



ESD Report

12-16 Florence Street, Tweed Heads NSW 2485

The Trustee ATF WAFI Property Trust

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Revision History

Revision	Project	Description	Author	Checked By	Date
1.0	P199001	ESD Report	Payal Aggarwal	Luke Williams	27 th May 2025
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1 Introduction

Aspire Sustainability Consulting has been engaged to prepare an Ecologically Sustainable Design (ESD) report to accompany the State Significant Development Application regarding the proposed development located at 12-16 Florence Street, Tweed Heads NSW 2485. This report outlines the sustainable design initiatives proposed for the development, demonstrating a commitment to achieve Development Control Plan and additional regulatory frameworks.

1.1. Sustainable Design Frameworks

The development shall be designed in line with the following sustainable design frameworks, ensuring key ESD design principles are implemented across all aspects of design:

- National Construction Code (NCC) 2022 Section J Compliance (via J1V3 Performance Solution);
- State Environmental Planning Policy (SEPP) 2022: Sustainable Buildings;
- Building Sustainability Index – Standards for residential development (BASIX) 2022;
- Planning Secretary's Environmental Assessment Requirements (Housing); &
- Tweed Heads Development Control Plan (DCP) 2008.

1.1.1. National Construction Code (NCC) 2022 Volume 1 Section J (Energy Efficiency)

Provisions within Section J of the NCC relate to energy efficiency and the reduction of Greenhouse Gas Emissions for Class 2 to 9 developments. Aspects of design required to be addressed in Section J include the façade, building envelope, lighting, HVAC, energy metering, building sealing and ventilation. All portions of the development will comply with NCC Section J.

1.1.2. State Environmental Planning Policy (SEPP): Sustainable Buildings 2022

The Sustainable Buildings SEPP is aligned with National Construction Code & NSW Net Zero Policy which will help in delivering buildings that are more energy efficient, produce less GHG emissions and inform future benchmarks. It should be noted that the Sustainable Buildings SEPP is a framework that sets minimum performance requirements for projects in NSW.

1.1.3. Building Sustainability Index (BASIX)

BASIX is the primary framework applied to Class 2 portions of developments in addition to their associated common areas. Minimum performance requirements regarding the building fabric, appliances (energy and water efficiency) and central building systems must be achieved.

The following table references sections within the report where compliance is demonstrated with applicable SEPP requirements.

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1.1.4. SEAR's Controls & Objectives

The following table references sections within the report where compliance is demonstrated with applicable SEAR's and DCP requirements.

Table 2: SEAR Controls & Objectives

Planning Secretary's Environmental Assessment Requirements – Housing	Addressed in:
Identify how ESD principles (as defined in section 193 of the EP&A Regulation) are incorporated in the design and ongoing operation of the development.	Sections 5-13.
Where relevant, provide an assessment of the development against the standards for non-residential development set out in Chapter 3 of State Environmental Planning Policy (Sustainable Buildings) 2022.	Not part of ESD Scope.

1.1.5. Tweed Head DCP 20008 Controls & Objectives

The following table references sections within the report where compliance is demonstrated with applicable DCP requirements

Table 3: DCP ESD Controls & Objectives

Energy Efficiency	Addressed in:
1. To reduce the necessity for mechanical heating and cooling.	Section 10.
2. To reduce reliance on fossil fuels.	Section 10.
3. To minimise greenhouse gas emissions.	Section 10.
4. To support and promote renewable energy initiatives.	Section 10.
Waste Management	Addressed in:
1. To plan for the types, amount and disposal of waste to be generated during demolition, excavation and construction of the development.	Section 6.
2. To encourage waste minimisation, including source separation, reuse and recycling.	Section 6.
3. To ensure efficient storage and collection of waste and quality design of facilities.	Section 6.
Water Conservation	Addressed in:
1. To reduce main consumption of potable water.	Section 11.
2. To reduce the quantity of urban stormwater run off.	Section 11.
Maintenance	Addressed in:
1. To ensure long life and ease of maintenance for the development.	Section 8.

