



Project: 8 Hocking Place

Date: 27 June 2025

To: Daniella Cianca

Reference SUADL24002

From: Nathan Lawry

RE: 8 Hocking Place- Summary of Sustainability Initiatives

Introduction

This sustainable design report for the proposed affordable accommodation development at 8 Hocking Place outlines the project's response to delivering affordable housing with significantly elevated sustainability outcomes above a business-as-usual approach.

Sustainability has been commonly defined as being underpinned by the three pillars of Environment, Economy and Society (alternatively Planet, Profit and People) and requires careful consideration of each to ensure that any initiative is net additive in each area to be worthwhile. The gains of this development in each of these aspects are summarized below.

Social Benefits

The inherent social benefits of this project are substantial in helping alleviate the housing crisis facing South Australians. Amid rising demand, constrained supply and escalating prices, ensuring an appropriate supply of housing to meet current and emerging demand is one of the greatest challenges facing our society.

The shortage of housing stock has reached critical levels. While an average of 10,000 homes a year for the past decade have been built in SA, around 20 per cent of these are replacements for demolished homes, and the need is far greater. Analysis by Tony Richards, former Head of Economic Research at the Reserve Bank of Australia shows that over the 20 years from 2001 to 2021 the growth of housing stock in South Australia significantly declined. He estimates there was a 102,321 shortfall in the number of dwellings built in South Australia over this period, when compared to building rates in the previous 20 years from 1981–2001¹.

Despite recent policy changes at the state level, there remains an acute shortage of social housing available for rent, which has increased competition at the bottom of the market, applying upward pressure on private rents for ordinary South Australians².

South Australia saw social housing stock decline in the period 2006–2020 (down 11%) even as demand has soared – in the same period, we have seen an 11% increase in homelessness and a 99% increase in rental stress. There are 7,428 people in South Australia experiencing homelessness³, a 19.3% increase since the 2016 Census.

A recent snapshot of available houses on the market reveals the severity of the affordability crisis⁴:

- Only 17 properties (1%) were affordable for households on income support payments, and 243 properties (15%) were affordable for households on a minimum wage. A single person working full-time on the minimum wage will find that only 8 properties (0.5%) were affordable for them
- More than 85% (1,372) of available properties were unaffordable to a working couple with two children, who were on minimum wage and Family Tax Benefit A.

¹ <https://www.afr.com/property/residential/1-3-million-missing-homes-blamed-on-councils-and-nimbys-20230515-p5d8d3>

² https://believehousing.org.au/wp-content/uploads/2024/04/Believe-Housing-Rental-Affordability-Snapshot_ONLINE.pdf

³ <http://www.abs.gov.au/ausstats/abs@.nsf/mf/2049.0>

⁴ https://believehousing.org.au/wp-content/uploads/2024/04/Believe-Housing-Rental-Affordability-Snapshot_ONLINE.pdf



- The most generous of government payments is the Age Pension. Yet only 10 (1%) of properties were affordable for couples, and 4 (0%) for single retirees.
- People with disabilities face unique challenges in this market. On Snapshot Day, a single person on the Disability Support Pension could afford none of the rentals (0%), even before taking into account any individual needs regarding the suitability of properties.

Despite the state's recent rental reforms, many young people, couples and families with young children are struggling to access safe, stable and affordable homes to live in. The scale of the problem extends beyond unemployed households or single, young renters unable to save for their bond; even working couples are finding themselves priced out of South Australia's rental market.

Affordable private rents are disappearing at a rapid rate. Domain's quarterly rental report for March 2024 found the median price for a rental house in Adelaide at \$590 per week (+5.4% up from the previous quarter). This rise has tripled from the previous quarter, when it was 1.8%, to produce the steepest quarterly gain in 17 years⁵.

