

Sustainability Vision and Strategy Report

Parkroyal Darling Harbour, 150 Day St Sydney

Revision 02, March 2025

Document information

Report title: Sustainability Vision and Strategy Report
Project name: Parkroyal Darling Harbour, 150 Day St Sydney
Project number: 2243
Digital file name:
Digital file location:

Prepared

Prepared by: Isabella Fyfe
Signed: IF
Date: 20/03/2025

Checked

Checked by: Jennifer Elias
Signed: JE
Date: 20/03/2025

Approved

Approved by: Jennifer Elias
Signed: JE
Date: 20/03/2025

Revisions

No	Date	Approved
00	06/12/2024	JE
01	18/12/2024	JE
02	20/03/2025	JE

Atelier Ten
Level 6/100 Pacific Highway
North Sydney
NSW 2060
T +61 2 9262 4500
W atelierten.com

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Acknowledgment of Country

Atelier Ten acknowledges the Traditional Owners of Country, the Gadigal of the Eora Nation, and we recognise their continuing connections to land, water, skies, and communities.

We are inspired by and learn from their knowledge and stories of Country. Atelier Ten pays respect to Traditional Owners, their cultures, and to Elders past and present.

Executive Summary

This report details a Sustainability Vision and Strategy for the Parkroyal Darling Harbour redevelopment at 150 Day St, Sydney (the project). The report was prepared for UOL Group Limited (UOL) and its subsidiaries Pan Pacific Hotels Group (PPHG) and Parkroyal Hotel in alignment with the City of Sydney’s (CoS’s) Environmental Sustainable Design (ESD) requirements and broader sustainability objectives. The report covers the concept design stage of the project.

The redevelopment of the Parkroyal Darling Harbour Hotel at 150 Day Street, Sydney, aims to adaptively reuse the existing 2 level basement and 11 storey hotel, with the addition of a new 11 storey hotel above (including a transfer floor between the two structures), and a rooftop plant floor. By co-locating two hotels within the same footprint, the project significantly minimises the need for additional hotel-supporting infrastructure that would otherwise be required in a separate location within the city. This approach not only reduces embodied carbon emissions by retaining much of the existing structure but also demonstrates an innovative model for sustainable urban development.

A comprehensive sustainability strategy is central to the project, guided by six sustainability pillars: Innovation, Better Places, Strengthen Community, Emissions Reduction, Operate Efficiently, and Circular Economy. Each pillar will drive specific initiatives to reduce the environmental impact of the project while enhancing its social and economic value. The project will meet the required environmental standards, including achieving a 5 Star Green Star rating, a 4.5 NABERS Energy rating, and materially exceeding Seciton J of the NCC, making it a benchmark for sustainable development in Sydney.

It is recommended that a 5 Star Green Star Buildings v1 pathway be developed to determine the number of points in each category which will be pursued. This pathway should focus on achieving points in the energy and water categories and should include contingency to mitigate the risk of not all points being achieved. Additionally, to meet the first requirement of 4.5 NABERS Energy rating a NABERS Energy Commitment Agreement will need to be signed. Finally, a Design for Environmental Performance (DEP) Template is required to meet the City of Sydney planning requirements.

Findings from several case studies at the conclusion of the report illustrate that ‘green luxury’ is attainable alongside a sustainable hotel development. These case studies showcase innovative sustainability practices across energy, water, materials, waste, and indoor environments, with an emphasis on reducing carbon emissions, reusing materials, and enhancing operational efficiency. The combination of adaptive reuse, local sourcing, and green technologies exemplifies cutting-edge sustainable design in the hotel industry, resulting in significant operational and financial savings.

★

NABERS ENERGY
★★★★★☆☆ Required ★★★★★☆☆ Targetted

1

Improve facade performance, provide appropriate solar control and insulation

2

Provide appropriate controls for lighting and air-conditioning

3

Choose high-performance chillers

4

Investigate benefit of heat recovery on the fresh air supply

INNOVATION

4

Pioneer the retention and adaptive reuse of existing hotel buildings in Sydney

5

Implement innovative and sustainable construction technologies

6

Adopt leading circular economy strategies (e.g. existing materials inventory, material passports)

7

Lead by example, communicate and promote project success and key learnings

BETTER PLACES

6

Connect to place and Country, led by Traditional Owners

7

Mitigate urban heat island effect through incorporation of urban greening strategies

8

Design rooftop and ground spaces to create opportunities to connect to nature

9

High indoor environment quality that promotes thermal and visual comfort

10

Improve ecosystem health and biodiversity

11

Embed biophilic principles in design

STRENGTHEN COMMUNITY

9

Strengthen community art and culture through the incorporation of public art

10

Build operational capacity over time, to ensure the project is resilient

11

Consider impacts within the supply chain in construction and operational procurement

12

The project is inclusive to a diverse range of people with different needs

GREEN STAR BUILDINGS V1

★★★★★☆☆ Required ★★★★★☆☆ Targetted

13

Achieve points across the Responsible, Healthy, Resilient, Positive, Places, People, and Nature categories

14

Focus on achieving points in the 'Energy Use' and 'Water Use' categories

EMISSIONS REDUCTION

11

Prepare for an all-electric future by removing existing gas connections

12

Maximise onsite renewable energy generation

13

Investigate securing a power purchase agreement to ensure 'green' power supply

14

Prioritise the retention of the existing building to reduce embodied carbon

15

Optimise design efficiency to minimise absolute material quantities

CIRCULAR ECONOMY

16

Maximise reuse of appropriate demolition waste onsite or in the local community

17

Recycle existing precast concrete panels by crushing for reuse as aggregate

18

Specify low-carbon and recycled content materials (structure, facade, and finishes)

19

Target a zero waste to landfill approach

OPERATE EFFICIENTLY

20

Adopt a systems-thinking approach to building design, construction and lifecycle

21

Prioritise passive design principles to minimise operational energy use

22

Improve waste management

23

Reduce water use through inclusion of water efficient fixtures

24

Train staff to operate in an efficient manner

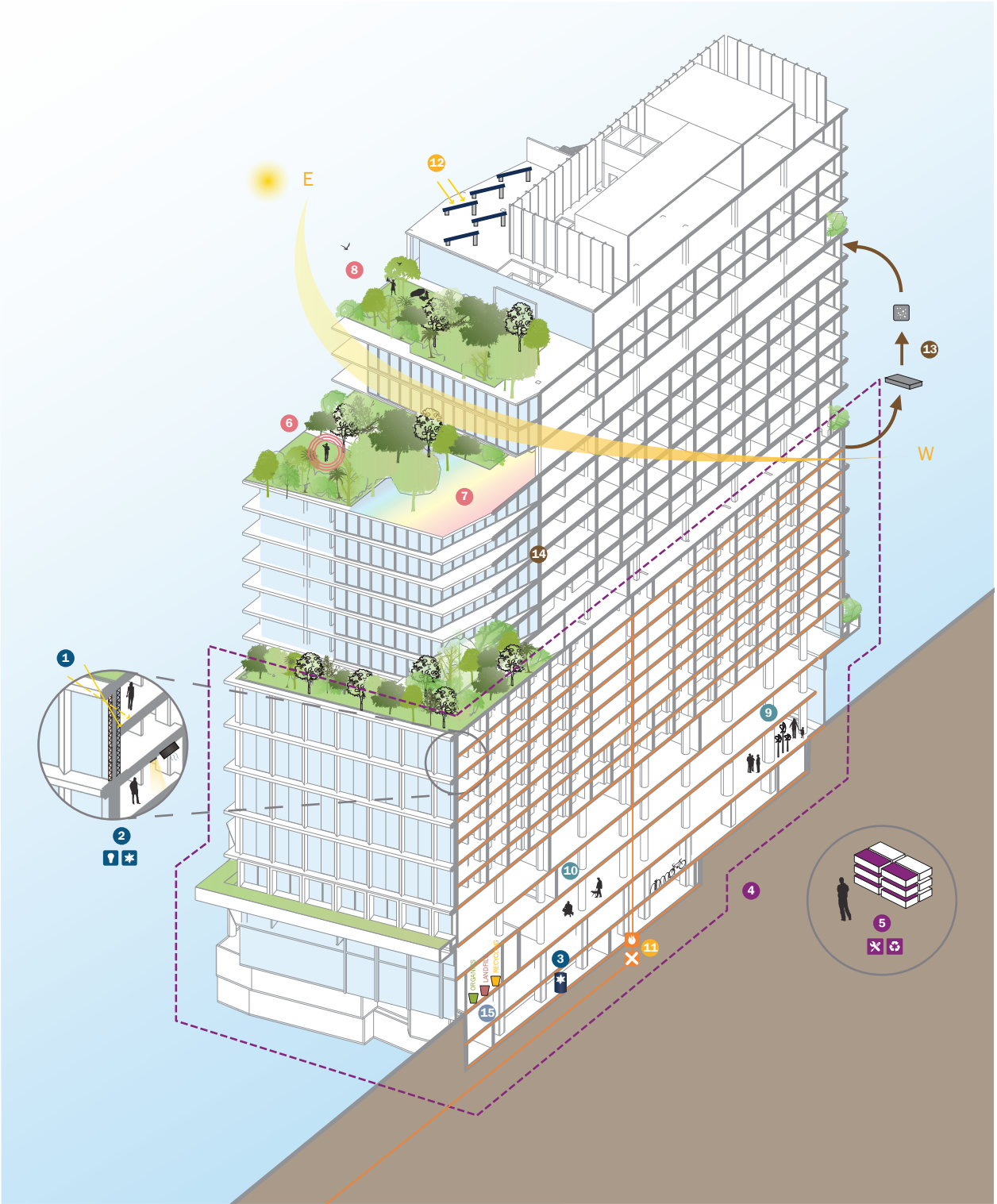


Figure 1.1 150 Day St Sustainability Vision and Strategy snapshot. Source: Atelier Ten

Sustainability Context

1 Introduction

This project will see the adaptive reuse of the existing 2 level basement and 11 storey Parkroyal Darling Harbour Hotel at 150 Day St, Sydney, with the addition of a new 11 storey hotel above (including a transfer floor between the two structures), and a rooftop plant floor. A key objective of the project is to retain as much of the existing building as possible, reducing embodied carbon emissions of the construction and aligning with the sustainability objectives of the City of Sydney. Thus, the project will demonstrate innovation in the areas of adaptive reuse and retrofit, making a positive contribution to the city's sustainable tourism industry.

