

Design Compliance

DEVELOPMENT APPLICATION
26 & 28 SHEPHERD STREET, LIVERPOOL NSW

**WOODS
BAGOT**

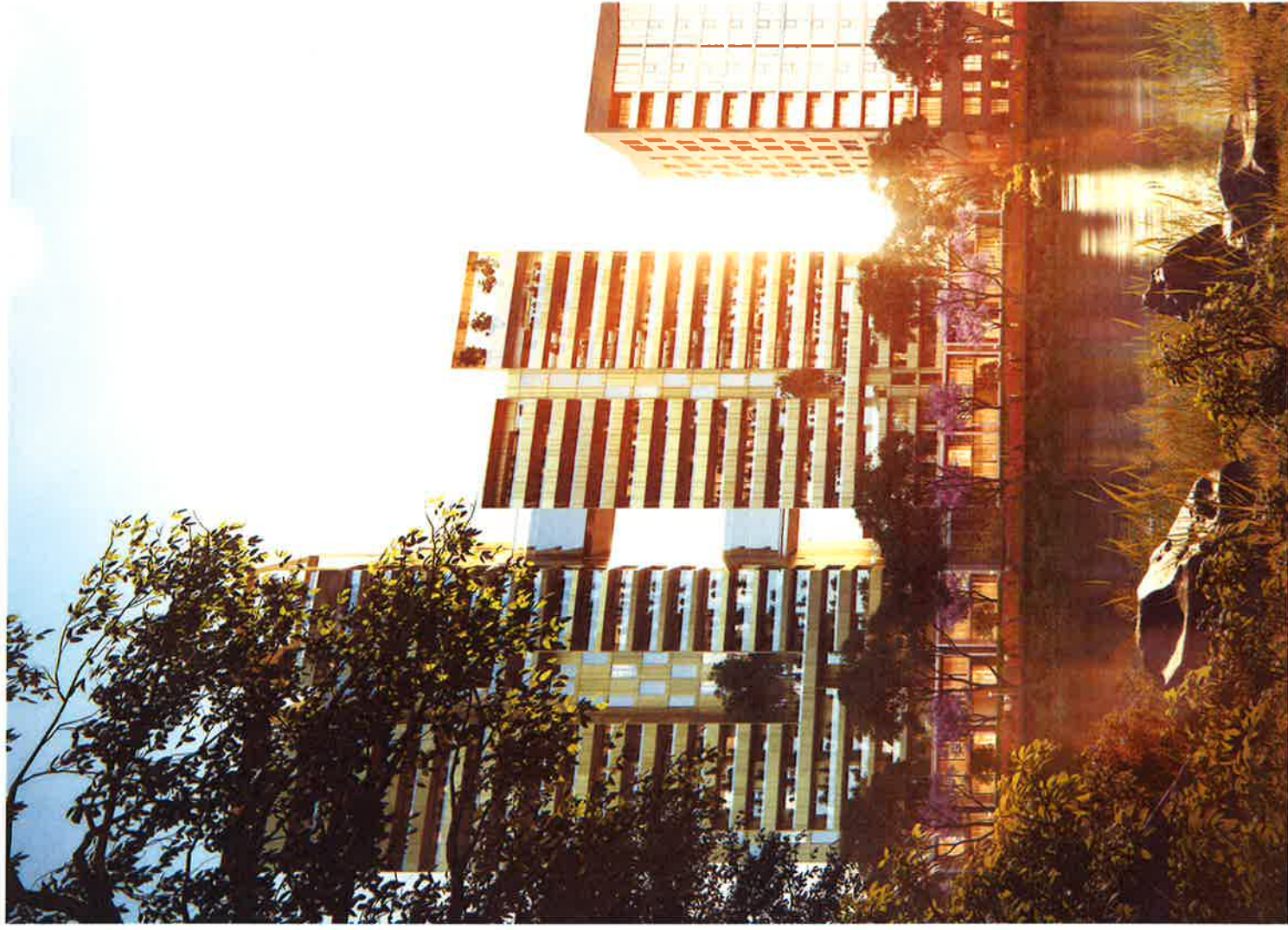


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APARTMENT DESIGN GUIDE ASSESSMENT

Design Verification Statement

Prepared to accompany the Development Application submitted to Council

07 March 2017

26 Shepherd Street, Liverpool NSW
28 Shepherd Street, Liverpool NSW

Prepared on behalf of:
Coronation Property Co. Pty Ltd.
Suite 2, 66 Wentworth Avenue
Surry Hills, NSW 2010

Prepared by:
Woods Bagot

Verification of Qualifications

Domenico Alvaro is registered as an Architect in New South Wales and is enrolled in the Division of Chartered Architects in the register of Architects pursuant to the Architect Act 1921.
His registration number is 7445.

Statement of Design

Woods Bagot have been responsible for the design of the project since its inception and have worked with related professionals and experts in respect of the matter. The project has been designed to provide a development that is respectful of local planning and design controls and that responds to the best practice design principles of SEPP No. 65.

Woods Bagot verify that the design quality principles set out in Schedule 1, Design quality principles of the State Environmental Planning Policy No. 65 – Design Quality of Residential Apartment Development are achieved for the proposed development described in the following document.



Domenico Alvaro
Principal - Sydney
Registered Architect NSW, No. 7445

SEPP65 Design Principles

2.1 Principle 1: Context & Neighbourhood Character

Good design responds and contributes to its context. Context is the key natural and built features of an area, their relationship and the character they create when combined. It also includes social, economic, health and environmental conditions. Responding to context involves identifying the desirable elements of an area's existing or future character. Well designed buildings respond to and enhance the qualities and identity of the area including the adjacent sites, streetscape and neighbourhood. Consideration of local context is important for all sites, including sites in established areas, those undergoing change or identified for change.

The property address is 28 & 26 Shepherd Street, Liverpool, NSW

The proposed development for 28 & 26 Shepherd Street creates an amazing opportunity to redevelop an existing industrial site into a vibrant residential precinct on the Georges River.

The existing buildings on the adjoining sites consist of an eclectic mix of industrial and residential buildings built after 1960. At present, the contextual area consists of a large variety of development typologies with retail showrooms, commercial office buildings, multi storey & single level residential developments. The site is close to public transport facilities including Liverpool train station. Shepherd Street also provides access connections to the Casula Powerhouse and Light Horse Park.

The proposed new residential buildings have been configured to front both the Georges River and Shepherd Street. The building on 26 Shepherd Street faces the heritage paper mill building at 20 Shepherd Street. Pedestrian access to the proposed buildings and to the river will occur via two new public footpaths defined at the boundary of 20 and 26 Shepherd Street (approx. 6m wide) and the boundary of 26 and 28 Shepherd Street (approx. 3.5m), additional to the proposed pedestrian connection at the southern boundary of 28 Shepherd Street (approx. 6m) which was included as part of stage 1 DA landscape strategy.

Alignment of the Buildings on 26 and 28 Shepherd Street creates a more uniform streetscape which creates a more visual coherent and the perception of consistency. While each building have its own identity, the alignment and consistency provides the sense of one whole unified development.

Vehicular access, waste loading services and below-grade parking entry to the residential courtyard are accessed from the shared driveway on 28 Shepherd Street. The off-street parking entry is designed into the southern ground floor façade of Building C2 and the loading entry is designed into the southern ground floor façade of Building C1.

The lot of 28 Shepherd Street is approx. 70.6m in width by 85.0m in length on the north and 76.8m on the south and the site of 26 Shepherd Street has approximate dimensions of 85m x 31m with an approx. 500mm fall from Shepherd Street to the river. The site is located in the Liverpool City Centre and is within 10 minutes walking distance of the CBD and Liverpool Train station. It is also a short 15 minutes drive to the future proposed airport at Badgerys Creek.

The scheme supports the vision by the Liverpool Council to improve the quality of architecture and design in the area and specifically sets out to meet the stated objectives contained within the Liverpool Council Planning Controls and the Apartment Design Guide. The design aims to build upon those objectives in order to make a key contribution in this significant sector of Liverpool by providing a new high quality residential development integrated within the existing urban fabric.

The development of this site will create an attractive destination location where people can live and enjoy Liverpool's assets which include the Georges River, the surrounding parks and the Casula Powerhouse Arts Centre. The design objective is to create a high quality residential development to reinvigorate this Liverpool riverfront precinct.



Shepherd Street Precinct
from Georges River

SEPP65 Design Principles

2.2 Principle 2: Built Form & Scale

Good design achieves a scale, bulk and height appropriate to the existing or desired future character of the street and surrounding buildings. Good design also achieves an appropriate built form for a site and the building's purpose in terms of building alignments, proportions, building type, articulation and the manipulation of building elements. Appropriate built form defines the public domain, contributes to the character of streetscapes and parks, including their views and vistas, and provides internal amenity and outlook.

The scale and built form of the existing context includes a number of double to triple height industrial warehouse buildings that are well within the maximum building height set out in the Liverpool LEP 2008. However, this will gradually evolve as the site is located within an urban renewal precinct made up of industrial properties that have been zoned for high density residential development such as the recently approved 'Paper Mills' on 20 Shepherd Street, 420 Macquarie Street and 1-3 Bigge Street.

The proposal included in this Development Application is for a multi-unit residential development consisting of a new building on 26 Shepherd Street and extended scheme of additional levels to Building C1 of the preceding DA on 28 Shepherd Street. Both buildings respond to the scale and form of the streetscape and river views. The proposed massing addresses the existing context and the proposed future of the precinct in a respectable manner by varying the scale and the height of the building to respond to the intention of the overall masterplan of the area.

28 Shepherd St - Building C1

The preceded DA of this site is consist of 6 storey building facing the Shepherd Street (C2) and 7 Storey building facing the Georges River (C1). The included proposal extends the existing scheme by adding additional 14 levels.

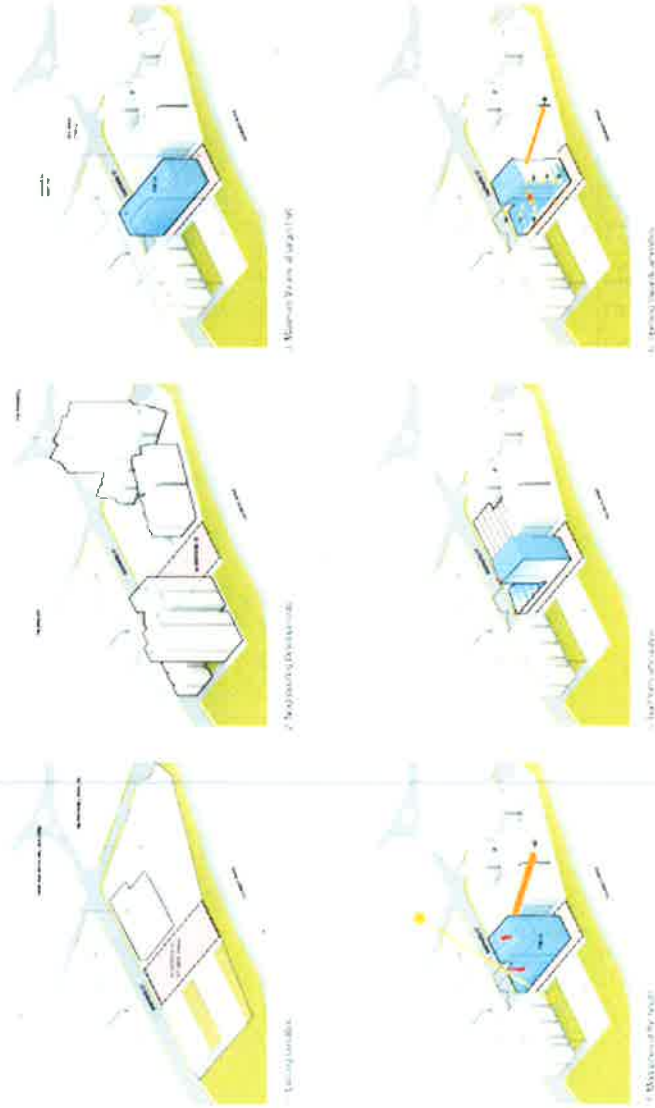
The proposed additional levels extend and accentuate the building form of the existing scheme of the 'bifurcated tower', crowned with roof top garden with architectural portal frames. The overall massing is broken into two towers that 21 levels and 18 levels. These are joined by sky bridges at different levels and bind them into one building. The design further breaks the scale of the massing by articulation the facade to form sub towers within each building. Characterised by lower ground setback, the distinct form of slender towers aims to create impressive river frontage as a 'recognisable' landmark of the area.

