings, Christchurch

Ngāi Tahu's Property's Pita Te Hori Centre – comprising the Iwikau and Te Uruti buildings – is a shining example of honouring and celebrating our heritage while embracing innovation and a sustainable future.

Situated on the historic site of the King Edward Barracks, the buildings achieved 4 and 5 Green Star Design ratings respectively. Both are targeting Green Star Built ratings.

The buildings have been designed to optimise energy and water efficiency while creating healthy work environments, including onsite solar energy generation at Te Uruti, and plentiful cycle facilities at Iwikau.

A key feature of the development is the central aquifer heat pump, which provides heating and cooling to both buildings and is also part of the Christchurch District Energy Scheme – the first of its kind in New Zealand.

Between the buildings, Ngā Māra a Te Wera (The Gardens of Te Wera) is a place of respite that reflects the site's Māori, European, military and police histories.





BRETT ELLISON
General Manager, Business Development
Ngāi Tahu Property

“ As an iwi property company, with an owner who lives in perpetuity, Ngāi Tahu Property has to take an intergenerational view for our development and investment activities. Ngāi Tahu Property is supportive of NZGBC and Green Star to help guide the building industry in its sustainability efforts.

04

CASE
STUDY

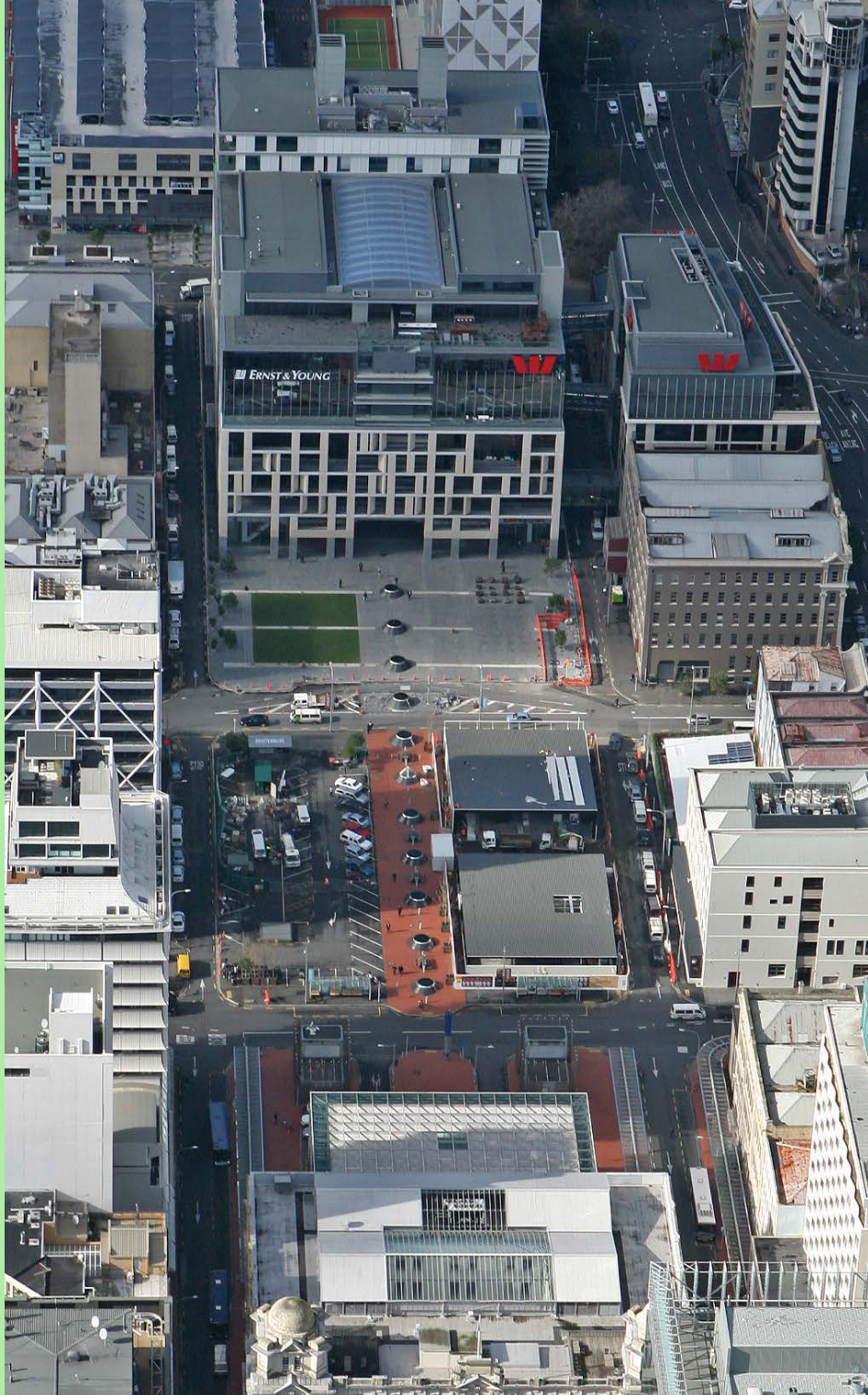
Britomart Group, Auckland

Much of Britomart, home to a busy, bustling bunch of bars, shops, offices and restaurants, was bubbling under water 150 years ago. Now, the precinct has risen above the Waitematā and Britomart is one of the first companies in New Zealand to receive a Green Star Performance rating. Achieving an impressive 3 Star rating, the Britomart team has shown strong commitment to the environment through their portfolio while helping the NZGBC improve the certification process.

Home to some of Auckland's oldest buildings, Britomart has around 5,000 workers and is often the first taste of downtown for new visitors to Auckland, who are delivered by electric train or monster cruise ship.

Britomart Group has “done sustainability from the get-go, because it makes sense socially, environmentally and economically”, says its technical and sustainability director, Mark Sinclair.

That's why Britomart is registered with Green Star Performance and is checking nine buildings across the categories of energy, indoor environment quality, transport, water, emissions, land use and ecology, materials, management and innovation. Those nine buildings are home to many tenants, including Ebisu, Cooper and Company, and Tiffany & Co.





05

CASE STUDY

Forté Health, Christchurch