1.1 Parkroyal Darling Harbour

Parkroyal Darling Harbour hotel is situated on Day St within close proximity to Darling Harbour and located within Sydney's CBD. The hotel is owned by the Pan Pacific Hotels Group (PPHG) which is a subsidiary of the UOL Group Limited (UOL). The existing building was constructed in 1988 as a 10 storey concrete frame structure with an additional 11th storey steel structure added in 1996. The existing hotel accommodates 335 hotel keys.

The redevelopment of the existing hotel will see the removal of the current 11th storey and addition of 11 new storeys, supported by a transfer structure. The additional storeys will be provided via a direct vertical extension above the existing building, maintaining similar setbacks/ street wall heights as the existing floor levels.

1.2 City of Sydney

The City of Sydney local government authority (LGA) is located in the heart of the city's CBD. The LGA is responsible for the city centre, including more than 30 suburbs and more than 200,000 residents (NSW Government, 2020). The City of Sydney is divided into 30 precincts. The site is located within the Town Hall precinct, which is defined as the area between Liverpool Street to the south, Harbour Street and the Western Distributor to the west to Druiitt Street, George Street to King Street in the north, and Elizabeth Street to the east.

A key objective in the development of the city centre public domain plans is to rebalance space allocation of streets to provide more room for people to walk, cycle and stay. The project will help the City of Sydney to deliver this ambition by providing more space for people to stay and enhancing pedestrian connections across the east west axis of the precinct.

1.3 Strategic Vision

The Strategic Vision of the project is to enhance connections between Tumbalong Park to the southwest of the site and the future town hall square, proposed to the east of the site between George St and Pitt St. Therefore, the project will play a key role in activating the city's lanes, enhancing the pedestrian experience and contributing to the fine grain of the city. The project will also be seen as a stepping stone for tourists and guests to Darling Harbour, which is located a mere five minute walk from the site.

Visually, the proposed development will exemplify the 'Sydney experience', with the existing structure mimicking the heavy sandstone base and new construction exemplifying the light forested platforms which typify Sydney's surrounding geology. These forested platforms will serve several purposes, providing green spaces for the amenity of hotel guests, enhancing biodiversity of the local area, and mitigating the effects of the urban heat island (UHI).



Figure 1.1 Illustration of Strategic Vision (Source: Hassell, 2024)

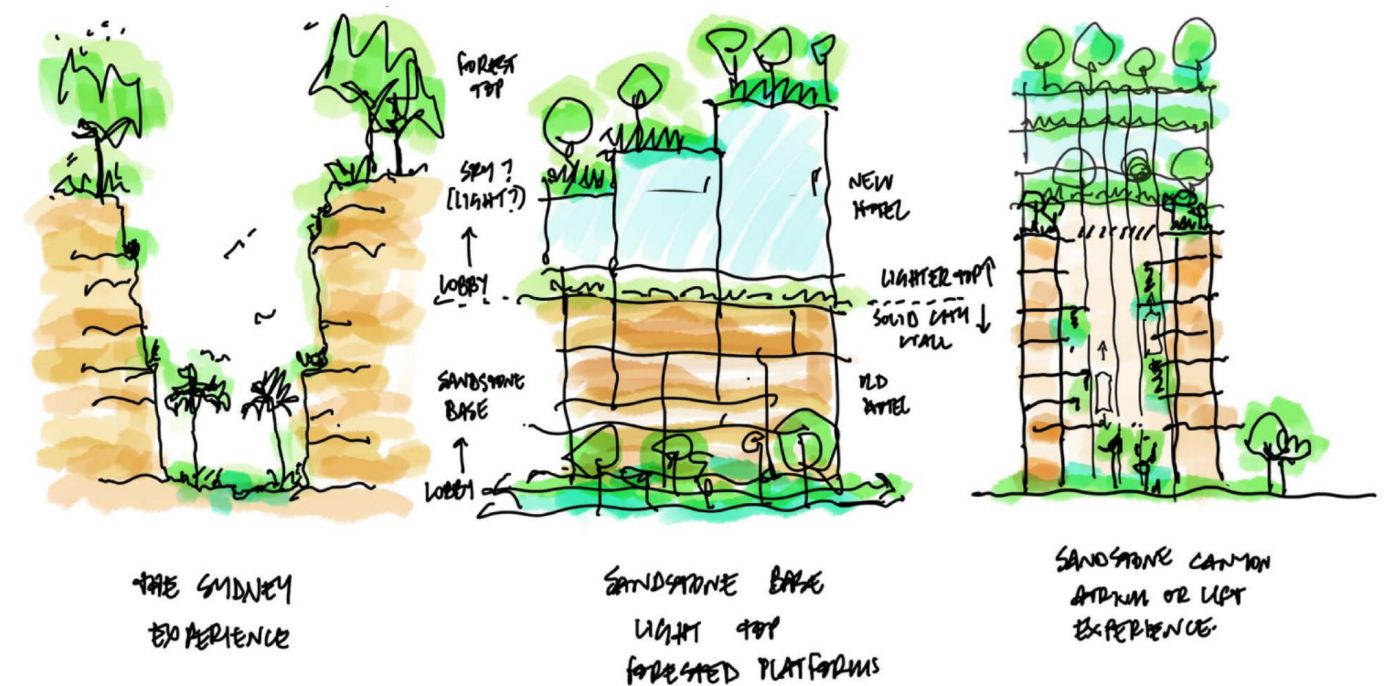


Figure 1.2 Concept Design sketches (Source: Hassell, 2024)

2 Site Context

The site is situated at the heart of Sydney's CBD within the City of Sydney (CoS) Local Government Authority (LGA). The site sits to the west of the future Town Hall square within the CoS's Town Hall Precinct. The site has access to local high quality outdoor amenity spaces for guests with Darling Harbour and Tumbalong park both situated within a five minute walk.

2.1 Key Features

- The site is located within the City of Sydney (CoS's) LGA boundary at the existing Parkroyal Darling Harbour Hotel, 150 Day St, Sydney. The site is located to the west of CoS's Town Hall precinct within 300 m of Darling Harbour and Tumbalong Park, situated to the north west and south west, respectively.
- The site is surrounded by a variety of medium and high density residential uses, including nearby student accommodation to the south and east. A heritage building is located adjacent the site on Bathurst St.
- The site is surrounded by several busy arterial roads, including the Western Distributor and Cross City Tunnel to the north and Harbour St to the west. A portion of the site to the north runs underneath the Western Distributor.
- There are several significant fig trees located within the Day St Site Boundary which are to be retained to maintain the visual green continuum along Harbour St and Day St.
- The site is well connected to public and green transport with the regional bike network on Kent St to the east of the site, and the city's bus network on Druiitt St to the north. The nearest light rail station is located a 500 m walk to the east of the site at Town Hall Station.

2.2 Strengths

- Within five minute's walking distance to Darling Harbour and Tumbalong Park - connecting the local community to high quality amenity and green spaces.
- Within close proximity to bus stops.
- Within close proximity to the local retail centre on George St.
- The existing building is structurally sound and is able to be retained, retrofitted, and adaptively reused.
- Water views to Darling Harbour.
- Several established fig trees to the west of the site providing local green space on the ground plane and helping to mitigate the urban heat island effect.
- The site is well situated in the heart of Sydney's CBD within close proximity to the future Town Hall square.

2.3 Opportunities

- Retain the existing building as much as possible to reduce the embodied carbon emissions of the construction.
- Adopt circular design principles to responsibly reuse or recycle parts of the existing building which are no longer needed.
- Deliver an environmentally and socially sustainable hotel that contributes to the sustainable tourism objectives of the City of Sydney.
- Enhance network of footpaths with street furniture, signage and pathways to create an attractive environment for pedestrians and cyclists.
- Increase communal facilities, and active and passive recreation spaces to contribute to increased levels of amenity for guests.
- Resolve and improve public domain in the area, particularly to the north of the site beneath the Western Distributor and to the west of the site adjacent Harbour St.
- Increase canopy and vegetation cover to mitigate the urban heat island (UHI) effect by incorporating green amenity spaces on rooftop areas of the building.
- Nature stewardship - improve biodiversity in the local area by providing green spaces on-site with diverse flora species.
- Include public art installations in the urban realm adjacent the site to align with the City Centre Public Art Plan.
- Opportunity to link the north of the site to the planned local bike network on Druiitt St to improve cycling connections.
- Enhance local pedestrian connections, improving the Town Hall Precinct's walk-ability.

2.4 Constraints

- The site and surrounding environment currently sits +6°C to +9°C warmer above baseline due to the effects of urban heat island (NSW Government, 2016).
- The site and surrounding area experiences high wind velocities at the street pavement level which should be mitigated through the building's design.
- The close proximity of the existing building to the site's boundary may limit the amount of facade upgrade work that can be done to achieve thermal performance requirements.
- Minor flooding occurs adjacent the site boundary on Sand St to the east during a 1% Annual Exceedence Probability (AEP) flood event, with significant flooding occurring in the local area due to the proximity of Darling Harbour (City of Sydney, 2016). Therefore, access to the site may be limited during flood events.