26 Shepherd St

The proposal on 26 Shepherd Street celebrates the geometry and materiality of the existing Paper Mill heritage building by reinterpreting the sawtooth roof as a series of two-storey pitched roof 'terraces' (single level apartments which read as double height townhouses). Deep landscape setbacks and ground level terraces front these dwellings, creating a green buffer along the two new pedestrian walk ways connecting the public to the riverfront from Shepherd Street.

This two-level typology then transitions into a 14 storey 'tower' at the south of the site on Georges River, which is in line with the future scale approved at 20 Shepherd Street (9 storeys). The facade of the tower is articulated by a heavy precast concrete skin, which opens up to the north and east maximising the apartment's access to northern light and the river view. A series of screens provide added privacy between the approved 20 Shepherd Street apartment building and the proposed 26 Shepherd Street, as a slightly reduced setback of 11.6m is proposed (rather than 12m).

The proposed development responds to the development constraints for residential development and is of high quality in terms of urban form, massing, bulk and amenity.



SEPP65 Design Principles

2.3 Principle 3: Density

Good design achieves a high level of amenity for residents and each apartment, resulting in a density appropriate to the site and its context. Appropriate densities are consistent with the area's existing or projected population. Appropriate densities can be sustained by existing or proposed infrastructure, public transport, access to jobs, community facilities and the environment.

The project provides an apartment density that is appropriate and consistent with multi-unit residential apartment developments common within the Liverpool CBD context.

This proposal offers total of 237 residential apartments with a mix of one, two and three bedrooms. The proposed density will positively contribute to meeting the housing targets of the Liverpool City Council.

This apartment mix is generally in accordance with the Liverpool planning guidelines. The mix is composed of: 1% studios, 35% 1 bedrooms, 62% 2 bedrooms and 2% 3 bedrooms. 10% of the apartments are adaptable for people with disabilities and are distributed in both buildings.



26 & 28 Shepherd Street
from Georges River

SEPP65 Design Principles

2.4 Principle 4: Sustainability

Good design combines positive environmental, social and economic outcomes. Good sustainable design includes use of natural cross ventilation and sunlight for the amenity and liveability of residents and passive thermal design for ventilation, heating and cooling reducing reliance on technology and operation costs. Other elements include recycling and reuse of materials and waste, use of sustainable materials, and deep soil zones for groundwater recharge and vegetation.

The project adopts good passive environmental design solutions and appropriate use of materials to provide a simple yet effective response to the environmental requirements. A balance of solidity for good thermal performance and glazing for natural daylight is inherent to all facades whilst deep balcony reveals and operable screening provide passive shading and privacy where appropriate.

Operable windows are provided to all living and bedrooms, which are located along the facades. More than 60% of the total apartments achieve natural cross ventilation with operable windows.

The lift lobbies and residential corridors for both buildings have operable windows to enhance the cross ventilation of these common area spaces.

The living area and a majority of bedrooms have full height sliding glass doors to a private outdoor area.

On 21 June, the winter solstice, 67% of total apartment living spaces achieve solar access of a minimum of 2 hours or more from 9am to 3pm, with additional 17% receiving direct sunlight less than 2 hours. Although the 70% prescribed target is not fully met, it is a result of providing apartments with maximum orientations to the river.

Energy Efficient Fittings & Fixtures:

Energy efficient fittings such as low energy LED and compact fluorescent lighting will be provided to all common areas.

Rain water harvesting and reuse:

Harvesting of rain water in tanks is proposed. Water storage tanks located in the basement would be used for rain water collection and reused for irrigating gardens.

Water efficient fittings and fixtures:

Water efficient fittings such as restricted water flow shower heads and dual flushing toilets will be provided to all residential apartments and common areas.



28 Shepherd Street rooftop
design by Aspect

SEPP65 Design Principles

2.5 Principle 5: Landscape



Good design recognises that together landscape and buildings operate as an integrated and sustainable system, resulting in attractive developments with good amenity. A positive image and contextual fit of well designed developments is achieved by contributing to the landscape character of the streetscape and neighbourhood. Good landscape design enhances the development's environmental performance by retaining positive natural features which contribute to the local context, co-ordinating water and soil management, solar access, micro-climate, tree canopy, habitat values, and preserving green networks. Good landscape design optimises usability, privacy and opportunities for social interaction, equitable access, respect for neighbours' amenity, provides for practical establishment and long term management.

Substantial landscaping has been included on the ground plane of the development providing zones for large vegetation and smaller scale planting areas as well as creating public through links.

The proposed landscape design on the ground level of 26 Shepherd Street aims to provide residents and the public, the 'laneway' experience through the site which defines the public access corridors to the river front. The laneways are faced with units emulating 'terrace' typology which is buffered with raised planter boxes and seating along the building frontage.

A generous setback is provided on the riverside adhering to the 50% VRZ line established by the Office of Water. The deep soil zone provided in this area achieves 11.5% of the total site area.

New street trees will be planted along Shepherd Street in accordance with council's landscape strategy.

Please refer to Landscape architect's drawings and report for the scope of landscape design and details.

Additional to the ground plane, both 26 and 28 Shepherd Street development include landscaping of the roof top forming gardens and breakout spaces for residents.



Top: 26 Shepherd Street Rooftop
Middle & Bottom: Images by Aspect

SEPP65 Design Principles

2.6 Principle 6: Amenity



Good design positively influences internal and external amenity for residents and neighbours. Achieving good amenity contributes to positive living environments and resident well-being. Good amenity combines appropriate room dimensions and shapes, access to sunlight, natural ventilation, outlook, visual and acoustic privacy, storage, indoor and outdoor space, efficient layouts and service areas, and ease of access for all age groups and degrees of mobility.

The proposal includes efficient and spacious apartment layouts, access to river and parkland views, access to sunlight, natural ventilation, visual and acoustic privacy, storage, indoor and outdoor space, efficient layouts and service areas, outlook, ease of access for all age groups and degrees of mobility where required.

Each apartment has been designed with modern open plan living areas comprising of the kitchen, dining and living areas. Each living space has direct access to full height and full width clear glass sliding doors and windows to adjoining private outdoor spaces.

Apartments located at the corners of the buildings have secondary balcony spaces off the second bedroom, as do the 4 x 3 bed cross through apartments ground and level 01. Balconies always have minimum dimensions of at least 2m in depth, and meet the ADG minimum size. All ground floor apartments have outdoor terraces with a minimum width of 3m and are 15m² or more.

Each 1 bedroom unit has access to at least 1 shared full sized bathroom, with all of the 2 and 3 bedroom units having access to 2 bathrooms. Double width laundry cupboards or rooms with basin are provided. Each laundry can accommodate a dryer, washing machine, sink and good storage for a clothes bin, ironing board and cleaning products.

Full kitchens are provided with appropriate storage and sufficient bench areas for cooktops, basins and for preparation, cooking and display. All kitchens are located within the maximum distance of 8m to operable windows and/or sliding doors. All apartments have primary bedrooms sized to accommodate either a double or a king size bed. All bedrooms have ample storage with double full height robes and access to an operable window.

10% of the total apartments or 23 apartments are adaptable dwelling units across two buildings. Refer to the accessibility report attached to this Development Application.

Common area corridors and lift lobbies have been designed with access to natural daylight and cross ventilation.

Residential amenities include oversized and fully glazed double storey lobbies which add to the visual permeability of the ground plane. Both buildings also have communal roof gardens. The roof landscape design consists of raised planters to allow for lush greenery and sunken seating areas for visual privacy as well as reduced wind exposure. The rooftop of 26 Shepherd Street also features a recreational swimming pool.

The higher elevation of the rooftop of Building C1 is framed by architectural roof elements to provide wind protection and areas of shade during summer months. These architectural frames also add visual prominence to the building's forms. 70% of the protected roof gardens of Building C1 achieve a minimum of 2 hours of solar access on 21 June.



28 Shepherd Street residential sky bridge amenity room towards the river

SEPP65 Design Principles

2.7 Principle 7: Safety

Good design optimises safety and security, within the development and the public domain. It provides for quality public and private spaces that are clearly defined and fit for the intended purpose. Opportunities to maximise passive surveillance of public and communal areas promote safety. A positive relationship between public and private spaces is achieved through clearly defined secure access points and well lit and visible areas that are easily maintained and appropriate to the location and purpose.

The proposal provides for good passive surveillance with all apartments looking out to a communal / public laneway (pedestrian). Lighting along boundaries, in lobbies and communal areas will be used to promote surveillance at all hours.

On 26 Shepherd Street, there are two lobbies, one for the two storey 'terraces' and one for the 14 level 'tower' which has entrance on the laneway facing 20 Shepherd Street.

On 28 Shepherd Street, the main pedestrian entrance to Building C1 is via the courtyard. Both buildings will operate on a secure card controlled access glazed door.

The main vehicular access to both buildings for the residential car park is located off the driveway on the south of the site on 28 Shepherd Street and via a secure card access control to operate a roller shutter. Sight lines from the apartments provide visibility for safe and secure access to the lobbies, courtyard and car park entry. Additional security will be provided by a fence located at the entry of the courtyard and will operate via secure card access control.

The building will be equipped with CCTV surveillance, and residents will only have key card lift access to their floor & amenity level.



26 Shepherd Street laneway

SEPP65 Design Principles

2.8 Principle 8: Housing Diversity & Social Interaction

Good design achieves a mix of apartment sizes, providing housing choice for different demographics, living needs and household budgets. Well designed apartment developments respond to social context by providing housing and facilities to suit the existing and future social mix. Good design involves practical and flexible features, including different types of communal spaces for a broad range of people, providing opportunities for social interaction amongst residents.

The proposed development aims to provide variety of housing types in order to support and cater for social diversity and various lifestyles.

The proposal caters for a cross section of the suburban demographic in terms of density and affordability with the provision across the site of 1% x studios, 35% x 1 bedroom apartments, 62% x 2 bedroom apartments, 2% x 3 bedroom apartments.

26 Shepherd Street is composed of: 34% x 1 bedrooms, 63% x 2 bedrooms and 2% x 3 bedrooms.

28 Shepherd Street is composed of: 1% studios, 36% x 1 bedrooms, 61% x 2 bedrooms and 2% x 3 bedrooms.

The development also provides a mix of private open space in the form of generous terraces and balconies and a communal open spaces for recreational activities which encourages social interaction between neighbours.

The inclusion of accessibility features such as level footpaths and disability access at ground level caters for the varying degrees of accessibility in the general population. BCA and Accessibility reports are included in the development application.



Typical bedroom from
26 Shepherd Street

SEPP65 Design Principles

2.9 Principle 9: Aesthetics

Good design achieves a built form that has good proportions and a balanced composition of elements, reflecting the internal layout and structure. Good design uses a variety of materials, colours and textures. The visual appearance of well designed apartment development responds to the existing or future local context, particularly desirable elements and repetitions of the streetscape.

The architectural articulation, scale, mass, built form and materiality of the development are a direct response to the archaeology of the existing site, specifically the site's location near the former paper mill factory founded in 1865. The design appraises a narrative that embeds the patina and history of the contextual materials and highlights an emergent urban grain in a new residential precinct.