Forté Health in Christchurch is New Zealand's first and only hospital to be rated 4 Green Star. The three-levelled building has a strong presence, and a sense of robustness and quality. A light well in the centre of the floor plates provides natural light into the middle of the building.

The ground floor fit-outs use a variable refrigerant flow air conditioning system for heating and cooling. Fresh air and exhaust is via ventilation heat-recovery units mounted in the ceiling space. The hospital fit-outs on part of the ground floor and the upper two floors use air-cooled heat pumps and a chiller to produce heating and cooling water to

reticulate to the various air handlers and fan coil units. The structure has been designed to 'Importance Level 4' (at 180% of building code). The seismic design incorporates a post-tensioned steel PRESS system with external dampers: a first in New Zealand. This creates a safe environment for patients, clinicians, staff and visitors. The seismic frames have been contained within glazed elements on the façade to become an integral part of the architectural design.

District Health Boards are now catching up with Forté Health and requesting Green Star certification for their new buildings.

06

CASE
STUDY

The University of Waikato Student Centre, Hamilton

The University of Waikato Student Centre building, rated 5 Green Star, is a student-focused information and educational facility on campus, containing the existing library and new computer labs. It includes places to meet, cafés, shops and relaxation spaces.

The refurbishment of and extension to an existing six-storeyed library building on The University of Waikato Hamilton campus combines a new library and new IT facilities, retail spaces, cafés, meeting rooms, student spaces and renewable energy research spaces. The building was extensively refurbished and extended with a new east wing, new internal organisation, new roof-level access and platforms for new photovoltaic panels, wind turbine and solar panel arrays.

The existing low-energy lighting has been retained and all new lighting is by way of low-energy fittings. Shading and sun-control louvres assist the mechanical system, and new lifts are energy-generating models. Water heating is supplemented by the rooftop solar array.





07

CASE
STUDY

Ceres Organics – 82 Carbine Road, Auckland

Ceres Organics is a new office and warehouse building developed and owned by Norak Properties. Ceres' customers are demanding products which are environmentally and ethically sound. The company moved to its new purpose-built premises to accommodate its rapidly growing business and reduce the environmental impact from its main office and industrial building operations. This aligned with Ceres' own belief that action must be taken to reduce environmental impact and influenced the decision to embark on a carbon footprint programme.