1.2. Aim of Report

The following sections outline design initiatives being considered that reduce the environmental impact of the design, construction, and operation of the development, highlighting alignment with applicable targets and planning controls.

2 Project Description

The development involves the design and construction of basement carpark and residential apartments from ground floor to level 12 located at 12-16 Florence Street, Tweed Heads.

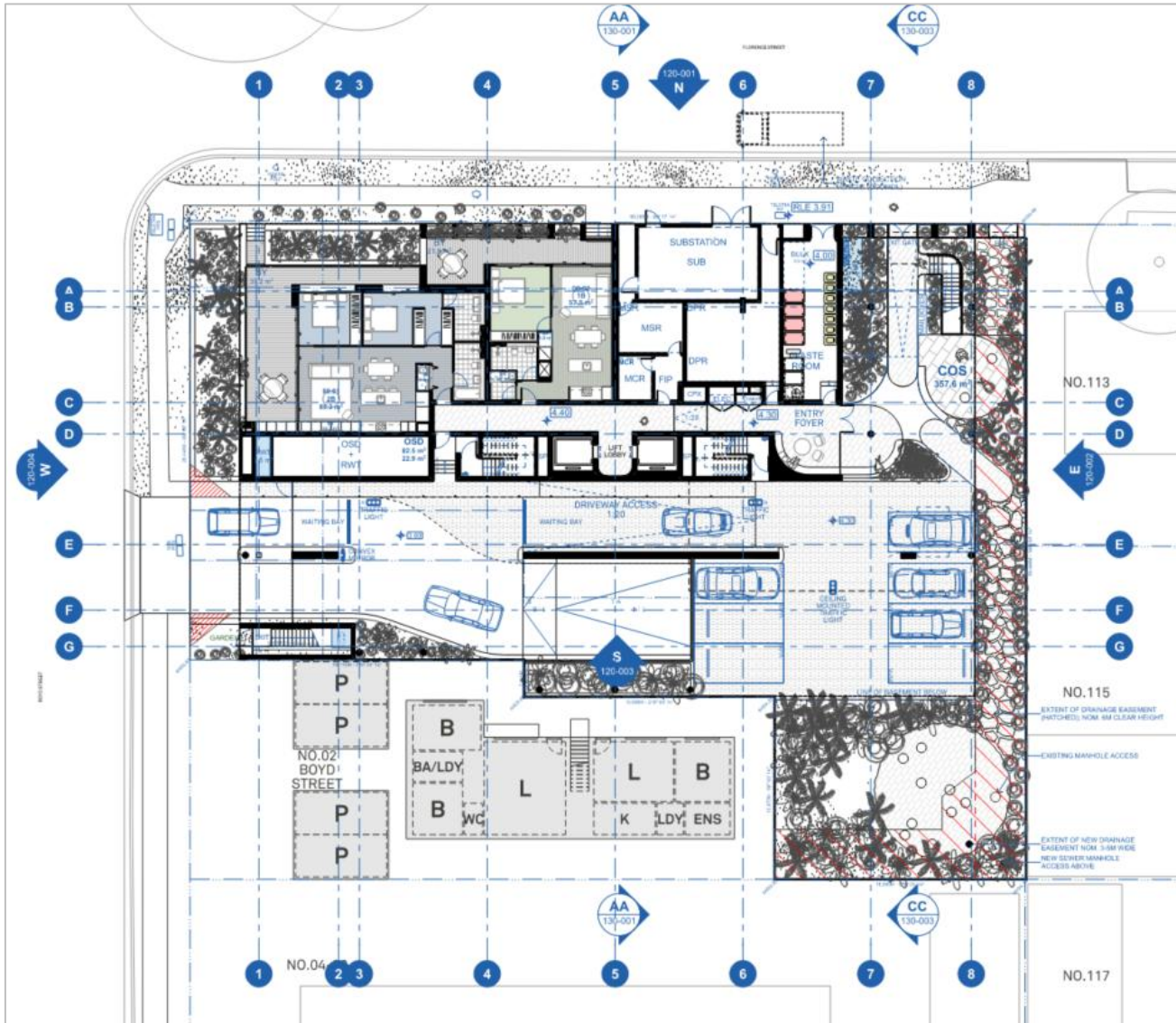


Figure 1: Site Layout

2.1. Information Sources

- National Construction Code (NCC) 2022 Section J Compliance (via J1V3 Performance Solution);
- State Environmental Planning Policy (SEPP) 2022: Sustainable Buildings;
- Building Sustainability Index – Standards for residential development (BASIX) 2022;
- Planning Secretary's Environmental Assessment Requirements (Housing);
- Tweed Heads Development Control Plan (DCP) 2008; &
- Architectural drawings: SSD 15/09/25.

3 National Construction Code (NCC) 2022 Section J Compliance

The development should comply with the following Section J criteria:

3.1 NCC 2022 Section J Provisions

EV Infrastructure (J9D4)

Additional provisions relating to EV infrastructure & PV that will need to be considered are outlined below:

Table 4: J9D4 Requirements (EV Infrastructure)

Building Class	Infrastructure Requirements	% of Car Parking Spaces	Future Charging Requirements
Class 2 (Residential)	Sized to support future installation of 7kW (32A) Type 2 chargers	100%	Capable of delivering a minimum 12kWh from 11pm to 7am daily

Solar PV (J9D5)

J9D5 requires electrical infrastructure and free roof area for future installation of PV to 20% of the roof area or an equivalent generation capacity elsewhere on-site. PV system size and location will be determined in design development.

4 BASIX (Class 2 Units & Common Areas)

BASIX certificate (1813521M) has been generated that contains water, energy, thermal performance and material requirements for all the buildings to consider and implement in detailed design.

Refer to Appendix B for BASIX Thermal Requirements Summary Table. Scores achieved are outlined below.

Table 5: BASIX Scores