28 Shepherd Street, The Bindery - Buildings C1 & C2

Building C1 located on the river side is taller in scale with its roof frame articulations to provide a prominent presence to the river's edge. The design strategy to reduce the building's bulk is to bifurcate the overall volume and connect them with double storey sky bridges. Each volume contains a floor plate of 6 apartments and has its own dedicated core and lift lobby. Its bulk is further reduced by a series of vertical and horizontal slots. Each building volume has its own series of colours of aluminium metal panels in varying size formats to enhance the material's tonal range as well as provide each volume with a unique colour identity and character. The north volume has a tonal range consisting of golds and the south volume has a tonal range consisting of bronzes. Finally, the riverside building is highlighted by single, double and triple storey roof planes that act as architectural frames to the roof gardens as well as provide weather protection.

26 Shepherd Street, The Gild

The aesthetics of the proposal are derived from the considered analysis of the contextual environment and celebrate the beauty of the Paper Mill heritage building adjacent and the Georges River. The proposal composes form, materials and colours from these contextual elements of the site and proposes new architectural forms that look to the future growth of the area as a high-mid density residential precinct.

The proposal cites the heritage building as a source of inspiration for its brick and weathered steel materiality and angled "saw tooth" roof geometry. These elements are appropriated into the building façades materials and textures; the profiles of the balcony and glass wall panels in plan; and in the details of the landscape design.

Glazing is also generously used in the double height ground level and typical floor lift lobbies to provide transparency through the buildings and take advantage of the vistas to the river, the proposed public plaza and communal open areas.

The podium relates to the human scale at street level while also providing a transitional scale between the existing context and the proposed tower form. The tower's location at the riverside will provide a recognisable urban form, marking the future character of the area as a high-density residential precinct. The building aligning with the river mediates these heights, providing residents with maximum views to the river on one side, and views to the heritage building surrounded by landscaped communal areas on the other side.

In conclusion, the proposed buildings have been designed with the aim of creating an excellent contextual fit with the river, the heritage building and streetscape. The principles of the Apartment Design Guide have been closely adhered to and the proposed design achieves design excellence to serve as a benchmark development for the city of Liverpool.



03 Apartment Design Guide Assessment

= CRITERIA

Item	3A – Site Analysis	Yes	No	Notes
Objective	Site analysis illustrates that design decisions have been based on opportunities and constraints of the site conditions and their relationship to the surrounding context	✓		The location of buildings complies with Riparian Vegetated Zones and carefully considers alignments to Shepherd Street and the heritage building as well as maximizes views to the river.
Design Guidance	Refer to Site Analysis Checklist Sheet.	✓		
Item	3B – Orientation	Yes	No	Notes
Objective	Living areas, private open space and communal open space should receive solar access in accordance with sections 3D Communal and public open space and 4A. Solar and daylight access.	✓		Partial compliance. 67% of apartments comply with mid-winter solar access to the living area and private open space. Communal open spaces comply.
Design Guidance	Solar access to living rooms, balconies and private open spaces of neighbours should be considered	✓		
	Where an adjoining property does not currently receive the required hours of solar access, the proposed building ensures solar access to neighbouring properties is not reduced by more than 20%			N/A
	If the proposal will significantly reduce the solar access of neighbours, building separation should be increased beyond minimums contained in section 3F Visual privacy			N/A
	Overshadowing should be minimised to the south or downhill by increased upper level setbacks	✓		Partial compliance. A setback of 5.9m is provided at 28 Shepherd Street to the south. Given this elevation can be treated as a 'non habitable room', a future 12m building separation will be achievable to new buildings at 32-34 Shepherd Street (in the control of the same proponent).
	It is optimal to orientate buildings at 90 degrees to the boundary with neighbouring properties to minimise overshadowing and privacy impacts, particularly where minimum setbacks are used and where buildings are higher than the adjoining development	✓		
	A minimum of 4 hours of solar access should be retained to solar collectors on neighbouring buildings.			N/A

Item	3C – Public Domain Interface	Yes	No	Notes
Objective	Objective 3C.1 Transition between private and public domain is achieved without compromising safety and security	✓		
Design Guidance	Terraces, balconies and courtyard apartments should have direct street entry, where appropriate	✓		
	Changes in level between private terraces, front gardens and dwelling entries above the street level provide surveillance and improve visual privacy for ground level dwellings (see figure 3C.1)	✓		
	Upper level balconies and windows should overlook the public domain	✓		
	Front fences and walls along street frontages should use visually permeable materials and treatments. The height of solid fences or walls should be limited to 1m	✓		
	Length of solid walls should be limited along street frontages. Opportunities should be provided for casual interaction between residents and the public domain. Design solutions may include seating at building entries, near letter boxes and in private courtyards adjacent to streets	✓		Landscaped planters are also integrated between the footpaths and the low height brick walls for additional soften the appearance of the solid elements.
	In developments with multiple buildings and/or entries, pedestrian entries and spaces associated with individual buildings/entries should be differentiated to improve legibility for residents, using a number of the following design solutions: - architectural detailing - changes in materials - plant species - colours	✓		Opportunities for people to be concealed should be minimised.

03 Apartment Design Guide Assessment

Item	3D – Communal/Public Open Space	Yes	No	Notes
Objective	Objective 3D 1 An adequate area of communal open space is provided to enhance residential amenity and to provide opportunities for landscaping	✓		
Design Guidance	Communal open space has a minimum area equal to 25% of the site. See figure 3D.3	✓		Roof top communal open spaces with deep soil zone. Without considering the surrounding laneways, the proposal provides 27% of site area of 26 Shepherd Street. The proposal does not alter the open space provided for 28 Shepherd Street in accordance with DA-612/2015.
	Developments achieve a minimum of 50% direct sunlight to the principal usable part of the communal open space for a minimum of 2 hours between 9 am and 3 pm on 21 June (mid-winter)	✓		
	Communal open space should be consolidated into a well-designed, easily identified and usable area	✓		
	Communal open space should have a minimum dimension of 3m, and larger developments should consider greater dimensions	✓		
	Communal open space should be co-located with deep soil areas	✓		Partial compliance as most of the communal open spaces being rooftop spaces.
	Direct, equitable access should be provided to communal open space areas from common circulation areas, entries and lobbies	✓		
	Where communal open space cannot be provided at ground level, it should be provided on a podium or roof	✓		Provided on the roofs
	Where developments are unable to achieve the design criteria, such as on small lots, sites within business zones, or in a dense urban area, they should: - provide communal spaces elsewhere such as a landscaped roof top terrace or a common room - provide larger balconies or increased private - open space for apartments - demonstrate good proximity to public open space and facilities and/or provide contributions to public open space			N/A
Item	3D – Communal/Public Open Space	Yes	No	Notes

Objective	Objective 3D 2 Communal open space is designed to allow for a range of activities, respond to site conditions and be attractive and inviting.	✓		
Design Guidance	Facilities are provided within communal open spaces and common spaces for a range of age groups (see also 4F Common circulation and spaces), incorporating some of the following elements: - seating for individuals or groups - barbecue areas - play equipment or play areas - swimming pools, gyms, tennis courts or common rooms	✓		
	The location of facilities responds to microclimate and site conditions with access to sun in winter, shade in summer and shelter from strong winds and down drafts	✓		Areas open to the sun are provided for winter sun access. Framed covered areas are provided for shade and wind mitigation.
	Visual impacts of services should be minimised, including location of ventilation duct outlets from basement car parks, electrical substations and detention tanks.	✓		
Item	3D – Communal/Public Open Space	Yes	No	Notes
Objective	Objective 3D 3 Communal open space is designed to maximize safety	✓		
Design Guidance	Communal open space and the public domain should be readily visible from habitable rooms and private open space areas while maintaining visual privacy. Design solutions may include - bay windows - corner windows - balconies	✓		The public domain and communal open courtyard is readily visible from habitable spaces and balconies. The rooftop communal spaces are not visibly accessible from habitable spaces.
	Communal open space should be well lit	✓		
	Where communal open space/facilities are provided for children and young people they are safe and contained.	✓		

03 Apartment Design Guide Assessment

Item	3D – Communal/Public Open Space	Yes	No	Notes
Objective	Objective 3D 4 Public open spaces where provided are responsive to the existing pattern and uses of the neighbourhood	✓		Two laneways run perpendicular to Shepherd Street for public access to the Georges River.
Design Guidance	The public open space should be well connected with public streets along at least one edge	✓		
	The public open space should be connected with nearby parks and other landscape elements	✓		
	Public open space should be linked through view lines, pedestrian desire paths, termination points and the wider street grid	✓		
	Solar access should be provided year round along with protection from strong winds	✓		
	Opportunities for a range of recreational activities should be provided for people of all ages			N/A - laneways are for pedestrian access to the river only.
	A positive address and active frontages should be provided adjacent to public open space	✓		
	Boundaries should be clearly defined between public open space and private areas	✓		

Item	3E – Deep Soil Zones	Yes	No	Notes															
Objective	Objective 3E 1 Deep soil zones provide areas on the site that allow for and support healthy plant tree growth. They improve residential amenity and promote management of water and air quality.	✓		The proposal will not impact the deep soil zone provided for DA 612/2015 over 28 Shepherd Street. A total of 11.5% deep soil zone is afforded in the design over 26 Shepherd Street.															
Design Guidance	Deep soil zones are to meet the following minimum requirements. <table><thead><tr><th>Site Area</th><th>Min Dimensions</th><th>Deep Soil Zone (5 of site area)</th></tr></thead><tbody><tr><td><650m²</td><td></td><td>7%</td></tr><tr><td>650-1500m²</td><td>3m</td><td></td></tr><tr><td>>1500m²</td><td>6m</td><td></td></tr><tr><td>>1500m² with significant tree cover</td><td>6m</td><td></td></tr></tbody></table> On some sites it may be possible to provide larger deep soil zones, depending on the site area and context: - 10% of the site as deep soil on sites with an area of 650m² – 1,500m² - 15% of the site as deep soil on sites greater than 1,500m² Deep soil zones should be located to retain existing significant trees and to allow for the development of healthy root systems, providing anchorage and stability for mature trees. Design solutions may include: - basement and sub-basement car park design that is consolidated beneath building footprints - use of increased front and side setbacks - adequate clearance around trees to ensure long term health - co-location with other deep soil areas on adjacent sites to create larger contiguous areas of deep soil	Site Area	Min Dimensions	Deep Soil Zone (5 of site area)	<650m ²		7%	650-1500m ²	3m		>1500m ²	6m		>1500m ² with significant tree cover	6m		✓		Refer to Landscape Architect plans and design report.
Site Area	Min Dimensions	Deep Soil Zone (5 of site area)																	
<650m ²		7%																	
650-1500m ²	3m																		
>1500m ²	6m																		
>1500m ² with significant tree cover	6m																		
	Achieving the design criteria may not be possible on some sites including where: - The location and building typology have limited or no space for deep soil at ground level (e.g. central business district, constrained sites, high density areas, or in centres). - There is 100% site coverage or nonresidential uses at ground floor level. Where a proposal does not achieve deep soil requirements, acceptable stormwater management should be achieved and alternative forms of planting provided such as on structure.	✓																	

03 Apartment Design Guide Assessment

Item	3F – Visual Privacy	Yes	No	Notes												
Objective	Objective 3F 1 Adequate building separation distances are shared equitably between neighbouring sites, to achieve reasonable levels of external and internal visual privacy	✓														
Design Guidance	Separation between windows and balconies is provided to ensure Visual privacy is achieved. Minimum required separation distances from buildings to the side and rear boundaries are as follows: <table><tr><th>Building Height</th><th>Habitable rooms and balconies</th><th>Non-habitable rooms</th></tr><tr><td>up to 12m (4 storeys)</td><td>6m</td><td>3m</td></tr><tr><td>up to 25m (5-8 storeys)</td><td>9m</td><td>4.5m</td></tr><tr><td>over 25m (4 storeys)</td><td>12m</td><td>6m</td></tr></table> Note: Separation distances between buildings on the same site should combine required building separations depending on the type of room (see figure 3F.2) Gallery access circulation should be treated as habitable space when measuring privacy separation distances between neighbouring properties	Building Height	Habitable rooms and balconies	Non-habitable rooms	up to 12m (4 storeys)	6m	3m	up to 25m (5-8 storeys)	9m	4.5m	over 25m (4 storeys)	12m	6m	✓		Partial compliance. Refer to Mecone Table 1 "Building Separation" for detailed separation clarifications.
Building Height	Habitable rooms and balconies	Non-habitable rooms														
up to 12m (4 storeys)	6m	3m														
up to 25m (5-8 storeys)	9m	4.5m														
over 25m (4 storeys)	12m	6m														
Design Guidance	Generally one step in the built form as the height increases due to building separations is desirable. Additional steps should be careful not to cause a 'ziggurat' appearance			N/A												
	For residential buildings next to commercial buildings, separation distances should be measured as follows: - for retail, office spaces and commercial balconies use the habitable room distance - for service and plant areas use the non-habitable room distances			N/A												