This initiative is highly commended as quantifying the amount of greenhouse gas emissions produced drives sustainable development and the performance of the building.

The 5 Green Star Industrial Built project is on a brownfield site in Auckland. The building features numerous sustainable design features, ranging from mixed-mode natural ventilation and exposed thermal mass in the office, to stack ventilation and LED lighting in the warehouse.

Tenants

Tenants now know that green buildings demonstrate large financial, social and environmental benefits when they are compared with non-green buildings



25% REDUCTION
IN ABSENTEEISM
REPORTED BY MASON
BROS IN THEIR
GREEN STAR-RATED
AUCKLAND OFFICE
BUILDING ²³



95% OF TENANTS
WANT TO BE IN A
GREEN BUILDING ²⁵



IMPROVED HEALTH AND WELL-BEING

Employers throughout the world are learning, in response to an increasing body of evidence, that building design affects the health and well-being of occupants in many ways and so it is a smart business move to create green buildings that are healthy.

A 2015 Harvard study found that occupants in high-performing, green-certified office environments scored 26% higher on tests of cognitive function, had 30% fewer symptoms of sick building syndrome and had 6% higher sleep-quality scores than did those in high-performing but non-certified buildings.²¹

INCREASED PRODUCTIVITY

In commercial buildings, payroll costs greatly overshadow all other costs for a business. Even a 1% improvement in productivity can have a significant impact on the bottom line. World Green Building Council research found that staff in green-rated offices report higher productivity, improved well-being and decreased absenteeism.²²

Precinct Properties says its green buildings are delivering more productive workers and big energy and water savings.

Tenants of its Wynyard Quarter buildings in Auckland – Mason Bros. and 12 Madden Street – report increased productivity and less absenteeism since moving into the properties.

Those at Mason Bros. report an up to 25% reduction in absenteeism, a rise in their personal productivity of 8.5% and more than double the number of employees cycling to work.²³

REDUCED OPERATING COSTS

Certified green buildings are designed and built for energy and water efficiency, making them more cost effective to operate than are other buildings.

Analysis of 420 Green Star-certified buildings found that, on average, they use 50% less electricity than buildings built to meet code, and 66% less electricity than the average Australian building.²⁴

It also found that, on average, Green Star-certified buildings use 51% less potable water than they would if they had been built to meet minimum industry requirements.

Existing buildings can also deliver significant savings when a strong focus on continuous improvement is applied.

First built in 1970, Aorangi House was in urgent need of refurbishment. Along with its outdated, leaky façade, there were issues with heating ventilation and cooling, and the building had been vacant for three years. A complete refurbishment was commissioned in 2008, employing the latest green building principles and major interventions to give it a new lease on life.

It is now one of the most energy-efficient buildings in New Zealand. Once unoccupied and outdated, it's now a 5.5 star NABERSNZ-rated green building,

using around 64% less energy than the average commercial office.

INCREASED STAFF ATTRACTION AND RETENTION

In aggressive recruitment markets, tenants are realising the benefits of a building's environment in gaining a competitive edge in attracting talent.

Colliers International's 2012 Tenant Sentiment Survey found that 95% of tenants want to be in a green building: up from 75% two years earlier.²⁵

CORPORATE SOCIAL RESPONSIBILITY (CSR)

Taking space in a certified green building is a clear demonstration of a company's commitment to CSR. Official certification schemes, such as Green Star, verify and substantiate green claims, allowing tenants to publicly report their achievements.

Increasingly, businesses in New Zealand, including those in the Climate Leaders Coalition, are using NABERSNZ and Green Star certification to reduce their carbon footprints and the energy bills in their property portfolios.²⁶



Bayleys is proud to be working in a 5 Green Star building. Our performance and productivity has improved noticeably in the past 12 months and we are now in the process of achieving NABERNZ rating for our tenancy to further track cost savings and accountability. This culture is also being adapted by our key clients – reflecting in their property management strategies and tenant market briefs.

LLOYD BUDD

Director
Auckland Commercial & Industrial
Bayleys

Facilities Managers

All good facilities managers pride themselves on reducing operating costs and protecting assets. Adopting green building methodologies helps to achieve this.



