

# A PLACE FOR PEOPLE WITH PURPOSE

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#### **Acknowledgment of Country**

Our Sydney studio is located on Gadigal country. We acknowledge and respect the Gadigal people as the original custodians of the land and water upon which we work. We honour their Elders past, present and emerging whose knowledge and wisdom has, and will, ensure the continuation of cultures and traditional practices.



#### Hassell Contact

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Document Control			
Rev	Date	Approved By	Description
01	19.01.2022	Liz Westgarth	DA Submission - Addendum
02	02.02.2022	Liz Westgarth	DA Submission - Addendum



## INTRODUCTION

This design report addendum has been prepared to address Council comments and requests for further information on a limited number of topics. This addendum report shall be read in conjunction with the previous reports and where applicable, shall supersede the previous design report.

#### The key items addressed include:

- Increased tower setback to 4m average weighted setback to the southern boundary
- Amended tower setback to 4m average weighted setback to the eastern boundary
- Resolution of through site link with 100 Walker Street
- Green wall development and maintenance strategy
- Bike parking
- Podium operable facade
- Western facade

## TOWER SETBACKS

## **TOWER SETBACKS**

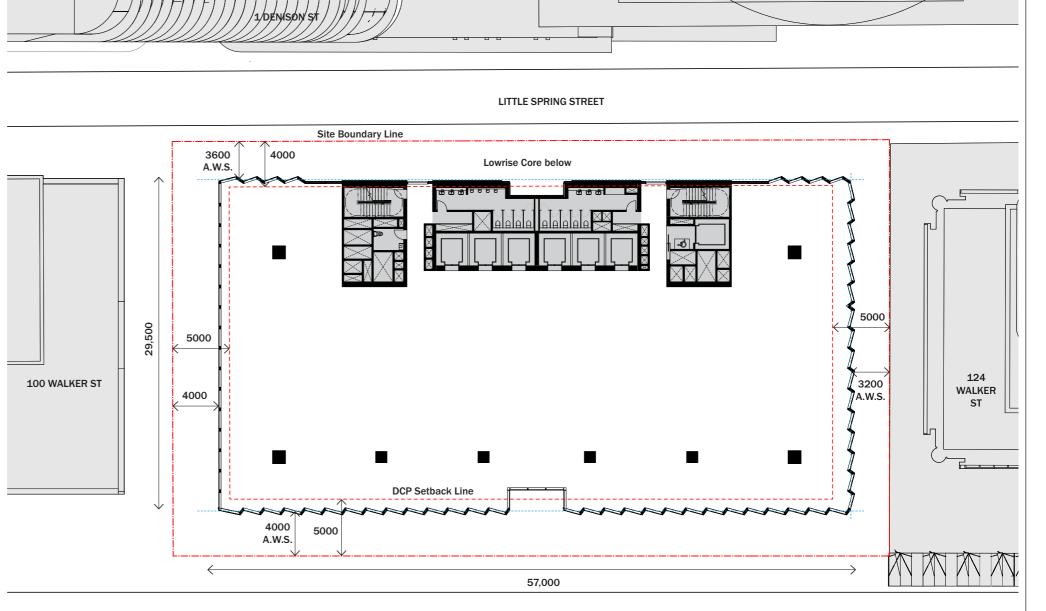
**DA Addendum Scheme 4.0m AWS (South and East)** 

## A 4.0m average weighted setback to Walker Street and a 4.0m setback to the southern boundary. Tower setbacks to the north and west remain unchanged.

The tower facade setbacks for the currently proposed amendments are:

- North 3.2m A.W.S. (average weighted setback)
- East (Walker Street) 4.0m A.W.S.
- South 4.0m
- West (Little Spring Street)3.6m A.W.S.

The tower facade setbacks are consistent for high-rise, mid-rise and low-rise floors. Noting that as per the original scheme the low-rise lift core is within the Little Spring Street setback zone.



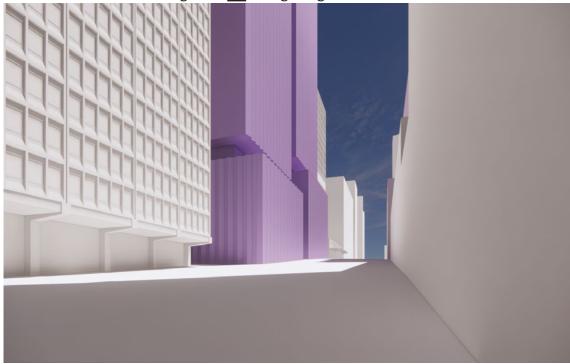
WALKER STREET

Typical high-rise floor and setbacks (setbacks are consistent on low-rise and mid-rise floors)

## VIEW ANALYSIS

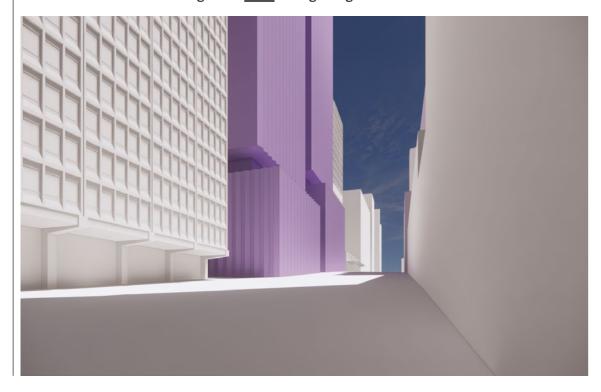
#### View 03

View from Walker Street looking north. <u>4m</u> average weighted setback to Walker Street