	Target	Score
Water	40	40
Energy	58	65
Thermal Performance	Pass	Pass
Materials	N/A	N/A

The following Sections provide an overview of the sustainable design features considered for implementation across the site.

5 Ecologically Sustainable Design

The following Sections contain sustainable design initiatives proposed and currently being explored by the design team in line with the ecologically sustainable design categories outlined below:

- Construction & Waste Management
- Enhanced Indoor Environment Quality
- Climate Change Adaptation
- Transport
- Passive Design
- Energy Efficiency
- Water
- Sustainable Materials
- Land Use & Ecology

6 Construction and Waste Management

To ensure sustainable construction practices throughout construction and building operation, the following initiatives will be considered:

Table 6: Design Initiatives to be Considered for Construction and Waste Management

Initiative	Design Response	Comments
Divert waste from landfill.	Waste Contractor to divert >90% of construction waste by weight from landfill.	Head Contractor to include waste diversion requirements in Waste Contractor scope.
Responsible management systems.	Implementing an Environmental Management System in line with ISO 14001.	Head Contractor to ensure effective implementation of EMS throughout construction.
Reduce impacts caused due to construction activities.	Construction Environmental Management Plan (CEMP) to set environmental performance targets.	Head Contractor to ensure effective implementation of CEMP throughout construction.
Operational waste management and segregation.	OWMP to be created including provisions of waste segregation for glass, plastic, cardboard and organic waste.	OWMP will be produced in accordance with local council guidelines.



Figure 2: Various waste streams to be considered as part of waste segregation strategy.

7 Sustainable Materials

The environmental footprint of the development can be reduced through the procurement of sustainable products. This can include products produced with lower than typical energy consumption during manufacture, made with reused content, or not transported large distances to its point of use.

