

**135 Badgerys Creek Rd,
Bradfield**

Creative Vision

Façade Consulting

Façade Concept Design Report

REVISION [02]

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Document Control Record

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02	Preliminary IFI	IA	PB	01/10/2025

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1.0 Executive Summary

This report presents the façade engineering design for the 135 Badgerys Creek Rd, Bradfield, prepared as part of the Design Development stage. The document outlines the key façade systems proposed for the project, and summarises the performance considerations, compliance pathways, and coordination requirements necessary to support design progression into the next phases of documentation.

As part of this process, a range of preliminary assessments has been undertaken. A summary of outcomes is provided bellow:

- Preliminary Façade System Design - for greater detail refer to 3.0 Façade Design
- Preliminary Structural Engineering - this assessment will be undertaken in the next phase of the project.
- Preliminary Thermal Engineering - this assessment will be undertaken in the next phase of the project.
- Preliminary Condensation Risk Assessment - this assessment will be undertaken in next phase of the project.

Preliminary analyses have been carried out to support system selection and to identify aspects requiring further development as the design progresses. The report also provides a summary of compliance strategies, including Deemed-to-Satisfy provisions and Performance Solutions, and identifies outstanding inputs and design parameters to be confirmed or further developed by the project team.

Design assumptions have been made where project-specific information was not yet available. These assumptions have enabled progress in the documentation process, but must be validated once supplier specifications, architectural refinements, and structural support details are finalised. The design intent is to deliver a façade solution that meets the client's performance expectations while maintaining constructability and cost-efficiency.

1.1. Façade Typology Performance Summary

The below table summarises the findings for each system based on key criteria, please refer to the appropriate section of the report for greater detail.

1.1.1. External Wall System Summary

Reference	Description	Location	Selected System	Building Function	Self-Weight	Thermal Performance (R-Value)			Fire	Comments
						Target (m ² -K/W)	Estimated	✓/✘		
FT01	External Wall System - Masonry	Podium	Brick Veneer	Retail	3.80 kN/m ²	≥R1.4 (m ² -K/W) (Non-residential)	TBC	TBC	TBC	
FT02	External Wall System - Aluminium Cladding System	Podium; Tower	Ordinary Portland Cement (OPC) Precast Concrete System	Residential; Retail	0.20 kN/m ²	≥R1.4 (m ² -K/W) (Non-residential) TBC (Residential)	TBC	TBC	TBC	
FT03	External Wall System – Balcony Wall Fibre-Cement Cladding	Podium	CFC	Residential; Retail	0.15 kN/m ²	≥R1.4 (m ² -K/W) (Non-residential) TBC (Residential)	TBC	TBC	TBC	
FT04	External Wall System – Precast Concrete System	Podium	CFC	Residential	4.5 kN/m ²	TBC	TBC	TBC	TBC	

1.1.2. External Window System Summary

Reference	Description	Location	Selected System	Building Function	Self-Weight	Thermal Performance (U-Value)			Fire	Comments
						Target W/m ² K	Estimated	✓/✘		
FT05	External Window System - Glazed Entrance Screen	Podium	Non-Thermally broken Glazing Entrance Screen	Retail; Hotel; Tavern; Communal	0.34kN/m ²	3.0 (W/m ² -K) (Hotel /Co-working) 5.0 (W/m ² -K) (Restaurant / GF Tavern / Retail / Communal)	TBC	TBC	TBC	
FT06	External Window System - Window Wall with Aluminium Cladding	Tower	Window Wall	Residential, Medical; Commercial; Hotel	0.35kN/m ²	TBC (Residential) 3.0 (W/m ² -K) (Medical / Commercial/ Hotel)	TBC	TBC	TBC	
FT07	External Window System - Curtain Wall	Tower	Curtain Wall	Hotel; Tavern	0.35kN/m ²	3.0 (W/m ² -K) (Hotel; L1 Tavern)	TBC	TBC	TBC	
FT08	External Window System - Balcony Glazed Sliding Door	Tower	Non-Thermally broken Glazing Sliding Door	Residential	0.34kN/m ²	TBC (Residential)	TBC	TBC	TBC	

1.1.4. Glazing Summary

Reference	External Pane	Cavity	Internal Pane	Location	SHGC	LT (Light Transmittance)	External Reflectivity	Internal Reflectivity	Thermal Performance (U-Value Ug)	Acoustic	Fire	Comments
GL-01	TBC	TBC	TBC	FT05 Glazed Entrance Screen	TBC	TBC	TBC	TBC	1.3 W/m ² K	TBC	TBC	
GL-02	TBC	TBC	TBC	FT06 Window Wall	TBC	TBC	TBC	TBC	1.3 W/m ² K	TBC	TBC	
GL-03	TBC	TBC	TBC	FT07 Curtain Wall	TBC	TBC	TBC	TBC	1.3 W/m ² K	TBC	TBC	
GL-04	TBC	TBC	TBC	FT08 Sliding Door	TBC	TBC	TBC	TBC	1.3 W/m ² K	TBC	TBC	
GL-05	TBC	TBC	TBC	BAL01 Balustrade	N/A	N/A	N/A	N/A	1.3 W/m ² K	TBC	TBC	

1.1.5. External Balustrade System

Reference	Description	Location	Selected System	Building Function	Self-Weight	Thermal Performance (U-Value Uw)			Fire	Comments
						Target	Estimated	✓/✗		
BAL01	External Balustrade System - Glazed Balcony Balustrades	Tower	Glazed Balustrade System	Residential	0.34kN/m ²	N/A	N/A	N/A	TBC	
BAL02	External Balustrade System - Aluminium Balustrades	Tower	Aluminium Balustrade	Residential	0.30kN/m ²	N/A	N/A	N/A	TBC	
BAL03	External Balustrade System - Vertical Aluminium Batten	Tower	Vertical aluminium batten balustrade	Residential	0.24kN/m ²	N/A	N/A	N/A	TBC	

2.0 Introduction

This Façade Design Report has been prepared on behalf of the Bradfield Corporation Pty Ltd (the Applicant) by JFS Engineers. It is submitted to the Department of Planning, Housing and Infrastructure (DPHI) in support of a State Significant Development Application (SSDA) on land at 135 Badgerys Creek Road, Bradfield (the site).

JFS Engineers have been engaged as the Façade Consultant to provide façade engineering consultancy services for the proposed development of 135 Badgerys Creek Rd, Bradfield. This Design Report is an internal document intended to communicate design development and provide guidance to the design team. The current design documentation is at a schematic design level, and the project is expected to follow a Design and Construct procurement route. The façade system will be delivered under this model based on performance documents provided by JFS Engineers. Once appointed, the Façade Contractor will take full responsible for the design, engineering, construction documentation, fabrication, testing, delivery, installation, certification, and guarantee of the façade.

2.1. Site Description

The site is located at 135 Badgerys Creek Road, Bradfield and is approximately 2.02ha in area. It is legally described as Lot 7 DP 243457 and is located approximately 250m to the future Bradfield Metro Station and 4km to the Western Sydney Airport. An aerial image of the site is provided in Figure 1.

The site shares a western frontage with Badgerys Creek Road. The eastern boundary of the site adjoins the State government-led Bradfield City Centre which is set to be a vibrant 24/7 global city, driving advancements in industry and will support 10,000 more homes and 20,000 new jobs in Western Sydney.

As defined by the Aerotropolis Precinct Plan, the site is located within the Aerotropolis Core Precinct which is envisioned as an attractive place for workers, residents and visitors. The Aerotropolis Core Precinct will leverage the positive economic impact of the adjacent Western Sydney Airport and Bradfield City Centre. It will attract business hubs, research and development, professional services and creative industries in addition to providing residential development within walking distance of the Bradfield Metro station and proximity to blue and green infrastructure.



Site Aerial Map, Source: Nearmap / edited by Ethos Urban

2.2. Proposed Development

The proposed development will seek consent for the redevelopment of the site, comprising:

- Enabling works including vegetation removal and earthworks.
- The construction of three buildings, comprising:
 - Residential use, including approximately 400 apartment units
 - Hotel use, including approximately 450 hotel rooms
 - Commercial use, including supermarket, food and drink and other commercial uses
 - Medical centre use
 - Childcare centre use
- Construction of two basement structures, including approximately 800 carparking spaces.
- Public domain upgrades, including:
 - Construction of an internal road
 - A public plaza
- Rehabilitation and augmentation of the existing riparian corridor
- Landscaping embellishments on the ground level and within the built form; and
- Services augmentation as required.

Refer to the Environmental Impact Statement for a detailed summary of the proposed development.

2.3. Secretary's Environmental Assessment Requirements

In accordance with section 4.39 of the Environmental Planning & Assessment Act 1979 (EP&A Act), Secretary's Environmental Assessment Requirements (SEARs) for SSD 77458970 were issued on 30 January 2025. This report has been prepared to respond to the relevant issued Secretary's Environmental Assessment Requirements (SEARS), as set out in the table below.

SEARs Request	Response / Location in the Report
<p><i>Built Form and Urban Design</i></p> <p>Demonstrate how the building design will deliver a high-quality development, including consideration of façade design, articulation, activation, roof design, materials, finishes, colour, any signage and integration of services.</p>	<p>All façade systems, materials and components must be in accordance with Façade Performance Specification to be developed by JFS Engineers.</p> <p>The systems will need to undergo testing and validation to demonstrate compliance and conformance with the various requirements including:</p> <ul style="list-style-type: none"> - Thermal performance - Acoustic performance - Structural integrity - Weatherproofing performance - Condensation Risk Management
<p><i>Ecologically Sustainable Development (ESD)</i></p> <p>Demonstrate how the development will meet or exceed the relevant industry recognised building sustainability and environmental performance standards.</p>	<p>Analysis of the façade systems will be undertaken to demonstrate compliance with the minimum ESD performance targets (U-value, R-value, SHGC, etc) as stipulated by the ESD Consultant.</p>

2.4. Summary of Mitigation Measures

ID	Mitigation Measure
Construction Management	Design, fabrication, installation and performance of the façade to the buildings must be in accordance with the Façade Performance Specification
Construction Management	All façade systems must be laboratory tested to Australian Standards to air and water infiltration prior to installation.
Construction Management	Regular site inspections are to be undertaken to review the installed façade works for quality control and adherence to the approved 'For Construction' documentation.
Construction Management	Technical review of all subcontractor documentation, including shop drawings, material samples, test reports, etc to ensure compliance with the Façade Performance Specification.



Rendered Images





Rendered Images



Rendered Images

2.5. Building Description

The proposed development at 135 Badgerys Creek Road, Bradfield is a large-scale mixed-use project comprising a 443-key hotel, 325 residential apartments (1, 2 and 3-bedroom configurations), and supporting medical, recreational, retail, and commercial facilities. The development forms part of the Bradfield city centre masterplan and is expected to contribute significantly to the urban activation of the area.

2.6. Project Summary

The below table summarises project tentative information based on upon JFS understanding of the project.

Characteristic	Information
Building Condition	New Building
Current Design Status	Developed Design 30%
Number of Storeys	G+11+R
Legislative Standard	NCC 2022
Building Class	Class 2 Apartments Class 9a Health Care Class 9b Assembly Building
Building Importance Level	Level 3 - Buildings or Structures that are designed to contain a large number of people

2.7. Project Team

Design Team	Company
Project / Development Manager	Creative Vision
Quantity Surveyor / Cost Consultant	TBC
Main Contractor	TBC
Tower Planner	TBC
Architect	Plus Architecture
Building Certifier	TBC
Structural Engineer	JSBC Consulting
Mechanical / Electrical Engineer	TBC
Civil Engineer and Stormwater Consultant	ADP Consulting
Sustainability Consultant	Aspire Sustainability Consulting
Building Physics Consultant	TBC
Fire Engineer	TBC
Acoustic Consultant	TBC
Access Consultant	TBC
Façade Consultant	JFS
Façade Access and Maintenance Consultant	TBC
Landscape Architect	TBC
Vertical Transportation Consultant	TBC

3.0 Façade Design

3.1. Executive Summary for Façade Design and Outcome

3.1.1. Façade Design Strategy Overview

This façade design strategy was developed to support early-stage design definition and provide a clear rationale for system selection across the tower and podium façades. The design responds to a broad range of project-specific performance criteria, construction constraints, architectural intent, and multidisciplinary coordination requirements.

The design team evaluated multiple system typologies and material configurations, considering their feasibility with respect to structural load paths, slab edge tolerances, installation sequencing, maintenance access, and interface compatibility. In parallel, the strategy reflects the need to balance optimal performance with budget constraints, ensuring that all proposed solutions meet the required standards while remaining cost-effective and buildable.

Importantly, the analysis extended beyond individual system selection to encompass the performance and constructability of the interfaces between systems, which represent critical junctions for thermal continuity, waterproofing, movement accommodation, and structural integration.