Affordable housing has often historically not delivered the same levels of amenity and environmental outcomes of standard accommodation due to the price sensitivity and constraints of the development model. This project has adopted a focus on "affordable living" as opposed to "affordable housing" which only prioritises the upfront costs of ownership of a dwelling but neglects the ongoing and sustained costs of living associated with that dwelling. Often these costs are higher due to⁶:

- Lower levels of energy efficiency
- Greater travel distances as development has focused on cheaper land at the fringes of metropolitan areas
- Associated health impacts of spending more time commuting, greater exposure to temperature due to poor construction quality leading to higher instances of ill-health
- Greater levels of stress related to higher expenses, less security

The Australian Housing and Urban Research Institute has published a summary on research that supports the qualitative social benefits from the provision of secure, affordable and appropriate social housing for the Infrastructure South Australia in their report titled "*Housing Economics Analysis Impacts Framework*"⁸.

These benefits are highlighted below:

- Improved physical health, reduced illness and mortality
- Improved mental health
- Increased earning potential
- Improved education
- Greater employment stability and prospects
- Greater worker retention
- Increased productivity
- Improvement in life satisfaction
- Reduced incarceration rates and crime

It is abundantly clear that the provision of the 36 social housing dwellings will yield substantial sustainability gains associated with this development.

⁵ <https://www.domain.com.au/research/rental-report/march-2024/>

⁶ https://www.ahuri.edu.au/analysis/news/current-housing-affordability-measures-dont-reflect-real-housing-costs?utm_source=social-media&utm_medium=linkedin&utm_term=&utm_content=&utm_campaign=fr417-news

⁷ https://report.ipcc.ch/ar6syr/pdf/IPCC_AR6_SYR_SPM.pdf

⁸ https://www.ahuri.edu.au/sites/default/files/documents/2022-12/AHURI-Prof-Services-Housing-economics-analysis-Impacts%20Framework.pdf?utm_source=chatgpt.com



Environmental Benefits

In addition to the critical social context of the housing crisis in Australia, the global peak body for climate change, the Intergovernmental Panel on Climate Change (IPCC) reports in their Sixth Assessment Report on Climate Change 2023 that “*Human activities, principally through emissions of greenhouse gases, have unequivocally caused global warming*” resulting in “*widespread and rapid changes in the atmosphere, ocean, cryosphere and biosphere*”.

Furthermore, “*continued greenhouse gas emissions will lead to increasing global warming, with the best estimate of reaching 1.5°C in the near term*” with “*deep, rapid, and sustained reductions in greenhouse gas emissions*” (required to avert the most catastrophic conditions forecast⁷).

Globally, the built environment is responsible for an estimated 40% of CO₂ emissions and hence has a responsibility and significant opportunity to contribute to the mitigation of these consequences.