Design Guidance	New development should be located and orientated to maximise visual privacy between buildings on site and for neighbouring buildings. Design solutions include: - site layout and building orientation to minimise privacy impacts (see also section 3B Orientation) - on sloping sites, apartments on different levels have appropriate visual separation distances (see figure 3F.4)	✓	
	Apartment buildings should have an increased separation distance of 3m (in addition to the requirements set out in design criteria 1) when adjacent to a different zone that permits lower density residential development to provide for a translation in scale and increased landscaping (figure 3F.5)		N/A
	Direct lines of sight should be avoided for windows and balconies across corners	✓	
	No separation is required between blank walls		N/A

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Item	3F – Visual Privacy	Yes	No	Notes
Objective	Objective 3F 2 Site and building design elements increase privacy without compromising access to light and air and balance outlook and views from habitable rooms and private open space.	✓		
Design Guidance	Communal open space, common areas and access paths should be separated from private open space and windows to apartments, particularly habitable room windows. Design solutions may include: - setbacks - solid or partially solid balustrades to balconies at lower levels - fencing and/or trees and vegetation to separate spaces - screening devices - bay windows or pop out windows to provide privacy in one direction and outlook in another - raising apartments/private open space above the public domain or communal open space - planter boxes incorporated into walls and balustrades to increase visual separation - pergolas or shading devices to limit overlooking of lower apartments or private open space - on constrained sites where it can be demonstrated that building layout opportunities are limited, fixed louvres or screen panels to windows and/or balconies Bedrooms, living spaces and other habitable rooms should be separated from gallery access and other open circulation space by the apartment's service areas Balconies and private terraces should be located in front of living rooms to increase internal privacy	✓		
	Windows should be offset from the windows of adjacent buildings			N/A
	Recessed balconies and/or vertical fins should be used between adjacent balconies.	✓		

Item	3G – Pedestrian Access and Entries	Yes	No	Notes
Objective	Objective 3G 1 Building entries and pedestrian access connects to and address the public domain	✓		
Design Guidance	Multiple entries (including communal building entries and individual ground floor entries) are provided to activate the street edge Entry locations relate to the street and subdivision pattern and the existing pedestrian network Building entries are clearly identifiable. Communal entries are clearly distinguishable from private entries Where street frontage is limited and multiple buildings are located on the site, a primary street address is provided with clear sight lines and pathways to secondary building entries.	✓		Generally complies. The 28 Shepherd Street Building C has access from the courtyard with connection to Shepherd Street through Building D in order to front the Georges River. N/A - new thru-site links are provided to connect Shepherd Street to the Georges River.
Item	3G – Pedestrian Access and Entries	Yes	No	Notes
Objective	Objective 3G 2 Access, entries and pathways are equitable and easy to identify	✓		
Design Guidance	Building access areas including lift lobbies, stairwells and hallways are clearly visible from the public domain and communal spaces The design of ground floors and underground car parks minimise level changes along pathways and entries Steps and ramps are integrated into the overall building and landscape design For large developments way finding maps are provided to assist visitors and residents For large developments electronic access and audio/video intercom should be provided to manage access	✓		N/A - Can be provided
Item	3G – Pedestrian Access and Entries	Yes	No	Notes
Objective	Objective 3G 3 Pedestrian links through developments provide access to streets and connect destinations	✓		New pedestrian laneways provided
Design Guidance	Pedestrian links through sites facilitate direct connections to open space, main streets, centres and public transport Pedestrian links should be direct, have clear sight lines, be overlooked by habitable rooms or private open spaces of dwellings, be well lit and contain active uses, where appropriate.	✓		

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Item	3H – Vehicle Access	Yes	No	Notes
Objective	Objective 3H1 Vehicle access points are designed and located to achieve safety, minimize conflicts between pedestrians and vehicles and create high quality streetscapes	✓		
Design Guidance	Car park access is integrated with the building's overall facade, design solutions may include: - the materials and colour palette minimise visibility from the street - security doors or gates at entries that minimise voids in the facade - where doors are not provided, the visible interior reflects the facade design and the building services, pipes and ducts are concealed	✓		
	Pedestrian links should be direct, have clear sight lines, be overlooked by habitable rooms or private open spaces of dwellings, be well lit and contain active uses, where appropriate.	✓		
	Car park entries are located behind the building line	✓		
	Vehicle entries are located at the lowest point of the site minimising ramp lengths, excavation and impacts on the building form and layout	✓		The car park entry is located at 28 Shepherd Street below Building D to allow loading access away to be located below Building C so that loading activities can be partially concealed. The proposal does not alter the vehicle entries provided for in accordance with DA612/2015.
	Car park entry and access is located on secondary streets or lanes where available	✓		
	Vehicle standing areas that increase driveway width and encroach into setbacks should be avoided	✓		
	Access point locations avoid headlight glare to habitable rooms	✓		
	Adequate separation distances are provided between vehicular entries and street intersections	✓		

		The width and number of vehicle access points is limited to the minimum		Yes	No	Notes
		Visual impact of long driveways is minimised through changing alignments and screen planting		✓		Generally complies. The driveway is lower than the GF level and is screened by the elevated central courtyard between Buildings C and D of 28 Shepherd Street.
		The requirement for large vehicles to enter or turnaround within the site is avoided		✓		
		Garbage collection, loading and servicing areas are screened		✓		
		Clear sight lines should be provided at pedestrian and vehicle crossings		✓		
		Traffic calming devices such as changes in paving material or textures should be used where appropriate		✓		
		Pedestrian and vehicle access should be separated and distinguishable. Design solutions may include: - changes in surface materials - level changes - the use of landscaping for separation		✓		The proposal does not alter the laneway provided for in accordance with DA612/2015.
Item	3J – Bicycle and Car Parking			Yes	No	Notes
Objective	Objective 3J-2 Parking and facilities are provided for other modes of transport			✓		
Design Guidance	Conveniently located and sufficient numbers of parking spaces should be provided for motorbikes and scooters			✓		
	Secure undercover bicycle parking should be provided that is easily accessible from both the public domain and common areas			✓		
	Conveniently located charging stations are provided for electric vehicles, where desirable			✓		N/A

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Item	3J – Bicycle and Car Parking	Yes	No	Notes
Objective	Objective 3J-3 Car park design and access is safe and secure	✓		
Design Guidance	Supporting facilities within carparks, including garbage, plant and switchrooms, storage areas and car wash bays can be accessed without crossing carparking spaces.	✓		
	Direct, clearly visible and well lit access should be provided into common circulation areas.	✓		
	A clearly defined and visible lobby or waiting area should be provided to lifts and stairs.	✓		
	For larger carparks, safe pedestrian access should be clearly defined and circulation areas have good lighting, colour, line marking and/or bollards.	✓		
Item	3J – Bicycle and Car Parking	Yes	No	Notes
Objective	Objective 3J-5 Visual and environmental impacts of on-grade car parking are minimised			N/A
Design Guidance	On-grade car parking should be avoided	✓		
	Where on-grade car parking is unavoidable, the following design solutions are used:			N/A
	- parking is located on the side or rear of the lot away from the primary street frontage			
	- cars are screened from view of streets, buildings, communal and private open space areas			
	- safe and direct access to building entry points is provided			
	- parking is incorporated into the landscape design of the site, by extending planting and materials into the car park space			
	- stormwater run-off is managed appropriately from car parking surfaces			
	- bio-swales, rain gardens or on site detention tanks are provided, where appropriate			
	- light coloured paving materials or permeable paving systems are used and shade trees are planted between every 4-5 parking spaces to reduce increased surface temperatures from large areas of paving			

Item	3J – Bicycle and Car Parking	Yes	No	Notes
Objective	Objective 3J-6 Visual and environmental impacts of above ground enclosed car parking are minimised			N/A
Design Guidance	Exposed parking should not be located along primary street frontages			N/A
	Screening, landscaping and other design elements including public art should be used to integrate the above ground car parking with the facade. Design solutions may include:			N/A
	- car parking that is concealed behind the facade, with windows integrated into the overall facade design (approach should be limited to developments where a larger floor plate podium is suitable at lower levels)			
	- car parking that is 'wrapped' with other uses, such as retail, commercial or two storey Small Office/Home Office (SOHO) units along the street frontage (see Figure 3J.9)			
	Positive street address and active frontages should be provided at ground level	✓		

Item	3J – Bicycle and Car Parking	Yes	No	Notes
Objective	Objective 3J-4 Visual and experimental impacts of underground car parking are minimised	✓		
Design Guidance	Excavation should be minimised through efficient car park layouts and ramp design	✓		Parking layouts have not been altered in accordance with DA612/2015.
	Car parking layout should be well organised, using a logical, efficient structural grid and double loaded aisles	✓		
	Protrusion of car parks should not exceed 1m above ground level. Design solutions may include stepping car park levels or using split levels on sloping sites			N/A
	Natural ventilation should be provided to basement and sub-basement car parking areas	✓		Mechanical ventilation provided.
	Ventilation grills or screening devices for car parking openings should be integrated into the facade and landscape design			N/A. Exhaust is through roof.

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Item	4A – Solar and Daylight Access	Yes	No	Notes
Objective	Objective 4A-1 To optimize the number of apartments receiving sunlight to habitable rooms, primary windows and private open space	✓		
Design Guidance	Living rooms and private open spaces of at least 70% of apartments in a building receive a minimum of 2 hours direct sunlight between 9 am and 3 pm at mid-winter in the Sydney Metropolitan Area and in the Newcastle and Wollongong local government areas In all other areas, living rooms and private open spaces of at least 70% of apartments in a building receive a minimum of 3 hours direct sunlight between 9 am and 3 pm at mid-winter A maximum of 15% of apartments in a building receive no direct sunlight between 9 am and 3 pm at mid-winter	✓		Partial compliance: 67% of apartments comply with mid-Winter solar access to the living area and private open space. N/A. Development is located within Sydney Metropolitan Area. Approximately 18% of dwellings receive no direct sunlight.