#### View 03-b

View from Walker Street looking north.  $\underline{\textbf{4.5m}}$  average weighted setback to Walker Street



#### View 04

View from Walker Street looking south. 4m average weighted setback to Walker Street



#### View 04-b

View from Walker Street looking south.  $\underline{\textbf{4.5m}}$  average weighted setback to Walker Street

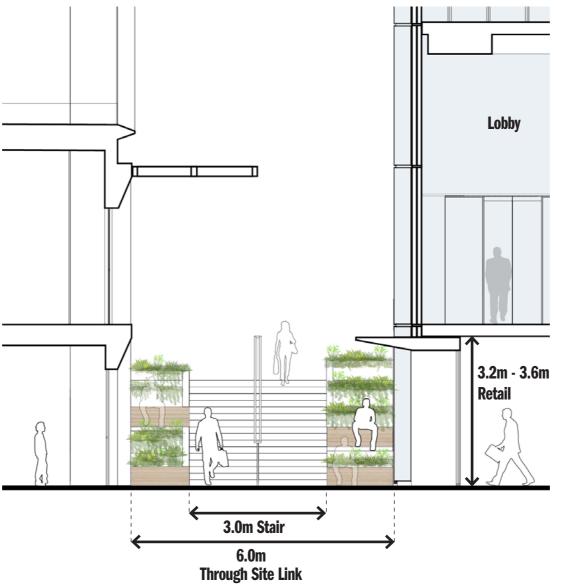


## THROUGH SITE LINK

## THROUGH SITE LINK

An open to the sky through site link is activated by an expanded retail, food and beverage offer and entries to end of trip and top of building roof garden, creating a vibrant edge.

The proposal has been coordinated with the adjacent property at 100 Walker Street to create a 3m wide central movement spine with 1.5m wide zones along the edges for landscape, seating and activation.



#### **Materiality**

The North Sydney public domain paving will extend seamlessly from across the full width of the new link providing continuity of the public domain between Walker Street and Little Spring Street.



#### Lighting

To promote clear pedestrian flow through the middle of the through site link, lighting is proposed to be integrated into the awning structures to provide the general lighting coverage to the link. Entries along the link will also be more brightly lit to highlight their presence. Finally the stair at the western end of the link will have dedicated lighting through integrated handrail lighting or concealed riser fixtures to ensure safety.

















## **CONCEPT SECTION**

Little Lobby Entry Stairs End of Trip & Pedestrian Spring St. Spring St. Entry



Indicative South Through Site Link Elevation

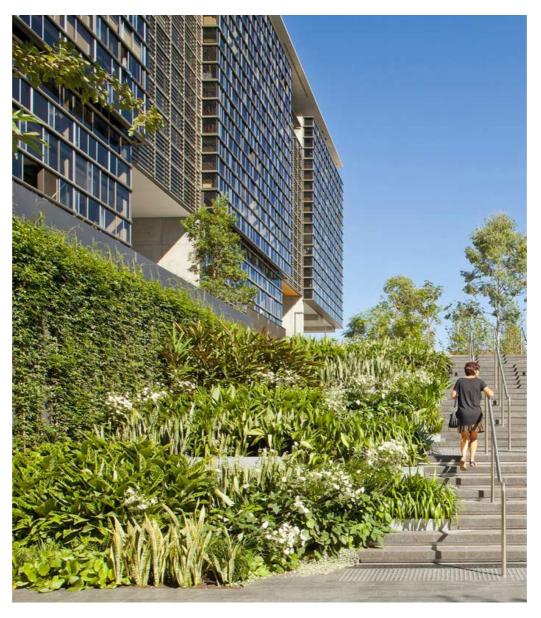


## LANDSCAPE INTEGRATION

#### **Through-site link stair**

A new public stair connects the through-site link to Little Spring Street. The stair is positioned central to the link, with planting on northern and southern sides which will provide additional greenery to the North Sydney public realm.

Seating is integrated to the top and base of the stair, opposite adjacent building entries and integrated within the landscape for public to sit and dwell. Lighting is integrated into the stair balustrades and treads.









#### **Plant palette**

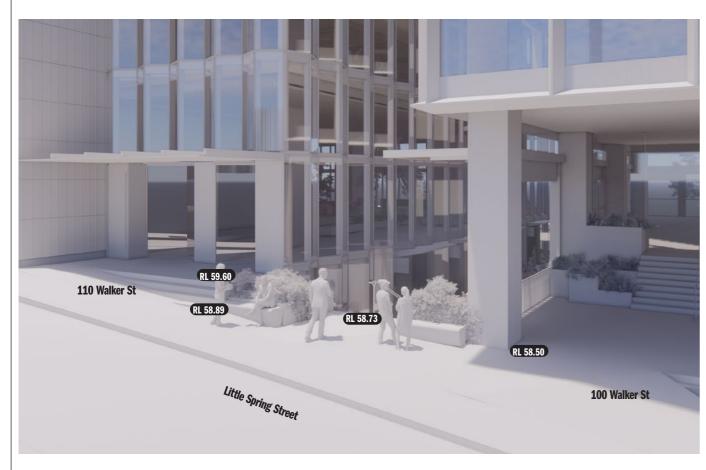
The palette is comprised of low height, low maintenance plants suitable for low to medium light. The palette is comprised of purple and white accent colours that compliment the North Sydney public domain material palette.