3.2. Key principles guiding the system selection and coordination process include:

- Alignment with architectural massing and articulation intent
- Integration with thermal and condensation risk assessments
- Suitability for high-wind loading zones and structural anchoring conditions
- Constructability, sequencing, and durability under long-term exposure
- Holistic evaluation of system-to-system interfaces and transition details

3.2.1. Coordination with Broader Project Inputs

The façade design continues to evolve in parallel with other disciplines, and coordination with final structural, thermal, glazing, and waterproofing specifications remains ongoing. Key design areas requiring further input include:

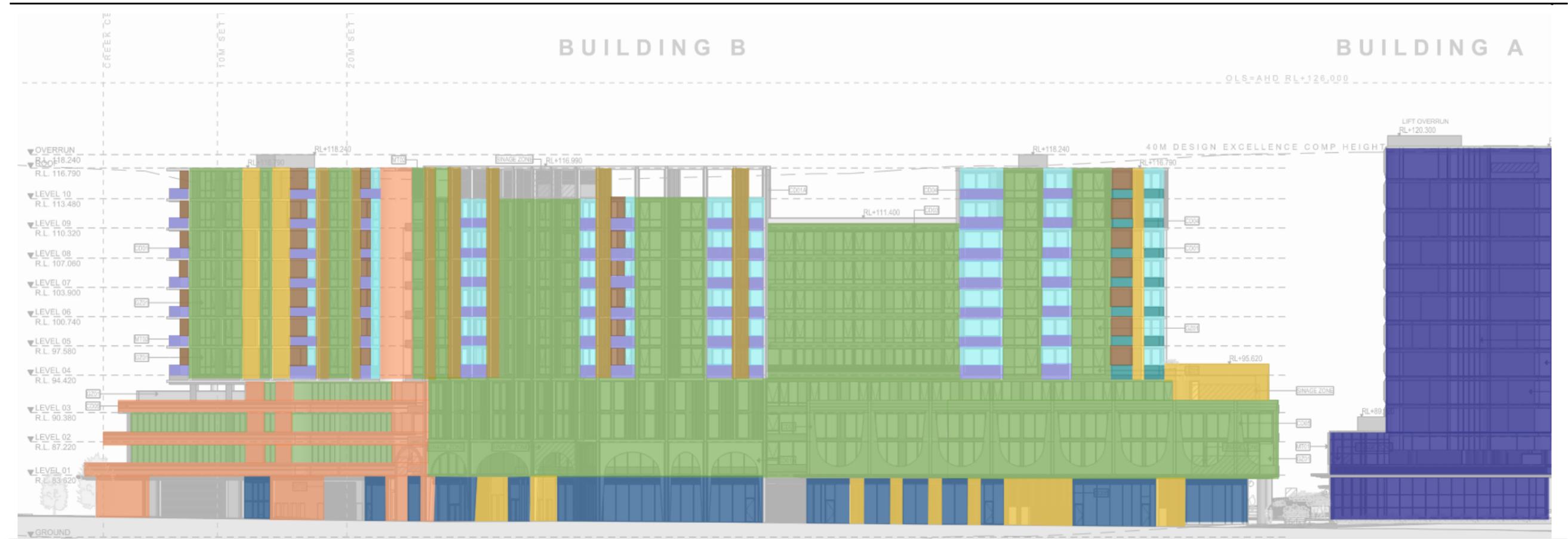
- Confirmation of insulation zones and thermal break locations
- Finalisation of structural bracketry and fixing systems
- Review of movement joints, drainage strategies, and cavity depths
- Completion of compliance checks against NCC 2022 and relevant Australian Standards

The outputs from this design stage provide a clear direction for downstream detailing, procurement engagement, and verification pathways, while identifying outstanding items to be addressed prior to final documentation and construction.

3.3. Façade Typology

Façade System Code	Façade Type	Description	Location	Building Function	Architectural Code
FT01	External Wall System	Masonry	Podium	Retail	TBC
FT02	External Wall System	Aluminium Cladding System	Podium; Tower	Residential; Retail	TBC
FT03	External Wall System	Balcony Wall Fibre-Cement Cladding	Tower	Residential; Retail	TBC
FT04	External Wall System	Precast Concrete System	Tower	Residential	TBC
FT05	External Window System	Glazed Entrance Screen	Podium	Retail; Hotel; Tavern; Communal	TBC
FT06	External Window System	Window Wall with Aluminium Cladding	Tower	Residential	TBC
FT07	External Window System	Curtain wall	Tower	Hotel; Tavern	TBC
FT08	External Window System	Balcony Glazed Sliding Door	Tower	Residential	TBC
BAL01	External Balustrade	Glazed Balcony Balustrade	Tower	Residential	TBC
BAL02	External Balustrade	Aluminium Balustrade	Tower	Residential	TBC
BAL03	External Balustrade	Vertical Aluminium Batten	Tower	Residential	TBC

3.3.1. Façade Mark-Up



Façade Typologies – Building B and C



Façade Typologies – Building C

3.5. FT01 - Mansory

3.5.1. Executive Summary of System Selection and Design Outcome

Following the early design coordination and façade optioneering process, the selected podium façade system is Masonry Brick Veneer Wall System supported on shelf angles or slab ledges, incorporating a ventilated cavity and drained weatherproofing strategy.

Key characteristics of the selected system:

- External brick leaf installed as a non-loadbearing cladding, separated from the backing wall by a drained and ventilated cavity.
- Brickwork vertically supported at each slab level via continuous shelf angles or cast-in slab ledges.
- Lateral restraint of brick leaf provided by stainless steel wall ties fixed back to the structural wall framing.
- Cavity design includes flashings, weep holes and breathable cavity membranes to manage moisture ingress.
- Movement joints located at regular intervals, corners, openings, and structural breaks to accommodate thermal and structural movement.
- Backing wall provides the primary weatherproof line, allowing the brickwork to function as a rainscreen.

3.5.1.1. Drivers for selection:

- Architectural alignment: brick veneer provides the desired materiality and scale for the podium while maintaining consistency with project context.
- Structural simplicity: self-supporting vertical brick leaf with predictable support strategy via slab edges.
- Moisture control: drained cavity system allows robust weatherproofing performance while controlling condensation risk.
- Build sequencing: allows backing wall and weatherproofing installation early, with brick veneer installed as a separate cladding package.
- Tolerance management: shelf angle support allows control of slab edge deviations and simplifies brickwork setting out.

3.5.1.2. Coordination Requirements

To ensure long-term system performance and design intent, key considerations include maintaining clear and continuous cavity ventilation and drainage paths, precise alignment of control joints with structural movement joints, and correct integration of EPDM membranes and flexible flashings. Shelf angles must be installed within specified tolerances using slotted fixings to accommodate deflection and direct moisture to weep holes. Wall ties require correct placement, embedment, and corrosion protection, with additional ties near slab edges, openings, corners, and joints as detailed in the design specifications.

3.5.2. Introduction

The FT01 system forms the primary brickwork façade expression across podium levels, extending from Ground Floor to Mezzanine. It consists of traditional hand-set brick veneer installed over ventilated cavities with a drained weatherproofing strategy, supported by a shelf angle system at each slab level. The system accommodates flexibility in bond pattern, colour, and surface texture, enabling consistent integration with the project's architectural language.

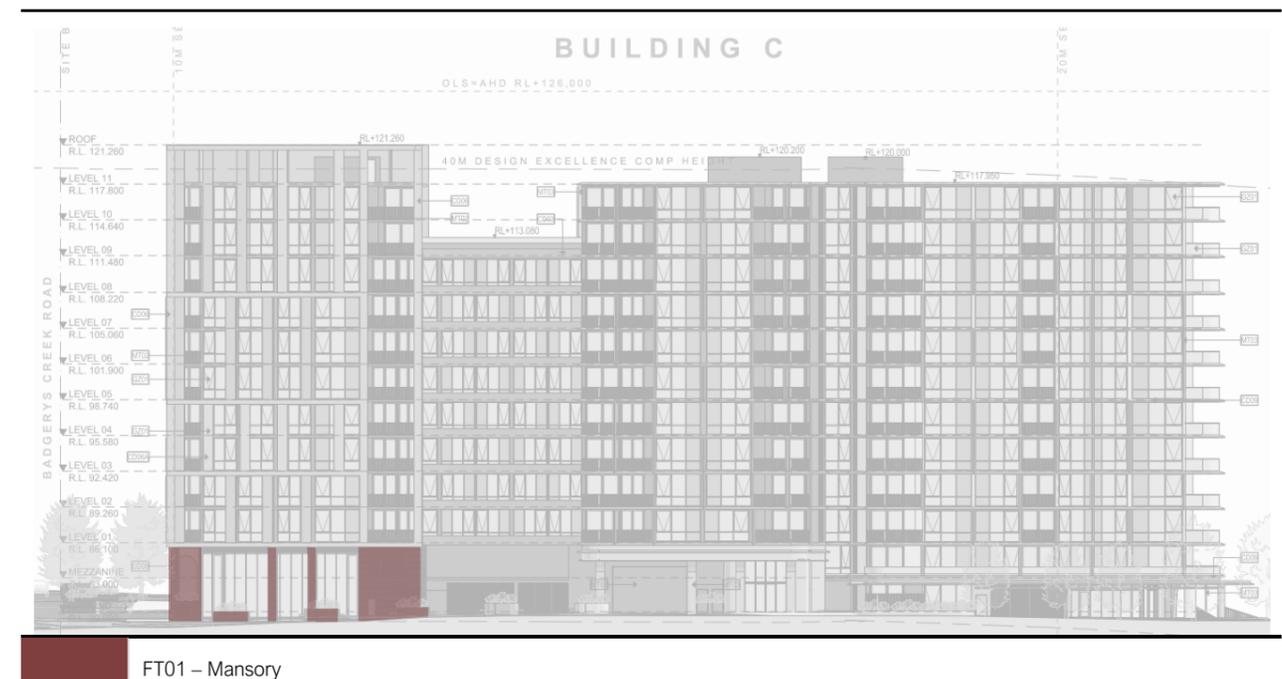
System	Location	Levels	Function	Performance Line
FT01	Podium	Ground	Retail	Yes

Key configuration:

- Traditional hand-set brick veneer integrated into the podium façade design.
- Brickwork installed over ventilated cavities with drained weatherproofing strategy and shelf angle support system at each slab.
- Design allows for flexibility in bond pattern, colour, and surface texture selection, supporting the project's architectural intent.

This system contributes to the project's robust façade strategy by combining the durability, fire resistance, longevity, and acoustic benefits of traditional brickwork while delivering a timeless architectural expression.

The selected solution supports architectural expression, structural simplicity, weatherproofing performance, and clear buildability sequencing outcomes, following the optioneering process undertaken during early design phases.



3.5.3. System Performance Requirements

Based on the selected system the following outline specification has been determined

FT01	Performance Category	Requirements
Entire System External Wall System – Brick Veneer	System Description	The masonry façade will utilise a brick veneer approach, optimising separation between the external cladding and the internal structural framework. The brick veneer will form the outermost layer of the façade, positioned with a cavity separating it from the internal structure to maintain architectural aesthetics and functional performance. The design incorporates a full-fill insulation backing system with appropriate membranes and control layers, ensuring that the cavity allows air circulation and moisture drainage, preventing water ingress. Weep holes will be included at the base of the wall, and vents will facilitate airflow within the cavity. The brick veneer will be anchored to the structural framework using brick ties, which transfer lateral forces such as wind pressure while allowing for thermal expansion and contraction. The brickwork will act as a durable façade, while the internal structure bears the building's load. Differential movements between the brick veneer and the structure will be accounted for at all interfaces, ensuring a fully weather and air-sealed construction. Brackets will transfer the dead and lateral loads of the brick veneer to the structural frame, maintaining stability under various loading conditions. Movement joints will be incorporated at regular intervals, typically every 5 to 8 metres, to manage expansion and contraction of the masonry materials. External waterproofing, insulation, and internal air seal and vapour control layers will be included to ensure a sealed envelope integrated with adjacent trade contractor works. This approach will result in a robust, low-maintenance masonry façade system that balances aesthetic and benefits.
	Architectural Code	TBC
	Air Tightness	$\leq 3.0 \text{ m}^3/\text{hr}\cdot\text{m}^2 @ 75 \text{ Pa}$ (minimum requirement under NCC)
	Water Tightness	600Pa (typical test level under AS/NZS 4284; no numeric minimum defined by NCC)
	Wind Resistance	TBC (based on preliminary wind load assessment to AS/NZS 1170.2)
	Thermal Requirements, R-Value (By Aspire)	$\geq R1.4 \text{ (m}^2\cdot\text{K/W) (Non-residential)}$
	Self-Weight	3.80 kN/m^2 Indicative self-weight, subject to final brick unit selection and construction method (allowance includes brick units, mortar, and cavity ties).
	Weatherproofing Principles	Two-line barrier approach, relying on the combination of cavity drainage and a continuous breather membrane installed to the external face of the backing wall. Water management relies on weep holes at the base of the cavity and compatible flashings at terminations and interfaces. Compliance is supported by interface detailing and material certification, in line with NCC 2022 F3P1 via Verification Method F3V1 and JFS Engineers' PBDB Acceptance Criteria Section 8. Interface QA to include verification of cavity trays, weep holes, and movement joint detailing.

	Jointing, between panels	Vertical and horizontal joints shall be kept to a minimum, designed to accommodate movement and construction tolerances. Brick joints shall be engineered for durability and structural integrity, ensuring compatibility with adjacent façade elements. The selected mortar type and joint finish shall be submitted to the design team for review and approval to ensure consistency with the overall architectural and performance requirements.
Facing	Material	Face brick to be wire-cut or extruded clay brick, meeting the requirements of AS/NZS 4455.1 for exposure grade durability (EX). Brick units to be suitable for external wall applications with face exposure and designed to accommodate anticipated weathering and water exposure conditions. (Refer to architectural specification for selection e.g. Br01, Br02, Br03, Br04)
	Finish	Textured face brickwork with natural variation in colour and tone. Colour and surface texture to be in accordance with architectural documentation and subject to architectural approval. Bricks shall be selected to ensure: <ul style="list-style-type: none"> • Consistent surface finish free of major defects or surface irregularities. • Minimum efflorescence risk. Dimensional tolerances to be within AS/NZS 4455.2 Category DW1 or better.
	Jointing, between facing material	Mortar joints to be nominal 10 mm thickness. Mortar to comply with AS 3700 and be Type GP or GB cement with M3 mortar classification unless otherwise specified. Mortar colour and finish to match architectural requirements. Tooling profile to be raked or flush joint (confirm with architectural intent). Joints to be detailed to minimise water ingress. (For weep holes and movement joints, refer to detailed drawings and JFS Engineers' PBDB Acceptance Criteria Section 8.)
Backing Wall Internal Lining	System and Design	Steel stud framing system engineered to suit architectural and structural requirements, including provision for insulation, cavity drainage, and compatible internal lining materials. Stud sizing, spacing, and bracing to be coordinated to accommodate brick façade loads and ensure alignment with movement joints and control joint requirements
	Thermal Requirements, Bulk Insulation (By Aspire)	$R2.0 \text{ (m}^2\cdot\text{K/W) } (\approx 90 \text{ mm}) - \text{ (Non-residential)}$

3.6. FT02 - Aluminium Cladding System

3.6.1. Executive Summary of System Selection and Design Outcome

Following the early-stage design coordination and façade optioneering process, the selected tower façade system is a Aluminium Cladding System fixed onto a ventilated cavity system over structural wall framing. This system offers a lightweight solution compatible with the building's structural and thermal performance requirements.