The design maximises north aspect and the number of single aspect south facing apartments is minimised	✓	28 Shepherd orients the buildings to maximise the number of apartments achieving river or city views. 26 Shepherd has a total of 8 single aspect apartments facing south with the majority of the apartments achieving dual aspect with river and city views.
Single aspect, single storey apartments should have a northerly or easterly aspect	✓	Achieved where possible.
Living areas are best located to the north and service areas to the south and west of apartment	✓	
To optimise the direct sunlight to habitable rooms and balconies a number of the following design features are used: - dual aspect apartments - shallow apartment layouts - two storey and mezzanine level apartments - bay windows	✓	Generally complies. Maximum apartments depths is 8m from the back of the kitchens to windows; two-storey apartments are located on the river side of Building C.
To maximise the benefit to residents of direct sunlight within living rooms and private open spaces, a minimum of 1m2 of direct sunlight, measured at 1m above floor level, is achieved for at least 15 minutes	✓	
Achieving the design criteria may not be possible on some sites. This includes: - where greater residential amenity can be achieved along a busy road or rail line by orientating the living rooms away from the noise source - on south facing sloping sites - where significant views are oriented away from the desired aspect for direct sunlight Design drawings need to demonstrate how site constraints and orientation preclude meeting the design criteria and how the development meets the objective.		N/A

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Item	4A – Solar and Daylight Access	Yes	No	Notes
Objective	Objective 4A-2 Daylight access is maximized where sunlight is limited	✓		Floor to ceiling glazing to facade to provide maximum daylight access
Design Guidance	Courtyards, skylights and high level windows (with sills of 1,500mm or greater) are used only as a secondary light source in habitable rooms Where courtyards are used: - use is restricted to kitchens, bathrooms and service areas - building services are concealed with appropriate detailing and materials to visible walls - courtyards are fully open to the sky - access is provided to the light well from a communal area for cleaning and maintenance - acoustic privacy, fire safety and minimum privacy separation distances (see section 3F Visual privacy) are achieved Opportunities for reflected light into apartments are optimised through: - reflective exterior surfaces on buildings opposite south facing windows - positioning windows to face other buildings or surfaces (on neighbouring sites or within the site) that will reflect light - integrating light shelves into the design - light coloured internal finishes	✓		N/A

Item	4A – Solar and Daylight Access	Yes	No	Notes
Objective	Objective 4A-3 Design incorporates shading and glare control, particularly for warmer months	✓		
Design Guidance	A number of the following design features are used: - balconies or sun shading that extend far enough to shade summer sun, but allow winter sun to penetrate living areas - shading devices such as eaves, awnings, balconies, pergolas, external louvres and planting - horizontal shading to north facing windows - vertical shading to east and particularly west facing windows - operable shading to allow adjustment and choice - high performance glass that minimises external glare off windows, with consideration given to reduced tint glass or glass with a reflectance level below 20% (reflective films are avoided)	✓		

Item	4B – Natural Ventilation	Yes	No	Notes
Objective	Objective 4B-1 All habitable rooms are naturally ventilated	✓		
Design Guidance	The building's orientation maximises capture and use of prevailing breezes for natural ventilation in habitable rooms Depths of habitable rooms support natural ventilation The area of unobstructed window openings should be equal to at least 5% of the floor area served Light wells are not the primary air source for habitable rooms Doors and openable windows maximise natural ventilation opportunities by using the following design solutions: - adjustable windows with large effective openable areas - a variety of window types that provide safety and flexibility such as awnings and louvres - windows which the occupants can reconfigure to funnel breezes into the apartment such as vertical louvres, casement windows and externally opening doors	✓		

Item	4B – Natural Ventilation	Yes	No	Notes
Objective	Objective 4B-2 The layout and design of single aspect apartments maximizes natural ventilation	✓		Single aspect apartments all have full height sliding windows that open out to open balconies.
Design Guidance	Apartment depths are limited to maximise ventilation and airflow (see also figure 4D.3) Natural ventilation to single aspect apartments is achieved with the following design solutions: - primary windows are augmented with plenums and light wells (generally not suitable for cross ventilation) - stack effect ventilation / solar chimneys or similar to naturally ventilate internal building areas or rooms such as bathrooms and laundries - courtyards or building indentations have a width to depth ratio of 2:1 or 3:1 to ensure effective air circulation and avoid trapped smells	✓	✓	Generally complies. The proposal does not alter the apartment depths provided for in accordance with DA612/2015 Single aspect apartments achieve natural ventilation with full height sliding windows that open out to open balconies.

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Item	4B – Natural Ventilation	Yes	No	Notes
Objective	Objective 4B-3 The number of apartments with natural cross ventilation is maximised to create a comfortable indoor environment for residents	✓		
Design Guidance	At least 60% of apartments are naturally cross ventilated in the first nine storeys of the building. Apartments at ten storeys or greater are deemed to be cross ventilated only if any enclosure of the balconies at these levels allows adequate natural ventilation and cannot be fully enclosed	✓		Complies. Calculating from the first 9 floors, 70% of apartments of 26 Shepherd Street and 64% of 28 Shepherd Street are naturally cross ventilated.
	Overall depth of a cross-over or cross-through apartment does not exceed 18m, measured glass line to glass line		✓	Minor non-compliance. A total of 2 apartments have total depths of 18.1m.
	The building should include dual aspect apartments, cross through apartments and corner apartments and limit apartment depths	✓		
	In cross-through apartments external window and door opening sizes/areas on one side of an apartment (inlet side) are approximately equal to the external window and door opening sizes/areas on the other side of the apartment (outlet side) (see figure 4B.4)		✓	The extent of windows across one side of an apartment, at the location of bedrooms requiring less direct daylight and more privacy, is less than the living area side. This occurs in a total of two apartments.
	Apartment depths are designed to minimise the number of corners, doors and rooms that might obstruct airflow	✓		
	Apartment depths, combined with appropriate ceiling heights, maximise cross ventilation and airflow	✓		

Item	4C – Ceiling Heights	Yes	No	Notes
Objective	Objective 4C-1 Ceiling height achieves sufficient natural ventilation and daylight access	✓		
Design Guidance	Measured from finished floor level to finished ceiling level, minimum ceiling heights are: Minimum ceiling height (for apartment and mixed use buildings) Habitable rooms 2.7m Non-habitable 2.4m For 2 storey apartments 2.7m for main living area floor 2.4m for second floor, where its area does not exceed 50% of the apartment area Attic spaces 1.8m at edge of room with a 30 people degree minimum ceilingslope If located in mixed use areas 3.3m for ground and first floor to promote future flexibility of use These minimums do not preclude higher ceilings if desired	✓		All habitable spaces across apartments have ceiling heights of 2.7m. Some non-habitable spaces, such as bathrooms and corridors have ceiling heights of 2.4m
	Ceiling height can accommodate use of ceiling fans for cooling and heat distribution	✓		
Item	4C – Ceiling Heights	Yes	No	Notes
Objective	Objective 4C-2 Ceiling height increases the sense of space in apartments and provides for well proportioned rooms	✓		
Design Guidance	The hierarchy of rooms in an apartment is defined using changes in ceiling heights and alternatives such as raked or curved ceilings, or double height spaces Well-proportioned rooms are provided, for example, smaller rooms feel larger and more spacious with higher ceilings Ceiling heights are maximised in habitable rooms by ensuring that bulkheads do not intrude. The stacking of service rooms from floor to floor and coordination of bulkhead location above non-habitable areas, such as robes or storage, can assist	✓		
	4C – Ceiling Heights	Yes	No	Notes
Objective	Objective 4C-3 Ceiling heights contribute to the flexibility of building use over the life of the building			N/A
Design Guidance	Ceiling heights of lower level apartments in centres should be greater than the minimum required by the design criteria allowing flexibility and conversion to non-residential uses (see figure 4C.1)			N/A

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Item	4D – Apartment Size and Layout	Yes	No	Notes										
Objective	Objective 4D-1 The layout of rooms within an apartment is functional, well organised and provides a high standard of amenity	✓												
Design Guidance	1. Apartments are required to have the following minimum internal areas: <table><tr><th>Apartment Type</th><th>Min. Internal Area</th></tr><tr><td>Studio</td><td>35m²</td></tr><tr><td>1 bedroom</td><td>50m²</td></tr><tr><td>2 bedroom</td><td>70m²</td></tr><tr><td>3 bedroom</td><td>90m²</td></tr></table> The minimum internal areas include only one bathroom. Additional bathrooms increase the minimum internal area by 5m² each A fourth bedroom and further additional bedrooms increase the minimum internal area by 12 m² each Every habitable room must have a window in an external wall with a total minimum glass area of not less than 10% of the floor area of the room. Daylight and air may not be borrowed from other rooms Kitchens should not be located as part of the main circulation space in larger apartments (such as hallway or entry space) A window should be visible from any point in a habitable room Where minimum areas or room dimensions are not met apartments need to demonstrate that they are well designed and demonstrate the usability and functionality of the space with realistically scaled furniture layouts and circulation areas. These circumstances would be assessed on their merits.	Apartment Type	Min. Internal Area	Studio	35m ²	1 bedroom	50m ²	2 bedroom	70m ²	3 bedroom	90m ²	✓		
Apartment Type	Min. Internal Area													
Studio	35m ²													
1 bedroom	50m ²													
2 bedroom	70m ²													
3 bedroom	90m ²													
		✓												
		✓		N/A. All apartments achieve minimum room dimensions.										

Item	4D – Apartment Size and Layout	Yes	No	Notes
Objective	Objective 4D-2 Environmental performance of the apartment is maximised	✓		
Design Guidance	Habitable room depths are limited to a maximum of 2.5 x the ceiling height In open plan layouts (where the living, dining and kitchen are combined) the maximum habitable room depth is 8m from a window Greater than minimum ceiling heights can allow for proportional increases in room depth up to the permitted maximum depths All living areas and bedrooms should be located on the external face of the building	✓		Generally complies. A total of 2 apartments in the cross-through apartments are 8.2m from a window. N/A

Item	4D – Apartment Size and Layout	Yes	No	Notes
Objective	Objective 4D-3 Apartment layouts are designed to accommodate a variety of household activities and needs.	✓		
Design Guidance	1. Master bedrooms have minimum area of 10m and other bedrooms 9m (excluding wardrobe space) 2. Bedrooms have a minimum dimension of 3m (excluding wardrobe space) 3. Living rooms or combined living/dining rooms have a minimum width of: - 3.6m for studio and 1 bedroom apartments - 4.0m for 3 bedroom apartments 4. The width of cross-over or cross-through apartments are at least 4m internally to avoid deep narrow apartment layouts. Access to bedrooms, bathrooms and laundries is separated from living areas minimising direct openings between living and services areas. All bedrooms allow a minimum length of 1.5m for robes The main bedroom of an apartment or a studio should be provided with a wardrobe of minimum 1.8m long, 0.6m deep and 2.1m high Apartment layouts allow flexibility over time.	✓		In some instances, laundries are concealed full height integrated joinery facing kitchen spaces. Dimensions facilitate a variety of furniture layouts. Spaces allow for a range of activities and different levels of privacy.

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Item	4E – Private Open Space and Balconies	Yes	No	Notes															
Objective	Objective 4E-1 Apartments provide appropriately sized private open space and balconies to enhance residential amenity	✓																	
Design Guidance	All apartments are required to have primary balconies as follows: <table><tr><th>Dwelling Type</th><th>Minimum Area</th><th>Minimum Depth</th></tr><tr><td>Studio Apartments</td><td>4m²</td><td>-</td></tr><tr><td>1 bedroom apartments</td><td>8 m²</td><td>2 m</td></tr><tr><td>2 bedroom apartments</td><td>10 m²</td><td>2 m</td></tr><tr><td>3+ bedroom apartments</td><td>12 m²</td><td>2.4 m</td></tr></table> The minimum balcony depth to be counted as contributing to the balcony area is 1m For apartments at ground level or on a podium or similar structure, a private open space is provided instead of a balcony. It must have a minimum area of 15m2 and a minimum depth of 3m Increased communal open space should be provided where the number or size of balconies are reduced Storage areas on balconies is additional to the minimum balcony size Balcony use may be limited in some proposals by: - consistently high wind speeds at 10 storeys and above - close proximity to road, rail or other noise sources - exposure to significant levels of aircraft noise - heritage and adaptive reuse of existing buildings In these situations, Juliet balconies, operable walls, enclosed wintergardens or bay windows may be appropriate, and other amenity benefits for occupants should also be provided in the apartments or in the development or both. Natural ventilation also needs to be demonstrated.	Dwelling Type	Minimum Area	Minimum Depth	Studio Apartments	4m ²	-	1 bedroom apartments	8 m ²	2 m	2 bedroom apartments	10 m ²	2 m	3+ bedroom apartments	12 m ²	2.4 m	✓		Generally complies. All apartments comply in 28 Shepherd. A total of five 1 bedroom apartments have balconies that are 7sqm in 26 Shepherd to maximise the full height and fully glazed widths of lounge spaces. In addition, those 1 bedroom apartment sizes far exceed the minimum size requirements.
Dwelling Type	Minimum Area	Minimum Depth																	
Studio Apartments	4m ²	-																	
1 bedroom apartments	8 m ²	2 m																	
2 bedroom apartments	10 m ²	2 m																	
3+ bedroom apartments	12 m ²	2.4 m																	
Item	4E – Private Open Space and Balconies	Yes	No	Notes															
Objective	Objective 4E-2 Primary private open space and balconies are appropriately located to enhance liveability for residents.	✓																	