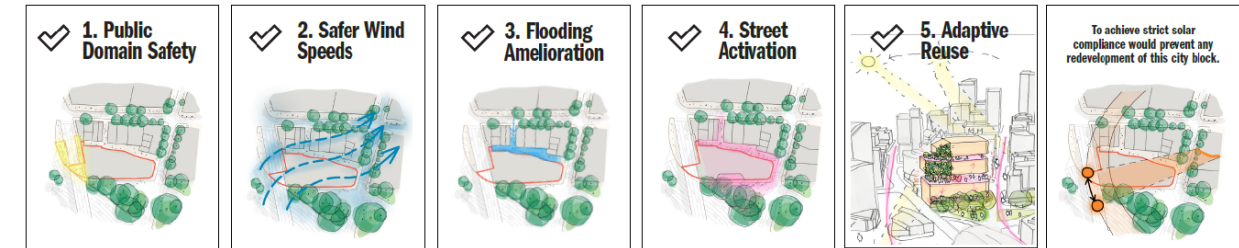


Figure 2.1 Summary of Placemaking Improvements (Source: Hassell, 2025)



Figure 2.2 Wider 150 Day St Context (Source: Nearmaps, 2024)

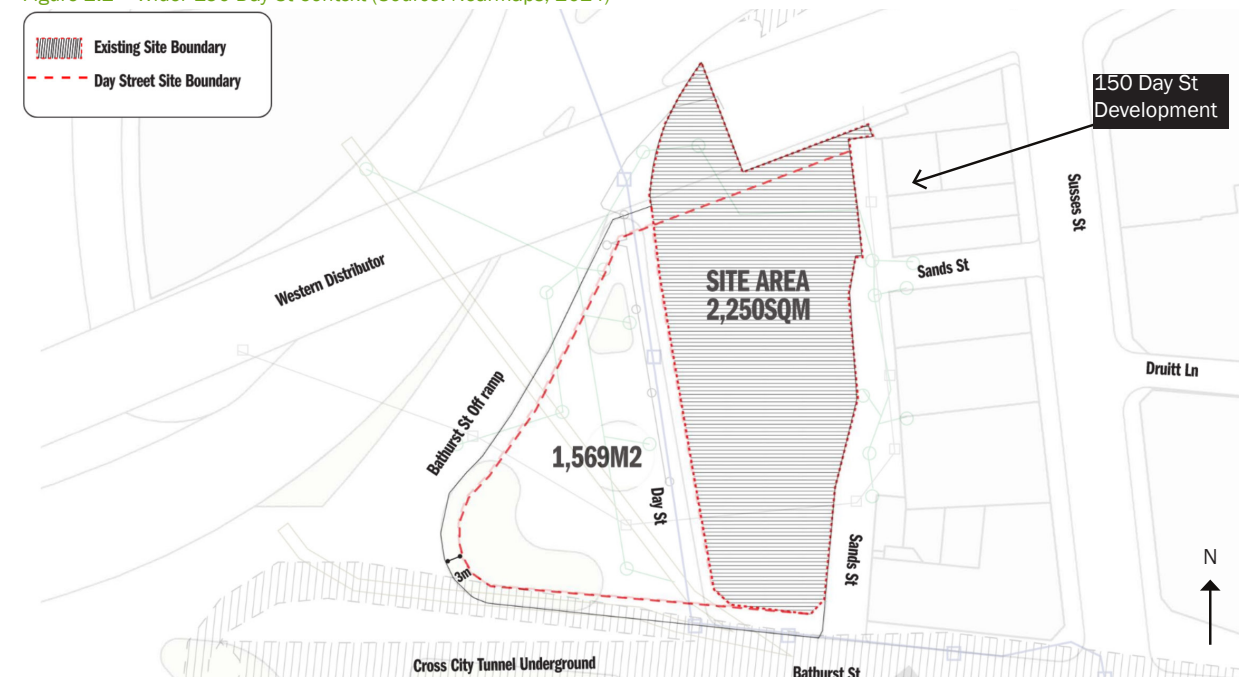


Figure 2.3 Place Context (Source: Hassell, 2024)

3 Policy and Planning Framework

A detailed sustainability blueprint for the project was established from the review of several Policy and Planning Framework documents. These documents were used to distinguish mandatory actions, recommended practises, and aspirational goals, guiding the integration of sustainability across the project life cycle - from master planning to operations, influencing, design, construction, and operations management.

All listed documents share relevance to the project and are organised in a hierarchy based on governance level. This hierarchy is illustrated opposite and is summarised below:

- **Global** | Broad spectrum of sustainability principles, objectives and compliance guidelines that are applicable on a global level
- **State** | State-wide targets and compliance guidelines for sustainability, sustainable development, and climate resilience
- **Council** | Guiding sustainability strategies specific to the local City of Sydney Council



Figure 3.1 Policy and Planning Framework document review hierarchy.

3.1 Transforming Our World: The 2030 Agenda for Sustainable Development, United Nations

In an unprecedented global endeavour, the United Nations established the 2030 Agenda for Sustainable Development, a comprehensive plan aimed at eradicating poverty, ensuring prosperity, and protecting our planet.

Through its 17 Sustainable Development Goals (SDGs), the agenda sets forth a universal call to action to transform our world by addressing a wide range of social, economic, and environmental challenges.

This pivotal agenda outlines a global partnership's ambition to foster a sustainable future for all. It presents 17 SDGs, accompanied by 169 targets, designed to promote prosperity while protecting the environment. The agenda emphasises a balanced approach that integrates the economic, social, and environmental dimensions of sustainable development, aiming to leave no one behind.

Key Principles, Objectives, or Themes:

- Eradicate poverty in all its forms and dimensions.
- Combat inequality within and among countries.
- Preserve the planet and sustainably manage its natural resources.
- Ensure prosperous and fulfilling lives in harmony with nature.
- Foster peaceful, just, and inclusive societies.
- Strengthen global partnerships to support and achieve the agenda.

Implications for 150 Day St:

- Align operations and development plans with SDGs to contribute to global sustainability efforts.
- Adopt sustainable practices to support ecological balance and resource conservation.
- Engage in community and educational initiatives to promote inclusive and sustainable economic growth.
- Implement strategies for reducing inequalities and ensuring the well-being of all employees and community members.
- Enhance resilience to environmental challenges through adaptive management and climate action.
- Collaborate with local and global partners to advance sustainability goals and share best practices.



3.2 The Paris Agreement, United Nations

In a landmark global endeavour, the Paris Agreement mobilises countries worldwide, including Australia, to combat climate change through ambitious greenhouse gas emissions reductions and efforts to limit global warming to well below 2°C above pre-industrial levels.

It champions global cooperation, adaptation strategies, and the redirection of financial flows towards sustainable, low-emission pathways to secure a resilient future for all.

This pivotal agreement delineates commitments from global nations to mitigate their greenhouse gas emissions, aiming to avert the escalation of global temperatures to perilous levels. It marks a united journey towards sustainable development, recognising the urgency of an expedited response to the climate crisis, with Australia ratifying the agreement to significantly contribute to these global efforts.

Key Principles, Objectives, or Themes:

- Aiming to restrict global warming to well below 2°C, targeting efforts towards 1.5°C.
- Enhancing the capacity of countries to address the impacts of climate change.
- Steering financial flows in favour of low greenhouse gas emissions and climate-resilient development.
- Emphasising the significance of transparency, adaptation, and support in realising these objectives.

Implications for 150 Day St:

- Incorporating sustainable design and construction practices to minimise environmental impact and ensure resilience to climate change, serving as a model for future developments around the central Sydney region. Since UOL are the owner-operators of the project, there is increased incentive to deliver these sustainability ambitions to ensure reduced costs over the long term.
- Contributing to the economic development of central Sydney through creating jobs and enhancing the community's resilience to climate change, in line with Australia's sustainable development goals and commitments under the Paris Agreement.



3.3 Net Zero Plan Stage 1: 2020–2030, NSW Government

The “Net Zero Plan Stage 1: 2020–2030” and the “NSW Net Zero Plan Implementation Update 2022” collectively outline the strategic roadmap and progress towards NSW’s ambitious goal of achieving net-zero emissions by 2050.

The initial plan lays the groundwork with actionable strategies across various sectors, emphasising technological innovation, economic growth, and community empowerment. The 2022 update provides a crucial progress report, showcasing advancements in emissions reduction technologies, enhanced consumer and business engagement, and the NSW Government’s leadership in sustainability efforts.

Key Principles, Objectives, or Themes:

- Accelerated adoption of emissions reduction technologies.
- Empowerment of consumers and businesses towards sustainable decisions.
- Investment in next-generation emissions reduction innovations.
- Demonstrative leadership by the NSW Government in sustainability.

Implications for 150 Day St:

- Adopting and integrating state-of-the-art sustainable technologies for emissions reduction, including the removal of gas connections from site in anticipation of conversion to an all-electric building.
- Engaging in and promoting sustainable practices within the hotel community.
- Exploring investment opportunities in innovative technologies and practices that align with NSW’s net-zero ambitions.
- Leveraging support and initiatives provided by the NSW Government to showcase 150 Day St as a model for sustainable hotel re-development within the adaptive reuse space.



3.4 Resource Efficiency Policy, NSW Government

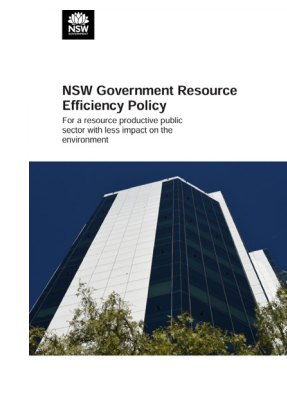
The NSW Government’s Resource Efficiency Policy Document delivers commitments under the NSW Climate Change Policy Framework and the State Infrastructure Strategy to reduce the NSW Government’s operating costs and lead by example in increasing the efficiency of the State’s resource usage.

The policy’s measures, targets and minimum standards drive resource efficiency where significant opportunities for savings have been identified, in the areas of energy, water, waste and clean air. The implementation of the policy will ensure that corporations:

- Meet the challenge of rising costs for energy, water, clean air and waste management
- Use purchasing power to drive down the cost of resource-efficient technologies and services
- Show leadership by incorporating resource efficiency in decision-making.

Implications for 150 Day St:

- The project will need to comply with minimum NABERS Energy ratings for hotels, minimum standards for new electrical appliances and equipment, and minimum standards for new buildings and fit-outs including Green Star.
- The project will need to comply with minimum standards for new water-using appliances, balancing user preferences with water saving targets.
- To help drive growth and innovation in the market, it is recommended that construction materials with recycled content be used and that design specifications for re-use be employed.
- Use of low-VOC materials to be prioritised.
- Expanding the existing site’s capacity without the need to demolish and rebuild a new hotel, helping the City of Sydney to meet its need for 40,000 hotel rooms. City hotel rooms are currently at capacity in the city, restricting economic growth.



3.5 Sustainable Buildings SEPP, NSW Government

The policy encourages greater consistency in designing, assessing, and monitoring of the performance of sustainable buildings in NSW.