Key characteristics of the selected system:

- Aluminium rainscreen panels, mechanically fixed to a proprietary sub-frame system.
- Fully ventilated cavity design to allow pressure equalisation and moisture management.
- Integration of horizontal spandrel bands and vertical aluminium fins for architectural articulation.
- Panels fabricated with factory-applied PVDF or powder coating for long-term colour retention.
- Sub-frame designed to accommodate structural tolerances and thermal movement.
- System coordinated for compliance with NCC 2022 weatherproofing (F3P1) and non-combustibility requirements for Type A construction.
- Compatible with adjacent façade elements, including window wall framing and balcony systems.

3.6.1.1. Drivers for selection:

- Durability and low maintenance: Aluminium cladding offers corrosion resistance and a long service life in coastal and urban environments.
- Lightweight construction: Reduced load on structural elements compared to masonry or stone systems.
- Architectural flexibility: Ability to achieve precise detailing for fins, shadow lines, and recessed features.
- Compliance: Meets NCC fire performance and weatherproofing criteria, with tested system performance under AS/NZS 4284.
- Buildability: Prefabricated panels enable consistent quality and efficient installation sequencing.

3.6.1.2. Coordination Requirements

The aluminium cladding system is supported on an adjustable sub-frame anchored to the primary structure, with allowances for thermal expansion, slab tolerances, and façade movement joints. The drained and ventilated cavity works in conjunction with sarking membranes and flashings to maintain weatherproofing integrity. Coordination was undertaken to align fixing rails with slab edge locations, window wall interfaces, balcony junctions, and movement joints, ensuring a continuous façade appearance without compromising performance.

3.6.2. Introduction

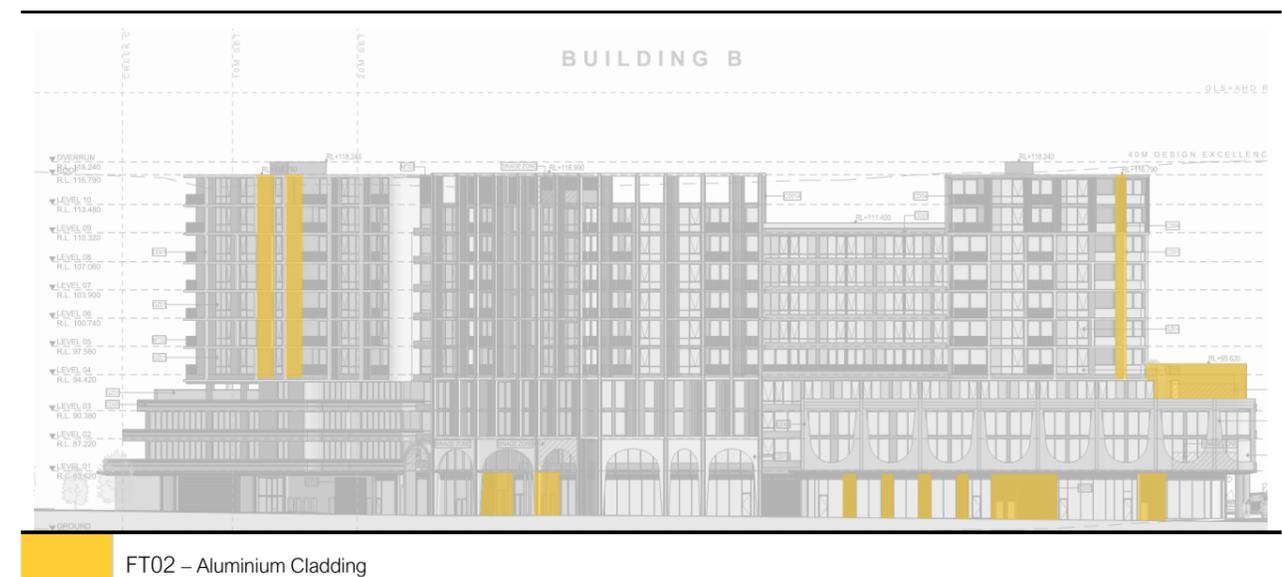
The FT02 Aluminium Cladding System forms an integral part of the project's architectural façade expression, primarily applied to tower elevations and feature podium elements. The system comprises prefabricated aluminium panels mechanically fixed to an aluminium substructure, installed over a ventilated cavity with a drained weatherproofing strategy. The external finish consists of PVDF-coated or coil-coated aluminium panels, ensuring corrosion resistance, colour stability and minimal maintenance.

System	Location	Levels	Function	Performance Line
FT02	Podium; Tower	Ground to Level 11	Residential, Retail	Yes

Key configuration:

- Prefabricated aluminium panels with aluminium substructure and mechanical fixings.
- Ventilated cavity with drained weatherproofing strategy for water management and condensation control.
- PVDF-coated or coil-coated aluminium finish for UV and weather resistance.
- Option for flat panels or feature elements such as vertical fins and horizontal banding.
- Integration with adjacent façade systems, including glazing and balcony interfaces.

This system contributes to the overall façade strategy by combining structural lightness, durability, corrosion resistance, thermal performance, and aesthetic flexibility. It is designed to meet Australian climatic conditions and comply with NCC 2022 performance requirements.



3.6.3. System Performance Requirements

FT02	Performance Category	Requirements
Entire System External Wall System – Aluminium Cladding System	System Description	The aluminium cladding system will function as a non-load-bearing external façade, providing durability, weather resistance, and thermal efficiency. The system will be supported by a secondary substructure, ensuring proper alignment, stability, and structural performance. Depending on project requirements, the cladding may be installed as a Rainscreen (Ventilated) System, a Drained and Ventilated System, or a Sealed System. For ventilated and drained façade applications, an air cavity between the cladding and the backing wall will be incorporated to facilitate moisture drainage and airflow, reducing the risk of condensation and improving thermal performance. For sealed systems, the panels will be fixed with mechanical fasteners and sealed joints to prevent water ingress. To ensure long-term performance, the system will include slotted hole, and drainage solutions, allowing for movement due to thermal expansion while maintaining weather tightness and durability. As the cladding is part of the external façade system, it contributes both to the architectural aesthetic and the overall building envelope performance.
	Architectural Code	TBC
	Air Tightness	≤ 3.0 m³/hr·m² @ 75 Pa (minimum requirement under NCC)
	Water Tightness	600Pa (typical test level under AS/NZS 4284; no numeric minimum defined by NCC)
	Wind Resistance	TBC (based on preliminary wind load assessment to AS/NZS 1170.2)
	Thermal Requirements, R-Value (By Aspire)	≥R1.4 (m²·K/W) (Non-residential) TBC (Residential)
	Self-Weight	0.20 kN/m² Indicative self-weight, subject to final panel size, material thickness, and subframe configuration (allowance includes panels, fixings, and supporting bracketry)
	Weatherproofing Principles	Two-stage drained and ventilated rainscreen system, designed in accordance with AS/NZS 4284 and NCC 2022 Clause F3P1, Verification Method F3V1. The system incorporates a ventilated cavity behind the cladding, allowing drainage and pressure equalisation. Weatherproofing performance is supported by integration of cavity barriers, compatible flashings, and membrane interfaces with the backing wall. All interfaces are to be detailed for continuity of water, air, and thermal control layers, with project-specific validation through AS/NZS 4284 testing and site inspection.
	Jointing, between panels	Open-jointed or gasketed joints, engineered to accommodate thermal and structural movement while maintaining weatherproofing performance. Joints to be designed for compatibility with adjacent façade elements, using UV-stable gaskets or baffles to limit water ingress to the cavity. Minimum joint widths and tolerances to follow manufacturer's recommendations and project-specific mock-up approvals.
	Facing	Material

	Finish	Factory-applied powder coat finish in accordance with AAMA 2604 or AAMA 2605, with a minimum dry film thickness of 60 microns (typically 60–80 microns), or PVDF coating system with minimum 70% fluoropolymer content. Colour and gloss level to match architectural specification. Surface finish to be free of visible defects and irregularities, with minimum risk of chalking or fading.
	Jointing, between facing material	Panel-to-panel joints to be set out to achieve consistent alignment with façade grid lines and feature elements. Sealant or gasket systems to be compatible with aluminium finishes and resistant to UV, moisture, and thermal cycling. Tolerances to comply with AS/NZS 4284 and manufacturer guidelines.
Backing Wall Internal Lining	System and Design	Mechanically fixed rainscreen cladding system supported on aluminium or galvanised steel subframe, independently anchored to the primary structure. Subframe designed to accommodate façade loads, wind pressures to AS/NZS 1170.2, and building movement. System to be compatible with cavity drainage, ventilation, and thermal break requirements, ensuring continuity of insulation in line with NCC Section J.
	Thermal Requirements, Bulk Insulation (By Aspire)	R2.0(m²·K/W) - (≈90 mm) – (Non – residential)
		TBC – (Residential)
		TBC - Residential

3.8. FT03 - Balcony Wall Fibre-Cement Cladding

3.8.1. Executive Summary of System Selection and Design Outcome

Following the early-stage design coordination and façade optioneering process, the selected tower façade system is a Fibre Cement Cladding System fixed onto a ventilated cavity system over structural wall framing. This system offers a lightweight solution compatible with the building's structural and thermal performance requirements.

Key characteristics of the selected system:

- Fibre cement panels fixed to a top-hat or similar secondary framing system over the structural wall.
- Continuous ventilated cavity between cladding and wall framing to manage moisture and pressure equalisation.
- Cavity construction includes flashings, cavity barriers (where required), and breathable sarking membranes.
- Panel joints detailed to accommodate thermal movement and ensure weatherproof performance, typically with expressed joint finishes.
- Backing wall and insulation system provides primary thermal and weatherproofing layers, allowing fibre cement to act as a rainscreen.
- Lightweight panels contribute to reduced structural loading and simplified installation process.

3.8.1.1. Drivers for selection:

- Architectural alignment: fibre cement enables clean, modern lines and a lightweight appearance suited to upper levels, with flexibility in panel sizing and finish.
- Lightweight construction: reduces imposed loads on structural elements, especially in tower zones where slab loading is a key design constraint.
- Moisture and weather control: ventilated cavity and membrane layers enhance weatherproofing and condensation control.
- Construction sequencing: allows early installation of wall framing and insulation, with fibre cement installed in a subsequent cladding package.
- Durability and maintenance: fibre cement offers long-term resistance to moisture, fire, and pests, with low maintenance requirements compared to other lightweight systems.

3.8.1.2. Coordination Requirements

To ensure durability, compliance, and buildability, the system requires coordinated detailing between architectural, structural, and façade disciplines. Key considerations include maintaining uninterrupted cavity ventilation and drainage paths, integrating flashings and membranes to protect vulnerable junctions, and aligning movement joints with structural breaks. Subframes must be installed within tolerance, incorporating thermal breaks ($R \geq 0.2 \text{ m}^2\cdot\text{K}/\text{W}$) where required by NCC 2022, and fasteners must allow for panel expansion without inducing stress. Sealants, flashings, and joint detailing must be compatible with fibre cement and designed for long-term exposure, while all components must meet NCC fire and weatherproofing requirements.

3.8.2. Introduction

The FT03 system forms the primary balcony cladding solution using fibre cement panels across the residential tower. Extending from Level 01 to Level 11, the system is fully integrated within the façade performance line, and contributes directly to the building's weatherproofing, thermal regulation, acoustic performance, and structural coordination. While the external appearance remains consistent, three sub-configurations are defined based on apartment-specific thermal performance targets identified through BASIX modelling.

System	Location	Levels	Function	Performance Line
FT03	Tower	1 to 11	Residential; Retail	Yes

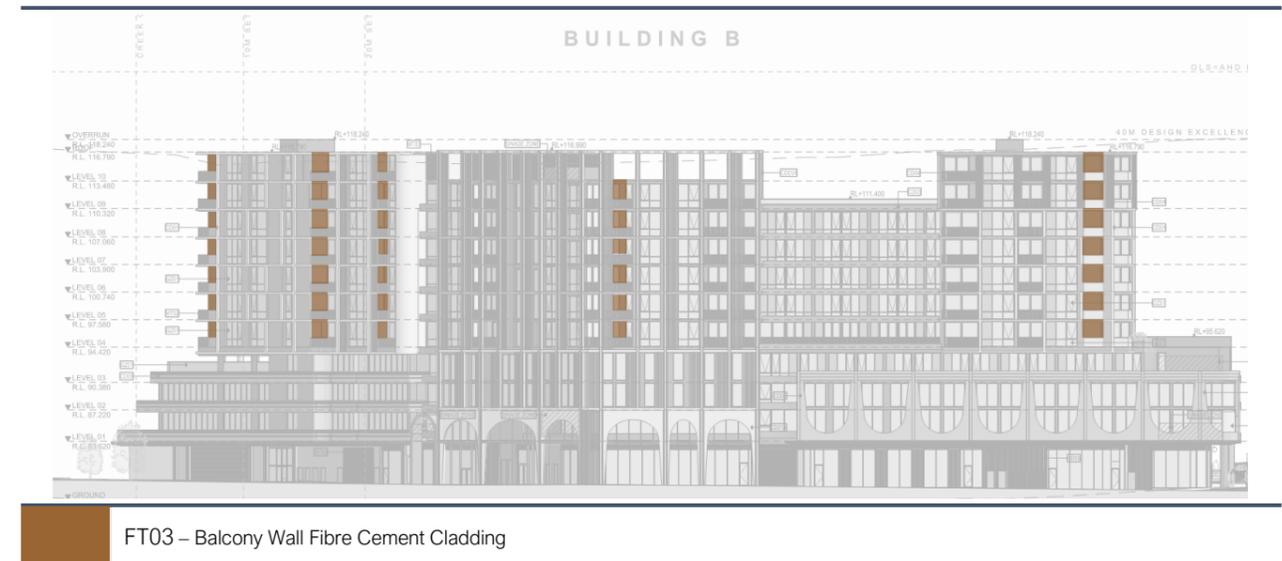
Key configuration:

- Fibre cement cladding system installed over ventilated cavities and fixed to a top-hat framing.
- Panel configuration allows flexibility in module sizing, vertical or horizontal orientation, joint design, and surface finish to support the architectural language of the building.
- Design allows for flexibility in bond pattern, colour, and surface texture selection, supporting the project's architectural intent.
- Cladding installed over breathable membranes and thermal insulation.