## LEVELS AND FALLS

The cross falls and levels along Little Spring Street and Walker Street have been coordinated with 100 Walker Street and are carefully considered to provide ease of access to 110 and 100 Walker Street while creating a seamless connection to the through site link.

The levels within the through site link gently fall away from the building entries towards the centre where linear drains are located.



<u>Artist impression</u> of Little Spring Street public domain levels



Artist impression of through site link showing public domain levels

#### **Top of Stairs**

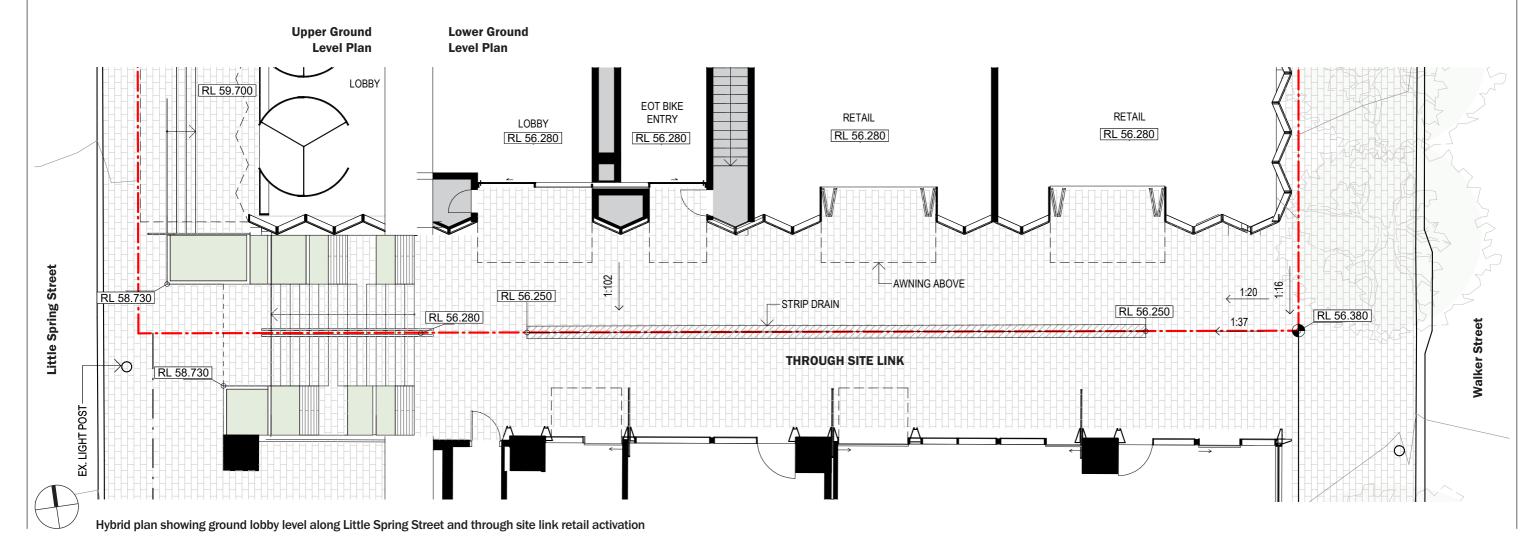
A level landing at the top of the public stair has been accommodated to provide a safe transition to and from the stair. The level of the top of the stair and landing is set by its relation to the natural grade along Little Spring Street providing a gentle transition between the slope of the footpath and the landing of the stair.

#### **Through Site Link Cross Fall**

Gentle cross falls of approximately 1:100 slope away from the building entries to the central drains. This gentle fall accommodates the drainage requirements but also provides a 'level' ground surface suitable for activation.

#### **Walker Street Interface**

The design intent maintains the levels along the boundaries to the Walker Street footpath. The natural grade of the Walker Street footpath turns the corner down into the through site link. In the event of the drainage system failure, an overland flow path has been provided to the northeast corner of the 100 Walker Street site where it would naturally occur.