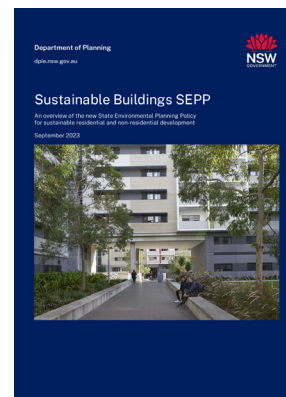
Sustainable Buildings SEPP (2022) aims to simplify and coordinate a way for planning for and designing sustainable buildings in NSW. A variety of building typologies are covered throughout the policy. The NSW Government has updated the standards throughout the policy and included BASIX.

Key Aims of Policy:

- To encourage the design and delivery of sustainable buildings,
- To ensure consistent assessment of the sustainability of buildings,
- To record accurate data about the sustainability of buildings, to enable improvements to be monitored,
- To monitor the embodied emissions of materials used in construction of buildings,
- To minimise the consumption of energy,
- To reduce greenhouse gas emissions,
- To minimise the consumption of mains-supplied potable water,
- To ensure good thermal performance of buildings.

Implications for 150 Day St:

- Consistently adhere and satisfy Chapter 3 and Chapter 4 Section 3 of SEPP (Sustainable Buildings) 2022.
- Calculate and report on embodied emissions of construction materials
- Adhere and satisfy energy standards and associated offsets for hotel developments
- Adhere and satisfy new water standards for hotel developments
- Demonstrate that the building can operate without use of fossil fuels by 2035



3.6 Sustainable Sydney 2030 - 2050, City of Sydney

This document presents the sustainability vision for the City of Sydney: a sustainable future where everyone does their part to respond to the climate emergency.

The vision was developed through extensive community consultation over several years. Engagement activities included surveys, pop-up events and community workshops with First Peoples of Australia, small businesses and cultural and night-life sectors. 10 directions for 2050, 10 targets to measure progress and 10 ambitious project ideas to bring the vision to life resulted from this engagement.

10 key directions for 2050:

- Good governance and stewardship
- A leading environmental performer
- Public places for all
- Design excellence and sustainable development
- A city for walking, cycling and public transport
- An equitable and inclusive city
- Resilient and diverse communities
- A thriving cultural and creative life
- A transformed and innovative economy
- Housing for all

Implications for 150 Day St:

- Implement greening strategies to cool the local area, helping support well-being, improve amenity, and contributing to the City's 2050 target of overall green cover of 40%
- Reduce potable water use to 170 L per person per day by 2030.
- Prioritise green transport strategies to and from site.
- Electrify the project, generate renewable energy on-site and investigate obtaining a power purchase agreement to support the City in reaching its target of net zero emissions by 2035



3.7 Making Sydney a Sustainable Destination, City of Sydney

The entertainment and accommodation sector in Sydney is responsible for 47% of commercial waste, 21% of carbon emissions, and 14% of drinking water consumption. This document illustrates the significant opportunity for cost and resource use reduction that can come from putting environmental sustainability first in the sector.

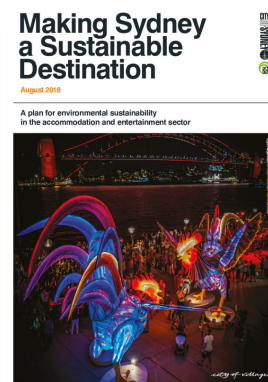
Additionally, an increased focus on the environment in the entertainment and accommodation sector can attract more customers and engage employers, which are key drivers for UOL and Pan Pacific Hotel Group (PPHG). Hence, it is imperative that the project align itself with the recommended key actions in this report to help meet these ambitions.

Key Actions for the sector:

- Use and promote environmental ratings
- Improve waste management
- Make cost-effective retrofits
- Install on-site solar or procure renewable energy
- Connect to recycled water where possible

Implications for 150 Day St:

- Given on-site solar panel restrictions on-site, it is recommended that the procurement of renewable energy be targeted to meet the City of Sydney's net zero emissions targets.
- It is recommended to provide incentives to guests to reduce their environmental impacts.
- It is recommended to install the highest standard WELLS rating water fixtures for water efficiency.
- Provide suitable waste management infrastructure for maximum resource recovery as per the City's Waste Management in New Development Guidelines.



3.8 Sustainable Destination Partnership, Progress Report 2023

The aim of the Sustainable Destination Partnership is to elevate Sydney's reputation as a sustainable destination through increased environmental performance. In 2023, the partnership reduced emissions by 24%, reduced potable water use by 24%, achieved 50% waste diversion from landfill, and increase renewable electricity use to 13% from the 2018 baseline.

In the same year, Sydney achieved its highest ever score in the Global Destination Sustainability Index (GDSI), ranking as the 5th best metropolis globally. In this context, the project is required to reduce energy, waste, and water consumption to ensure that it positively contributes to the City of Sydney's GDSI ranking and sustainability ambitions as outline in the Sustainable Sydney 2030 - 2050 Continuing the Vision document.

Five key Actions:

- Implement best practice waste management
- Continue to work towards halving food waste
- Amplify success stories
- Plan and work towards net zero
- Increase uptake of renewable energy

Implications for 150 Day St:

- Implement best practice hotel waste management strategies from construction through to operation phases.
- Investigate on-site or local composting solutions to ensure organic waste is diverted from landfill.
- Encourage hotel users to share their experiences to contribute towards positive sustainability outcomes.
- Investigate implementing renewables on-site and/or striving to obtain a power purchase agreement.



3.9 Sustainability Framework, UOL

The UOL Sustainability Framework is a set of guiding principles that support UOL's Sustainability Vision: Less Carbon, More Life. The Framework underpins UOL's commitment to shape a resilient built environment and contribute towards a clean, green and sustainable future. The Pan Pacific Hotels Group (PPHG), as a subsidiary of UOL, also adheres to this Sustainability Framework.



The Framework is aligned with several UN SDGs in addition to global sustainability standards and certification schemes including the GRI Standards, iEdge SG ESG Indices, Global Sustainable Tourism Council (GSTC), ISO 14002, and NCC Green Mark.

The Framework is divided into three primary themes:

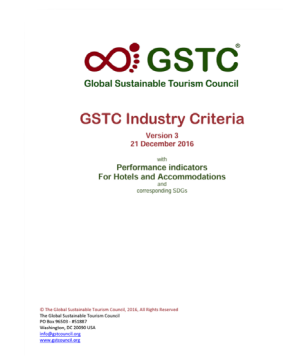
- Environment - Developing Better: Managing Climate Risk and Building Resiliency
- Social - Building Good: Empowering People and Communities
- Governance - Doing Right: Conduct Business Profitably and Responsibly

Implications for 150 Day St:

- The project should focus on improving energy efficiency, water conservation, reducing greenhouse gas (GHG) emissions and waste to meet UOL's environmental sustainability ambitions.
- The project has the opportunity to leverage innovative and sustainable de-construction technologies as part of the project's adaptive reuse / circular economy strategy.
- The project has the opportunity to drive innovation culture across the organisation in alignment with UOL's core values.

3.10 GSTC Industry Criteria, Global Sustainable Tourism Council

The Global Sustainable Tourism Council (GSTC) Industry Criteria document outlines several criteria that are global standards for sustainable travel and tourism. The Criteria have applicability to the entire tourism industry, however, this document focuses specifically on Hotel and Accommodation developments.



Within each GSTC Industry Criteria there are several performance indicators that are designed to provide guidance in measuring compliance with the GSTC Criteria for Hotels and Accommodation. The project, being a Pan Pacific Hotels Group (PPHG) development, will target GSTC certification for hotels, therefore it is essential that these performance indicators and Criteria be adhered to.

The Criteria are organised around four primary themes:

- Effective sustainability planning
- Maximising social and economic benefits for the local community
- Enhancing cultural heritage
- Reducing negative impacts on the environment

Implications for 150 Day St:

- It is recommended that an exercise be undertaken to determine which Criteria are applicable to the project.
- The project should aim to target all performance indicators for each Criteria (where applicable).
- PPHG has expressed interest in improving local community connections through the project, therefore, the Criteria in the 'maximising social and economic benefits for the local community' theme should be a primary focus.
- There are several social sustainability operational impacts that should be considered.

3.11 Shaping a Sustainable Future, UOL

This document is UOL's 11th annual sustainability report for the 2023 fiscal year, covering performance data and related information on UOL's material environmental, social and governance topics. A 20% reduction in GHG emissions for UOL's commercial and hospitality from the 2019 baseline was reported, demonstrating UOL's commitment to emissions reduction across its portfolio.

The document is structured around the three pillars of UOL's sustainability vision: environmental, social and governance, and is aligned with the United Nations Sustainable Development Goals. A key achievement for UOL in 2023 was that the group became the first Singapore hospitality group to attain the Global Sustainable Tourism Council (GSTC) Multi Site certification for all hospitality properties in Singapore.

Implications for 150 Day St:

- Adhere to the GRI Standards listed in Appendix C of the document.
- Align operations and management protocol so UOL can meet its UN SDG Targets and Commitments.
- Requirement to track, monitor and assess energy, GHG emissions, water and waste streams.
- Adhere to UOL's Group Environmental Policy.
- Implement energy efficiency measures, renewable energy on-site, and procurement of renewable energy to assist UOL in meeting their target of reducing 46% of Scope 1 and Scope 2 GHG emissions by 2030.



3.12 Consultant Coordination Report, Hassell

This report outlines 150 Day St to key consultants, providing an overview of the project including, strategic site visit, solar massing studies, adaptive re-use strategy, concept sketches and working plans and sections.

Key findings from the report include that the solar plane may restrict the amount of roof area available for on-site renewable energy generation in the form of a solar PV array, and that there are significant spatial planning restrictions due to existing structure strengthening works.

Strategic site vision:

- Enhance connections of future town hall
- Enhance biodiversity in the area
- The project as a stepping stone to Darling Harbour

Implications for 150 Day St:

- Resolve and improve public domain in the area adjacent the project.
- Power purchase agreement may need to be pursued to meet energy reduction targets if solar plane restricts the amount of renewable energy that can be generated on-site.
- Reduce flooding through inclusion of permeable lanes.
- Include diverse planting species to enhance local biodiversity.
- Improve unsafe wind conditions.
- Adaptively reuse existing structure.
- Reducing on site parking to promote the use of green transport infrastructure.
- Remove existing gas connections and electrifying the building.