This system contributes to the project's overall façade strategy by providing a lightweight, durable, and low-maintenance external envelope solution. It offers inherent fire resistance and supports compliance with thermal and acoustic performance targets, particularly for residential use.

The selected solution supports architectural intent, buildability, and consistent performance outcomes across all building levels, aligning with the outcomes of the façade optioneering and early-stage design coordination process.

All sub-configurations maintain full compliance with NCC 2022 and ensure façade alignment with project-wide performance strategies, including energy efficiency, water ingress prevention, and acoustic attenuation. Internal build-up variations do not alter the external expression of the cladding system.



3.8.3. System Performance Requirements

FT03	Performance Category	Requirements
Entire System External Wall System – Fibre Cement Cladding	System Description	The CFC cladding system will be fixed to top hats, eliminating the need for additional framing elements, thus enhancing the layout flexibility of the façade. The panels will be securely supported by the top hat subframe, ensuring the efficient transfer of self-weight and lateral loads to the primary structure. The system will feature a continuous support mechanism, with the top hats transferring dead and lateral loads directly to the primary structure. A cavity between the CFC cladding and the primary structure will be created, which can accommodate insulation. Movement joints, including 10mm expressed or sealant-filled joints at the perimeter of the panels, will be incorporated to manage movement, tolerances, and water ingress. Vertical and horizontal structural joints will be required to accommodate anticipated movement in the building, ensuring the façade remains stable and weather-tight over time. The system will also include moisture management measures, with flashings, sealants, and vapour-permeable membranes ensuring the cladding's durability. Dual-sealed joints will be used to prevent moisture ingress and mitigate condensation risks.
	Architectural Code	TBC
	Air Tightness	≤ 3.0 m³/hr·m² @ 75 Pa (minimum requirement under NCC)
	Water Tightness	600Pa (typical test level under AS/NZS 4284; no numeric minimum defined by NCC)
	Wind Resistance	TBC (based on preliminary wind load assessment to AS/NZS 1170.2)
	Thermal Requirements, Total R-Value (By Aspire)	≥R1.4 (m²·K/W) (Non-residential) TBC (Residential)
	Self-Weight	0.15 kN/m²
	Weatherproofing Principles	Direct-fixed fibre cement cladding system incorporating a vapour-permeable sarking membrane as the primary water control layer. System relies on continuous sealing of panel joints, flashing integration, and drainage provisions at base of walls. Compliance with NCC 2022 Clause F3P1 is demonstrated via Verification Method F3V1, supported by manufacturer certifications and project-specific validation of critical junctions.
	Jointing, between panels	Vertical and horizontal joints shall be designed to accommodate structural movement, thermal expansion, and construction tolerances. For fibre-cement cladding, joints shall be expressed or sealed with a back-rod and flexible sealant, forming a dual-seal system where required. All sealant specifications, including colour and type, shall be submitted to the design team for review and approval. Joint width shall typically be 10 mm, unless otherwise specified in architectural drawings. The system must ensure long-term water tightness and maintain façade aesthetics while allowing for movement without compromising weather resistance.
	Facing	Material
Finish		Refer to architectural specification (e.g., texture-coated or prefinished panels).

	Jointing, between facing material	Sealed or expressed joints in accordance with manufacturer's recommendations and architectural layout.
Backing Wall Internal Lining	System and Design	Direct-fixed fibre cement cladding system with drained cavity and compliant weather-resistive barrier. The system includes support framing, insulation zone, and internal lining, designed in accordance with architectural documentation and relevant NCC compliance requirements.
	Thermal Requirements, Added (Bulk) Insulation (By Aspire)	R2.0(m²·K/W) - (≈90 mm) – (Non – residential) TBC – (Residential)

3.9. FT04 - Precast Concrete System

3.9.1. Executive Summary of System Selection and Design Outcome

Following a comprehensive system optioneering and design review process, the selected façade system for the applicable podium and mid-rise zones is:

Architectural Precast Concrete Wall System using Ordinary Portland Cement (OPC) panels, directly supported at structural slab edges via engineered bracket assemblies.

Key characteristics of the selected system:

- Solid OPC precast panels, fully fabricated off-site under factory-controlled conditions for consistent finish, dimensional stability, and controlled shrinkage performance.
- Panels vertically supported via cast-in or post-installed anchors at slab edges, transferring dead loads directly to the structure.
- Wind loads resisted via lateral restraint brackets fixed to slab edges or structural columns, allowing for horizontal interstorey drift without overstressing fixings.
- Panel joints designed as sealed movement joints using elastomeric sealants to accommodate thermal movement, shrinkage, slab deflections and building sway.
- Integral architectural articulation achieved through formed reveals, textured surfaces, embedded pigmentation, and deep window recesses cast directly into the panel face.
- Prefabrication allows early quality assurance, minimised on-site work, and accelerated installation sequences.

3.9.1.1. Drivers for selection:

- Architectural alignment: monolithic expression with controlled surface textures, deep reveals, and consistent pigmentation consistent with the design vision.
- Structural clarity: direct load transfer to primary structure with engineered fixings providing clear vertical and lateral load paths.
- Weatherproofing robustness: face-sealed jointed system with redundancy provided by internal air barrier membranes.
- Durability: long service life, inherent material stability, and minimal maintenance requirements under full external exposure.
- Construction efficiency: full off-site prefabrication supports accelerated installation, minimises reliance on scaffolding, and reduces site congestion.

3.9.1.2. Coordination Requirements

The system demands precise integration of panel geometry, fixing strategy, joint configuration, and interface detailing to maintain performance across structural, thermal, and weatherproofing criteria. A drained and ventilated cavity must be maintained behind panels, with flashings at slab edges and penetrations to direct water to drainage points. Movement joints (15–25 mm) must align with panel edges and accommodate shrinkage, thermal movement, and building drift. Interfaces with adjacent façade systems must ensure compatibility in weatherproofing and fire performance. Fabrication tolerances must align with AS 3850, and installation sequencing must consider crane access, site logistics, and coordination with adjacent cladding systems.

3.9.2. Introduction

The FT04 system forms the primary solid cladding expression to the tower façade, running continuously from Level 1 to Level 11.

System	Location	Levels	Function	Performance Line
FT04	Tower	Levels 1 to 11	Residential; Medical; Commercial; Childcare; Communal	Yes

Key configuration:

- Solid precast concrete panels integrated into the tower envelope, providing a monolithic architectural expression.
- Panels directly supported off slab edges using engineered brackets and cast-in or post-installed anchors.
- Jointed panelised system with sealed perimeter joints to control water ingress and accommodate movement.
- Architectural articulation formed directly into the precast face, including reveals, recesses, textures, and pigmentation as per design intent.
- Prefabricated off-site to achieve high levels of dimensional accuracy, surface quality, and minimised on-site construction time.

This system contributes to the project's overall façade strategy by combining high durability, inherent fire resistance, minimal maintenance requirements, and robust weatherproofing performance.

The selection of architectural precast concrete supports the design vision for a strong, sculptural façade expression while offering buildability efficiencies, consistent quality control, and simplified load transfer directly into the structural frame, following the optioneering process undertaken during early design coordination.



3.9.3. System Performance Requirements

Based on the selected system the following outline specification has been determined

FT04	Performance Category	Requirements
Entire System External Wall System – Precast Concrete System	System Description	<p>The architectural precast concrete system provides a sealed, non-ventilated façade solution for selected residential areas of the tower, contributing to the building’s structural integrity, thermal performance, and architectural expression. As the system is located within Class 2 residential zones, it complies with the thermal performance requirements of NCC 2022 Section 3.12. Precast panels are factory-manufactured using reinforced concrete, ensuring consistency, strength, and durability. Surface finishes include off-form concrete, exposed aggregate, or pigmented treatments depending on design intent. Panels are supported via cast-in or post-installed anchors, with engineered brackets transferring loads back to the primary structure. All fixings are designed to accommodate movement, deflection, and construction tolerances.</p> <p>As a sealed system, water and air control is achieved through external joint sealing using backer rod and weatherproof sealants, without relying on cavity ventilation. Internal insulation and air barrier layers complete the envelope, allowing compliance with minimum R-value targets under Section 3.12. The system integrates with windows, slab edges, and balcony elements to ensure a continuous and compliant façade envelope, while delivering long-term performance with minimal maintenance.</p>
	Architectural Code	TBC
	Air Tightness	$\leq 3.0 \text{ m}^3/\text{hr}\cdot\text{m}^2 \text{ @ } 75 \text{ Pa}$ (minimum requirement under NCC)
	Water Tightness	600Pa (typical test level under AS/NZS 4284; no numeric minimum defined by NCC)
	Wind Resistance	TBC (based on preliminary wind load assessment to AS/NZS 1170.2)
	Thermal Requirements, R-Value (By Aspire)	$\geq R1.4 \text{ (m}^2\cdot\text{K/W) (Non-residential)}$ TBC (Residential)
	Self-Weight	4.5 kN/m ²
	Weatherproofing Principles	Precast façade panels designed as sealed or pressure-moderated joints, in accordance with NCC 2022 Clause F3P1 and project-specific weatherproofing strategy. Joint sealant systems and gaskets to be fully compatible with adjacent façade materials and designed to prevent water ingress under design wind pressures. Interfaces to include flashings, backer rods, and secondary seals where required. Testing and validation to AS/NZS 4284 or equivalent to confirm compliance.
	Jointing, between panels	Vertical and horizontal joints to be sealed with elastomeric sealants, compression gaskets, or other tested systems, designed to accommodate structural and thermal movements without loss of weatherproofing integrity. Joint widths to be coordinated with structural tolerances and façade grid alignment.
	Facing	Material

		Table 4.3 for external exposure. Cement substitutions such as GGBS or fly ash may be incorporated to reduce embodied carbon where approved. Reinforcement to comply with AS/NZS 4671.
	Finish	Factory-applied finish to meet architectural requirements, including off-form, polished, acid-etched, exposed aggregate, or painted surfaces. Colour and texture to be consistent across panels, with acceptance criteria for surface defects defined in project documentation.
	Jointing, between facing material	Where precast panels include applied finishes (e.g., stone veneer, tile), joints in the facing material to be aligned with or independent of panel joints as per design intent. Sealants or grouts to be compatible with both the facing material and concrete substrate.
Backing Wall Internal Lining	System and Design	Structural precast panels designed to resist applied loads in accordance with AS/NZS 1170 and AS 3600, including wind loads, seismic effects, and imposed building movements. Connection design to allow for tolerance, adjustment, and differential movement between panels and structure. Panels to be lifted, transported, and installed in accordance with AS 3850, with embedded hardware coordinated with primary structure.
	Thermal Requirements, Bulk Insulation (By Aspire)	TBC

3.10. FT05 - Glazed Entrance Screen

3.10.1. Executive Summary of System Selection and Design Outcome

The selected façade system for the primary retail entry points is the Ft05 Glazed Entrance Screen, comprising full-height aluminium-framed glazed panels and commercial-grade door units. This system is used at ground level to define transparent, high-visibility entry zones while meeting structural, thermal, acoustic, and weatherproofing performance requirements.

Key characteristics of the selected system:

- Full height glazed façade system installed at key retail entrances across the podium ground floor.
- Comprised of fixed aluminium-framed glazing and integrated commercial door sets (manual or automated sliding/swing doors, as applicable).
- Designed to maximise visual permeability and street activation while maintaining a secure and robust enclosure.
- System includes internal steel framing (where necessary) to support large glazing spans and withstand crowd loads and wind actions.
- Incorporates continuous waterproofing detailing at base junctions, head restraints, and vertical interfaces with adjacent cladding.
- Door sets are coordinated with access control, security hardware, and BCA (NCC) accessibility requirements, including clear opening dimensions, threshold compliance, and hardware operability.
- Materials and fixings selected to meet durability, fire, and impact resistance requirements for high-traffic areas.

This entrance glazing system was selected following optioneering to balance transparency, robustness, and constructability. Its modular framing configuration supports on-site assembly and glazing installation while maintaining alignment with the adjacent façade system design language.

3.10.1.1. Drivers for Selection

The selection of the FT05 Glazed Entrance Screen system was driven by a combination of architectural intent, compliance requirements, and buildability factors. The key considerations included:

- Architectural transparency and expression: The glazed entrance screen supports visual connectivity between interior and exterior spaces, aligning with the project's transparency and activation goals at ground level.
- Accessibility and user experience: Full height glazing and integrated entry doors enhance visibility and accessibility, creating a welcoming entry sequence for retail and lobby areas.
- Façade integration: The system is designed to integrate seamlessly with adjacent façade systems (e.g., cladding, soffits, and masonry), maintaining a coherent visual language and consistent performance line.
- Weatherproofing: Drainage strategies, perimeter sealing, and threshold design were developed to ensure air- and watertightness under wind-driven rain conditions and consistent with AS 4284 performance expectations.
- Durability and maintenance: All framing and components are constructed from corrosion-resistant materials, with finishes designed to withstand high-use areas and urban exposure.