PRECINCT PROPERTIES' INSTIGATION OF NABERSNZ AT ZURICH HOUSE LED TO A SIGNIFICANT 45% IMPROVEMENT IN ENERGY PERFORMANCE OVER 3 YEARS.²⁷

Running a green building can significantly contribute to people's productivity and well-being.

Around 90% of our lives are spent indoors. And much of this time, for many of us, is spent in commercial buildings whilst doing our jobs.

That means there are huge benefits for individuals, and for New Zealand, that can be achieved through the sustainable and efficient operations of all physical aspects of a building, to create and sustain safe and productive environments for occupants.

Facilities management embraces such a wide and diverse range of activities that it touches on almost all of the important values identified in this document.

There's the obvious ROI from efficient management of energy, waste and water, including during office renovations and new construction, capital costs savings, asset protection, lower operating costs, reduced liability and risk, and increased workplace productivity and health.





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In the built environment, facilities managers are leading the way in climate change initiatives, sustainability, whole-of-life strategies and the management of water, waste and energy resources. Tools like Green Star Performance give us a framework for applying a sustainable lens to a property's operations and maintenance. This can contribute to the profitability of businesses, and to the productivity and well-being of those who walk through their doors.

GILLIAN WESS
Chief Executive
Facilities Management Association of New Zealand

Capital Cost Impact

Evidence suggests that building green can reduce risk and construction time, and even result in lower capital costs.

AVERAGE COST OF ACHIEVING GREEN STAR DESIGN & AS BUILT RATINGS AS A PERCENTAGE OF THE PROJECT BUDGET:

2.5%

4 STAR GREEN STAR 1.1%

5 STAR GREEN STAR 2.7%

6 STAR GREEN STAR 2.6%

(BASED ON 98 PROJECTS)³¹

Several international studies have focused on the capital costs of green buildings and these studies have played an important role in driving the shift to building green. Many of these studies have found there was no significant difference in average costs for green buildings as compared to non-green buildings.²⁸

A review focussing on the environmental and economic issues related to New Zealand buildings found that there is some evidence to suggest that the integrated thinking and solution-driven design processes associated with green building mean that you reduce the amount of risk, construction time and variations, and the capital costs are actually lower.²⁹

A 2013 University of Auckland study examined cost plan data for 17 Green Star buildings in New Zealand rated 4 to 6 Green Star and found there was no statistically significant cost difference between these and conventional counterparts. In fact, seven of the Green Star buildings cost less than an equivalent conventional build would have, according to modelled cost data.³⁰

Two of the buildings studied were more than 20% less expensive to construct. This study aligned with international research that found a perception gap in relation to green buildings (i.e. the industry's perception of cost is higher than reality).

More recent analysis conducted in 2019 by the Green Building Council of Australia (GBCA) on Green Star projects indicates that, on average, developers/building owners are achieving Green Star ratings with 2.5% of their overall project budgets.³¹

The data shows that, in some cases, Green Star projects can be delivered for less than 1% of the overall project budget. On average, projects are spending an additional:

- 1.1% to achieve a 4 Green Star rating
- 2.7% to achieve a 5 Green Star rating
- 2.6% to achieve a 6 Green Star rating

Many developers are incorporating sustainability elements into their core design and build processes and are building to Green Star for as little as 0.3% additional cost.



“

At the Property Council, we believe that a thriving, sustainable property industry acts as an enabler for the New Zealand economy: creating jobs and opportunities for growth, and shaping cities that are future-proofed and functional.

Buildings that embrace a green philosophy are a huge part of achieving prosperity, not just financially but as an enduring legacy for all New Zealanders. It is our pleasure to support the New Zealand Green Building Council and we look forward to working together to help shape the future of our industry.