During the detailed design phase, the sustainable materials strategy for the development will explore the following items:

Table 7: Design Initiatives to be Considered for Sustainable Materials

Initiative	Design Response	Comments
Using responsibly sourced materials.	Selection of timber with FSC certification.	Architect to consider FSC timber where possible.
	Selection of steel from ISO 14001 certified manufacturer.	Project team to ensure requirements for ISO 14001 certified steel manufacturers are prioritised during procurement process.
	Selection of PVC products in line with Best Practice Certificate.	Project team to explore the potential of selecting Best Practice PVC products.
	Use of recycled content in products where appropriate. For example, using concrete with fly ash.	Project team to ensure requirements for recycled products are included in design where practical.
	Selection of major building elements that have Environmental Performance Declarations (EPD's) or third-party certificates.	Architect to consider specifying products with EPDs/third party certificates.
Use of Low GWP refrigerants.	Use of air conditioning systems with refrigerants that have a low Global Warming Potential will be explored.	Mechanical Consultant to review the potential of specifying low GWP refrigerants in HVAC systems.



Figure 3: Examples of third-party environmental product declarations that can be explored during design development.

8 Climate Change Adaptation

To ensure the long-term durability of the site and its ability to adapt to a changing climate, the following measures will be considered:

Table 8: Design Initiatives to be Considered for Climate Change Adaptation

Initiative	Design Response	Comments
Reduce potable water use.	Rainwater tank to reduce potable water consumption of the development and reduce strain on central water infrastructure.	Rainwater tank size and location will be determined prior to DA.
Reduce heat island effect	Light colour schemes keep the external surfaces of the building cool, reduce impacts of the urban heat island effect & keep naturally ventilated spaces cool.	Consideration will be taken regarding colour schemes to mitigate the urban heat island effect.
	Providing green terraces helps with natural shading and reduces cooling requirements.	Refer to Architectural drawings SSD 15/09/25 for green terraces.
Increased MSSB capacity for effective HVAC systems in case of increased temperatures.	Increasing capacity of mechanical and electrical distribution boards to accommodate an increase in building electrical loads associated with a warming climate.	Mechanical Consultant to consider MSSB capacity that can accommodate increase to peak loads as a result of future climate warming.
Resilient infrastructure in case of extreme weather conditions	Ensuring the development is constructed in accordance with recognised standards regarding wind tolerance and impacts from hail/strong winds.	Project team to ensure requirements for resilient infrastructure are considered in accordance with AS standards.

9 Transport

The development is located within Tweed Heads and has a walk score of 84 and is well connected with public transports. Refer to Figure 4 for detailed breakdown of walk score and amenities surrounding the project.

During the detailed design phase, the following initiatives will be explored:

Table 9: Design Initiatives to be Considered for Sustainable Transport Facilities

Initiative	Design Response	Comments
Promoting sustainable transport initiatives.	Provision of EV vehicles parking	Electrical Consultant to ensure requirements for EV vehicle charging are adopted in line with J9D4 NCC 2022.
	Provisions of bicycle parking facilities regular occupants.	Refer to Ground Floor plan from Architectural Drawings Set Issued for SSD 15/09/25 for bicycle parking facilities.