3.13 Consultant Workshop, Hassell

This document outlines key project work streams, provides an updated set of proposed drawings and expands on the existing building adaptive re-use approach for 150 Day St.

Key findings from the document include that a views impact assessment is required for the adjacent residential buildings and that a ‘column jacketing’ approach will be used to strengthen the columns of the existing structure.

Implications for 150 Day St:

- Conduct a views impact assessment.
- Upgrading the existing core requires internal demolition works around lift shafts, leading to material re-use opportunities.
- Integration of significant greening to enhance hotel user experience and improve biodiversity on-site.
- Consider material re-use possibilities for existing services which have reached their end of life.



4 Key Priority Areas

The Policy and Planning Framework review highlighted several Key Priority Areas that were used to inform the project's Sustainability Vision and Strategy. Figure 4.1 opposite illustrates the synergies between each of the Key Priority Areas across the City of Sydney, UOL/Pan Pacific Hotels Group, and the 150 Day St Development.

A summary of each area is provided below:

- **Emissions reduction** | setting clear targets and actionable steps to achieve emissions reduction ambitions.
- **Ensuring a sustainable future** | take decisive action on key strategies to address the climate emergency.
- **Responsible buildings** | drive sustainable building practices whilst reducing operational costs.
- **Places for all** | create an equitable and inclusive community that celebrates cultural history.
- **Innovation** | embrace innovative processes and design strategies to deliver cutting-edge solutions.
- **Ethical governance** | drive sustainable economic growth.
- **Better buildings** | promote green architecture and sustainable building practices to foster a healthier and more sustainable built environment.
- **People** | create a safe, healthy and inclusive built environment that fosters vibrant and connected communities.
- **Circular economy** | promote adaptive reuse, retrofitting and other circular economy priorities.
- **Reduce embodied carbon** | minimise life cycle emissions of materials through sustainable sourcing, efficient design, and use of low-carbon alternatives.
- **Better places** | foster a strong connection to place and enhance hotel user experience through the inclusion of green and biodiverse spaces.

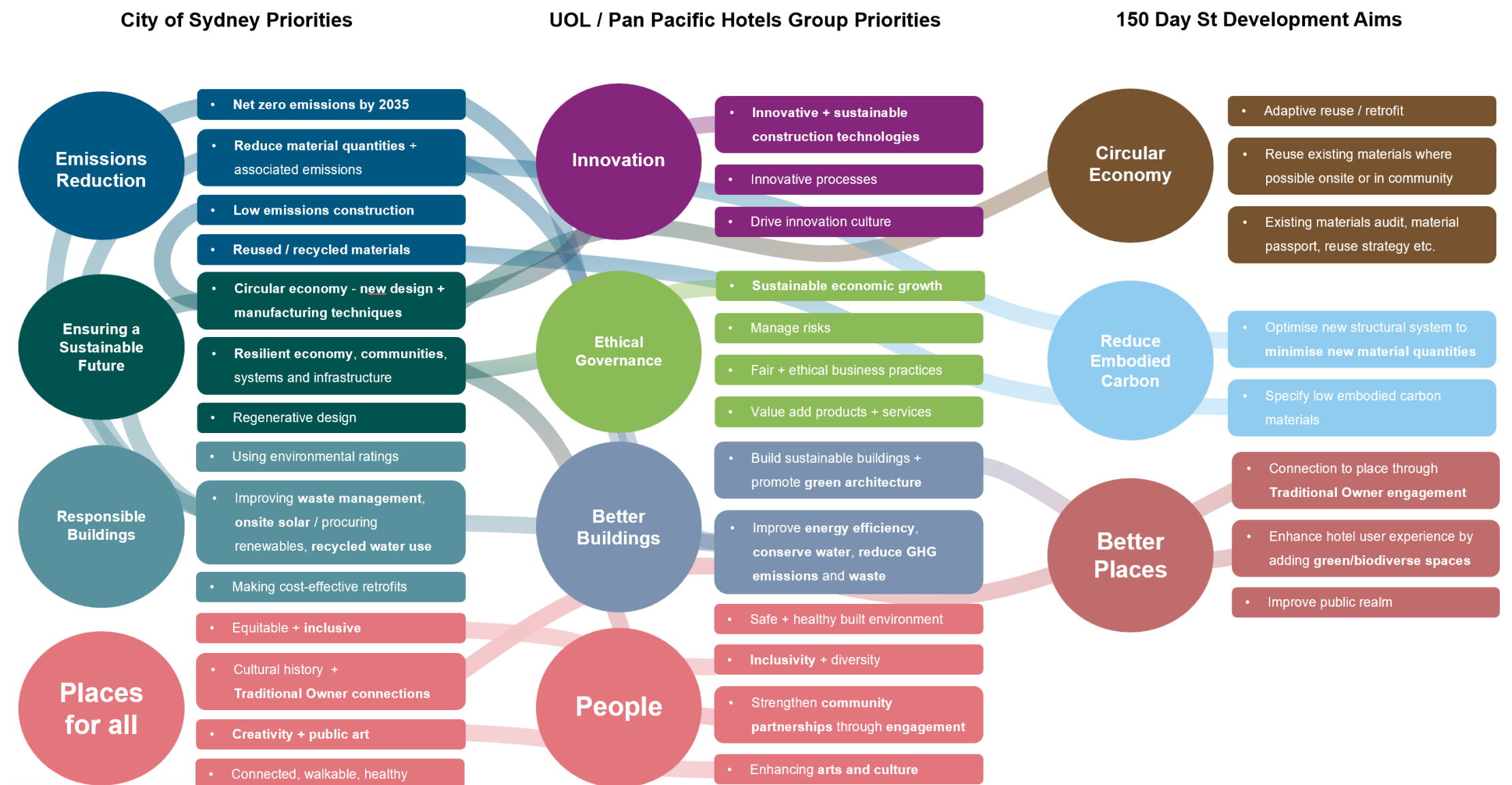


Figure 4.1 Ecology and synergy of sustainability ambitions. Source: Atelier Ten

5 ESD and Planning Requirements

The policy and planning framework review revealed several Environmental Sustainable Design (ESD) and planning requirements set by the City of Sydney which the project needs to meet.

5.1 ESD Requirements

The ESD requirements are listed below:

- 4.5 NABERS Energy rating (or higher)
- 5 Star Green Star Buildings v1 Rating (or higher) with a focus on maximising credit points in energy and water categories.
- Materially exceed Section J of the Building Code of Australia (NCC), demonstrated by engineering consultant's report.

To meet the first requirement of 4.5 NABERS Energy rating a NABERS Energy Commitment Agreement will need to be signed. This is a contract signed by a developer or owner to commit to design, build and commission a building to achieve a specific NABERS energy rating. This contract will incur a fee and will need to be signed and paid early in the design process before the development of a preliminary building energy model. The requirement for the project to achieve a 4.5 NABERS Energy rating applies to the whole project, i.e. both the existing and new buildings.

To meet the second requirement, a 5 Star Green Star Buildings v1 pathway will need to be developed to determine the number of points in each category which will be pursued. This pathway should focus on achieving points in the energy and water categories and should include contingency to mitigate the risk of not all points being achieved. It should be noted that the requirement to materially exceed Section J of the NCC will be met by achieving a 5 Star Green Star Buildings v1 Rating for the project.

5.1 Planning Requirements

Additionally, the project must meet the following planning requirements set by the City of Sydney:

- City of Sydney Design for Environmental Performance (DEP) Template

The DEP Template is a necessary precondition to receiving development consent through the demonstration of design excellence, which incorporates the principles of ecologically sustainable development.

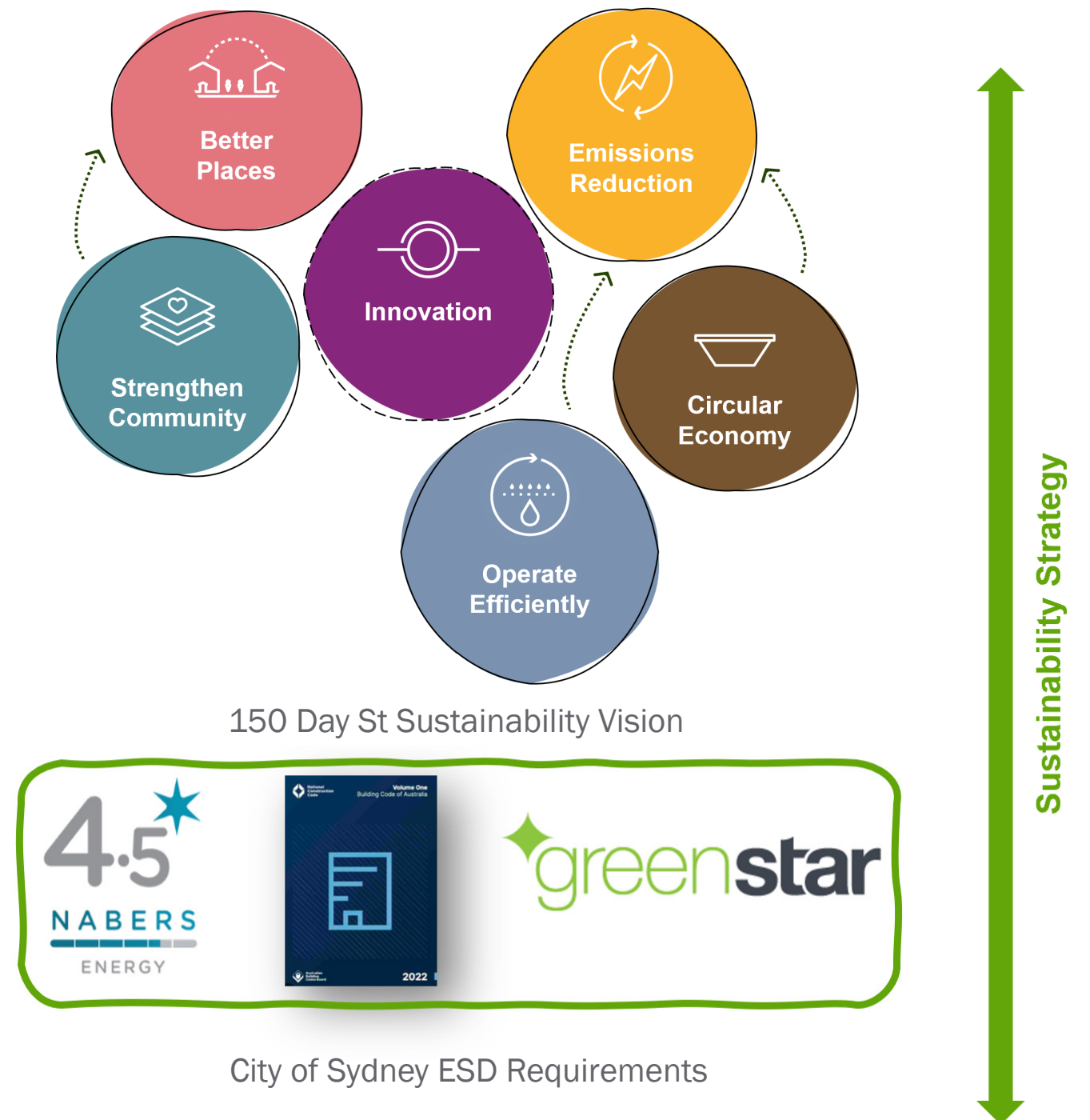


Figure 5.1 Summary of approach to meet ESD Requirements and deliver on the project's Sustainability Vision goals. Source: Atelier Ten