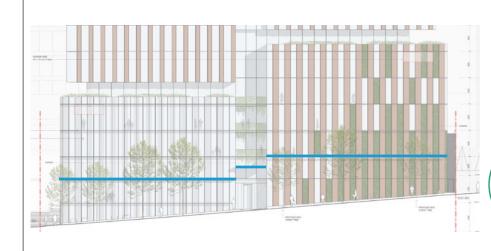


## **AWNINGS**

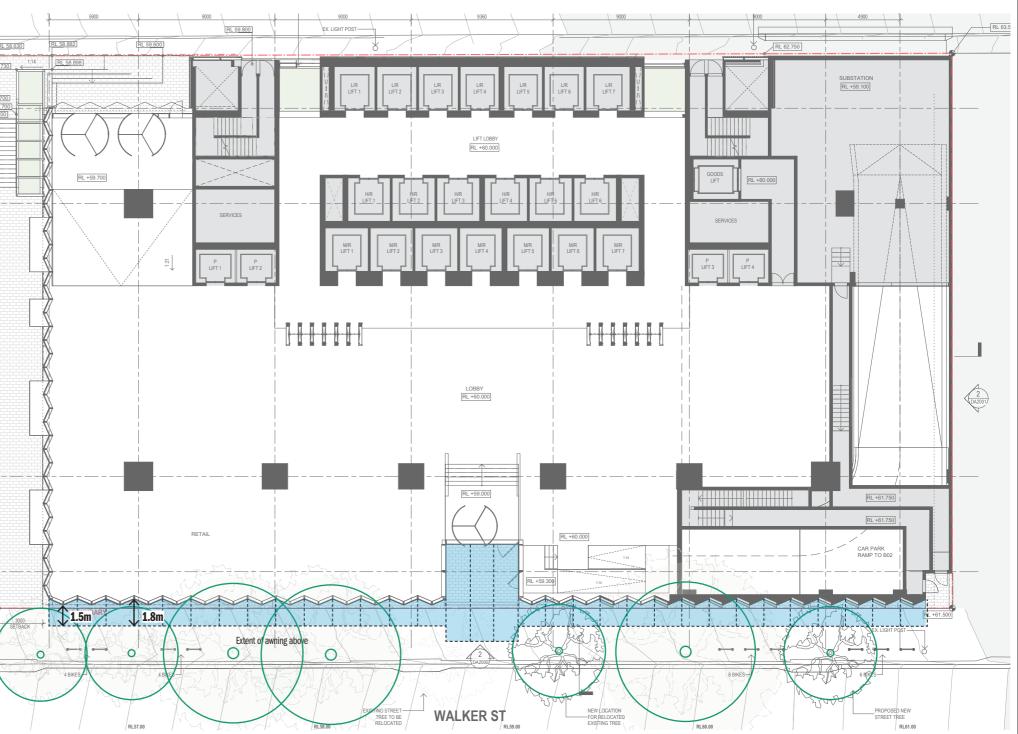
#### **Walker Street**

Given the continuous row of existing and proposed street trees along the Walker Street frontage, the depth of the awning is limited typically to a compliant 1.5m depth to maintain the tree canopy.

At the main Walker Street entry, a deeper awning is able to extend between a gap in the street trees to provide greater amenity and clearly signal the building's entrance.



Walker Street elevation showing awning location

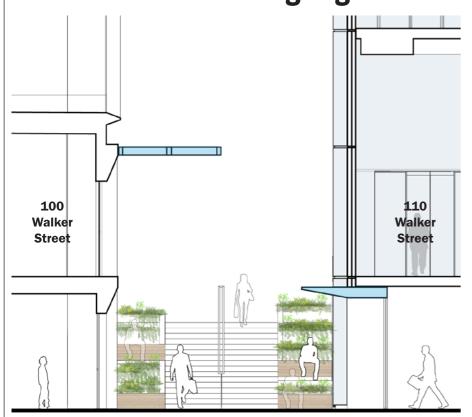


Ground floor plan showing extent of awning along Walker Street

## **AWNINGS**

#### **Through Site Link**

Acknowledging Council's vision to create a new 'open to the sky' laneway, small awnings are proposed at entries along the through site link providing a human scale and fine grain character through their warmth and materiality. The awnings provide a tactile materiality and fine grain character to the building edge.