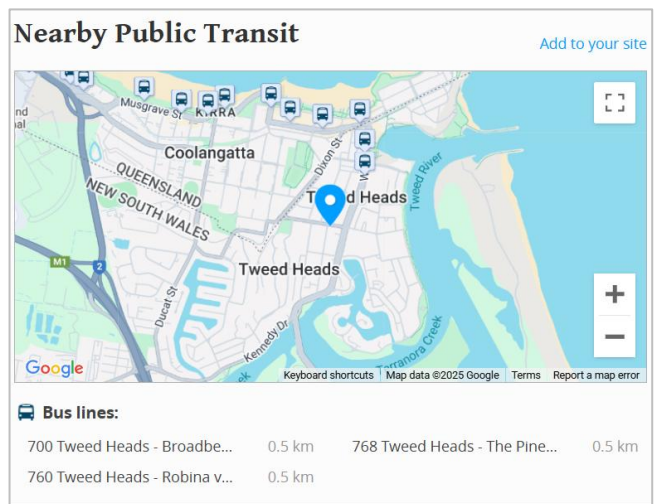
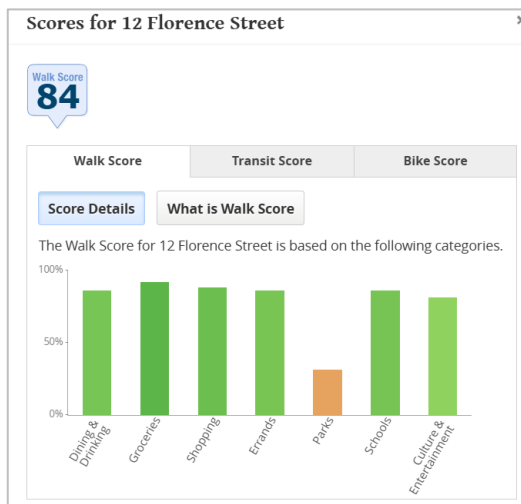


Figure 4: Walk and Transit Score of the development

10 Passive Design & Energy Efficiency

The proposed residential development will consider the following initiatives throughout design development:

Table 10: Design Initiatives to be Considered for Passive Design

Initiative	Design Response	Comments
Incorporating passive design techniques to reduce heating, ventilation and cooling requirements.	Light colour schemes keep the external surfaces of the building cool, reduce impacts of the urban heat island effect & keep naturally ventilated spaces cool.	Consideration will be taken regarding colour schemes to mitigate the urban heat island effect.
	Recessed windows, vertical shading from columns and planters on the north and reduced glazed façade on the east help lower heat gains and cooling requirements.	Refer to Figure 5 confirming shading extent and glazed facades.
	Thermal mass utilised where possible, helping to smooth out daily temperature peaks and troughs.	Thermal mass in concrete slabs contribute to an improvement in annual energy consumption.
	Suitably performing glazing to facades, protecting from hot ambient air during summer whilst allowing heat to be kept inside during winter	Refer to Section 4 for glazing performance values suitable for development's location.



Figure 5: Shading

Table 11: Design Initiatives to be Considered for Energy Efficiency

Initiative	Design Response	Comments
Reduce energy consumption.	Adopting efficient HVAC systems.	Mechanical Consultant to specify HVAC systems with improved efficiency compared to MEPS.
	Metering in line with minimum performance standards to track and monitor energy consumption.	Electrical Consultant to provide energy meters in accordance with NCC 2022 Section J9D3.
	Provision of energy efficient LED lighting throughout with appropriate motion & daylight controls.	Project team to ensure requirements of efficient LED lighting & suitable controls are adopted in design.
	Solar PV systems to provide a portion of the sites power, whilst reducing peak power demands.	PV system size and location will be determined following completion of BASIX.
Net Zero Provisions to contribute to NSW Net Zero emissions goal 2050.	All electric development.	The development is not a large commercial development per SEPP Policy 2022 and is therefore not required to provide a Net Zero Statement. Project team to ensure all services and appliances are electric and no fossil fuel is used.
	Inclusion of energy efficient services.	All services consultant to specify energy efficient systems.

11 Water

The development will reduce water consumption by incorporating the following water saving measures into design:

Table 12: Design Initiatives to be Considered to Reduce Water Consumption

Initiative	Design Response	Comments
Reduce potable water use.	Installing fixtures and fittings in line with best practice guidelines recommended by Green Star Buildings rating tool.	Architect to select sanitary fixture in line with GBCA best practice WELS ratings.
	Rainwater tank to reduce potable water consumption of the development and reduce strain on central water infrastructure.	Rainwater tank size and location will be determined prior to DA.
	Water dispersed from the sprinkler system to be enclosed in a closed loop system.	Fire Consultant to consider specifying measures for fire test water reuse or design fire system with drain down valves on each floor to allow for floor-by-floor testing.