Buildability and sequencing: The entrance screen is installed early in the construction sequence to allow interior fit-out while ensuring protection from weather, enabling logical staging of adjoining façade trades.

3.10.1.2. Coordination Requirements

Structural fixings must align with reinforced slab edges to transfer loads through base frames and mullions without slab edge congestion. Thresholds must meet AS 1428.1 accessibility standards, integrating with waterproofing and drainage systems to prevent water ingress. Laminated safety glass to AS 1288 and AS 2208 ensures impact resistance, occupant safety, and security. Thermally broken frames and double-glazed IGUs provide heat and sound control, particularly at residential lobby interfaces. Waterproofing membranes must be continuous across base flashings and into entrance recesses to maintain a sealed envelope. Services such as

access control, intercoms, and lighting must be integrated within mullions or adjacent finishes. Prefabrication and internal installation are preferred to minimise disruption to public areas and reduce external scaffold dependency.

3.10.2. Introduction

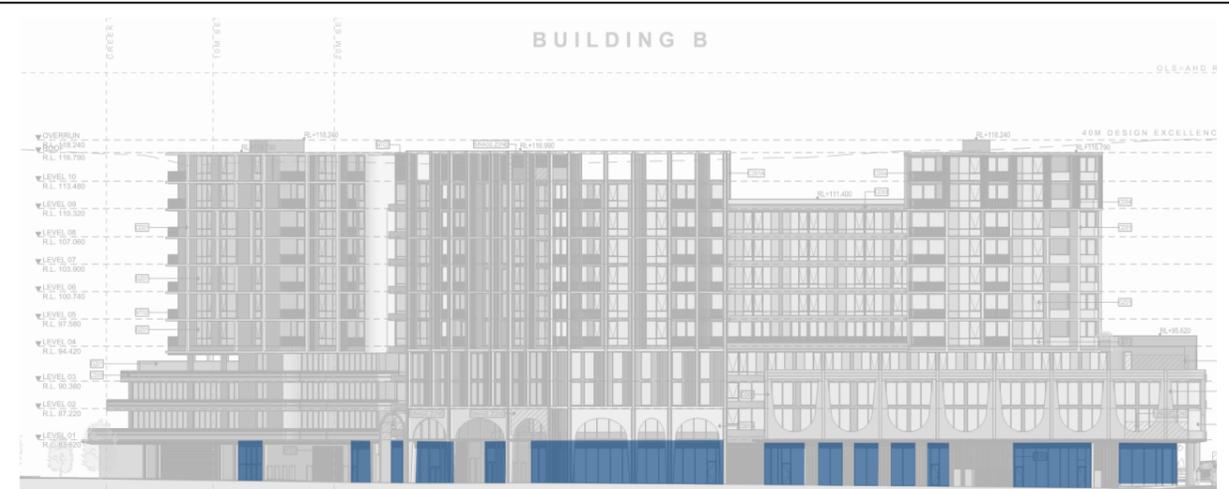
The FT05 system forms a key architectural glazed on Level Ground, contributing to the project's visual articulation, environmental control, and public realm interface. The system plays an important role in achieving thermal, acoustic, and weatherproofing compliance across zones of the podium.

System	Location	Levels	Function	Performance Line
FT05	Podium	Ground	Retail; Hotel; Tavern; Communal	Yes

Key configuration:

- The system consists of full-height aluminium-framed glazed panels, incorporating single or double hinged or pivot entry doors as required for functional access.
- Installed within structural openings, the glazed entrance screen integrates seamlessly with surrounding façade systems including masonry, cladding, and soffit treatments.
- The system includes aluminium frames, double-glazed insulated glass units (IGUs), and weather-sealing features such as EPDM gaskets and threshold drainage detailing.
- Designed for high-traffic environments, the screen components are robust, impact-resistant, and coordinated with accessibility, security, and fire egress requirements.
- All materials and finishes are compliant with durability and combustibility requirements outlined in NCC 2022, including compliance with Clause C2D10 for Type A buildings.
- Integration with the project's performance line ensures that the glazed screen contributes to weatherproofing, acoustic performance, and thermal insulation at critical ground floor zones.

This system supports the architectural goals of ground floor transparency and activation, while delivering high performance in thermal, acoustic, and weatherproofing domains. Its strategic placement at primary entry points strengthens the project's interface with the public realm and reinforces continuity across the external envelope.



FT05 - Glazed Entrance Screen

3.10.3. System Performance Requirements

FT05	Performance Category	Requirements	
Entire System External Window System – Glazed Entrance Screen	System Description	The glazed entrance screens are composed of aluminium framing and double-glazed panels, designed to create expansive, transparent openings that enhance visual connectivity between indoor and outdoor spaces. This system provides a welcoming aesthetic while maintaining durability and functionality, making it suitable for high-traffic areas. The aluminium frames are engineered for strength and stability, capable of supporting both static and dynamic loads encountered during operation and maintenance. The system integrates a subsill drainage strategy, ensuring water is channelled externally through a concealed path, maintaining a weather-tight seal. Drainage components are discreetly incorporated to align with the architectural design intent while ensuring efficient water management. All necessary waterproofing, insulation, and vapour control layers are included, providing a continuous and sealed building envelope to prevent air and water ingress. The double-glazed panels enhance energy efficiency and acoustic performance, with options for low-emissivity coatings to further regulate indoor temperatures and reduce glare. The aluminium framing is specified to provide strength, durability, and long-term stability in commercial environments, ensuring consistent performance under operational demands. This system ensures compliance with applicable performance standards, with materials and membranes chosen for compatibility with adjoining trades and systems. The glazed entrance screens are designed for seamless integration with surrounding façades, allowing for precision alignment and contributing to the overall architectural vision.	
	Architectural Code	TBC	
	Air Tightness	$\leq 3.0 \text{ m}^3/\text{hr}\cdot\text{m}^2 \text{ @ } 75 \text{ Pa}$ (minimum NCC requirement under J1D3)	
	Water Tightness	600Pa (typical test level under AS/NZS 4284; no numeric minimum defined by NCC)	
	Wind Resistance	TBC (based on preliminary wind load assessment to AS/NZS 1170.2)	
	Acoustic Requirements, Rw+Ctr	Rw 33	
	Thermal Requirements, U-Value (Uw, Total Window including linear thermal transmittance around the perimeter of the window) (By Aspire)	Hotels / Co-working	$\leq 3.0 \text{ (W/m}^2\cdot\text{K)}$
		Restaurant / GF Tavern / Retail / Communal	$\leq 5.0 \text{ (W/m}^2\cdot\text{K)}$
	Self-Weight	0.34kN/m^2	
	Weatherproofing Principles	Fully sealed glazed entrance screen system designed to resist water ingress in accordance with AS 2047 and AS/NZS 4284. Compliance with NCC 2022 Clause F3P1 is demonstrated using Verification Method F3V1. The system integrates perimeter seals, gaskets, and flashing interfaces to surrounding façade elements, ensuring continuity of the weatherproofing line. Performance validation to be supported by certified AS 2047 / AS/NZS 4284 test data and project-specific assessments, including hose testing, interface detailing review, and compatibility checks with adjacent systems.	

Framing	Build up	Factory-fabricated aluminium framed glazed screen system incorporating fixed and operable door components, designed to suit architectural entry requirements. Installed within prepared openings using perimeter subframes, continuous sealant application, and integrated flashings. Includes waterproofing membranes and internal linings where applicable to achieve compliance with NCC 2022 and AS 2047. All anchoring brackets, fixings, and hardware to be engineered for load transfer and durability.
	Material	Structural grade aluminium alloy - 6060-T6 or 6063-T6, in accordance with AS 1866, durability rating B, suitable for the selected fabrication and finishing processes.
	Finish	Powder coated finish to comply with AAMA 2604, with applied dry film thickness of minimum 60 microns, typically 60–80 microns. Colour and gloss level to be as per architectural documentation. All exposed surfaces to be free of visible defects, surface irregularities, and excessive overspray.
Glazed Infill (Vision)	Description	All glazing to achieve the requirements of the project, including but not limited to: Structural and MEP criteria. Design such a way to be safe and appropriate for the building use and its application on the building ensuring that all produced build up accommodates the any loading imposed but not limited to Wind Load and maintenance impact
	Configuration	Insulated Glazed Unit (IGU), comprising two glass panes separated by a sealed air or inert gas cavity, with a high-performance thermally improved spacer bar. (expected to be double-glazed with potential thermal break, subject to confirmation by the ESD consultant)
	Minimum Build up, Outer Panel	6mm
	Minimum Build up, Cavity	12mm Argon Filled
	Minimum Build up, Inner Panel	6mm toughened or laminated
	Thermal Performance, U-value (Ug Centre pane)	$1.3 \text{ W/m}^2\text{K}$
	Solar Heat Gain Coefficient, SHGC	0.30
	Light Transmittance, LT (By Architect)	TBC
	External Light Reflectance (By Architect)	TBC
	Internal Light Reflectance (By Architect)	TBC
Colour Rendering Index	Refer to Glare Assessment, if one has not been provided or undertaken, please provide values that the proposed glass will achieve.	

3.12. FT06 - Window Wall with Aluminium Cladding

3.12.1. Executive Summary of System Selection and Design Outcome

Following a comprehensive optioneering process, the selected tower façade solution is a Window Wall System spanning slab-to-slab, directly supported at slab edges, and supplemented by extruded aluminium cladding panels applied over slab edges and structural columns. This hybrid approach provides a high-performance glazing line as the primary façade system, while the aluminium cladding ensures a uniform architectural finish and structural protection.

Key characteristics of the selected system:

- Window wall modules consist of prefabricated aluminium-framed units incorporating fixed and operable glazing, spandrels with insulated backpans, and integrated drainage systems, installed floor-by-floor
- Aluminium cladding to slab edges and columns is formed by independent extruded panels mechanically fixed to a substructure, providing a seamless external finish and concealing structural elements
- Pre-fabrication enables improved quality control, reduced on-site tolerances, and efficient installation sequencing
- Architectural expression is reinforced through vertical fins and horizontal banding articulated in extruded aluminium, emphasising the tower's rhythm and introducing depth in the façade

3.12.1.1. Drivers for selection:

- Architectural intent: Continuous glazing with aluminium cladding ensuring a refined, consistent external finish, concealing slab edges and columns.
- Structural clarity: Window Wall modules supported on slab edges, with aluminium cladding independently anchored to secondary framing.
- Weatherproofing robustness: Window Wall forms the primary weather line; aluminium cladding enhances protection and conceals interfaces.
- Durability: Aluminium cladding finished with powder coat/anodised systems to withstand urban exposure and minimise maintenance.
- Construction efficiency: Internal installation of glazing reduces scaffolding reliance; aluminium cladding installed subsequently, enabling flexible sequencing.

3.12.1.2. Coordination Requirements

The system requires close structural coordination for bracket fixing, slab reinforcement, and post-tensioning layouts to ensure correct alignment and structural integrity. Spandrel zones must provide continuous insulation and airtightness, with fire-stopping and acoustic separation designed in accordance with NCC C2D10 and AS 5113 requirements. All perimeter joints are to be detailed to accommodate thermal expansion, slab deflection, and construction tolerances, using UV-resistant sealants and EPDM gaskets for durability.

Frames must incorporate pressure-equalised drainage strategies with unobstructed weep paths, coordinated with slab edge flashings and adjoining façade systems to avoid water traps. Installation is carried out progressively floor-by-floor from inside the building, requiring early integration with slab edge treatments, balustrade supports, feature cladding, and internal finishes to avoid sequencing conflicts and ensure continuity of the façade performance line.

3.12.2. Introduction

The FT06 system forms the primary glazed façade expression across the tower levels, extending from Level 1 to Level 11. It consists of window wall modules with fixed and operable glazed panels installed slab-to-slab, combined with integrated slab edge covers and spandrel zones. The slab edges and structural columns are concealed with extruded aluminium cladding, while architectural articulation is reinforced through aluminium fins and horizontal banding. The system is fully embedded within the façade performance line and contributes directly to weatherproofing, thermal compliance, acoustic performance, and architectural expression across the tower.

System	Location	Levels	Function	Performance Line
FT06	Tower	1 to 11	Residential, Medical; Commercial; Hotel	Yes

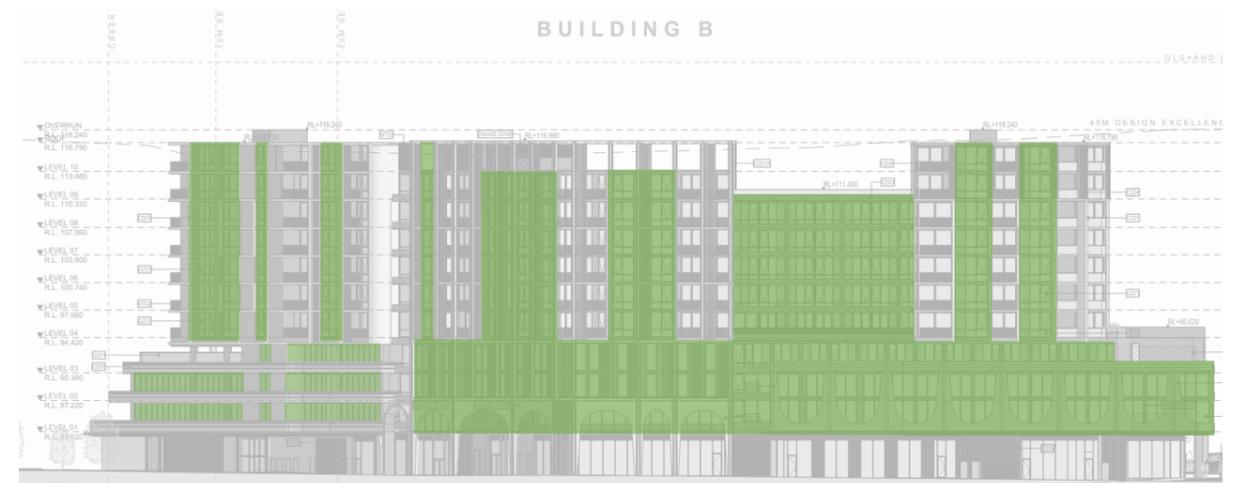
Key configuration:

- Window wall modules consist of prefabricated aluminium-framed units incorporating fixed and operable glazing, spandrels with insulated backpans, and integrated drainage systems, installed floor-by-floor
- Aluminium cladding to slab edges and columns is formed by independent extruded panels mechanically fixed to a substructure, providing a seamless external finish and concealing structural elements
- Pre-fabrication enables improved quality control, reduced on-site tolerances, and efficient installation sequencing
- Architectural expression is reinforced through vertical fins and horizontal banding articulated in extruded aluminium, emphasising the tower's rhythm and introducing depth in the façade

Located throughout the residential tower, the system is fully embedded within the façade performance line and contributes directly to the project's weatherproofing, thermal compliance (under BASIX requirements), acoustic insulation, and structural coordination. The glazed modules include both vision and spandrel zones, enabling continuity of performance while concealing floor slabs and services.