Through site link north-south section showing awning location



Artist impression of through site link showing awning location

## **AWNINGS**

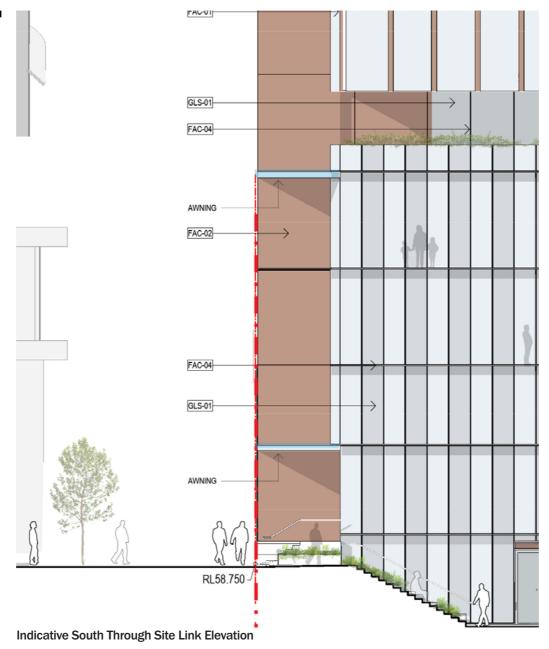
#### **South West Entry Double Awning**

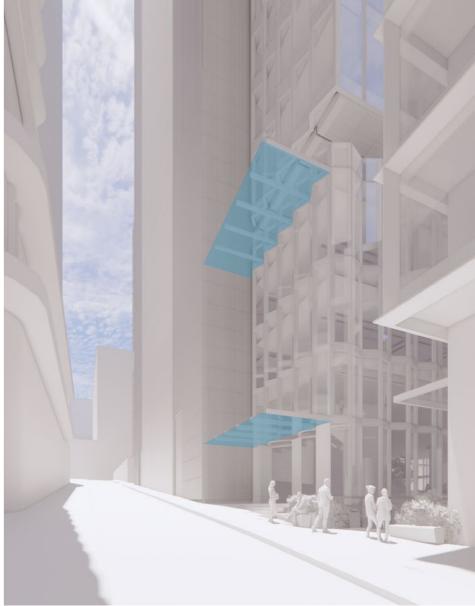
An additional awning is proposed at a higher level above the Little Spring Street lobby entrance to mitigate wind down draft.

This double awning strategy enables the through site link to remain 'open to sky' while providing a comfortable pedestrian experience.

Further wind tunnel analysis has been undertaken with the recent proposal for 100 Walker Street to understand the impacts to the wind environment. An additional awning has been provided at the podium terrace level to divert winds at this location

to increase the comfort and safety ratings at a particular at the south east corner on Walker Street without the need for a fully covered through site link. Please refer to the updated Wind Report prepared by CPP for further detail.





**Artist impression** of south west lobby entrance

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## GREEN WALL-LITTLE SPRING STREET

## SUPPORTING LETTER FROM FYTOGREEN

Fytogreen have updated their previously issued letter to more clearly address the questions raised by Council and to summarise and confirm their confidence that the proposal will be successful in the long term.



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#### 110 Walker St - DA Submission

Dear North Sydney Council

As specialist greenwall Horticulturists, we have worked together with Hassell since the Concept Design stage in 2019 and we are confident the design can be delivered for long term success. We understand there are still some outstanding questions from North Sydney Council which we address below and is further supported by the documentation previously submitted.

#### **RESPONSE SUMMARY**

Please see below summary of response to North Sydney Council concerns with regards to the Little Spring Street Green Wall, additional detail on each item is provided subsequently.

#### 1. FCF Fytofelt system: 375mm depth

Fytogreen are confident in the effectiveness of the FCF Fytofelt system to support and maintain long-term plant growth envisioned for the green wall. The depth is ample for plant growth. This system has been both extensively tested and successfully installed in locations across Australia.

#### 2. Microclimatic conditions: Western orientation

Fytogreen have reviewed the '110-122 Walker Street Daylight Analysis' completed by ARUP and are confident solar access to the wall is appropriate for healthy plant growth. The western orientation is not an issue for the longevity of plant health. Refer to 'The Standard', Brisbane as a benchmark for a successful west facing FCF Fytogreen greenwall.

#### 3. Longevity: Plant replacement

Fytogreen is confident the installed green wall will be long-lasting. The complex planting design is completed by an experienced Botanist, selecting species based on the microclimatic conditions of the site to ensure minimisation of plant replacement. For example Medibank's greenwalls in Melbourne (8+ years old) record only 2% plant replacement annually despite extreme microclimatic conditions – Little Spring Street has less extreme conditions.

#### 4. Reliability: Irrigation & Maintenance

The major risk factor for greenwalls is the reliability of irrigation. The FCF-Fytogreen system for 110 Walker has designed out these risk factors with two strategies, firstly the irrigation system is designed with flow and power outage alarms with back-ups available in emergency – ensuring servicing issues can be addressed immediately. Secondly, the FCF-Fytofelt system is comprised of growing media that has enhanced absorption rates (compared to older greenwall systems) which can retain water to support plant growth for 5 days without irrigation.

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#### Further detail to address Council Concerns (summarised above):

Little Spring St Greenwall – 375mm depth (set back allowance) and ability to deliver a lush greenwall within the site boundary.

Fytogreen has developed a Fire Compliant greenwall system called FCF Fytofelt, the total depth off the host wall is 100mm plus foliage. Whilst the system might appear thin, the primary difference is, the enhanced absorption rates of the felt and the panel design, enable sufficient water retention for the greenwall to survive a minimum of 5 days without irrigation and the panel design configuration ensures roots are completely unrestricted and will integrate with adjacent panels, further ensuring the sustainability and robustness of the system.

The same system was used 9-10 Doohat Ave, North Sydney, see link to the Case Study. https://fytogreen.com.au/doohat-st-sydney-fire-compliant-green-wall/.

We have also recently completed The Standard in Brisbane, see link https://fytogreen.com.au/standard-fire-compliant-green-wall/

We have also recently completed 380 Lonsdale St, Melbourne, see link https://fytogreen.com.au/dual-towers-380-lonsdale-st/

Microclimate assessment and selection of species that will thrive.

Fytogreen have seen the results of the daylight analysis conducted by Arup and do not have any concerns on the daylight conditions. Additionally, Fytogreen will review the Wind Report to ensure the long-term success of the green wall.