Reduced water consumption.	Inclusion of low water use plant species and use of drip irrigation for landscape irrigation.	Landscape design will consider indigenous plant species and efficient irrigation measures.
Swimming Pool	Pumps on Timers to reduce energy consumption.	Pumping systems will be on timers to minimise energy consumption.

Table 13: Recommended Water Efficiency of Fixtures & Appliances

Fixture/Equipment Type	WELS Rating
Taps	6 stars
Toilet	4 stars
Showers	4 stars
dishwashers	4 stars



Figure 6: WELS Water Rating Label

12 Enhanced Indoor Environment Quality

The development will explore the following initiatives to improve occupant health and well-being within the built environment:

Table 14: Design Initiatives to be Considered to Enhance Indoor Environment Quality

Initiative	Design Response	Comments
Reduced exposure to toxins	Adopt low VOC carpets, paints, adhesives and sealants.	Architect to select products with low VOC content.
	Select engineered wood with low formaldehyde content.	Architect to select engineered wood with low formaldehyde content in design.
Elimination of indoor pollutants.	All pollutants from kitchen and enclosed carparks should be directed to outside.	Mechanical Consultant to ensure requirements for dedicated kitchen and carpark exhaust are as per AS1668 standard.
Eliminating the risk associated with legionella disease.	Adopting air cooled HVAC systems eliminated the risk associated with legionella disease when cooling towers are installed on site.	Air cooled HVAC system specified, eliminating risk of legionella.

13 Land Use & Ecology

The development aims to reduce potential negative impacts resulting from urban development and enhance local ecology by implementing the following:

Table 15: Design Initiatives to be Considered to Improve Land Use and Ecology

Initiative	Design Response	Comments
Enhancing local levels of biodiversity.	Inclusion of native plant species.	Landscape design will consider indigenous plant species.
Reduce the urban heat island effect.	Areas of deep soil vegetation to be provided help in reducing heat island effect.	Refer to Architectural Set SSD 15/09/25 for deep soil vegetation areas.
Elimination of stormwater pollutants.	Utilising stormwater and Water Sensitive Urban Design (WSUD) features in line with Section 10 of Tweed Heads DCP 2008.	Project team to ensure requirements to reduce peak stormwater discharge post development are aligned with Section 10 of Tweed Heads DCP 2008.
Reduced peak stormwater discharge post development.	Utilising stormwater and Water Sensitive Urban Design (WSUD) features in line with Section 10 of Tweed Heads DCP 2008.	Project team to ensure measures to reduce stormwater pollutants are aligned with Section 10 of Tweed Heads DCP 2008.
Minimising external light pollution	All outdoor lighting to be in accordance with Section 9 of Tweed Heads DCP 2008.	Project team to fulfill requirements for external lighting as per Section 9 of Tweed Heads DCP 2008.

14 Conclusion

This report demonstrates the development is on track to achieving sustainability measures contained within SEAR's and Tweed Heads DCP 2008 requirements in addition to the Sustainable Buildings SEPP.

Throughout design development, detailed investigations will be carried out to further refine the ESD strategy for the development, providing an exceptional example of sustainable design to the Tweed Heads community and beyond.