This system forms a cornerstone of the tower's high-performance façade strategy by combining lightweight prefabricated glazing with extruded aluminium feature elements, achieving a visually striking, durable, and thermally responsive building envelope. The approach supports efficient installation sequencing, minimises on-site tolerances, and enables consistent quality control through prefabrication and modular assembly.

The selected configuration is the outcome of early façade optioneering and coordination workshops, balancing architectural intent, compliance requirements, and construction methodology to deliver a coherent and high-performing façade across all tower levels.



FT06 – Window Wall with Aluminium Cladding

3.12.3. System Performance Requirements

FT06	Performance Category	Requirements
Entire System External Window System – Window Wall	System Description	The aluminium-framed window wall system is installed continuously between floor slabs, with slab edges integrated into the façade assembly. The system comprises fixed and operable glazing units installed within a unitised framing arrangement, aligned with the architectural design intent. Feature cladding elements, including horizontal spandrel bands, vertical aluminium fins, and aluminium banding, are incorporated within the system to achieve the desired visual expression and accommodate recessed column locations. Continuous horizontal framing is adopted to maintain uniformity and assist with installation tolerances. Window wall panels are prefabricated to allow partial assembly of frames and glazing in controlled factory conditions, supporting improved quality control and consistent workmanship. On-site installation involves direct fixing of subcills and framing brackets to slab edges, establishing a clear load path for structural loads and deflection control. Supplementary brackets or steel plates may be incorporated behind insulated spandrel zones to provide additional support where required. The system incorporates full drainage and ventilation cavities, with drained and ventilated spandrel zones designed to control condensation risk. All interface joints are designed to accommodate both structural and thermal movements. The window wall assembly integrates waterproofing, insulation, vapour control layers, and perimeter sealing systems to maintain building envelope continuity. All materials and components are to be certified and coordinated for compatibility with adjacent façade elements, including mechanically fixed aluminium cladding supported on independent bracketry and fully ventilated behind.
	Architectural Code	TBC
	Air Tightness	$\leq 3.0 \text{ m}^3/\text{hr}\cdot\text{m}^2 @ 75 \text{ Pa}$ (minimum NCC requirement under J1D3)
	Water Tightness	600Pa (typical test level under AS/NZS 4284; no numeric minimum defined by NCC)
	Wind Resistance	TBC (based on preliminary wind load assessment to AS/NZS 1170.2)
	Acoustic Requirements, Rw+Ctr	Rw 32 (To be confirmed)
	Thermal Requirements, U-Value (Uw, Total Window including linear thermal transmittance around the perimeter of the window) (By Aspire)	TBC
	Self-Weight	$0.35\text{kN}/\text{m}^2$
	Weatherproofing Principles	Window wall modules designed to achieve a drained and ventilated façade system in accordance with AS/NZS 4284, with performance validation through full-scale prototype testing. Compliance with NCC 2022 Clause F3P1 demonstrated via either Verification Method F3V1 (if wind pressures $\leq 2.5 \text{ kPa}$) or Performance Solution supported by test evidence. The system incorporates integrated slab edge covers, perimeter seals, flashing interfaces, and internal vapour control layers to maintain thermal, acoustic, and moisture control continuity.

Framing	Build up	Factory-fabricated aluminium-framed modules incorporating fixed and operable glazing. Installed slab-to-slab with structural fixing at slab edges, integrated slab edge cover panels, insulated spandrel back pans, vapour barriers, and drained cavities. Pressure-equalised framing with internal drainage paths to manage condensation and water ingress.
	Material	Structural grade aluminium alloy, typically 6060-T6 or 6063-T6, to AS 1866, with durability rating B, suitable for powder coating or anodising.
	Finish	Powder-coated finish in accordance with AAMA 2604 or AAMA 2605, with a minimum 60-micron dry film thickness, typically 60–80 microns. Colour and gloss level to be confirmed in coordination with architectural specification.
Glazed Infill (Vision)	Description	All glazing to achieve the requirements of the project, including but not limited to: Structural and MEP criteria. Design such a way to be safe and appropriate for the building use and its application on the building ensuring that all produced build up accommodates the any loading imposed but not limited to Wind Load and maintenance impact
	Configuration	Insulated Glazed Unit (IGU), comprising two glass panes separated by a sealed air or inert gas cavity, with a high-performance thermally improved spacer bar. (expected to be double-glazed with potential thermal break, subject to confirmation by the ESD consultant)
	Minimum Build up, Outer Panel	6mm
	Minimum Build up, Cavity	12mm Argon Filled
	Minimum Build up, Inner Panel	6mm toughened or laminated
	Thermal Performance, U-value (Ug Centre pane)	$1.3 \text{ W}/\text{m}^2\text{K}$
	Solar Heat Gain Coefficient, SHGC	0.30
	Light Transmittance, LT (By Architect)	TBC
	External Light Reflectance (By Architect)	TBC
	Internal Light Reflectance (By Architect)	TBC
Colour Rendering Index	Refer to Glare Assessment, if one has not been provided or undertaken, please provide values that the proposed glass will achieve.	

3.13. FT07 - Curtain Wall

3.13.1. Executive Summary of System Selection and Design Outcome

Following the early design optioneering process, the selected tower glazing solution is the Ft07 Curtain Wall System, configured as a unitised façade installed from the exterior using pre-assembled glazed modules. The system spans slab-to-slab, transferring loads directly to the primary structure via engineered anchors at each floor level. This approach delivers a high-performance, continuous vertical glazing expression while addressing thermal, acoustic, fire and weatherproofing requirements under the NCC 2022.

Key characteristics of the selected system:

- Continuous vertical curtain wall framing with concealed transoms and mullions visible externally to achieve the desired architectural rhythm.
- Unitised modules supported at slab edges via precision-engineered brackets, designed for wind load resistance in accordance with AS/NZS 1170.2 and seismic tolerances per AS 1170.4.
- Integrated insulated spandrel panels, back pans and fire-stopping to meet NCC C2D10, AS 5113 and AS 1530.4 compliance requirements.
- Glazing specification optimised for BASIX and Section J of NCC 2022, with Low-E coated IGUs and thermally broken framing.
- Movement joints and pressure-equalised drainage systems designed for Australian climatic conditions, ensuring long-term durability and performance.

3.13.1.1. Drivers for selection:

- Architectural intent: achieve a continuous, sleek vertical glazing plane with minimal visual interruption.
- Performance: optimise thermal, acoustic and fire performance to meet and exceed NCC 2022 compliance targets.
- Installation efficiency: prefabricated unitised modules minimise on-site assembly and reduce programme duration.
- Maintenance and durability: high-spec aluminium framing and façade access integration for lifecycle efficiency.
- Weatherproofing robustness: pressure-equalised design with integrated drainage paths, tested to AS/NZS 4284.

3.13.1.2. Coordination Requirements

The curtain wall system requires close coordination with structural engineers for bracket and anchor placement, including post-tensioning cable locations. Spandrel and slab edge interfaces must ensure insulation continuity, airtightness, fire-stopping, and acoustic separation in line with NCC and project-specific performance criteria. All perimeter seals must allow for structural and thermal movement, with UV-stable sealants and EPDM or silicone gaskets. Façade access systems, balustrade connections, and adjacent cladding must be sequenced to avoid conflicts with the unitised installation methodology.

3.13.2. Introduction

The FT07 Curtain Wall System forms a key component of the tower façade, extending from Level X to Level Y. It consists of prefabricated, unitised modules incorporating vision and spandrel zones, installed slab-to-slab with primary support at floor plates. The system delivers a high-performance, fully integrated façade solution that combines visual transparency with robust environmental control.

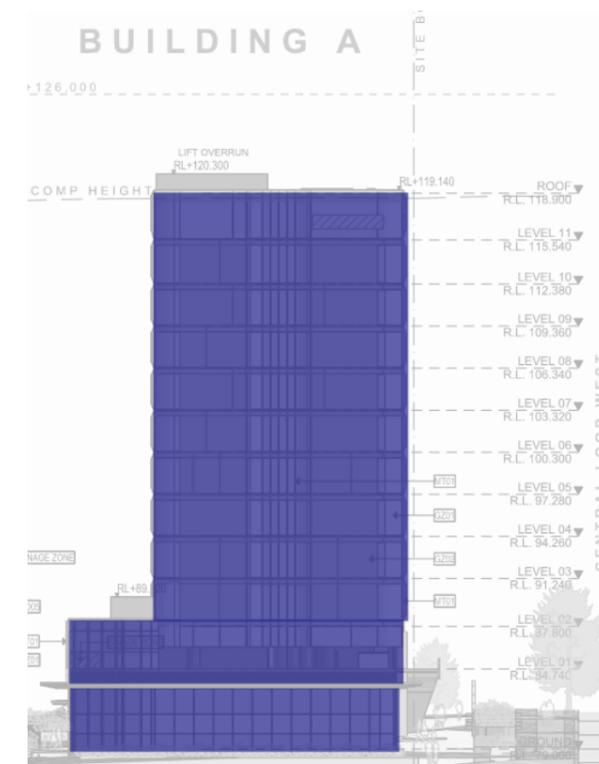
System	Location	Levels	Function	Performance Line
Ft07	Tower	1 to 11	Hotel; Tavern	Yes

Key configuration:

- Prefabricated unitised curtain wall modules with integrated vision glass, spandrel panels and perimeter framing.
- Mullions and transoms forming the structural grid, with internal structural connections concealed from the external face.
- Integrated pressure-equalised drainage system to manage water ingress under test conditions of AS/NZS 4284.
- Thermal breaks in framing members to maintain system U-values in compliance with NCC Section J.
- Fire-stopping, acoustic seals, and airtightness detailing embedded at slab edge spandrel zones.

Located throughout the residential tower, the system is fully embedded within the façade performance line and contributes directly to the project's weatherproofing, thermal compliance (under BASIX requirements), acoustic insulation, and structural coordination. The glazed modules include both vision and spandrel zones, enabling continuity of performance while concealing floor slabs and services.

This system forms a central part of the tower's high-performance façade strategy, delivering a lightweight, thermally efficient, and visually refined envelope. The unitised design reduces on-site installation time, improves quality control, and facilitates consistent performance across all elevations. The selection reflects early-stage façade optioneering outcomes and detailed interdisciplinary coordination, ensuring compliance with NCC 2022 and alignment with architectural and structural requirements.



FT07 – Curtain Wall

3.13.3. System Performance Requirements

FT07	Performance Category	Requirements
Entire System External Window System – Curtain Wall	System Description	The aluminium-framed curtain wall system is installed continuously between floor slabs, with the slab edges concealed behind insulated spandrel panels integrated into the façade assembly. The system comprises prefabricated unitised modules containing fixed and operable glazing, aligned with the architectural grid and visual expression requirements. Feature elements, including horizontal aluminium bands, vertical aluminium fins, and spandrel panel articulation, are incorporated within the system to achieve the desired façade rhythm and accommodate recessed structural columns where required. Continuous vertical mullions are adopted to support load transfer and maintain alignment, while concealed horizontal transoms assist with installation tolerances and drainage performance. Curtain wall modules are partially pre-assembled in controlled factory conditions, allowing frames, glazing, and spandrel back pans to be integrated off-site for improved quality control and consistent workmanship. On-site installation involves crane-lifting modules into position and fixing them to pre-installed anchors at each floor slab, ensuring a clear load path for both dead and live loads, as well as deflection management. Additional reinforcing brackets or steel plates may be incorporated within spandrel zones to provide supplementary structural support where necessary. The system incorporates pressure-equalised drainage and ventilation cavities, with drained and ventilated spandrel assemblies designed to manage condensation risk in accordance with NCC and AS/NZS 4284 testing requirements. All perimeter joints and inter-module connections are designed to accommodate expected structural and thermal movements. The curtain wall assembly integrates waterproofing, insulation, vapour control layers, and perimeter sealing systems to maintain building envelope continuity. All materials and components are to be certified and coordinated for compatibility with adjoining façade systems, including mechanically fixed aluminium cladding supported on independent bracketry and fully ventilated behind.
	Architectural Code	TBC
	Air Tightness	≤ 3.0 m³/hr·m² @ 75 Pa (minimum NCC requirement under J1D3)
	Water Tightness	600Pa (typical test level under AS/NZS 4284; no numeric minimum defined by NCC)
	Wind Resistance	TBC (based on preliminary wind load assessment to AS/NZS 1170.2)
	Acoustic Requirements, Rw+Ctr	Rw 33
	Thermal Requirements, U-Value (Uw, Total Window including linear thermal transmittance around the perimeter of the window) (By Aspire)	≤ 3.00 (W/m²·K) (Hotel; L1 Tavern)
	Self-Weight	0.35kN/m²
	Weatherproofing Principles	Unitised curtain wall panels designed as a pressure-equalised, drained, and ventilated system in accordance with AS/NZS 4284, with system validation through full-scale prototype testing. NCC 2022 Clause F3P1 compliance demonstrated via Performance Solution. The system