Design Guidance	Primary open space and balconies should be located adjacent to the living room, dining room or kitchen to extend the living space	✓		
	Private open spaces and balconies predominantly face north, east or west		✓	Some apartments in 26 Shepherd are south east facing.
	Primary open space and balconies should be orientated with the longer side facing outwards or be open to the sky to optimise daylight access into adjacent rooms	✓		
Item	4E – Private Open Space and Balconies	Yes	No	Notes
Objective	Objective 4E-3 Private open space and balcony design is integrated into and contributes to the overall architectural form and detail of the building	✓		
Design Guidance	Solid, partially solid or transparent fences and balustrades are selected to respond to the location. They are designed to allow views and passive surveillance of the street while maintaining visual privacy and allowing for a range of uses on the balcony. Solid and partially solid balustrades are preferred	✓		Any balconies that are approx the same length as the depth project beyond the face of the building out to the sky.
	Full width full height glass balustrades alone are generally not desirable			N/A
	Projecting balconies should be integrated into the building design and the design of soffits considered	✓		
	Operable screens, shutters, hoods and pergolas are used to control sunlight and wind			N/A
	Balustrades are set back from the building or balcony edge where overlooking or safety is an issue	✓		
	Downpipes and balcony drainage are integrated with the overall facade and building design	✓		
	Air-conditioning units should be located on roofs, in basements, or fully integrated into the building design	✓		Units located on balconies will be integrated into the balcony treatment.
	Where clothes drying, storage or air conditioning units are located on balconies, they should be screened and integrated in the building design			N/A
	Ceilings of apartments below terraces should be insulated to avoid heat loss	✓		
	Water and gas outlets should be provided for primary balconies and private open space	✓		

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Item	4E – Private Open Space and Balconies	Yes	No	Notes
Objective	Objective 4E-4 Private open space and balcony design maximises safety	✓		
Design Guidance	Changes in ground levels or landscaping are minimised	✓		
	Design and detailing of balconies avoids opportunities for climbing and falls	✓		
Item	4F – Common Circulation and Spaces	Yes	No	Notes
Objective	Objective 4F-1 Common circulation spaces achieve good amenity and properly service the number of apartments	✓		
Design Guidance	The maximum number of apartments off a circulation core on a single level is eight	✓		
	For buildings of 10 storeys and over, the maximum number of apartments sharing a single lift is 40	✓		
	Greater than minimum requirements for corridor widths and/or ceiling heights allow comfortable movement and access particularly in entry lobbies, outside lifts and at apartment entry doors	✓		
	Daylight and natural ventilation should be provided to all common circulation spaces that are above ground.	✓		
	Windows should be provided in common circulation spaces and should be adjacent to the stair or lift core or at the ends of corridors.	✓		
	Longer corridors greater than 12m in length from the lift core should be articulated. Design solutions may include: - a series of foyer areas with windows and spaces for seating - wider areas at apartment entry doors and varied ceiling heights			N/A
	Where a development is unable to achieve the design criteria, a high level of amenity for common lobbies, corridors and apartments should be demonstrated: - sunlight and natural cross vent in apartments - access to ample daylight and natural ventilation - common areas for seating and gathering - generous corridors with greater than minimum ceiling heights - other innovative design solutions that provide high levels of amenity	✓		
	Where design criteria 1 is not achieved, no more than 12 apartments should be provided off a circulation core on a single level	✓		
	Primary living room or bedroom windows should not open directly onto common circulation spaces, whether open or enclosed. Visual and acoustic privacy from common circulation spaces to any other rooms should be carefully controlled.	✓		

Item	4F – Common Circulation and Spaces	Yes	No	Notes
Objective	Objective 4F-2 Common circulation spaces promote safety and provide for social interaction between residents	✓		
Design Guidance	Direct and legible access should be provided between vertical circulation points and apartment entries by minimising corridor or gallery length to give short, straight, clear sight lines	✓		
	Tight corners and spaces are avoided	✓		
	Circulation spaces should be well lit at night	✓		
	Legible signage should be provided for apartment numbers, common areas and general wayfinding	✓		
	Incidental spaces, for example space for seating in a corridor, at a stair landing, or near a window are provided			
	Incidental spaces, for example for seating in a corridor, at a stair landing, or near a window are provided		✓	Seating provided in the lobbies of ground levels, communal sky bridge recreation areas and communal open spaces in the roof gardens.
	In larger developments, community rooms for activities such as owners corporation meetings or resident use should be provided and are ideally collocated with communal open space	✓		
	Where external galleries are provided, they are more open than closed above the balustrade along their length			N/A

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Item	4G – Storage	Yes	No	Notes										
Objective	Objective 4G-1 Adequate, well designed storage is provided in each apartment	✓												
Design Guidance	In addition to storage in kitchens, bathrooms and bedrooms, the following storage is provided: <table><tr><th>Dwelling Type</th><th>Storage Size</th></tr><tr><td>Studio Apartments</td><td>4m³</td></tr><tr><td>1 bedroom apartments</td><td>6 m³</td></tr><tr><td>2 bedroom apartments</td><td>8 m³</td></tr><tr><td>3+ bedroom apartments</td><td>10 m³</td></tr></table> with at least 50% located within the apartment Storage is accessible from either circulation or living areas Storage provided on balconies (in addition to the minimum balcony size) is integrated into the balcony design, weather proof and screened from view from the street Left over space such as under stairs is used for storage	Dwelling Type	Storage Size	Studio Apartments	4m³	1 bedroom apartments	6 m³	2 bedroom apartments	8 m³	3+ bedroom apartments	10 m³	✓		N/A
Dwelling Type	Storage Size													
Studio Apartments	4m³													
1 bedroom apartments	6 m³													
2 bedroom apartments	8 m³													
3+ bedroom apartments	10 m³													
Item	4G – Storage	Yes	No	Notes										
Objective	Objective 4G-2 Additional storage is conveniently located, accessible and nominated for individual apartments	✓												
Design Guidance	Storage not located in apartments is secure and clearly allocated Storage is provided for larger and less frequently accessed items, where practical Storage space in internal or basement car parks is provided at the rear or side of car spaces or in cages so that allocated car parking remains accessible If communal storage rooms are provided they should be accessible from common circulation areas of the building Storage not located in an apartment is integrated into the overall building design and not visible from the public domain	✓		The proposal does not alter the storage in basements as provided for in accordance with DA612/2015.										
				N/A										

Item	4H – Acoustic Privacy	Yes	No	Notes
Objective	Objective 4H-1 Noise transfer is minimised through the siting of buildings and building layout	✓		
Design Guidance	Adequate building separation is provided within the development and from neighbouring buildings / adjacent uses (also see section 2F Building separation and section 3F Visual Privacy)	✓		Partial compliance. Refer to Mecone Table 1 "Building Separation" for detailed separation clarifications.
	Window and door openings are generally orientated away from noise sources	✓		
	Noisy areas within buildings including building entries and corridors are located next to or above each other and quieter areas next to or above quieter areas	✓		
	Storage, circulation areas and non-habitable rooms are located to buffer noise from external sources	✓		
	The number of party walls (walls shared with other apartments) are limited and are appropriately insulated	✓		
	Noise sources such as garage doors, driveways, service areas, plant rooms, building services, mechanical equipment, active communal open spaces and circulation areas are located at least 3m away from bedrooms	✓		
Item	4H – Acoustic Privacy	Yes	No	Notes
Objective	Objective 4H-2 Noise transfer is minimised through the siting of buildings and building layout	✓		
Design Guidance	Internal apartment layout separates noisy spaces from quiet spaces, using a number of the following design solutions: - rooms with similar noise requirements are grouped together - doors separate different use zones - wardrobes in bedrooms are co-located to act as sound buffers Where physical separation cannot be achieved noise conflicts are resolved using the following design solutions: - double or acoustic glazing - acoustic seals - use of materials with low noise penetration - Properties continuous walls to ground level courtyard where they do not conflict with streetscape or other amenity requirements	✓		

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Item	4J – Noise and Pollution	Yes	No	Notes
Objective	Objective 4J-1 In noisy or hostile environments the impacts of external noise and pollution are minimised through the careful siting and layout of buildings.	✓		
Design Guidance	To minimise impacts the following design solutions may be used: - physical separation between buildings and the noise or pollution source - residential uses are located perpendicular to the noise source and where possible buffered by other uses - non-residential buildings are sited to be parallel with the noise source to provide a continuous building that shields residential uses and communal open spaces - Non-residential uses are located at lower levels vertically separating the residential component from the noise or pollution source. Setbacks to the underside of residential floor levels should increase relative to traffic volumes and other noise sources - Buildings should respond to both solar access and noise. Where solar access is away from the noise source, nonhabitable rooms can provide a buffer - Where solar access is in the same direction as the noise source, dual aspect apartments with shallow building depths are preferable (see figure 4J/4) - Landscape design reduces the perception of noise and acts as a filter for air pollution generated by traffic and industry Achieving the design criteria in this Apartment Design Guide may not be possible in some situations due to noise and pollution. Where developments are unable to achieve the design criteria, alternatives may be considered in the following areas: - solar and daylight access - private open space and balconies - natural cross ventilation	✓		
				N/A

Item	4J – Noise and Pollution	Yes	No	Notes
Objective	Objective 4J-2 Appropriate noise shielding or attenuation techniques for the building design, construction and choice of materials are used to mitigate noise transmission.	✓		
Design Guidance	Design solutions to mitigate noise include: - limiting the number and size of openings facing noise sources - providing seals to prevent noise transfer through gaps - using double or acoustic glazing, acoustic louvres or enclosed balconies (wintergardens) using materials with mass and/or sound insulation or absorption properties e.g. solid balcony balustrades, external screens and soffits	✓		
Item	4K – Apartment Mix	Yes	No	Notes
Objective	Objective 4K-1 A range of apartment types and sizes is provided to cater for different household types now and into the future.	✓		
Design Guidance	A variety of apartment types is provided The apartment mix is appropriate, taking into consideration: - the distance to public transport, employment and education centres - the current market demands and projected future demographic trends - the demand for social and affordable housing - different cultural and socioeconomic groups Flexible apartment configurations, such as dual key apartments, are provided to support diverse household types and stages of life including single person households, families, multi-generational families and group households	✓	✓	

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Item	4K – Apartment Mix	Yes	No	Notes
Objective	Objective 4K-2 The apartment mix is distributed to suitable locations within the building	✓		
Design Guidance	Different apartment types are located to achieve successful facade composition and to optimize solar access. See figure 4A.3 Larger apartment types are located on the ground or roof level where there is potential for more open space and on corners where more building frontage is available	✓		

Item	4L – Ground Floor Apartments	Yes	No	Notes
Objective	Objective 4L-1 Street frontage activity is maximised where ground floor apartments are located	✓		
Design Guidance	Direct street access should be provided to ground floor apartments Activity is achieved through front gardens, terraces and the facade of the building. Design solutions may include: • both street and foyer entrances to ground floor apartments • private open space is next to the street • doors and windows face the street Retail or home office spaces are located along street frontages Ground floor apartment layouts support small office home office (SOHO) use to provide future opportunities for conversion into commercial or retail areas. In these cases provide higher floor to ceiling heights and ground floor amenities for easy conversion	✓		Ground floor apartments to 26 Shepherd are accessed via two new laneways directly connecting to the street. N/A N/A

Item	4L – Ground Floor Apartments	Yes	No	Notes
Objective	Objective 4L-2 Design of ground floor apartments delivers amenity and safety for residents	✓		
Design Guidance	Privacy and safety is provided without obstructing casual surveillance. Design solutions may include: • elevation of private gardens and terraces above the street level by 1m – 1.5m (see Figure 4L4) • landscaping and private courtyards • window sill heights that minimise sight lines into apartments • integrating balustrades, safety bars or screens with the exterior design Solar access is maximised through: • high ceilings and tall windows • trees and shrubs that allow solar access in winter and shade in summer	✓		