Appendix A: Useful Resources for Detailed Design Investigation

1. **Australian Carbon Credit Unit Scheme:** Incentivizes individuals and businesses to undertake projects that lower emissions or capture and store carbon by purchasing offsets.
[Australian Carbon Credit Unit Scheme | Clean Energy Regulator](#)
2. **Best Practice PVC:** Guidelines developed to minimize the environmental and health impacts associated with the manufacture and end-of-life management of PVC products used in buildings.
[Responsible Products Framework | Green Building Council of Australia](#)
3. **Environmental Product Declarations (EPD):** Standardized documents providing transparent and comparable information about the life-cycle environmental impact of products.
[EPD Search | EPD Australasia](#)
4. **Forest Stewardship Council (FSC):** A global non-profit organization that sets standards for responsible forest management, ensuring that products come from responsibly managed forests.
[Home | Forest Stewardship Council](#)
5. **Global GreenTag:** A third-party, green product rating and certification system underpinned by scientific and life cycle assessment processes.
[Global GreenTag. The world's best eco products. Certified.](#)
6. **Good Environmental Choice Australia (GECA):** An independent, not-for-profit ecolabel certification for products and services that meet rigorous environmental, human health, and ethical impact criteria.
[Sustainability & Environmental Certification Program - GECA](#)
7. **Green Star:** Developed by the Green Building Council of Australia (GBCA), Green Star is an environmental rating system that evaluates the sustainability performance of buildings and communities.
[Home - Green Building Council of Australia](#)
8. **Large-scale Generation Certificates:** LGCs are tradable certificates issued to eligible large-scale renewable energy power stations, reflecting the amount of renewable energy generated or offset by the facility.
[Large-scale generation certificates | Clean Energy Regulator](#)
9. **National Australian Built Environment Rating System (NABERS):** A national initiative that measures and compares the environmental performance of Australian buildings, covering energy efficiency, water usage, waste management, and indoor air quality.
[Home | NABERS](#)
10. **Small-scale Technology Certificates (STCs):** Part of Australia's Small-scale Renewable Energy Scheme, STCs are tradable certificates that represent the environmental benefits of renewable energy systems, such as solar panels and solar water heaters.
[Small-scale Renewable Energy Scheme | Clean Energy Regulator](#)
11. **Your Home:** It is an independent resource for designing, constructing, or renovating homes with a focus on energy efficiency, comfort, affordability, and future adaptability.
[| YourHome](#)
12. **Water Efficiency Labelling and Standards (WELS) Scheme:** An Australian government initiative that labels products for water efficiency, helping consumers make informed choices and encouraging manufacturers to produce water-efficient products.
[Water Rating | Australian Government](#)
13. **World Steel Association:** An international trade body representing steel producers, national and regional steel industry associations, and steel research institutes.
[Home - worldsteel.org](#)

Appendix B: BASIX Thermal Requirements Summary Table

Aspire Sustainability Consulting BASIX Specifications P199001 12-16 Florence Street, Tweed Heads, NSW 2485		Certificate No: Project Score	1813521M Compliance
Water	40	40	Pass
Energy	58	65	Pass
Thermal Comfort	Pass		Pass
Material	N/A		N/A
Minimum Glazing Performance Requirements: Class 2 units			
Performance (Total System)	Description	Comment	Location
≤U5.4, SHGC 0.45±5%	Single Glazed, Clear	Awning Glazing	All Units unless specified otherwise
≤U5.9, SHGC 0.45±5%	Single Glazed, Clear	Hinged Doors Glazing	All Units unless specified otherwise
≤U4.8, SHGC 0.49±5%	Single Glazed, Clear	Fixed Glazing	All Units unless specified otherwise
≤U4.8, SHGC 0.50±5%	Single Glazed, Clear	Sliding Door	All Units unless specified otherwise
U3.1, SHGC 0.44±5%	Double Glazed, Clear	Hinged Doors Glazing	West kitchen/living windows of 01.01, 02.01, 03.01, 04.01; West bedroom windows of 06.01, 07.01, 08.01, 09.01, 10.01, 11.01; West living area window of 12.01; South kitchen/living window of 10.04, 11.04; West/south bedroom windows towards balcony of 05.01; & All kitchen/living windows of 01.07
≤U3.1, SHGC0.50±5%	Double Glazed, Clear	Sliding Door	
Minimum Insulation Performance Requirements:			
Construction Element	Additional Insulation		
Concrete Roof Medium Colour Roof	Waterproof membrane		
	≥R4.00 with anti-reflective backing facing cavity/ceiling void ≥20mm Units: 12.01 ≥R2.50 with anti-reflective backing facing cavity/ceiling void ≥20mm Units: All other units on Level 4, 5 & 11 apartment ceilings to roof above		
External Walls Brick Veneer/Metal Cladding/Hebel - Light/Medium/Dark Colour (as shown on elevations)	≥R2.50		
Floor Slab Suspended Slab over Unconditioned spacs and Exposed Air	≥R2.50 in direct contact with Slab Soffit Units: 01.01, 12.01 ≥R2.00 in direct contact with Slab Soffit Units: 01.06, 01.07 ≥R1.00 in direct contact with Slab Soffit Units: 00.01, 01.02, 01.03, 02.06		
Internal Walls	No Insulation		
Intertenancy Walls & Walls to Corridor, Lifts & Fire Stairs	RVaries Per wall schedule on Pg 28 of document 250905_P199001_Stamped_Plans		
Floor Coverings	Tile to Wet Rooms Carpet and Underlay to Bedrooms Timber to All Other Areas		
Ceilings	Plasterboard Ceilings		
Ceiling Penetrations	No RCPs provided with current assessment. Following assumptions have been made: - 1 x LED Downlight allocated per 5m ² - 1 x Exhaust Fan per wet area and kitchen		
Ceiling Fans	1 x 1200mm ceiling fan required to Kitchen & Living: 02.01, 02.07, 03.07, 04.07, 05.02 No Ceiling Fan required for remaining units.		
Other Modelling Assumptions			