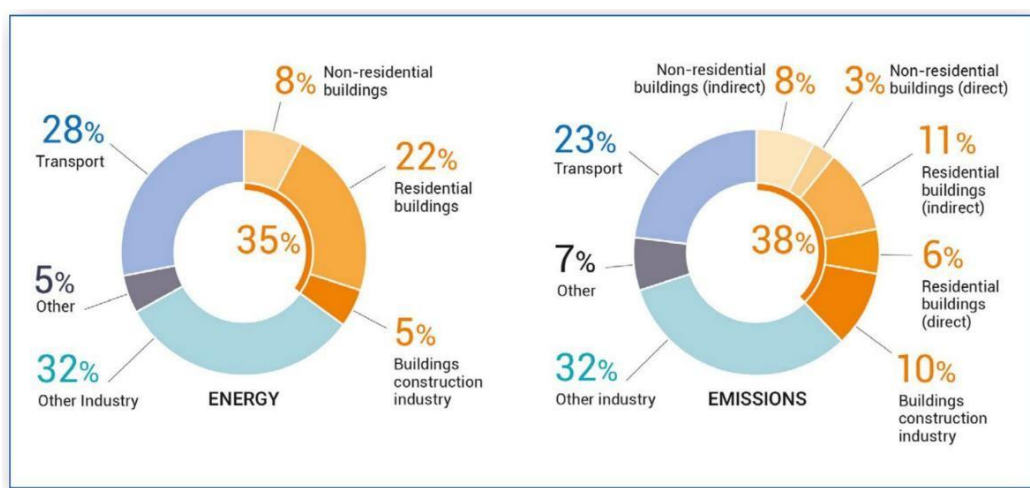
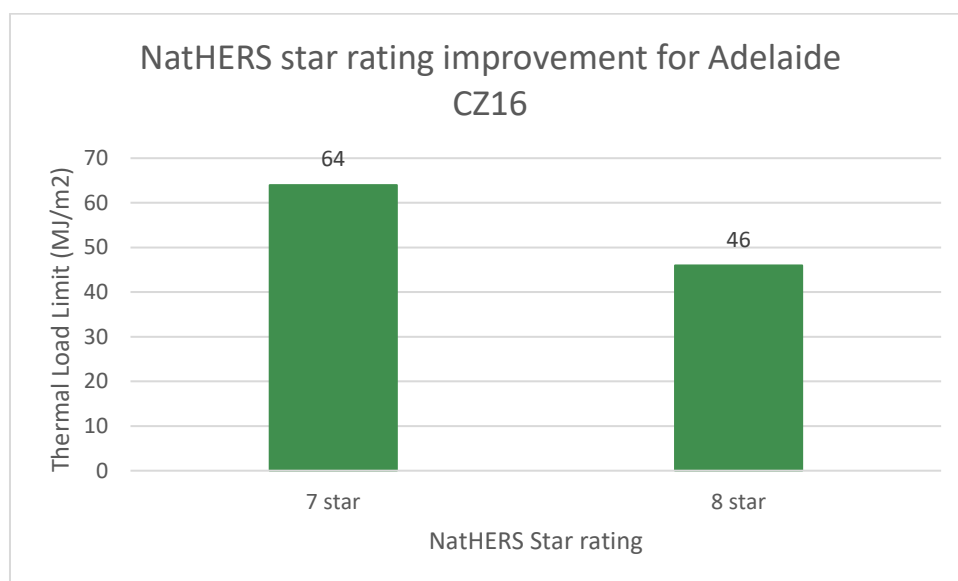


Figure 1- Contribution of Built Environment to Global CO₂ emissions (<https://www.weforum.org/agenda/2022/01/decarbonizing-the-built-environment/>)

The following sections outline the commitments this project has included that substantially reduce the environmental impact of development while carefully balancing against the economic constraints and realities of construction in the current market and the social housing sector.

Building Fabrics

- Increased average star rating to 8 stars, with each individual apartment required to achieve a minimum of 6 stars, leading to approximately 28% minimum improvement in heating and cooling loads
- High performing thermally broken double glazing to the apartments with high performing, low-e coating to control solar gain.
- Optimisation of operable windows designed to maximize cross flow ventilation and reduce mechanical cooling. Achieve best practice natural ventilation criteria to AS1668.4 - 2012.
- Select a low solar absorptance roof (max SA = 0.32) to reduce both solar gain and urban heat island effect.
- Improved air tightness providing both improve energy efficiency and health benefits, with a target of <7.5m³/hr.m² for a minimum sample of 10% of apartments.
 - Indicative testing shows this would yield a further +0.2 star result to NatHERS if results could be included in official ratings.
- External shading to reduce solar gains while maximising views and daylight.



All Electric Development

The development will significantly reduce its carbon emissions of over its lifetime by utilising the rapidly decarbonising electricity grid (see below), which will be 100% net renewable in 2027 according to the latest state government announcement⁸. It also responds to the unique context of South Australia, which is leading the world in the transition to a 100% renewable energy supplied grid.

To ensure these savings are realized regardless of the timeframe for net zero electricity in SA, the developer has committed to contracting all energy for the site from 100% renewables for at least the first 3 years. In this timeframe, it is anticipated that approx. 38 tonnes of carbon will be saved from this initiative.