With the above information, Fytogreen is able to conduct informed design, develop design philosophies that further enhance the development of microclimates within microclimates through the integration of fractal factors that enable sustained plant diversity.

#### Longevity and sustainability of plant selection

Planting design is conducted by our experienced Botanist and horticultural team, selecting species unique to each project and the sites specific environmental conditions. Fytogreen is continually researching and developing a robust plant palette, currently in surplus of 1,500 species, to which have been selected for longevity and sustainability in harsh environmental applications.

Triptych Apartments (2010) and Medibank Building (2014) are excellent examples of sustainable plant selection in Melbourne's challenging urban condition. These greenwalls have plants exceeding 10 years of healthy and sustained growth, and our expectation is that continue to excel for many years to follow.

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Triptych Apartments case study:

https://fytogreen.com.au/triptych-apartments-green-wall/

Medibank Building case study:

https://fytogreen.com.au/medibank-docklands-fytowall/

#### Maintenance regime and insurance of "live plants"

Fytogreen have in excess of 8,000m2 of greenwall in Australia and have a dedicated maintenance team of 15 operatives along the eastern seaboard, and as such have both the experience and design capacity to develop solutions for any installation.

Projects of this size have back-up systems sitting as "slaves" waiting to be activated should the need arise, as was designed into the tallest "Indoor Greenwall in Australia" – Tower 4 – Collins Square, Docklands – see link <a href="https://fytogreen.com.au/tower-four-australias-tallest-indoor-greenwall/">https://fytogreen.com.au/tower-four-australias-tallest-indoor-greenwall/</a>

The system is supported by flow and power outage alarms with spares always available, but as previously mentioned, the FCF Fytofelt system will cope with 5 days without water, so the system has its own in-built design insurance.

Maintenance of a wall of this size is by combination of BMU and Ropes which will require cordoned off zones at footpath level during maintenance. Typical maintenance is 4 times per annum for plant maintenance, pruning, removal of unwanted species and replacements as required.

Fytogreen's typical preventative maintenance programme, has a cost allowance for 5% plant replacements per annum built in, a number that we rarely require.

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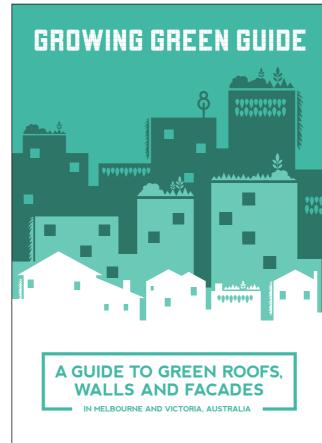


## GREEN WALL PRINCIPLES

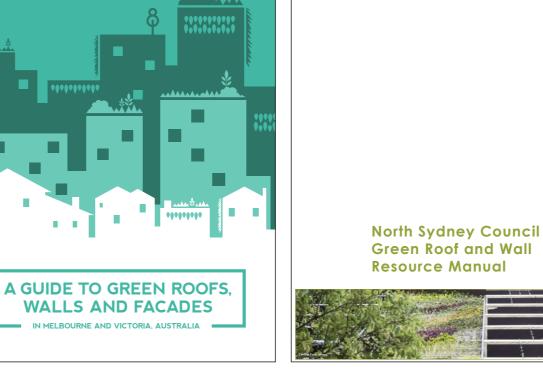
The landscape amenity of the proposed green wall will be a positive addition to the public domain achieving North Sydney Council's strategic objective of increased greenery within the CBD.

**The Little Spring Street Greenwall** design is a collaboration between Hassell and Fytogreen. Fytogreen are Australia's leading experts in greenwall and greenroof design.

The design has been guided by principles set out in both the 'Growing Green Guide' and 'North **Sydney Council Green Roof and Wall Resource Manual.** 



Growing Green Guide, State of Victoria through the **Department of Environment and Primary Industries** 2014



North Sydney Council Green Roof and Wall Resource Manual

"A green wall is comprised of plants grown in supported vertical systems that are generally attached to an internal wall. Like many green roofs, green walls incorporate vegetation, growing medium, irrigation and drainage into a single system.

A wide range of plants is used on green walls, usually herbaceous, though some small shrubs can also be suitable.

A well-designed green wall system will fulfil both design and functional aims by providing growing conditions suitable for the selected species, have a long lifespan, require minimal component replacement, and have achievable demands for maintenance.'

**Growing Green Guide** 

## GREENWALL BENEFITS

Green roofs and walls provide many environmental and community benefits. They are an integral part of any sustainable city.

The green wall on Little Spring Street will provide many benefits to North Sydney and the amenity of 110 Walker Street.



**Improved air quality** 



Beautifying the building and cityscape



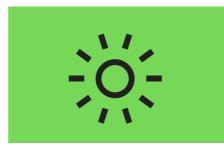
**Support local biodiversity** 



**Support physical and mental health** 



**Insulating building from heat and noise** 



Cooling city temperatures and reducing urban heat island effect



**Support physical and mental health** 

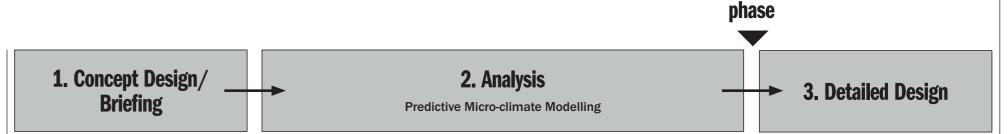


**Reduced thermal mass** 

## GREENWALL DESIGN PROCESS

A rigorous step-by-step design process is followed to ensure the long-term health and vitality of planting.