All modelled downlights are assumed to be Sealed LEDs, with insulation clearance of 50mm to either side of fixture | All glazing where there is fall risk to have window restrictors installed.

Summary of Requirements: Common Areas

Category	Item	Comment
Water	Fixtures	No common shower 4 star common toilets 4 star common taps
	Appliances	No common laundry facility
	Landscape - Common	317.5m ² Common area lawn (TBC) 317.5m ² Common area garden including 158.7m ² Area of indigenous or low water use species (TBC)
	RW Tank	10kL RW tank Served by 187.5m ² roof area (50% of available roof area), 0m ² impervious area and 0m ² planter box area Serving 635m ² common landscape (TBC) and 0 car wash bay
	Fire Sprinkler System	Re-use of fire system test water is not required
	Pool	46.73kL Pool No shading
Energy	Lighting Type	LED required throughout
	Lighting Control	Please refer to BASIX Report for detailed requirements
	Ventilation	
	Lifts	Gearless traction with VVVF motors required Capacity: ≥1,001 kg but ≤1,500 kg
	Hot Water	Central Hot Water: Electric Heat Pump - Air Sourced R0.6 Piping insulation internal and external to building 3.5 < COP ≤ 4.0
	Spa	No Spa
	Pool	Heating System Type: Electric Heat Pump Pump with Timer Control
	Solar PV	No PV required
	Other	No BMS No indoor or outdoor drying line No common clothes dryer No common laundry facility

Summary of Requirements: Residential Dwellings

Category	Item	Comment
Water	Fixtures	4 star showers (>6 but ≤7.5 L/min) 5 star toilets 6 star taps kitchen taps 6 star taps bathroom taps No HW recirculation on demand
	Appliances	4 star dishwasher No clothes washer specified
	Landscape	Refer to BASIX Certificate
Energy	Exhaust Fans	Bathroom fans individually ducted to façade or roof interlocked to light with timer off Kitchen & Laundry fans individually ducted to façade or roof manual on/off
	HVAC	Individual cooling system - Living & Bedroom: 3-phase air conditioning EER 3.5-4.0 Individual heating system - Living & Bedroom: 3-phase air conditioning EER 3.5-4.0
	Lighting	Sealed LED lighting throughout
	Hot Water	Central Hot Water: Electric Heat Pump - Air Sourced
	Appliances	Induction cooktop & electric oven 4 star dishwasher specified 2 star dryer specified
	Other	Indoor clothes drying line provided No Private outdoor clothes drying line provided