South Australia leads the world in renewables

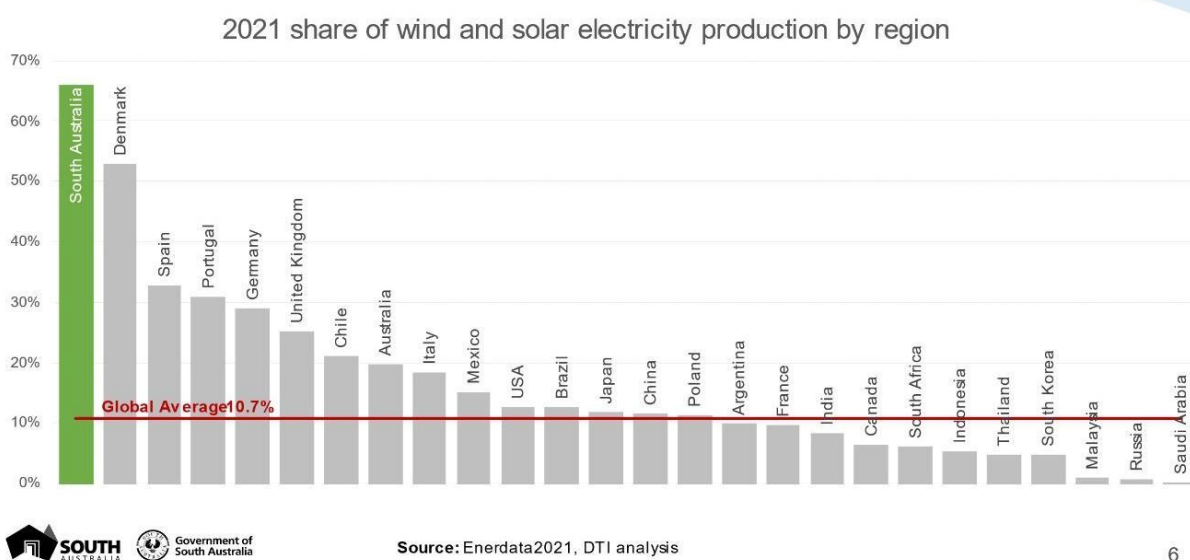


Figure 2 - South Australia's World Leading Decarbonisation of Electricity

⁸ <https://www.premier.sa.gov.au/media-releases/news-items/new-target-for-renewables>



This commitment has the following benefits beyond decarbonisation:

- Electric cooking reduces harmful pollutants to only the particulate matter produced from the food itself, compared to additional harmful pollutants produced from burning gas. One study showed that gas cooking is equivalent to the impact of passive smoking in households⁹ and another showed children had a 42% higher rate of asthma¹⁰, with gas burning and leakage in homes contributing to 12% of the national asthma burden in Australia¹¹
- Using electric heat pumps (typical efficiency of 350%) instead of gas fired boilers (typical efficiency 80%).

Embedded Network

An embedded network allows for greater operational savings for residents, reduced capex costs for the developer by offloading costs associated with meters, hot water system and solar PV. It also maximises the self-utilisation of behind the meter generated renewable energy, amplifying the economic benefit to all residents.