Framing	Build up	incorporates perimeter seals, stack joints with internal baffles, spandrel panel insulation, and fire-stopping in line with AS 5113 and NCC C2D10.
	Material	Factory-assembled curtain wall units comprising aluminium framing, vision glazing, and insulated spandrel panels. Installed from the building exterior or interior using cranes or hoists, with vertical mullions spanning floor-to-floor and horizontal stack joints accommodating building movement. Pressure-equalised cavity with internal drainage and vapour control layers.
	Finish	Structural grade aluminium alloy, typically 6060-T6 or 6063-T6, to AS 1866, with durability rating B.
Glazed Infill (Vision)	Description	Architectural-grade powder coating to AAMA 2604 or 2605, minimum 60-micron dry film thickness, or Class I anodised finish as specified. Colour and gloss level to be confirmed during the shop drawing phase.
	Configuration	All glazing to achieve the requirements of the project, including but not limited to: Structural and MEP criteria. Design such a way to be safe and appropriate for the building use and its application on the building ensuring that all produced build up accommodates the any loading imposed but not limited to Wind Load and maintenance impact
	Minimum Build up, Outer Panel	Insulated Glazed Unit (IGU), comprising two glass panes separated by a sealed air or inert gas cavity, with a high-performance thermally improved spacer bar. (expected to be double-glazed with potential thermal break, subject to confirmation by the ESD consultant)
	Minimum Build up, Cavity	6mm
	Minimum Build up, Inner Panel	12mm Argon Filled
	Thermal Performance, U-value (Ug Centre pane)	6mm toughened or laminated
	Solar Heat Gain Coefficient, SHGC	1.3 W/m²K
	Light Transmittance, LT (By Architect)	0.30
	External Light Reflectance (By Architect)	TBC
	Internal Light Reflectance (By Architect)	TBC
Colour Rendering Index	Refer to Glare Assessment, if one has not been provided or undertaken, please provide values that the proposed glass will achieve.	

3.15. FT08 - Balcony Glazed Sliding Door

3.15.1. Executive Summary of System Selection and Design Outcome

Following early façade design development and apartment typology coordination, the selected system for balcony access in residential areas is the FT08 Glazed Sliding Door System. This system comprises prefabricated, aluminium-framed sliding doors installed within full-height structural openings, providing visual transparency, natural daylight, and secure access to external balconies. The system supports the project's energy efficiency targets, fall prevention measures, and weatherproofing performance criteria.

Key characteristics of the selected system:

- Full height sliding glazed door units, comprising one fixed and one operable leaf per typical configuration.
- Installed into pre-formed structural openings within slab-to-slab façades, coordinated with architectural and structural documentation.
- Operable panel includes secure locking and integrated fall prevention, compliant with NCC safety requirements.
- Aluminium-framed system incorporating thermal breaks and high-performance double-glazed IGUs.
- Designed with continuous threshold drainage detail, including a proprietary subsill and integrated water management components.
- EPDM perimeter gaskets and silicone sealants applied to ensure full air- and watertightness.
- Integrated into the architectural rhythm of the façade, aligned with adjacent cladding elements and balcony balustrades.

3.15.1.1. Drivers for Selection

- Balcony access and visual continuity: Glazed sliding doors provide uninterrupted access to balconies while maintaining external façade continuity.
- Natural light and views: Full-height glazing maximises daylight penetration and visual connection to the external environment.
- Thermal and acoustic performance: The system includes thermally broken framing and double-glazing to ensure compliance with NCC 2022 Section J and internal acoustic comfort standards.
- Safety and fall protection: All operable doors are designed to meet fall prevention requirements for residential buildings, including restricted opening limits and lockable hardware.
- Drainage and weatherproofing: A proprietary subsill system allows for controlled drainage under the sliding track, reducing the risk of water ingress and internal damage.
- Construction sequencing and access: System can be installed from within the apartment, minimising the need for external scaffolding and aligning with internal fitout stages.

3.15.1.2. Coordination Requirements

The balcony sliding door system is installed within reinforced slab edge openings, requiring precise alignment with balcony thresholds, balustrades, and adjacent cladding. Its design accommodates construction tolerances, slab movements, and thermal expansion without compromising operability or weather resistance. The integrated drained subsill strategy is coordinated with balcony membranes, drainage outlets, and façade interfaces to maintain a continuous weatherproofing line. Thermal and acoustic targets are achieved through double-glazed units, thermally broken frames, and high-performance perimeter seals. Threshold profiles meet AS 1428.1 accessibility requirements while balancing water management, fall prevention, and seamless transition between indoor and outdoor areas. All materials are either non-combustible or compliant with NCC C2D10, with fire-stopping details integrated at slab interfaces. Installation is sequenced to allow internal access, supporting efficient coordination with structure, waterproofing, and balcony works.

3.15.2. Introduction

The FT08 system forms the primary glazed door access solution across the residential façades, enabling full-height openings to balconies while contributing to the project's visual expression, liveability, and overall building performance. Installed throughout the tower levels, the system integrates aluminium-framed sliding glazed units within structural openings, supporting key requirements for safety, weatherproofing, acoustic performance, and thermal compliance under BASIX.

System	Location	Levels	Function	Performance Line
FT08	Tower	Level 1 to 11	Residential	Yes

Key configuration:

- The glazed sliding door system is installed across tower residential zones, this system forms part of the performance line, enabling balcony access while meeting stringent requirements for thermal, acoustic, and weatherproofing compliance.
- All configurations include full-height aluminium-framed sliding door units, composed of one operable and one fixed leaf, with integrated threshold and subsill drainage systems.
- Each unit incorporates framing, double-glazed IGUs, and weather-sealing components such as EPDM gaskets and compatible waterproofing membranes.
- The system is designed for internal installation and is coordinated with adjoining cladding, balcony balustrades, and slab edge treatments.

This system enhances resident amenity by enabling seamless balcony access through full height glazed sliding doors, while maintaining high standards of thermal comfort, acoustic insulation, and weather protection. By integrating operable elements into a refined aluminium-framed solution, it supports indoor-outdoor living across all tower levels and contributes to the building's energy efficiency goals under BASIX.

The modular configuration and compatibility with surrounding façade components, such as cladding systems, balustrades, and slab edge finishes, ensure a cohesive architectural expression and simplified construction sequencing. Overall, the system plays a key role in achieving a high-performance residential envelope that balances occupant comfort, regulatory compliance, and visual coherence.



FT08 – Balcony Glazed Sliding Door

3.15.3. System Performance Requirements

Based on the selected system the following outline specification has been determined

FT08	Performance Category	Requirements
Entire System External Window System – Balcony Glazed Sliding Door	System Description	The aluminium sliding balcony doors are designed with non-thermally broken aluminium frames and double-glazed panels to enhance energy efficiency and acoustic performance. The doors facilitate a seamless connection between indoor living spaces and external balconies, offering expansive views and maximising natural light. The system incorporates smooth-operating tracks and rollers that ensure effortless sliding and durability. The doors are equipped with a subsill drainage strategy, directing water externally through a concealed labyrinth path. Drainage holes are discreetly capped to maintain weather resistance and align with the architectural intent. All required waterproofing, insulation, and vapour control layers are included to maintain a continuous, sealed envelope, preventing water and air ingress. Materials and membranes are selected for compatibility and certification to meet performance standards. The aluminium frames are robustly designed to support both static and maintenance loads, ensuring structural integrity over time.
	Architectural Code	TBC
	Air Tightness	$\leq 3.0 \text{ m}^3/\text{hr}\cdot\text{m}^2 \text{ @ } 75 \text{ Pa}$ (minimum NCC requirement under J1D3)
	Water Tightness	600Pa (typical test level under AS/NZS 4284; no numeric minimum defined by NCC)
	Wind Resistance	TBC (based on preliminary wind load assessment to AS/NZS 1170.2)
	Acoustic Requirements, Rw+Ctr	Rw 32 (To be confirmed)
	Thermal Requirements, U-Value (Uw, Total Window including linear thermal transmittance around the perimeter of the window) (By Aspire)	TBC
	Self-Weight	$0.34\text{kN}/\text{m}^2$
	Weatherproofing Principles	Fully sealed sliding door assemblies designed to provide weather resistance in accordance with AS 2047 and tested to AS/NZS 4284 where required. Compliance with NCC 2022 Clause F3P1 is demonstrated via Verification Method F3V1 (for wind pressures $\leq 2.5 \text{ kPa}$) or via Performance Solution supported by test data. The system incorporates perimeter seals, drainage tracks, threshold flashings, and integrated sill pans to manage water ingress. Sliding panels are fitted with continuous weather seals and interlocking stiles to reduce air and water infiltration, with thermal breaks incorporated where required to maintain thermal compliance.
	Framing	Build up

Glazed Infill (Vision)	Material	Structural grade aluminium alloy – typically 6060-T6 or 6063-T6, to AS 1866, with durability rating B. Glazing specifications selected to meet structural, acoustic, thermal, and safety glass requirements (toughened or laminated to AS 1288). Stainless steel hardware and rollers rated for coastal or high-exposure environments where applicable.
	Finish	Powder-coated finish to AAMA 2604 or AAMA 2605, with minimum 60-micron dry film thickness, typically 60–80 microns. Alternative anodised finish available as per architectural specification. All finishes to be marine-grade where required by project exposure conditions.
	Description	All glazing to achieve the requirements of the project, including but not limited to: Structural and MEP criteria. Design such a way to be safe and appropriate for the building use and its application on the building ensuring that all produced build up accommodates the any loading imposed but not limited to Wind Load and maintenance impact
	Configuration	Insulated Glazed Unit (IGU), comprising two glass panes separated by a sealed air or inert gas cavity, with a high-performance thermally improved spacer bar. (expected to be double-glazed with potential thermal break, subject to confirmation by the ESD consultant)
	Minimum Build up, Outer Panel	6mm
	Minimum Build up, Cavity	12mm Argon Filled
	Minimum Build up, Inner Panel	6mm toughened or laminated
	Thermal Performance, U-value (Ug Centre pane)	$1.3 \text{ W}/\text{m}^2\text{K}$
	Solar Heat Gain Coefficient, SHGC	0.30
	Light Transmittance, LT (By Architect)	50%
	External Light Reflectance (By Architect)	19%
	Internal Light Reflectance (By Architect)	13%
	Colour Rendering Index	Refer to Glare Assessment, if one has not been provided or undertaken, please provide values that the proposed glass will achieve.

3.17. BAL01 - Glazed Balcony Balustrade

3.17.1. Executive Summary of System Selection and Design Outcome

The BAL01 system comprises the primary external glazed balustrade solution for the tower's residential balconies. The system provides physical fall protection while maintaining a visually lightweight and transparent architectural outcome. It is designed to integrate with the slab edge and adjoining façade elements, contributing to safety, comfort, and visual continuity across the external envelope.

Key characteristics of the selected system:

- Frameless or minimally framed toughened laminated glass panels fixed into aluminium base channels.
- Base-fixed configuration to the concrete slab edge, coordinated with façade system setout and drainage strategy.
- Designed to comply with structural and safety requirements under AS 1170.1 and AS 1288.
- Transparent appearance to maximise views and daylight access from within residential units.
- Integrated with slab edge covers and architectural features to maintain visual consistency.
- All components to be corrosion-resistant and suitable for external high-rise applications.

The BAL01 system supports a high-performance outcome through engineered simplicity, structural reliability, and seamless visual integration with adjacent façade systems and balcony finishes.

Drivers for Selection

- **Fall Protection and Compliance:** The balustrade system is designed to comply with the structural and safety requirements of AS 1170.1 (Structural design actions) and AS 1288 (Glass in buildings), ensuring resident safety in all balcony areas.
- **Visual Transparency:** The use of frameless or low-profile glazed panels enhances visual connection to the external environment, maintaining open views and maximising daylight for internal spaces.
- **Architectural Integration:** The system is coordinated with adjoining slab edge treatments, window wall systems, and balcony finishes to ensure consistent lines and material continuity across the façade.
- **Durability and Low Maintenance:** All components are specified for long-term performance in external environments, including corrosion-resistant aluminium channels and toughened laminated safety glass.
- **Ease of Installation:** The base-fixed channel design simplifies on-site installation and sequencing, aligning with construction staging and minimising impact on waterproofing and façade integration zones.
- **Safety and Comfort:** The use of laminated glass ensures that even in the event of breakage, the panel remains intact, supporting occupant safety and reducing maintenance risk.

3.17.2. Introduction

The BAL01 system provides the external glazed balustrade solution for balconies across tower façades. Designed to deliver fall protection, visual openness, and integration with the overall façade system, this solution contributes to the project's safety, compliance, and architectural expression objectives.

System	Location	Levels	Function	Performance Line
BAL01	Tower	Level 1 to 11	Residential	No

Key configuration:

- The system consists of full-height laminated glass panels fixed within aluminium base channels, designed to resist wind loads and occupant impact in accordance with AS 1170.1 and AS 1288.
- The glazed balustrade system is installed on typical residential balconies across the tower levels; this system provides compliant fall protection and visual transparency. It is not part of the project's performance line and is primarily architectural in function.
- The system consists of a laminated glass panels fixed within aluminium base channels, designed to resist wind loads and occupant impact in accordance with AS 1170.1 and AS 1288.
- The balustrade is installed at the outer edge of balconies, maintaining continuity with slab edge treatments, window wall systems, and balcony floor finishes.
- The glazing is composed of laminated safety glass, with interlayers selected to balance visual clarity and acoustic attenuation where relevant.
- Base channels are fixed to the slab or recessed into balcony upstands, designed to accommodate structural movement and integrate with the project's waterproofing strategy.
- The system provides a visually minimal barrier, enhancing connection to external views while complying with fall protection requirements for residential balconies.
- All components are specified for external durability, corrosion resistance, and compatibility with the surrounding façade materials and maintenance strategy.