LEONIE FREEMAN

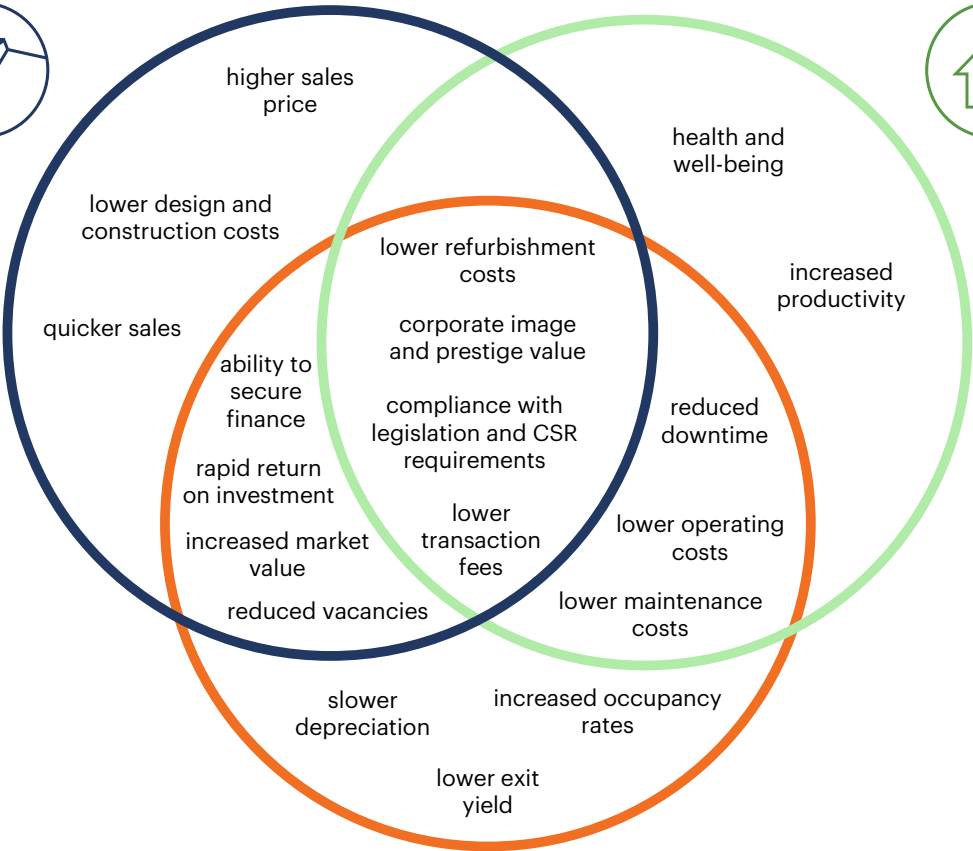
Chief Executive
Property Council New Zealand

Stakeholders and Value

DEVELOPER



Why would I want to build this green building?



TENANT



Why would I want to lease this green building?

OWNER



Why would I want to own this green building?

Why Verify?

You want a real green building because it makes good business sense, it's good for your bottom line and it's good for the great New Zealand outdoors too. It's simple common sense.



ANITA MILNE
Technical Director
Built Environment
Aurecon

You're not alone because 95% of building occupants want green buildings, according to research by Colliers International.²⁵

But how can you be certain that a building is green? How do you cut through all the unverified promises and shiny marketing brochures saying that a building is green? How can you be sure that a building is authentically, provably safe, healthy and efficient? And how can you do that in a simple, straightforward way?

We can help.

The New Zealand Green Building Council manages independent, straightforward and reliable authentication schemes, which can help guide progress towards a healthy, green building, and then prove the sustainability and efficiency of your building – new and existing.



Certification provides additional layers of scrutiny that holds the project team to account. The outcome delivers certainty of results with buildings that are healthier and more energy-efficient than other 'equivalent' buildings. Certification is the only independent means of verification.