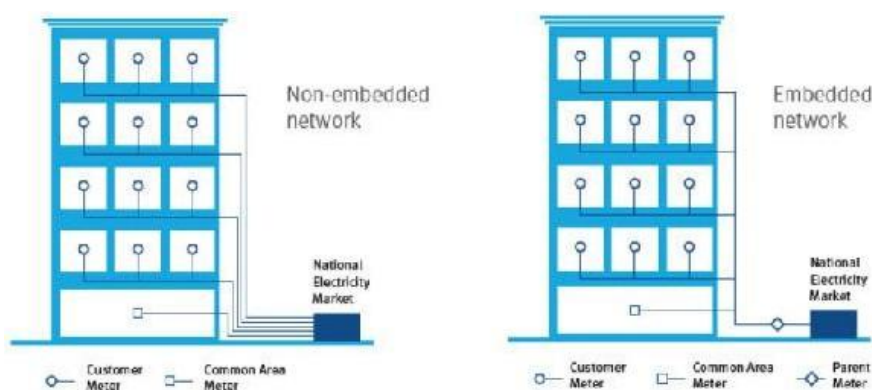


Figure 3 - Embedded Network versus Traditional Metering

Source: <https://ap2u.com.au/embedded-networks-explained/>

Services

- Overall reduction in energy efficiency of at least 30% compared to NCC 2022 reference apartment building
- HVAC: High efficiency DX units throughout with low GWP R32 refrigerant, a reduction of approximately 70% global warming potential compared to industry typical R410a
 - R32 nomination expected to generate approximately 127 tonnes of carbon saving compared to BAU R410a alternative
- Lighting: Install LED lighting throughout. At a minimum, install occupancy sensors in all intermittently occupied zones, ensure light switches are suitably frequent to allow for optimal control, achieve a 20% reduction in LPD and glare and colour rendition. Limit external lighting.
- Vertical Transport: Select lifts with standby power modes and regenerative drives.
- Consolidate roof plant to maximise common Solar PV system (minimum 20kW) which will be distributed across all building users via the embedded network.
 - Expected to generate 30,500kWh annually, or the equivalent power consumption of approximately 6.8 homes in SA¹²

⁹ <https://www.climatecouncil.org.au/resources/invisible-danger-gas-asthma-children/>

¹⁰ <https://academic.oup.com/ije/article/42/6/1724/737113?login=false>

¹¹ <https://www.abc.net.au/news/2021-05-23/can-gas-stovetops-give-you-asthma/100157786>

¹² <https://ahd.csiro.au/other-data/typical-house-energy-use/>



The ABCB's NCC 2022 Whole of Home calculators provides an indication of overall improvement of the proposed fixed appliances and inferred energy consumption costs against code compliant minimum outcomes. Using the two methods prescribed by the National Construction Code, the following indicative results are realized from the above initiatives:

- Whole of Home Deemed-To-Satisfy score of 0.3 compared to allowable score of 1.6
 - o Improvement of 80%
- Whole of Home Performance Score of 75/100 (indicative, exact modelling of all apartments not completed in planning phase)
 - o Minimum mandated outcome is 50/100, with a score of 100/100 considered "Net Zero" energy outcome
 - o Represents approximately a "half-way" outcome between code compliant minimum and best possible solution of net zero, a substantial improvement given the social housing capital constraints.

Appliances

- Where Appliances are installed, nominate energy efficiency options, including:
 - Dishwashers: 4 star
 - Washing Machines: 4.5 star
 - Dryers: 5.0 star
 - Fridge/Freezers: 4 star

Indoor Environment Quality & Amenity

- Specify glass with a minimum VLT of 40% for improved daylight.
- Select and use low VOC products internally for adhesives, sealants, carpets, and paints
- Specify engineered timber products to meet formaldehyde limits.

Water & Landscaping

- Drought tolerant low water requiring native species landscaping
- Water efficient fixtures and fittings, with the following minimum WELS ratings:
 - 5 star Taps
 - 4 star Toilets
 - 3 star Showers (Maximum flowrate of 7.5L/min)
 - 4.5 star Washing Machine (where installed)
 - 5 star Dishwasher (where installed)
- Reduce Urban Heat Island Effect through:
 - Low Solar Absorptance roof as per 'Buildings Fabrics' section.
 - Maximising Vegetated landscaping.