This system supports the project's design intent of delivering a refined façade appearance, while meeting safety and structural criteria. Its integration into the architectural language of the balconies ensures consistency in both performance and visual rhythm across all levels.



3.17.3. System Performance Requirements

BAL01	Performance Category	Requirements
Entire System External Balustrade System – External Glazed Balustrade	System Description	The external glazed balustrade system shall be fully engineered and tested to comply with NCC 2022, AS/NZS 1170.1, AS 1288. It shall consist of a laminated safety glass infill panel supported by vertical metal posts (aluminium or stainless steel) fixed to structural slabs. The system must be designed to resist both normal and accidental loads and comply with fall prevention and crowd loading where applicable. <ul style="list-style-type: none"> Vertical posts spaced as per engineering design No horizontal climbable elements Base fixings tested and certified to meet applied loads Gaskets or dry glazing inserts for structural fit, no exposed wet seals
	Architectural Code	TBC
	Air Tightness	N/A
	Water Tightness	N/A
	Wind Resistance	TBC (based on preliminary wind load assessment to AS/NZS 1170.2)
	Structural Resistance	Line Load: 0.75 kN/m Point Load: 1.0 kN (NCC 2022 Volume One Clause F4D7 and AS/NZS 1170.1:2002 Table 3.3: Category B - Areas where people may congregate, including balconies)
	Acoustic Requirements, Rw+Ctr	N/A
	Thermal Requirements, U-Value (Uw, Total Window including linear thermal transmittance around the perimeter of the window))	N/A
Self-Weight	0.34kN/m ²	
Framing	Description	Proprietary balustrade system with aluminium post supports and top rail
	Material	Structural grade aluminium alloy — 6060-T6 or 6063-T6, in accordance with AS 1866, durability rating B, suitable for the selected finishing process
	Finish	Powder coated finish to comply with AAMA 2604, with applied dry film thickness of minimum 60 microns, typically 60–80 microns.
Glazed Infill (Vision)	Description	All glazing to achieve the requirements of the project, including but not limited to: Structural and MEP criteria. Design such a way to be safe and appropriate for the building use and its application on the building ensuring that all produced build up accommodates the any loading imposed but not limited to Wind Load and maintenance impact
	Configuration	Single laminated toughened glass panel
	Minimum Build up	13.52mm Fully Toughened Laminate (6mm+1.52mm +6mm) (subject to confirmation of glass size and structural support strategy)
	Thermal Performance, U-value (Ug Centre pane)	N/A

Solar Heat Gain Coefficient, SHGC (By MAC)	N/A
Light Transmittance, LT	N/A
External Light Reflectance	TBC
Internal Light Reflectance	TBC
Colour Rendering Index	TBC

3.18. BAL02 - Aluminium Balustrade

3.18.1. Executive Summary of System Selection and Design Outcome

The BAL02 systems provide external aluminium balustrades across tower levels, ensuring resident safety, compliance with barrier requirements, and contributing to façade articulation. Balustrades form part of the building's barrier systems and must meet stringent performance standards, including structural resistance and durability.

Key characteristics of the selected system:

- The system comprises proprietary aluminium balustrades with vertical slat configuration, supported by extruded aluminium posts and perimeter framing members.
- Installed at tower balconies requiring fall protection, in accordance with NCC and AS 1288 / AS 1170 barrier design requirements.
- Aluminium framing and panels are powder-coated for durability and colour-matched to adjacent façade elements, supporting architectural integration.
- Prefabricated modular sections allow efficient installation, with provisions for interface coordination with adjoining cladding, window wall systems, and slab edge treatments.
- The balustrade contributes to resident amenity and façade design by providing safety, articulation, and visual rhythm across the building envelope.

This system strengthens resident amenity by offering passive privacy control, while contributing to the layered architectural expression of the lower façade. Its non-performative classification allows design flexibility while still meeting planning and safety requirements.

3.18.1.1. Drivers for Selection

- **Safety & Compliance:** Balustrades provide fall protection in line with NCC 2022, AS 1170.1 (structural design actions), and AS 1288 (glass and balustrade requirements), ensuring resident safety across all balcony and terrace zones.
- **Architectural Integration:** Aluminium slat balustrades enhance façade articulation, introducing depth and visual continuity while aligning with the overall architectural intent.
- **Material Durability:** Aluminium with powder-coated finish ensures long-term resistance to corrosion, UV exposure, and weathering, suitable for coastal environments.
- **Installation Flexibility:** Modular balustrade units can be fixed to slab edges or independent framing, accommodating complex interface conditions with window wall and cladding systems.
- **Low Maintenance:** Powder-coated aluminium provides a robust, low-maintenance solution compared to timber or steel alternatives, supporting lifecycle efficiency.

3.18.2. Introduction

The BAL02 system provides aluminium balustrade across selected tower levels, offering passive shading, visual privacy, and architectural expression. These screens are deployed at critical residential and communal interfaces to maintain user amenity while supporting the project's broader urban design outcomes.

System	Location	Levels	Function	Performance Line
BAL02	Tower	Level 1 to 11	Residential	No

Key configuration:

- Screens are designed to serve as privacy barriers for balconies and communal areas while visually integrating into the broader façade composition.
- All configurations are engineered to meet relevant wind load and durability requirements, with material specifications aligned to NCC 2022 and AS/NZS 1170 structural demands.
- Fixings are coordinated with slab edge detailing, façade systems, and balcony waterproofing layers to ensure full integration without compromising the weatherproofing strategy.
- Aluminium elements are powder-coated or anodised for corrosion resistance, low maintenance, and long-term aesthetic stability.
- System design allows for flexibility in slat spacing, panel sizing, and orientation, enabling tailored privacy and shading outcomes across varying façade zones.
- While these elements sit outside the project's formal performance line, they contribute passively to occupant comfort and façade articulation.
- The integration of these screens enhances façade layering and articulation, supporting architectural rhythm and street-level activation while ensuring occupant privacy at key sightlines.



3.18.3. System Performance Requirements

BAL02	Performance Category	Requirements
Entire System External Balustrade System – Aluminium Balustrade	System Description	The aluminium balustrades are designed to provide safety and fall protection while contributing to the overall façade expression of the building. These systems are composed of durable materials, such as powder-coated aluminium, selected for their weather resistance, structural integrity, and low-maintenance properties. Balustrades can be configured with glazed infills or vertical aluminium members, offering flexibility to meet architectural intent while ensuring compliance with safety standards. The design allows for the integration of handrails and top rails, ensuring user comfort and robustness under crowd loading and wind pressures. The aluminium framing is supported by a structural subframe securely anchored to the building structure, ensuring stability, load transfer, and long-term performance. The system is engineered and certified to comply with relevant local building codes and safety requirements, including resistance to impact and wind loads. A wide range of finishes, colours, and anodised or powder-coated treatments is available to achieve the desired visual outcome, allowing the balustrade system to complement the façade composition. All necessary fixings, anchors, and joints are designed to maintain durability and safety, with careful detailing to ensure compatibility with adjacent façade systems and to prevent corrosion in exposed conditions. The system balances performance, safety, and architectural quality, making a significant contribution to the project's overall design and compliance outcomes.
	Architectural Code	TBC
	Air Tightness	NA
	Water Tightness	NA
	Wind Resistance	TBC (based on preliminary wind load assessment to AS/NZS 1170.2)
	Structural Resistance	Line Load: 0.75 kN/m Point Load: 1.0 kN (NCC 2022 F4D7 + AS/NZS 1170.1)
	Acoustic Requirements, R_w+C_{tr} (By Vipac)	NA
	Thermal Requirements, U-Value (U_w , Total Window including linear thermal transmittance around the perimeter of the window) (By MAC)	NA
	Self-Weight	0.30kN/m ²
Framing	Description	Proprietary aluminium balustrade system with vertical slat configuration, supported by extruded aluminium posts and perimeter framing members.
	Material	Structural grade aluminium alloy — 6060-T6 or 6063-T6, in accordance with AS 1866, with durability rating B, suitable for powder coating or anodised finishes as specified
	Finish	Powder coated finish to comply with AAMA 2604, with applied dry film thickness of minimum 60 microns, typically 60–80 microns.

3.19. BAL03 - Vertical Aluminium Batten

3.19.1. Executive Summary of System Selection and Design Outcome

The BAL03 system provides the vertical batten façade treatment for selected residential balcony zones, serving both architectural and functional purposes. The system was selected to enhance the vertical expression of the building envelope, contribute to shading and privacy, and visually unify key areas of the tower façade.

The use of vertical battens introduces rhythm, depth, and refinement to the balcony elevations, complementing the adjacent glazed façade systems while maintaining alignment with the project's architectural intent.

Key features of the selected system include:

- Non-loadbearing vertical aluminium battens, fixed to a lightweight subframe anchored back to the primary structure.
- Customised batten profiles and spacing to suit design intent, privacy needs, and solar orientation.
- Durable powder-coated aluminium construction, ensuring performance in external conditions with minimal maintenance.
- Structural support via bracketed substructure, designed to transfer wind loads without interfering with weatherproofing or drainage systems.
- Compatibility with surrounding façade systems, allowing clean integration with glazed balustrades, window wall units, and balcony slab edges.

This system was adopted following detailed coordination with architectural, structural, and constructability teams to ensure it met performance expectations while maintaining aesthetic coherence across the façade.

3.19.1.1. Drivers for Selection

- **Architectural Expression:** The vertical batten system reinforces the tower's verticality and contributes to a visually articulated façade. Its presence enhances depth and rhythm along selected balcony elevations, supporting the architectural language of the project.
- **Visual Screening and Privacy:** The spacing, alignment, and height of the battens provide passive screening for residential balconies, offering occupants increased privacy without fully obstructing views or natural light.
- **Material Durability:** Powder-coated aluminium battens and brackets are selected for their proven resistance to corrosion, UV exposure, and environmental wear, ensuring longevity with minimal maintenance.
- **System Adaptability:** The system accommodates various batten profiles, mounting methods, and spacing options, enabling design flexibility while maintaining constructability and alignment with structural tolerances.
- **Ease of Installation:** The lightweight, prefabricated components and bracket-mounted substructure simplify site installation and allow sequencing coordination with slab edge works and adjacent façade systems.
- **Non-Intrusive Integration:** Designed as a standalone architectural feature, the vertical batten system does not interfere with the primary weatherproofing layer or performance façades, enabling clean installation and system independence.

3.19.2. Introduction

The BAL03 system provides the external vertical batten feature treatment to selected residential balconies within the tower. Designed as an architectural enhancement, this system contributes to the vertical rhythm of the façade, offering articulation, screening, and alignment with the overall design intent. While it is not part of the project's formal performance line, the system plays a key role in reinforcing façade consistency and improving user privacy in elevated balcony zones.

System	Location	Levels	Function	Performance Line
BAL03	Tower	Level 1 to 11	Residential	No

Key configuration:

- The system comprises lightweight aluminium battens vertically mounted to balcony edges using engineered subframes and support brackets. Battens are powder-coated for long-term performance and aesthetic integration with the broader façade palette.
- Installed in targeted residential balconies, the system acts as a partial screen element, balancing openness and privacy while enhancing the perceived verticality of the tower.
- The configuration is coordinated with balcony waterproofing, slab detailing, and adjacent cladding or window wall systems to ensure compatibility, durability, and installation efficiency.

This system supports the project's objective of delivering visually refined residential façades that promote architectural coherence, privacy, and buildability, without forming part of the primary thermal or weatherproofing performance strategy.



3.19.3. System Performance Requirements

BAL03	Performance Category	Requirements
Entire System External Balustrade System – Vertical Aluminium Batten	System Description	The system consists of non-loadbearing, powder-coated aluminium battens fixed to a lightweight subframe bracketed back to the primary structure. It serves both architectural and functional purposes, contributing to shading, privacy, and articulation of selected residential balconies while visually reinforcing the tower's vertical expression. Although not part of the formal performance line, the system plays an important role in the overall façade composition and hierarchy. The vertical batten profiles and spacing are customised to suit design intent, privacy needs, and solar orientation, without obstructing views or light. The system is engineered for long-term durability under external conditions, with corrosion-resistant finishes ensuring minimal maintenance. It is designed as a standalone architectural element and does not interfere with the primary weatherproofing or performance façades. Prefabricated components and a bracket-mounted substructure enable efficient installation while maintaining compatibility with adjacent façade systems such as glazed balustrades and slab edge treatments. All components shall be coordinated with architectural and structural documentation to ensure system consistency and construction efficiency.
	Architectural Code	TBC
	Air Tightness	N/A
	Water Tightness	N/A
	Wind Resistance	TBC (based on preliminary wind load assessment to AS/NZS 1170.2)
	Acoustic Requirements, Rw+Ctr	N/A
	Thermal Requirements, U-Value (Uw, Total Window including linear thermal transmittance around the perimeter of the window))	N/A
	Self-Weight	0.24kN/m ²
Framing	Description	Non-loadbearing vertical aluminium battens fixed to lightweight bracket-mounted subframe. Profiles and spacing are customised for privacy, solar control, and architectural expression. The system is independent from the primary performance façade and does not interfere with weatherproofing or structural layers.
	Material	Structural grade aluminium alloy — 6060-T6 or 6063-T6, in accordance with AS 1866, durability rating B, suitable for the selected finishing process
	Finish	Powder coated finish to comply with AAMA 2604, with applied dry film thickness of minimum 60 microns, typically 60–80 microns.