Sustainability Vision and Strategy

6 Sustainability Vision

The Sustainability Vision for 150 Day St was developed from the planning and policy framework review and distillation of key priority areas. The Vision was then refined through a Sustainability Workshop with representatives from UOL and Pan Pacific Hotels Group (PPHG) with the final Vision shown opposite.

6.1 Sustainability Pillars

The Vision comprises six Sustainability Pillars. Each Pillar is listed below, along with its overarching goal statement:

- **Innovation** | at its core, the project will enable the exploration of new solutions at every stage of the project to unlock greater potential and shape a more sustainable Sydney.
- **Better Places** | the project will deliver safe, inclusive, diverse, healthy, and biodiverse environments for people and planet, through a careful and considered approach to design.
- **Strengthen Community** | the project will adopt regenerative design principles to strengthen and deliver resilient places and communities.
- **Emissions Reduction** | the project will implement energy-efficient systems, utilise renewable energy sources, and prioritise the use of sustainable materials and design practices to minimise operational and embodied carbon impacts.
- **Operate Efficiently** | the project will prioritise the reduction in consumption of energy, water, and waste through considered design strategies and efficient operations
- **Circular Economy** | the project will adopt circular economy principles and foster innovation by testing new solutions across material manufacturing, design, construction, and end of life stages.



Figure 6.1 150 Day St Sustainability Vision. Source: Atelier Ten

The project's Sustainability Strategy is to meet the City of Sydney's ESD requirements at a minimum and focus additional efforts meeting aspirations of the Sustainability Vision. In this way, the ESD requirements underpin the project's Sustainability Vision and additional targets are captured in the Sustainability Strategy.

Several targetable outcomes are listed beneath each ESD requirement and Sustainability Pillar. The project will meet these targetable outcomes through the building's design, construction, and operation to deliver on the Sustainability Vision's goal statement for each Pillar. Figure 6.2 opposite illustrates particular targetable outcomes on a preliminary 3D render of the project to visually demonstrate how they will be achieved.

Innovation | Four targetable outcomes embody this pillar by fostering the exploration of new solutions — such as adaptive reuse, sustainable construction technologies, and circular economy strategies — while showcasing their implementation and success, ultimately unlocking greater potential and advancing a more sustainable Sydney.

Better Places | Six initiatives respond to this pillar by embedding connections to place and Country, urban greening, and biophilic design in the building, while enhancing biodiversity, ecosystem health, and indoor comfort to create inclusive, diverse, and sustainable environments that prioritise the well-being of people and the planet.

Strengthen Community | Four targetable outcomes support this pillar by fostering inclusivity, supporting diverse needs, celebrating local art and culture through public art, building operational resilience, and ensuring responsible supply chains, all guided by regenerative design principles to create stronger, more resilient communities.

Emissions Reduction | Five initiatives respond to this pillar by preparing for an all-electric future, maximizing onsite renewable energy, securing green power supply, prioritizing the retention of existing structures to reduce embodied carbon, and optimizing design efficiency to minimize material use, collectively reducing both operational and embodied carbon impacts.

Operate Efficiently | Five targetable outcomes support this pillar by adopting a systems-thinking approach, prioritizing passive design strategies, improving waste management, reducing water consumption, and training staff to ensure ongoing operational efficiency, all contributing to reduced consumption of energy, water, and waste.

Circular Economy | Four targetable outcomes embody this pillar by maximizing the reuse of demolition waste, recycling precast concrete panels, specifying low-carbon and recycled materials, and targeting zero waste to landfill, to drive innovation across material manufacturing, design, construction, and end-of-life processes.

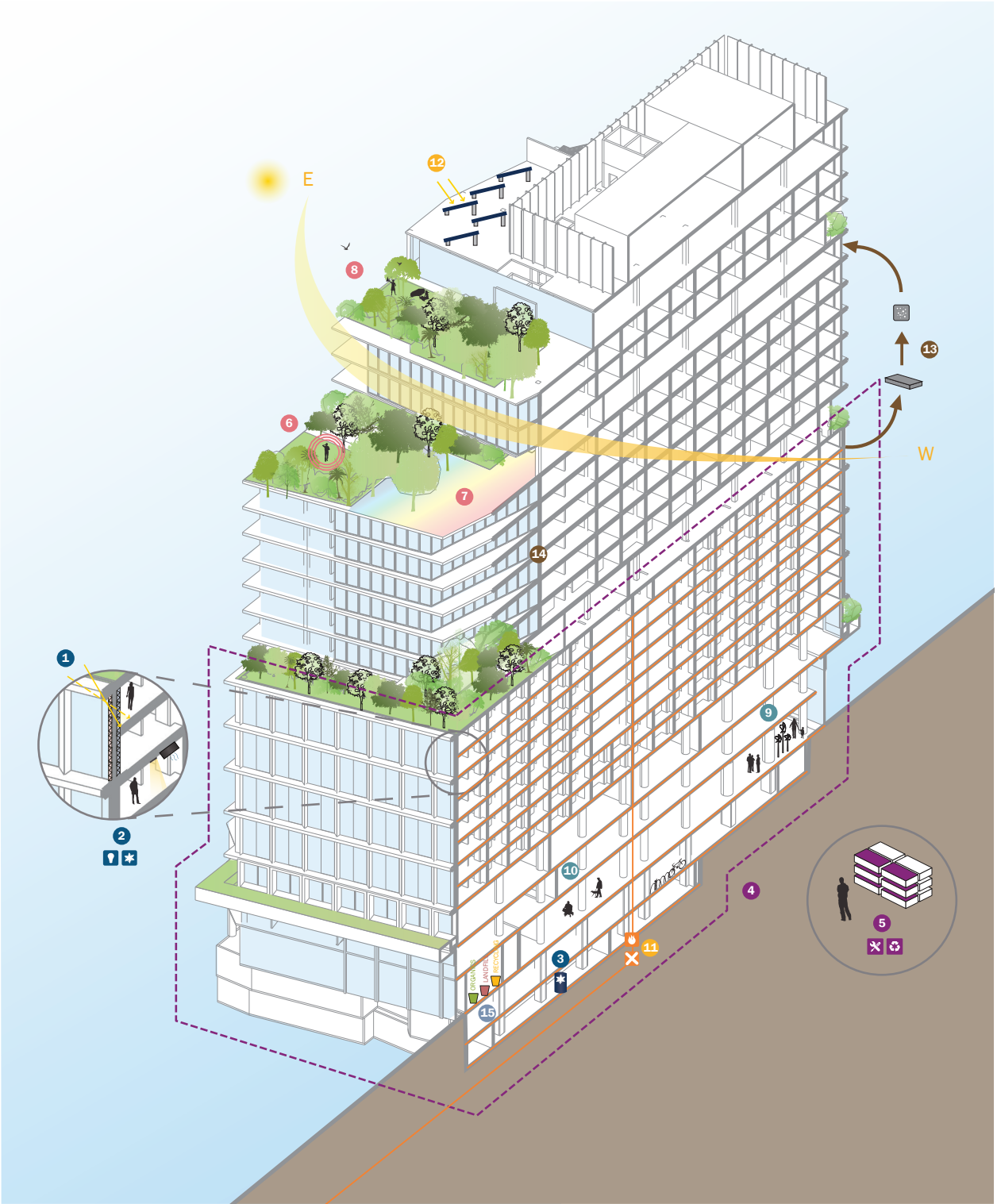


Figure 6.2 150 Day St Sustainability Strategy. Source: Atelier Ten

Assurance and Benchmarking

7 Assurance and Benchmarking Review

It is imperative that the project's sustainability objectives are backed up by an approach to assurance that gives absolute confidence that the claimed outcomes will be achieved.

This requires a framework for assurance that covers the sustainability objectives and provides:

- Independent review
- Transparency of methodology
- Accountability at each phase of the life-cycle

These rating tools are versatile, operating across different scales to drive sustainability outcomes:

- **Precinct/Community Scale** | At this scale, holistic sustainability tools address a spectrum of interconnected themes. They evaluate the broader environmental, social, and economic impacts of an entire precinct or community, providing a comprehensive view of sustainable development.
- **Building Scale** | Sustainability assessment tools also operate at the building level, scrutinising aspects such as energy efficiency, materials usage, and indoor environmental quality. These tools ensure that individual buildings align with sustainability goals.
- **Interiors Scale** | For interior spaces, sustainability criteria focus on factors like indoor air quality, lighting, and ergonomic design. These tools promote healthy and productive indoor environments.
- **Operations Scale** | Beyond design and construction, these tools extend to the operational phase, ensuring ongoing sustainability performance. They encompass energy consumption, waste management, and maintenance practices, among other aspects.