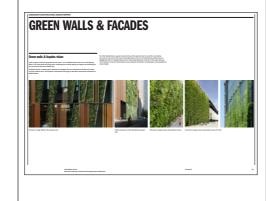
With this process, Fytogreen is able to conduct informed design, develop design philosophies that further enhance the development of micro-climates within micro-climates through the integration of fractal factors that enable sustained plant diversity.



#### 1a. Concept Design

A landscape concept, prepared by Hassell, is issued to Fytogreen for review and comment - confirming suitability of the concept proposed.

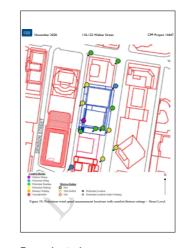
A final Concept Design Report is issued to Fytogreen as a briefing document for next stages, it includes look & feel imagery and indicative species selection.



Example study

#### 2a. Wind Analysis

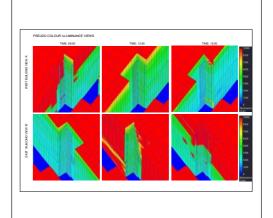
A wind analysis is completed to inform plant selection. This study measures wind in m/s and reading locations nominated based on 1 in 50 year wind data.



Example study

#### **2b. Solar Access Study**

A solar access study to be completed by Specialist Lighting Engineer, identifying minimum and maximum lux levels provided for the winter and summer solstice and equinox for 9am, 12 noon and 3pm at 1m intervals. This study takes into account adjacent surface reflectivity.



Example study

#### **3a. Species Selection**

**Current project** 

Fytogreen prepares a detailed species list based on Hassell's indicative palette and site analysis.



Example study

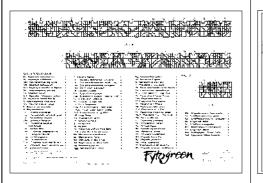
#### 3. Detailed Design

#### 4. Fabrication & Installation

#### 5. Maintenance

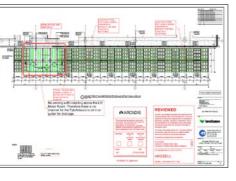
#### **3b. Detailed planting plan**

A solar access study to be completed by Specialist Lighting Engineer, identifying minimum and maximum lux levels provided for the winter and summer solstice and equinox for 9am, 12 noon and 3pm at 1m intervals. This study dictates species selection.



#### **3c. Shop drawing review**

Fytogreen construction details are reviewed by the project team to ensure coordination of architectural elements and site services including hydraulics.



#### 4a. Fabrication & pre-grow

Green wall components are assembled, plants procured and planted out 3 - 6 months ahead of installation for 80-85% canopy cover on installation.



#### 4b. Install

Installation of growing modules, drip irrigation lines and control cabinet with alarm system.



Fytogreen will are engaged for the ongoing maintenance of the green wall. Fytogreen's green wall maintenance team are specialists trained in elevated horticultural care.

5a. Maintenance



from ground level occur monthly.

Maintenance will occur at an average of
4 times per annum including monitoring
of irrigation, nutrient balance, pruning,
removal of unwanted species and
replacements as required.

Visual inspections of the greenwall

Fytogreen's typical preventative maintenance programme, has a cost allowance for 5% plant replacements per annum built in, a number rarely required.

Access to the green wall is similar to a standard building facade maintenance which includes a combination of BMU and ropes.

Example study

Example study

Example green wall module

Installation photograph

Maintenance photograph

### BENCHMARKS

#### **Fytogreen Greenwalls**

We are collaborating with Fytogreen on the design of the Little Spring Street greenwall as the are Australia's leading specialist in sustainable vertical gardens, environmental extensive roof gardens, light-weight intensive roof gardens, planter boxes and green facades.

They bring unparalleled expertise and knowledge into the design of greenwalls.