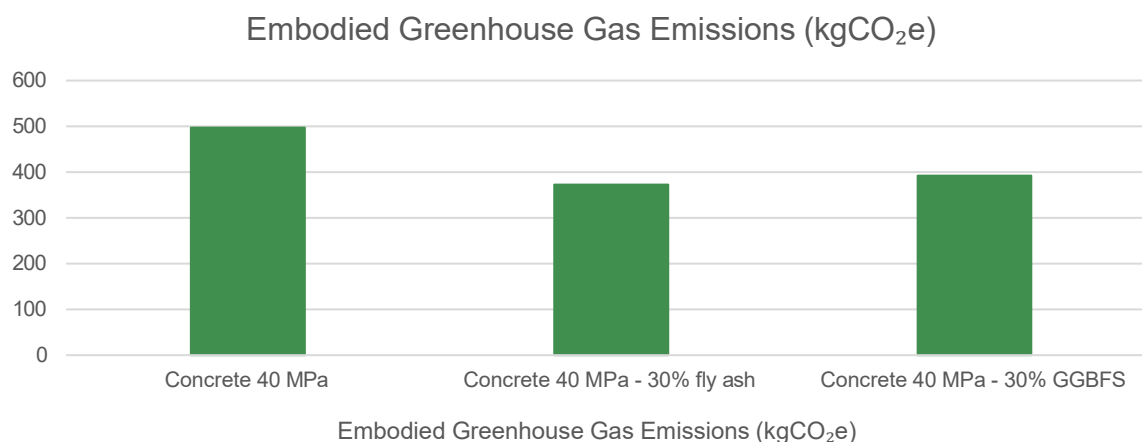
Waste

- Minimum 3 streams of waste collection for reduced landfill in operation
 - Organics
 - Commingled Recycle
 - General Waste
 - Include additional waste stream for one of the following: e-Waste, Bulky goods or Batteries.
- 90% diversion of Construction and Demolition Waste.
 - o Equivalent to 3.6 households worth of annual waste going to landfill compared to BAU practice of 76% resource recovery rate

Materials

- Reduce embodied carbon impact of the building, estimated to be at least 100 tonnes CO₂e through:
 - Nominating concrete with a 30% reduction in Portland cement content for footings, slab, piles and other on-grade applications (typical concrete mixes and resultant improvement shown below¹³)
 - Design with Post tensioned slabs where possible to reduce volume of concrete and reinforcing steel.

¹³ <https://msd.unimelb.edu.au/research/projects/current/environmental-performance-in-construction>



- Sustainable Procurement of Materials: Many products have certifications or accreditations that provide transparency around their environmental impact such as GECA, EPD, GreenRate and ECS (carpets only). The project will preference these materials where cost comparable.

Sustainable Transport

- Site is in close proximity to public transport and bike paths, reducing carbon emissions associated with transport and promoting healthier lifestyles
- Bike storage/hoops to be included for visitors and storage for residents to be provided to maximise potential for active transport modes

Economic Benefits

The range of sustainability initiatives inherent in higher density, infill social housing developments as well as the suite of improvements that have been committed to for this project yield significant economic benefits. The following economic benefits from providing social housing are summarised from the previously referenced AHURI report:

- Reduced utility costs for residents due to reduced energy consumption and potential for improved contract rates via embedded network
- Reduced reliance on car travel due to CBD location, estimated to be \$2,692 per worker per year on average
- \$5,591-\$6,941 saving to government per person housed per year (2021 figures) due to reduction in health services supplied to homeless people comparing year before and after entering social housing
- \$14,622 avoided in government health costs per person housed per year due to reduced instances of domestic family violence
- \$2,484 savings in justice costs to government from avoided police contact per person per year
- \$2,609 improvement in cashflow per social housing household per year due to reduced spending on health and medical services
- \$4,521 benefit per person per year due to improved life satisfaction
- Economic benefit of \$20,938 per worker per year due to improved employment prospects and stability

In addition to this, there are substantial savings from higher density infill housing compared to greenfield development that makes better use of existing infrastructure, spare capacity and provides residents with a greater range of services and amenity. The economic benefit of this is estimated to be \$50,000-\$100,000 per lot^{15,16} (average of ranges provided by SGS Economics, Greater Adelaide Regional Plan)

The above research makes clear that the overall economic benefit of this development through its expected lifetime of at least 60 years could induce over \$50 million dollars due to the social and environmental benefits of the typology, location and other sustainability initiatives.

¹⁵ <https://sgsep.com.au/assets/main/SGS-Economics-and-Planning-better-value-greenfield-infrastructure.pdf>

¹⁶ https://plan.sa.gov.au/_data/assets/pdf_file/0009/1259208/Greater-Adelaide-Regional-Plan-Discussion-Paper.pdf



Conclusion

The proposed development at 8 Hocking Place, Adelaide will present a significant increase in sustainable design and energy efficiency against minimum practice, particularly compared to the typical sustainability outcomes of the affordable living subset of accommodation. Environmental, Economic and Social benefits are generously provided by both inherent aspects of social housing but also the exemplary commitment to including a range of features and design outcomes not typically seen in social housing developments. Associated carbon emissions from energy use will be significantly reduced and further eliminated through the consideration of low-carbon construction elements. Critically, the inner-city location and focus on energy efficiency will reduce ongoing living costs substantially. The project's most valuable contribution to sustainability outcomes is the proponent's commitment to ensure all units are supplied as affordable social housing accommodation, which will vastly improve the lives of many of our community in dire need of safe, secure and sustainable spaces to live and thrive in.