Using third-party sustainability rating tools for assurance offers a range of benefits, including::

- **Credibility** | Third-party tools provide an objective assessment of a building's or project's sustainability performance, enhancing its credibility and demonstrating commitment to sustainable practices.
- **Standardisation** | These tools establish standardised criteria for sustainability, allowing for consistent measurement and comparison across projects, sectors, and regions.
- **Market Differentiation** | Certification through third-party tools can set a project apart in the market, attracting environmentally conscious clients, tenants, and investors.
- **Informed Decision-Making** | The assessment process provides comprehensive data and insights, enabling stakeholders to make informed choices for design, construction, and operation.
- **Risk Mitigation** | Sustainability tools address potential risks related to energy consumption, resource depletion, and regulatory compliance, leading to more resilient projects.
- **Cost Savings** | Efficient resource usage, reduced energy consumption, and optimised designs often result in lower operational costs over the building's life-cycle.
- **Stakeholder Engagement** | Certification enhances engagement with stakeholders, including local communities, by

demonstrating commitment to environmental responsibility.

- **Occupant Well-being** | Tools often focus on indoor air quality, lighting, and other factors that directly impact occupants' health and well-being.
- **Innovation** | Many rating systems encourage innovative approaches to sustainability, fostering the adoption of new technologies and practices.
- **Long-Term Value** | Sustainable buildings tend to have higher property values due to lower operational costs and market demand for environmentally friendly properties.
- **Industry Leadership** | Pursuing and achieving certification positions a project or organisation as a leader in sustainable practices within their industry.
- **Transparency** | Third-party certification promotes transparency by providing clear documentation of a project's sustainability features and performance.
- **Positive Reputation** | Certification enhances an organisation's reputation as a responsible corporate citizen, which can lead to increased trust and goodwill.

7.1 Required Certifications

The following certifications have been assessed for their viability in delivering the maximum benefit to this project. Below is a brief outline of the assessment made in order to provide further detailed discussion on the best practice certification rating tools deemed applicable and closely aligned to the sustainability initiatives for 150 Day St.

- **Green Star Buildings**: Standardised Certification process in the Australian market for delivering a Climate Positive building that's fossil fuel free, powered by renewables, highly efficient, built with lower carbon materials and offset with nature.
- **NABERS**: NABERS measures the energy efficiency, water usage, waste management and indoor environment quality of a building or tenancy and its impact on the environment in operation. By pursuing these targets in operation, reductions in energy and water costs can be achieved.

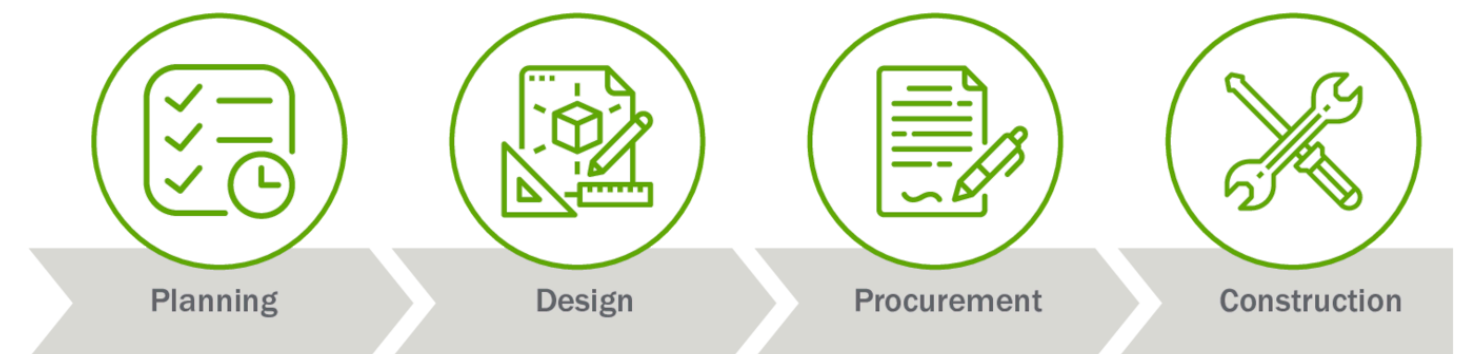


Figure 7.2 Different Life cycle Phases. Source: Atelier Ten

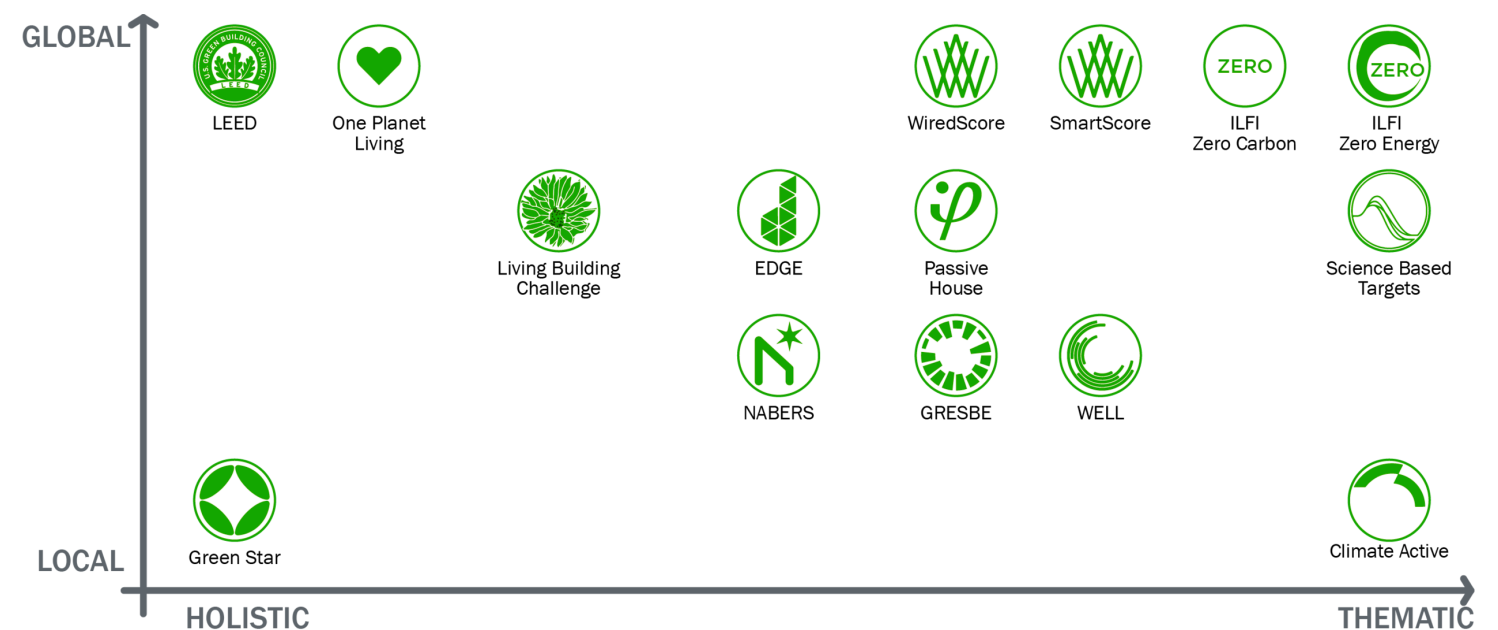


Figure 7.1 Comparison of Key Sustainability Benchmarking Tools. Source: Atelier Ten

7.2 Green Star



What is it:

- Green Star is an internationally recognised sustainability rating system with a local focus.
- Launched by the Green Building Council of Australia in 2003, Green Star is Australia's only national, voluntary rating system for buildings and communities.

What does it cover:

- Green Star ratings are available for every building type across four Green Star rating tools which provide a means of certification for building design and construction, operation, fit-outs and communities. These tools have been developed by Green Building Council of Australia (GNCC), in close consultation with industry and government.
- Green Star Buildings** focus on design and construction of all building types, including office and mixed-use buildings.
- Green Star Interiors** focuses on the interior fit-out of a new or existing building.
- Green Star Communities** is also available for developers choosing to integrate a holistic sustainable approach to an entire precinct and can be achieved hand-in-hand with Green Star Buildings.
- Green Star Performance** is available for the ongoing operations of certified Green Star Buildings, to maintain sustainable achievements over time.

What is its focus:

- Delivering a Climate Positive building in the Australian context that's fossil fuel free, powered by renewables, highly efficient, built with lower carbon materials and offset with nature.

Key issues:

- Green Star Buildings includes the Climate Positive Pathway - a clear set of targets aligned with the IPCC recommendations for Climate Positive Buildings.
- Buildings that meet the Climate Positive Pathway automatically comply with the Climate Bonds Initiative, allowing access to sustainable finance.
- Faster reporting process through alignment with leading frameworks, including the UN Sustainable Development Goals, GRESB, IPCC recommendations and the Task Force for Climate Related Financial Disclosure.



Green Star Buildings

Certify the design and construction of a building.



Green Star - Communities

Certify a plan and delivery for a precinct scale development.



Green Star - Performance

Certify the operational performance of an existing building.



Green Star - Interiors

Certify the interior fitout in a building.

Figure 7.3 Green Star Rating Tools (Source: Green Building Council Australia, 2024)



RESPONSIBLE



HEALTHY



RESILIENT



POSITIVE



PLACES



PEOPLE



NATURE



LEADERSHIP

Figure 7.4 Eight Categories Proposed for New Buildings Tool (Source: Green Building Council Australia, 2019)

7.3 NABERS



What is it:

- NABERS (National Australian Built Environment Rating System) is an national rating system, originating in Australia, that measures the environmental performance of buildings and tenancies.
- Initiated by the Australian government in New South Wales in 1998, it has become a globally recognised tool for comparing the environmental performance of buildings in a relatively standardised way for comparison.

What does it cover:

- NABERS ratings are available for the following building types - offices and tenancies, shopping centres, apartment buildings, public hospitals, hotels, data centres, residential aged-care and retirement living, warehouses and cold stores.
- NABERS Ratings include Energy, Water, Waste, Indoor Environment, Carbon Neutral and Renewable Energy Indicator.
- Whilst NABERS Ratings apply to operational buildings, the ratings are used as targets in building design to ensure that mandatory targets for water and energy consumption in certain building categories can be met in operation.
- NatHERS (National House Energy Rating Scheme) is also an initiative of the Australian Government, and designed to reduce greenhouse gas emissions and increase the efficiency of homes by measuring the heating and cooling over the year. This is also a rating that is used as a tool to design for.