Item	4M – Facades	Yes	No	Notes
Objective	Objective 4M-1 Building facades provide visual interest along the street respecting the character of the local area	✓		
Design Guidance	Design solutions for front building facades may include: - A composition of varied building elements - A defined base, middle and top of the buildings - Revealing and concealing certain elements - Changes in texture, material, detail and colour to modify the prominence of elements Building services should be integrated within the overall facade Building facades should be well resolved with an appropriate scale and proportion to the streetscape and human scale. Design solutions may include: - Well composed horizontal and vertical elements - Variation in floor heights to enhance the human scale - Elements that are proportional and arranged in patterns - Public artwork or treatments to exterior blank walls - Grouping of floors or elements such as balconies and windows on taller buildings Building facades relate to key datum lines of adjacent buildings through upper level setbacks, parapets, cornices, awnings or colonnade heights Shadow is created on the facade throughout the day with building articulation, balconies and deeper window reveals	✓		

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Item	4M – Facades	Yes	No	Notes
Objective	Objective 4M-2 Building functions are expressed by the facade	✓		
Design Guidance	Building entries should be clearly defined	✓		
	Important corners are given visual prominence through a change in articulation, materials or colour, roof expression or changes in height	✓		
	The apartment layout should be expressed externally through facade features as party walls and floor slabs	✓		

Item	4N – Roof Design	Yes	No	Notes
Objective	Objective 4N-1 Roof treatments are integrated into the building design and positively respond to the street	✓		
Design Guidance	Roof design relates to the street. Design solutions may include: • Special roof features and strong corners • Use of skillion or very low pitch hipped roofs • Breaking down the massing of the roof by using smaller elements to avoid bulk • Using materials or a pitched form complementary to adjacent buildings	✓		
	Roof treatments should be integrated with the building design. Design solutions may include: - Roof design proportionate to the overall building size, scale and form - Roof materials complement the building - Service elements are integrated	✓		The roof expressions are continuations of the facade materials and forms. The roof designs incorporate elevated green planters, integrated seating and covered areas.

Item	4N – Roof Design	Yes	No	Notes
Objective	Objective 4N-2 Opportunities to use roof space for residential accommodation and open space are maximised	✓		Communal open spaces are located on the roofs.
Design Guidance	Habitable roof space should be provided with good levels of amenity. Design solutions may include: - Penthouse apartments - dormer or clerestory windows - openable skylights	✓		
	Open space is provided on roof tops subject to acceptable visual and acoustic privacy, comfort levels, safety and security considerations.	✓		

Item	4N – Roof Design	Yes	No	Notes
Objective	Objective 4N-3 Roof design incorporates sustainability features	✓		Roof designs are extensively landscaped to mitigate heat island effect.
Design Guidance	Roof design maximises solar access to apartments during winter and provides shade during summer. Design solutions may include: - The roof lifts to the north - Eaves and overhangs shade walls and windows from summer sun		✓	N/A
	Skylights and ventilation systems should be integrated into the roof design	✓		

Item	4O – Landscape Design	Yes	No	Notes
Objective	Objective 4O – 1 Landscape design is viable and sustainable	✓		Complies, details subject to advice from Landscape Consultant
Design Guidance	Landscape design should be environmentally sustainable and can enhance environmental performance by incorporating: • Diverse and appropriate planting • bio-filtration gardens • appropriately planted shading trees • areas for residents to plant vegetables and herbs • composting • green roofs or walls	✓		
	Ongoing maintenance plans should be prepared	✓		Complies, details subject to advice from Landscape Consultant
	Microclimate is enhanced by: • appropriately scaled trees near the eastern and western elevations for shade • a balance of evergreen and deciduous trees to provide shading in summer and sunlight access in winter • shade structures such as pergolas for balconies and courtyards	✓		
	Tree and shrub selection considers size at maturity and potential for roots to compete.	✓		Complies, details subject to advice from Landscape Consultant

Item	4O – Landscape Design	Yes	No	Notes
Objective	Objective 4O – 2 Landscape design contributes to the streetscape and amenity	✓		
Design Guidance	Landscape design responds to the existing site conditions including: • Changes of levels • Views • Significant landscape features including trees and rock outcrops	✓		
	Significant landscape features should be protected by: • Tree protection zones (see figure 4O.5) • Appropriate signage and fencing during construction	✓		
	Plants selected should be endemic to the region and reflect the local ecology	✓		Complies, details subject to advice from Landscape Consultant

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Item	4P – Planting on Structures	Yes	No	Notes
Objective	Objective 4P – 2 Plant growth is optimized with appropriate selection and maintenance	✓		Complies, details subject to advice from Landscape Consultant
Design Guidance	Plants are suited to site conditions, considerations include: - Drought and wind tolerance - Seasonal changes in solar access - Modified substrate depths for diverse range of plants - Plant longevity A landscape maintenance plan is prepared	✓		Complies, details subject to advice from Landscape Consultant
	Irrigation and drainage systems respond to : - Changing site conditions - Soil profile and the planting regime - Whether rainwater, stormwater recycled grey water is used	✓		Complies, To be prepared by Landscape Consultant
Item	4P – Planting on Structures	Yes	No	Notes
Objective	Objective 4P – 3 Planting on structure contributes to the quality and amenity of communal and public open spaces	✓		
Design Guidance	Building design incorporates opportunities for planting on structures. Design solutions may include: - Green walls with specialised lighting for indoor green walls - All design that incorporates planting - Green roofs, particularly where roofs are visible form public domain - Planter boxes Note: structures designed to accommodate green walls should be integrated into the building façade and consider the ability of the façade to change over time	✓		
Item	4Q – Universal Design	Yes	No	Notes
Objective	Objective 4Q – 1 Universal design features are included in apartment design to promote flexible housing for all community members	✓		
Design Guidance	Developments achieve a benchmark of 20% of the total apartment incorporating the Livable Housing Guidelines silver level universal design features		✓	Partially complies. 10% of the total apartments are adaptable which can comply with Livable Housing Guidelines.

Item	4Q – Universal Design	Yes	No	Notes
Objective	Objective 4Q – 2 A variety of apartments with adaptable designs are provided	✓		
Design Guidance	Adaptable housing should be provided in accordance with the relevant council policy	✓		Achieves required 10%
	Design solutions for adaptable apartments include: - Convenient access to communal and public areas - High level of solar access - Minimal structural change and residential amenity loss when adapted - Larger car parking spaces for accessibility - Parking titled separately from apartments or shared car parking arrangements	✓		
Item	4Q – Universal Design	Yes	No	Notes
Objective	Objective 4Q – 3 Apartment layouts are flexible and accommodate a range of lifestyle needs	✓		
Design Guidance	Apartment design incorporates flexible design solutions which may include: - Rooms with multiple functions - Dual master bedroom apartments with separate bathrooms - Larger apartments with various living space options - Open plan 'loft' style apartments with only a fixed kitchen, laundry and bathroom	✓		

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Item	4R – Adaptive Reuse	Yes	No	Notes
Objective	Objective 4R – 1 New additions to existing buildings are contemporary and complementary and enhance area's identity and sense of place			N/A
Design Guidance	Design solutions may include: - New elements to align with the existing building character, siting, scale, proportion, pattern form and detailing - Use of contemporary and complementary materials, finishes, textures and colours Additions to heritage items should be clearly identifiable from the original building New additions allow for the interpretation and future evolution of the building			N/A
Item	4R – Adaptive Reuse	Yes	No	Notes
Objective	Objective 4R – 2 Adapted buildings provide residential amenity while not precluding future adaptive reuse			N/A
Design Guidance	Design features should be incorporated sensitively into adapted buildings to make up for any physical limitations, to ensure residential amenity is achieved. Design solutions may include: - Generously sized voids in deeper buildings - Alternative apartment types when orientation is poor - Using additions to expand the existing building envelope Some proposals that adapt existing buildings may not be able to achieve all of the design criteria in this Apartment Design Guide. Where developments are unable to achieve the design criteria, alternatives could be considered in the following areas: - Where there are existing higher ceilings, depths of habitable rooms could increase subject to demonstrating access to natural ventilation, cross ventilation (when applicable) and solar and daylight access (see also sections 4A Solar and daylight access and 4B Natural ventilation) - Alternatives to providing deep soil where less than the minimum requirement is currently available on the site - Building and visual separation subject to demonstrating alternative design approaches to achieving privacy - Common circulation - Car parking - Alternative approaches to private open space and balconies			N/A

Item	4S – Mixed Use	Yes	No	Notes
Objective	Objective 4S – 1 Mixed use developments are provided in appropriate locations and provide active street frontages that encourage pedestrian movement			N/A. The proposal is for residential uses.
Design Guidance	Mixed use development should be concentrated around public transport and centres Mixed use developments positively contribute to the public domain. Design solutions may include: - Development addresses the street - Active frontages are provided - Diverse activities and uses - Avoiding blank walls at the ground level - Live/work apartments on the ground floor level, rather than commercial			N/A
Item	4S – Mixed Use	Yes	No	Notes
Objective	Objective 4S – 2 Residential levels of the building are integrated within the development, and safety and amenity is maximised for residents			N/A. The proposal is for residential uses.
Design Guidance	Residential circulation areas should be clearly defined. Design solutions may include: - Residential entries are separated from commercial entries and directly accessible from the street - Commercial service areas are separated from residential components - Residential car parking and communal facilities are separated or secured - Concealment opportunities are avoided Landscape communal open space should be provided at podium or roof levels			N/A

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Item	4T – Awnings and Signage	Yes	No	Notes
Objective	Objective 4T – 1 Awnings are well located and compliment and integrate with the building design			N/A. The proposal is for residential uses.
Design Guidance	Awnings should be located along streets with high pedestrian activity and active frontages			N/A
	A number of the following design solutions are used: - Continuous awnings are maintained and provided in areas with existing pattern - Height, depth, material and form complements the existing street character - Protection from the sun and rain is provided - Awnings are wrapped around the secondary frontages of corner sites - Awnings are retractable in areas without an established pattern			N/A
	Awnings should be located over building entries for building address and public domain amenity	✓		At locations not in recessed areas, awnings can be located over building lobby entries.
	Awnings relate to residential windows, balconies, street tree planting, power poles and street infrastructure	✓		
	Gutters and down pipes should be integrated and concealed	✓		
	Lighting under awnings should be provided for pedestrian safety	✓		
Item	4T – Awnings and Signage	Yes	No	Notes
Objective	Objective 4T – 2 Signage responds to the context and desired streetscape character	✓		
Design Guidance	Signage should be integrated into the building design and respond to the scale, proportion and detailing of the development	✓		
	Legible and discrete way finding should be provided for larger developments	✓		
	Signage is limited to being on and below awnings and in single façade sign on the primary street frontage	✓		

Item	4U – Energy Efficiency	Yes	No	Notes
Objective	Objective 4U – 1 Development incorporates passive environmental design	✓		
Design Guidance	Adequate natural light is provided to habitable rooms (see 4A Solar and daylight access)	✓		
	Well located, screened outdoor areas should be provided for clothes drying		✓	Laundry areas allow for installation of clothes dryers. 28 Shepherd Street Buildings C1 & C2 balconies incorporate solid balustrades for screening while 26 Shepherd have clear glass balconies that do not screen outdoor drying activities.
Item	4U – Energy Efficiency	Yes	No	Notes
Objective	Objective 4U – 2 Development incorporates passive solar design to optimize heat storage in winter and reduce heat transfer in summer	✓		
Design Guidance	A number of the following design solutions are used: - The use of smart glass or other technologies on north and west elevations - Thermal mass in the floors and walls of north facing rooms in maximised - Polished concrete floor, tiles, or timber rather than carpet - Insulated roofs, walls and floors and seals on window and door openings - Overhangs and shading devices such as awnings, blinds and screens	✓		
	Provision of consolidated heating and cooling infrastructure should be located in a centralised location (e.g. the basement)		✓	26 Shepherd Street apartments comply. 28 Shepherd Building have individual AC units located on balconies, screened by the solid balustrade design.