Appendix A – CV of Sustainability Consultant



Nathan Lawry, Principal

MIEAust CPEng NER APEC Engineer IntPE(Aus)

Qualifications & Accreditations

- BEng (Mechanical and Sustainable Energy) Hons, University of Adelaide
- Green Star Accredited Professional, Green Building Council of Australia
- Climate Active Carbon Neutral Assessor
- LCA Accredited Assessor
- Chartered Professional Engineer
- Guest Lecturer, School of Architecture, Adelaide University

Career Overview

Leading teams on a diverse range of projects from a variety of sectors across Australia for over 10 years, Nathan has accrued valuable experience that allows him to understand what really makes a difference and where the most value lies when it comes to sustainability.

Nathan was instrumental in establishing the local buildings group of a multi-national engineering firm and has led projects from small and simple to large and complex across almost every state in Australia. With a focus on early strategy and feasibility, Nathan thrives on the complexity and challenge of working with teams to extract the most sustainable outcomes on projects, passionate about the opportunities that can be realized from deep collaboration

His expertise stems from a deep technical knowledge and exposure to a broad set of frameworks, policies, ratings and scopes that allows him to effectively navigate what can otherwise be an overwhelming pursuit. His strong personal skills have led him to being a favoured consultant amongst clients, known for being an effective and responsive communicator, skilled operator and enthusiastic and passionate contributor.

Nathan specialises in masterplanning, feasibility, strategy and ESG advisory works, bringing a comprehensive understanding of the technical ramifications of sustainability that allows for risks and costs to be appreciated and informed decisions to be made regarding the various sustainability opportunities available to all projects.

Project Highlights

- | | |
|---------------------------------|---|
| • One The Esplanade | 6 Star Green Star, Gold WELL, 5 Star NABERS |
| • Southern Ocean Lodge 2.0 | LEED Gold, large off grid BESS |
| • Curtin Uni Mixed Use Precinct | 5 Star Green Star, various buildings |
| • Home Build To Rent Portfolio | \$2B portfolio of All electric, Net Zero operations, 5 star Green Star |
| • Villawood Aldinga estate | 5 Star Green Star Communities, Net Zero Development for 800 lot residential |
| • Riverina Joint Venture | 3 defence bases mid-term refresh, \$1.9B program over 6 years |
| • 3rd St Bowden | 5 Star Green Star BTR, Climate Active Carbon Neutral |



- Newman Health Centre Community Hospital for Regional WA
- Shellharbour Hospital All electric public greenfield public hospital for NSW Health
- The Switch, Doncaster 5 Star Green Star PBSA
- Brompton Gasworks Net Zero Masterplan for new 6Ha mixed use community
- The Towers, Elizabeth Quay Green Star 5 Star, Ritz Carlton Hotel and Apartments
- Salvado Road Sustainability Masterplan and delivery for townhouse and apartment precinct
- The Amble Estate One Planet Living Sustainability Masterplan for housing estate
- St Leonards BTR 5 Star Green Star, All Electric
- Element 27 BTR Australia's First Climate Active certified Carbon Neutral Apartment
- hArbour commercial office 5 star NABERS Energy rating, mass timber structure
- Curtin University SODBE 6 Star Green Star
- Lot 2 Perth City Link 5 Star Green Star, >\$100M apartment tower
- Lot 3 Perth City Link 5 Star Green Star Dorsett Hotel
- The Switch, Adelaide Sustainability framework for PBSA
- Junction Thrive Sustainability framework for Junction HQ and apartments