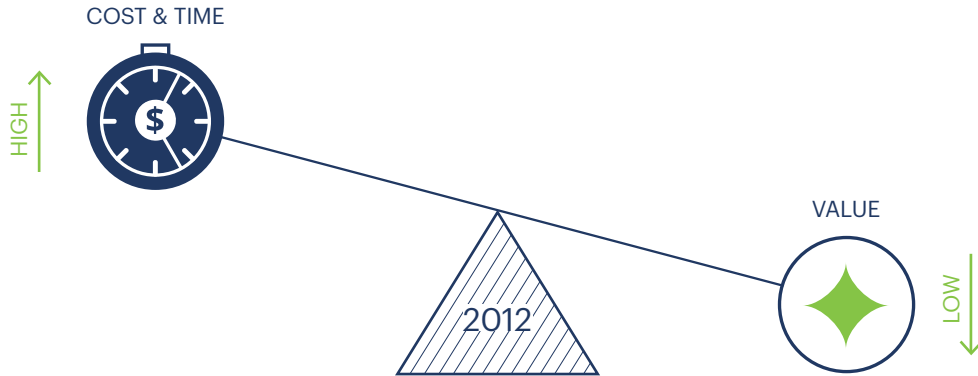
Schemes like Green Star provide a transparent and trusted way for everyone involved, whatever their role, to be sure that they have an authentic, confirmed green building, and can enjoy the many benefits it offers.

Tenants, owners, facilities managers, buyers and investors can now all know the quality of a building.

And when you have a Green Star building you have a host of benefits, including your desired air quality and energy efficiency. You also have peace of mind, knowing that you're meeting NZX reporting requirements and saving thousands of dollars in operational costs.

Value, Cost and Time

2012: HIGHER COST AND TIME, REDUCED VALUE

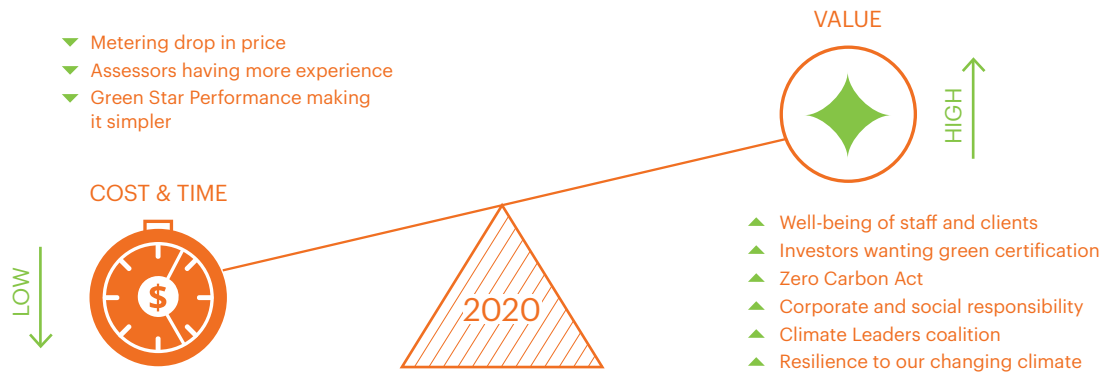


Eight years ago, the concept of green ratings was relatively niche. The financial costs and time involved in rating a building to Green Star were relatively high. The value was not perceived as significant.

Over the last few years, green ratings have become easier as the sector has gained more knowledge. Metering costs have dropped, assessors are more experienced, and the rating tools have improved to reduce the time and cost involved. New rating tools, such as Green Star Performance, are providing simpler routes for verification.

At the same time, the value of green ratings has risen as owners and tenants increasingly want to provide low-carbon, healthy offices. This has resulted in a growth in green ratings. The NZGBC has seen a 60% rise in the number of buildings on their books.

2020: HIGHER VALUE, REDUCED COST AND TIME



JOHN COOP

Managing Director and Principal
Warren and Mahoney

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It is very important to us that we deliver high-quality buildings that are healthy and sustainable. It has been important to many of our clients for many years and is now increasingly fundamental. Green Star provides the independent confirmation at completion that this purpose has been achieved. This provides certainty for the team that buildings will work well, provide great places and are better for people. We should know; we are in a 6 Green Star building. We have seen less sickness; more of our people are cycling to work and they are engaged in where they work. Our purpose and our values are aligned.

Rating Tools

The NZGBC offers a range of rating tools to provide third-party certification of a building's green credentials at any stage of a building's life cycle.

GREEN STAR IMPACT

Green Star assesses the sustainable design, construction and operation of buildings, fit-outs and communities. Choosing Green Star can help you save money, create a healthy place for people, minimise your environmental footprint and build a better future for us all.