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Item	4U – Energy Efficiency	Yes	No	Notes
Objective	Objective 4U – 3 Adequate natural ventilation minimises the need for mechanical ventilation	✓		
Design Guidance	A number of the following design solution are used: - Rooms with similar usage are grouped together - Natural cross ventilation for apartments is optimised - Natural ventilation is provided to all habitable rooms and as many non-habitable rooms, common areas and circulation spaces as possible	✓		

Item	4V – Water management and conservation	Yes	No	Notes
Objective	Objective 4V – 1 Potable water use is minimised	✓		
Design Guidance	Water efficient fittings, appliances and wastewater reuse should be incorporated	✓		
	Apartment should be individually metered	✓		
	Rainwater should be collected, stored and reused on site	✓		The space available on the roof will not allow for use as a catchment area.
	Drought tolerant, low water use plants should be used within landscaped areas	✓		Complies, details subject to advice from Landscape Consultant

Item	4V – Water management and conservation	Yes	No	Notes
Objective	Objective 4V – 2 Urban stormwater is treated on site before being discharged to receiving waters	✓		
Design Guidance	Water sensitive urban design systems are designed by a suitably qualified professional	✓		
	A number of the following design solutions are used: - Runoff is collected from roofs and balconies in water tanks and plumbed into toilets, laundry and irrigation - Porous and open paving materials is maximised - On site stormwater and infiltration, including bio-retention systems such as rain gardens or street tree pits	✓		A bio-retention system with stormwater treatment is provided.

Item	4V – Water management and conservation	Yes	No	Notes
Objective	Objective 4V – 3 Flood management systems are designed to minimise impacts on the streetscape, building entry and amenity of residents	✓		Complies with the Liverpool Council's flood planning levels, refer to civil engineer's report.
Design Guidance	Detention tanks should be located under paved areas, driveways or in basement car parks	✓		The sites are flood affected and no OSD is required confirmed by Liverpool Council. Refer to civil engineer's report.
	On large sites parks or open spaces are designed to provide temporary on site detention basins			N/A. No parks on site.
Item	4W – Waste Management	Yes	No	Notes
Objective	Objective W – 1 Waste storage facilities are designed to minimise impacts on the streetscape, building entry and amenity of residents	✓		Located on Basement Level
Design Guidance	Adequately sized storage areas for rubbish bins should be located discreetly away from the front of the development or in the basement car park	✓		
	Waste and recycling storage areas should be well ventilated	✓		
	Circulation design allows bins to be easily maneuvered between storage and collection points	✓		
	Temporary storage should be provided for large bulk items such as mattresses	✓		
	A waste management plan should be prepared	✓		

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Item	4X – Building Maintenance	Yes	No	Notes
Objective	Objective 4 X – 1 Building design detail provides protection from weathering	✓		
Design Guidance	A number of the following design solutions are used: • Roof overhangs to protect walls • Hoods over windows and doors to protect openings • Detailing horizontal edges with drip lines to avoid staining of surfaces • Methods to eliminate or reduce planter box leaching • Appropriate design and material selection for hostile locations	✓		

Item	4X – Building Maintenance	Yes	No	Notes
Objective	Objective 4 X – 2 Systems and access enable ease of maintenance	✓		
Design Guidance	Window design enables cleaning from the inside of the building	✓		
	Building maintenance systems should be incorporated and integrated into the design of the building form, roof and façade			N/A
	Design solutions do not require external scaffolding for maintenance access	✓		
	Manually operated systems such as blinds, sunshades and curtains are used in preference to mechanical systems	✓		
	Centralised maintenance, services and storage should be provided for communal open space areas within the building	✓		

Item	4X – Building Maintenance	Yes	No	Notes
Objective	Objective 4 X – 3 Material Selection reduces ongoing maintenance costs	✓		
Design Guidance	A number of the following design solutions are used: • sensors to control artificial lighting in common circulation and spaces • natural materials that weather well and improve with time such as face brickwork • easily cleaned surfaces that are graffiti resistant • robust and durable materials and finishes are used in locations which receive heavy wear and tear, such as common circulation areas and lift interiors	✓		Graffiti resistant coatings to external metal panels.

1. SEPP 65/Apartment Design Guide

Table 1: Compliance with ADG

Control	Design Criteria	Compliance
Building separation	Building separation of: Up to 12m (4 storeys)	Partial Compliance. The Architectural Plans in Appendix 1 identify where some minor non-compliances with setbacks occur (Drawing A21003). Some of the non-compliances are unavoidable when considering the Riparian Vegetated Zone and the response to the adjoining low scale heritage building. Many of these non-compliances have been mitigated by use of landscaping and building design, which offsets windows and balconies and employs appropriate privacy screening. As such, the variation is considered acceptable.
	12 metres between habitable rooms/balconies 9 metres between habitable/balconies and non-habitable rooms 6 metres between non-habitable rooms	
	5 - 8 storeys/25 metres	
	18 metres between habitable rooms/balconies 12 metres between habitable/balconies and non-habitable rooms 9 metres between non-habitable rooms	
Building separation	Nine storeys and above (above 25m)	At the 9th level, the same separation of 11.3m is provided, though the separation requirement increases to 24m. This condition occurs only for the one storey (the highest level of 20 Shepherd Street) and is considered acceptable in the circumstances.
	24m between habitable rooms/balconies 18m between habitable and non-habitable rooms 12m between non-habitable rooms	
A setback of 5.9m is provided at 28 Shepherd Street to the south. Given this elevation can be treated as a 'non-habitable room', a future 12m building separation will be achievable to new buildings at 32-34 Shepherd Street (in the control of the same proponent).		

Deep soil zones	Minimum of 7% of a site should be a deep soil zone with the following minimum dimensions: - 650sqm-1500sqm – 3m - greater than 1500sqm – 6m	Complies The proposal will not impact the deep soil zone provided for DA614/2015 over 28 Shepherd Street. A total of 11% Deep Soil Zone is afforded in the design over 26 Shepherd Street.
Communal and Open space	25% - 30% of site area should be devoted to communal open space. Developments achieve a minimum of 50% direct sunlight to the principal usable part of the communal open space for a minimum of 2 hours between 9 am and 3 pm on 21 June (mid winter) Ground level apartments should contain a minimum of 15m² of open space, with a minimum dimension in one direction of 3m. Vehicle access points are designed and located to achieve safety, minimise conflicts between pedestrians and vehicles and create high quality streetscapes. For development in the following locations: • on sites that are within 800 metres of a railway station or light rail stop in the Sydney Metropolitan Area; or • on land zoned, and sites within 400 metres of land zoned, B3 Commercial Core, B4 Mixed Use or equivalent in a nominated regional centre The minimum car parking requirement for residents and visitors is set out in the Guide to Traffic Generating Developments, or the car parking requirement prescribed by the relevant council, whichever is less The car parking needs for a development must be provided off street. Parking and facilities are provided for other modes of transport Visual and environmental impacts of on-grade car parking are minimised	Complies. Roof top space accounts for 441m² of communal open space, with an additional 332m² provided as Deep Soil Zone. Without considering the surrounding laneways, the proposal provides over 773m² of communal open space, or 27% of site area of 26 Shepherd Street. The proposal does not alter the open space provided for 28 Shepherd Street in accordance with DA-614/2015. Complies. Given the principal useable communal space can be located on the rooftop, this is able to comply. Complies. All ground floor private open space exceeds 15sqm. Complies. Vehicle access is located to the sides of each building, with clear entry and exit points. Complies. The Council DCP is the relevant car parking requirement to consider as the site is outside of 800m distance to a railway station. Car parking is outlined in the DCP assessment within the SEE. Complies. Bicycle and motorcycle parking is provided. Complies. Car parking is provided in basement level, minimising any at-grade impacts.

Pedestrian access	Access, entries and pathways are accessible and easy to identify. Habitable room depths are limited to a maximum of 2.5 x the ceiling height. In open plan layouts (where the living, dining and kitchen are combined) the maximum habitable room depth is 8m from a window. The width of cross-over or cross-through apartments are at least 4m internally to avoid deep narrow apartment layouts.	Complies. The proposal features generous public walkways and pathways to the Georges River foreshore which will be accessible from Shepherd Street.
Apartment layout	Living rooms or combined living/dining rooms have a minimum width of: -3.6m for studio and 1 bedroom apartments -4m for 2 and 3 bedroom apartments	Complies. Habitable room depth does not exceed 8m.
	Master bedrooms have a minimum area of 10m ² and other bedrooms 9m ² (excluding wardrobe space).	Complies. No cross-over or cross-through apartments exceed a depth of 18m.
	Bedrooms have a minimum dimension of 3m (excluding wardrobe space).	Complies. All bedrooms are proposed with a minimum dimension of at least 3m, exclusive of wardrobe space.
	Minimum Apartment sizes: • 35m² for studios; • 50m² for one bedrooms; • 70m² for two bedrooms; and • 90m² for three bedrooms. * For each additional bathroom, an additional 5sqm of GFA must be provided.	Complies. Minimum apartment sizes are consistent with the provisions of the ADG.
Balconies	All apartments are required to have the following primary balcony dimensions: • Studios – 4sqm • 1br – 8sqm with min. 2m depth • 2br – 10sqm with min. 2m depth • 3br – 12sqm with min. 2.4m depth	Complies. Some apartments have provided two balconies; in these cases, the minimum balcony size is achieved through the combination of the two balconies.

	* In order to be counted towards the overall balcony calculation, depths must be no less than 1m deep. Minimum ceiling heights are as follows: • 2.7m for habitable rooms • 2.4m for non-habitable rooms • double storey apartments – 2.7m for main living area, 2.4m for second floor where its area does not exceed 50% of the apartment area • attic spaces – 1.8m at edge of room with a minimum 30 degree slope • in mixed use areas – 3.3m for ground and first floor The maximum number of apartments off a circulation core on a single level is eight.	Complies. Floor to floor ceiling heights are in excess of 3100mm which allows this control to be met.
Ceiling heights		
Internal circulation	For buildings of 10 storeys and over, the maximum number of apartments sharing a single lift is 40. • Studio apartments require 4sqm of storage area • One bedroom dwellings require 6m³ of storage area • Two bedroom dwellings require 8m³ of storage area • Three bedroom dwellings require 10m³ of storage area. 50% of the required storage is to be provided within each apartment.	Complies. There is no more than 8 apartments off a circulation core. Complies. More than one lift has been provided in each core. Able to comply. The proposal will incorporate the required storage areas.
Storage		
Ground floor apartments	Direct street access should be provided for ground-floor apartments. Living rooms and private open spaces of at least 70% of apartments in a building receive a minimum of 2 hours direct sunlight between 9 am and 3 pm at mid winter in the Sydney Metropolitan Area.	Generally complies. It is only Units G10 and G11 which have no direct street access. These are located away from the street, towards the Georges River. Generally complies. Approximately 69% (159) of apartments receive a minimum of 2 hours solar access, essentially compliant with the ADG provision.
Daylight access	A maximum of 15% of apartments in a building receive no direct sunlight between 9 am and 3 pm at mid winter.	Minor non-compliance. 18% of apartments (41 total) receive no direct sunlight. With the dwellings oriented to maximise views/outlook to the Georges River, the maximum 15% is not achieved however amenity is considered to otherwise be maximised. This represents only an additional 6 apartments above the maximum ADG control.

Natural ventilation	Daylight access is maximised where sunlight is limited	Complies. Full length glazing to living areas is provided to ensure daylight access is maximised.
	Design incorporates shading and glare control, particularly for warmer months	Complies. Shading and glare control will be provided through screening and shading devices.
	At least 60% of apartments are naturally cross ventilated in the first nine storeys of the building.	Complies. The proposal achieves 70% cross ventilation (58 apartments) at 26 Shepherd Street tower, in excess of the 60% required. 64% of apartments are cross ventilated at 28 Shepherd Street.
	Overall depth of a cross-over or cross-through apartment does not exceed 18m, measured glass line to glass line.	Complies. No cross-over or cross-through apartments exceed a depth of 18m.
	All habitable rooms are naturally ventilated	Complies. The proposal is consistent with the design criteria; all habitable rooms are naturally ventilated.