What is its focus:

- NABERS measures the energy efficiency, water usage, waste management and indoor environment quality of a building or tenancy and its impact on the environment in operation.

Key issues:

- The Building Energy Efficiency Disclosure Act 2010: Australian government legislation requires owners of office buildings to disclose the energy efficiency of the building to prospective tenants or buyers. Known operationally as the Commercial Building Disclosure (CBD) program, a certified NABERS Energy rating is the main energy efficiency indicator required of building owners
- Various schemes are available for capital funding and rebates such as the ability to take part in energy schemes, such as the ESC in New South Wales.



Figure 7.5 NABERS Rating (Source: NABERS)

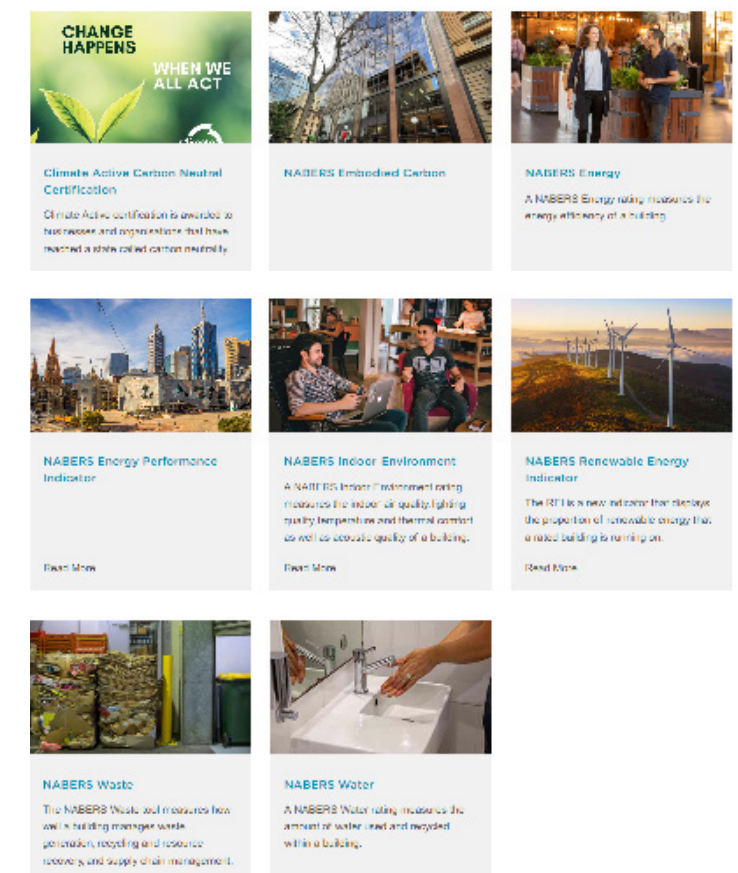


Figure 7.6 NABERS Rating Types (Source: NABERS)

Case Studies

8 Case Studies



8.1 Ace Hotel, Sydney AUS

Architect | Bates Smart
Project size | Unknown
Project Cost | \$72 million AUD
Type of build | Retrofit (existing heritage building) and new build
No. rooms | 264

Key sustainability outcomes and their supporting design initiatives:

- **Integrated Design Approach**
Process by which all design variables that affect each other are considered together and resolved in an optimal fashion. This holistic approach to design ensure optimal sustainability outcomes for the project.
- **Extensive arts and culture calendar**
Artist in residence and DJs take over lobby space for exhibitions and performances, providing entertainment for both guests and the general public, strengthening community.
- **Mixed-mode ventilation**
Building is capable of being operated using natural ventilation when the outdoor conditions are favourable, leading to the significant energy reduction of building services and improve usability for guests.

Notable achievements:

- City of Sydney Council - Environmental Performance Standards



8.2 ANMF Hotel, Melbourne AUS

Architect | Bayley Ward
Project size | Unknown
Project Cost | Unknown
Type of build | Retrofit (existing heritage pub) and new construction (hotel)
No. rooms | 29

Key sustainability outcomes and their supporting design initiatives:

- **Embodied carbon savings**
Cross-laminated timber structure significantly reduces the embodied carbon in the building, compared to a typical concrete structure.
- **Reused timber joinery in Central Club Hotel beneath hotel**
Salvaged timber from the keg roll and structural beams during demolition now forms joinery and tabletops, narrating a tale of adaptive reuse.
- **90% operation energy savings**
High-performance building envelope (airtight, thermal insulation, high-performance windows, thermal bridge free construction) and curtain wall system.
- **Improved air quality**
Controlled mechanical ventilation heat recovery to supply fresh filtered air directly to each guest room.

Notable achievements:

- Passivhaus accreditation of sustainable building design



8.3 Capri Hotel, Brisbane AUS

Architect | Plus Architecture
Project size | Unknown
Project Cost | \$44 million AUD
Type of build | Adaptive reuse (office building converted to hotel)
No. rooms | 239

Key sustainability outcomes and their supporting design initiatives:

- **Significant embodied carbon savings from adaptive reuse**
The original building was an office building which was converted into a hotel, resulting in significant embodied carbon savings, compared to a new construction.
- **58% renewable energy run operations**
Obtained through a Green Power Purchase agreement
- **Effective waste separation to reduce waste contamination**
The hotel uses multiple waste streams (paper, plastic, glass and general) to encourage responsible waste management and reduce waste contamination in the different streams.
- **Plastic waste reduction**
Complimentary water provided in reusable bottles and wall-mounted bathroom supplies further reduce single-use plastics.
- **Digital in-room directories**
Paper in-room directories replaced with digital versions to reduce waste.

Notable achievements:

- 4.5 Star NABERS Energy rating
- Climate Active Carbon Neutral hotel



8.4 Chadstone Hotel, Malvern East AUS

Architect | Bates Smart
Project size | Unknown
Project Cost | \$130 million
Type of build | New build
No. rooms | 250

Key sustainability outcomes and their supporting design initiatives:

- **480 tonnes Greenhouse Gas Emissions saved annually**
- **High-performance building facade**
Thermally enhanced curtain wall system, anodised aluminium fins
- **Renewable energy generation**
Extensive rooftop solar photovoltaics (PV) array
- **Healthy indoor environment**
Low pollutant interior materials and finishes, adequate daylight
- **Efficient fixtures**
LED lighting with occupancy sensors, water efficient fixtures and fittings, heat recovery ventilation systems
- **Reduced waste from prefabricated systems**
Integrated structural prefabrication, unitised curtain wall facade system

Notable achievements:

- Green Star Design As Built v1.1 5 Star rated
- 5-Star hotel



8.5 Lanson Place Parliament Gardens, Melbourne AUS

Architect | Conran & Partners, Denton Corker Marshall

Project size | Unknown

Project Cost | \$80 million AUD

Type of build | Retrofit (existing heritage Salvation Army printing press building) and new construction (hotel)

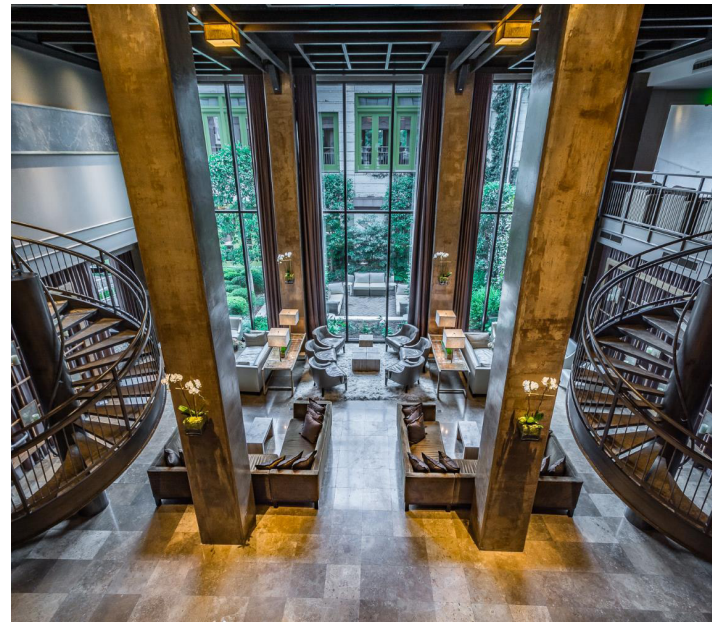
No. rooms | 137

Key sustainability outcomes and their supporting design initiatives:

- **Architectural grafting**
The hotel's design philosophy upcycles existing heritage building by attaching new hotel addition to the old structure, bringing new life to the building through strategic addition and helping to mitigate climate change through reducing embodied carbon emissions.
- **Single use plastics waste reduction**
Complimentary water provided in reusable bottles, cardboard toiletries packaging, wooden room keys and wall-mounted bathroom supplies further reduce single-use plastics.
- **Extensive artist engagement**
325 commissioned pieces of art and sculpture inspired by the building's storied past line the hotel's interior spaces including a 40-metre ceiling installation drawing inspiration from the native Melaleuca paperbark tree and linking to printing press headquarters heritage.

Notable achievements:

- 5 Star Boutique Hotel



8.6 Proximity Hotel, Greensboro North Carolina USA

Architect | Centrepoint Architecture

Project size | 102,000 square feet

Project Cost | \$28 million USD

Type of build | New build

No. rooms | 147

Key sustainability outcomes and their supporting design initiatives:

- **39% less energy than a comparable conventional hotel**
Well insulated building envelope, high-performance facade, operable windows reduce heating and cooling needs
- **33% less water than a comparable conventional hotel**
Low-flow toilets, waterless urinals, and low-flow faucets. Solar thermal panels provide 60% of the hotel's water heating needs.
- **Estimated \$140,000 USD annual utility savings**
Efficient operations, salvaged material reuse, high energy performance building.
- **46% building materials sourced regionally**
Bar in restaurant made from salvaged native walnut trees brought down by storm, the majority of furniture for the hotel was made within 18 miles of the site.
- **Local artwork for hotel guest rooms**
Project artist-in-residence created 500 pieces of art for the guest rooms, working in a temporary studio adjacent to the hotel. This eliminated the need for emissions and waste associated with transporting and packaging the artworks, respectively.

Notable achievements:

- LEED Platinum 'green hotel' sustainability rating
- Four Diamond Rating for luxury hotels

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