Green Star has been adapted for the unique, special whenua that is Aotearoa. One important way that Green Star does this is through the encouragement of Te Aranga Design Principles, which acknowledge mana whenua, and the intrinsic Māori cultural values that contribute to the health and well-being of all New Zealanders.

The Green Star rating tools for buildings assess sustainability across nine impact categories:

- Management
- Indoor Environment Quality (IEQ)
- Energy
- Transport
- Water
- Materials
- Land Use and Ecology
- Emissions
- Innovation.

New Buildings

GREEN STAR DESIGN & AS BUILT

The Design & As Built tool can assess any new building: school, hotel, retail, industrial, community, office or other building type. All projects registered for Green Star Design & As Built must achieve an As Built certified rating. Registered projects have the option of achieving a Design Review certified rating as an interim step towards As Built certification.

DESIGN REVIEW CERTIFIED RATING

- Assesses the design of a new building or major refurbishment.
- Requires submission of design documentation and theoretical

modelling (e.g. energy and daylight modelling) as evidence. This submission can be lodged as soon as the required evidence is available; this could be prior to the commencement of construction.

- Expires upon achievement of As Built rating or when the project reaches 24 months post practical completion.
- The Design Review is optional and is intended as an opportunity for assessment at an early stage, to lend confidence where desired by project teams.

AS BUILT CERTIFIED RATING:

- Assesses a new building or major refurbishment.
- Requires submission of As Built documentation and confirmation of what has actually taken place on the construction site as evidence. This submission can be lodged only following practical completion of the project.
- Must be achieved within 24 months of practical completion.
- Is valid for the life of the building. Neither the Design Review nor As Built ratings assess the ongoing performance of a building.

Building Fit-out

GREEN STAR INTERIORS

Green Star Interiors can be used to rate the fit-out of any building. This aims to improve the overall sustainability of the fit-out as well as support staff and visitors with a space that is better for health, productivity and well-being.

The Green Star Interiors tool takes account of factors that:

- minimise environmental impact – e.g. reuse and use of sustainably sourced materials
- contribute to efficient operation over time – e.g. energy use, water use and waste
- help to ensure the health and well-being of occupants – e.g. high-quality fresh air, acoustics and daylight.

Building Operational Performance

The NZGBC has set its sights firmly on improving the existing building market. Two rating tools are focused on the operational performance of buildings; Green Star Performance and NABERSNZ.

GREEN STAR PERFORMANCE

Green Star Performance assesses the operational performance of all types of existing buildings across nine holistic impact categories.

The Green Star Performance rating tool allows building owners to measure and continually improve upon their buildings' operational impacts.

Green Star Performance is innovative, by:

- delivering the only holistic rating tool for the existing building market in New Zealand
- focusing on the operation and performance of entire buildings, allowing building owners, operators and occupants to collaborate and contribute to better environmental outcomes
- establishing a common language for the monitoring and maintenance of operational performance.

Green Star Performance is inclusive, by:

- rating buildings beyond commercial office buildings, including schools, shopping centres, public buildings, industrial buildings and hospitals
- encouraging best-practice outcomes through building operations

NABERSNZ

NABERSNZ rates the energy efficiency of office buildings. A NABERSNZ Certified Rating gives a star rating, from 0 to 6 which clearly identifies a building's energy performance compared to that of other buildings.

There are three kinds of rating available: base building, tenancy or whole building

A base building rating measures the energy performance of a building's core services – heating, ventilation and air conditioning, lifts, common area lighting and power, etc.

A tenancy rating measures just the floors/areas occupied exclusively by a tenant, including energy use, such as by computers, lighting and staff kitchens.

A whole building rating combines base building and tenancy.

Green Star Performance is for any existing building and covers more than just energy efficiency. It captures carbon, waste, water use, management policies and the health of occupants.

NABERSNZ, however, looks solely at the operational-stage energy performance of office buildings, and is used once buildings have been occupied and operating for a year or more.

Endnotes

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About the New Zealand Green Building Council

The New Zealand Green Building Council is a team of people who are passionate advocates for better buildings, because we know that better buildings mean healthier, happier Kiwis.

We do this by working alongside politicians, industry and other businesses to bring change.

We believe that all New Zealanders deserve to be safe, healthy and happy in our beautiful country – at home, at school, at work. Everywhere.

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