#### Medibank Docklands, Melbourne - Hassell & Fytogreen

Location: 720 Bourke Street, Melbourne

Client: CBUS Properties Completion: June 2014

Size: 400m<sup>2</sup>



#### **Illura Apartments**

Location: Illura Apartments, 87-101 Roden St, West Melbourne, VIC

Completion: June 2013

Size: 80m<sup>2</sup>



#### **Triptych Apartments**

Location: 8 Kavanagh St, Southbank, Melbourne, Vic

Client: LU Simons Completion: 2010 Size: 206m<sup>2</sup>



#### **Bligh Street**

Location: 1 Bligh Street, Sydney CBD

**Client: Dexus Property Group** 

Completion: 2011 Size: 377m<sup>2</sup>

## **BENCHMARKS**

#### **Recently completed FC-Fytofelt system**

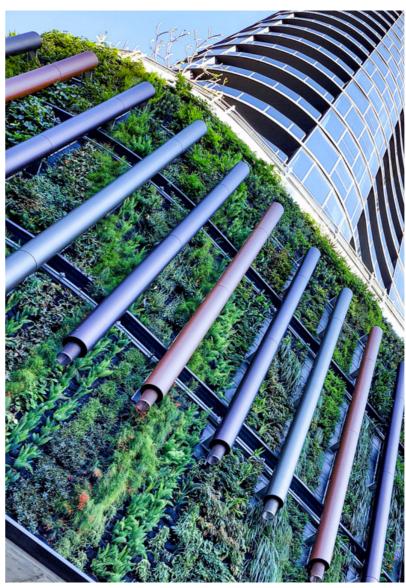
The FC-Fytofelt system is an extensively tested system that has been applied various project across Australia, including Doohat Avenue in North Sydney and The Standard, Brisbane.

Unlike common box-module green walls, the FCF Fytofelt system is an AS1530.3-1999 fire compliant green wall system.



#### **Doohat Ave, North Sydney**

Location: 9-11 Doohat Ave, Sydney Client: Lexpol Group Pty Ltd Completion August 2020 Size: 6 x 9.5m







### The Standard, Brisbane - Australia's largest fire compliant green wall

Location: 13-17 Manning St, South Brisbane

Client: Aria Property Group Completion April 2021

Size: 410m<sup>2</sup>

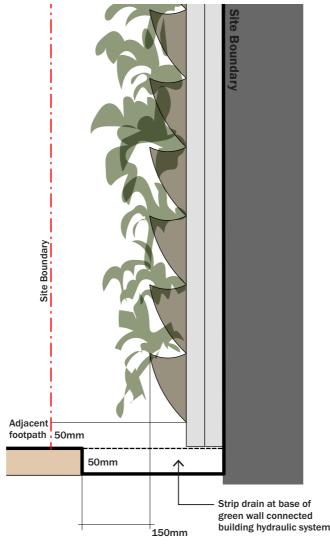
## FC-FYTOFELT SYSTEM

The greenwall system has a noncombustible aluminium backing board and our new felt is compliant to AS1530.3 testing standards.

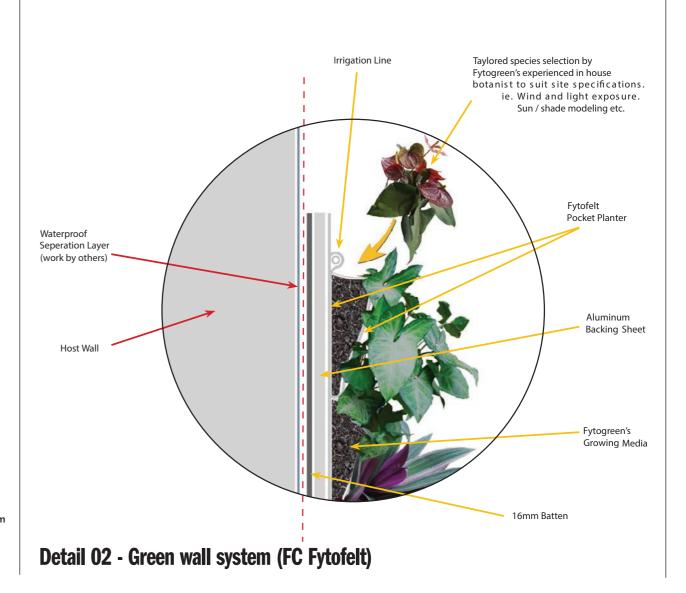
The plants root system is wrapped with fire compliant wraps; this creates an interchangeable system, allowing the possibility of simple plant re-arranging or replacement anywhere on the wall.



**FC Fytofelt Module** 



**Detail 01 - Green wall typical detail** 



## FC-FYTOFELT SYSTEM

### Technical details relating to the green wall system are noted adjacent.

#### **Green wall module**

Soil-less growing medium & fertigation system

#### **Materiality**

Unlike other green wall systems, the green wall frame is made from a non-combustible aluminium backing board. The felt is compliant to AS1530.3 testing standards.

#### **Module depth**

Whilst the system might appear thin, the enhanced absorption rates of the felt and the panel design, enable sufficient water retention for the greenwall to survive a minimum of 5 days without irrigation.

#### **Root growth**

The panel design configuration ensures roots are completely unrestricted and will integrate with adjacent panels, further ensuring the sustainability and robustness of the system.

#### **Hydraulics/ irrigation**

**Automated irrigation control** 

#### **Water absorption**

The FC-Fytofelt green wall system has the capabilities to use less water.

The FC-Fytofelt ensures all plants are watered uniformly with improved water absorption properties within the felt by a factor of 2, ensuring improved buffering.

#### **Irrigation & feeding system**

An automated irrigation/ hydroponic feeding system is integrated into the module, managed via a control box regulating back flow prevention, pressure reducing valve and fertigation supply.

The irrigation system is supported by flow and power outage alarms with spares always available, but the FCF Fytofelt system will cope with 5 days without water, so the system has it's own in-built design insurance.

#### Water runoff

The system includes integrated irrigation, drip trays at the base of the wall (integrated into the buildings hydraulic services), and fixings for the modular Fytofelt pocket growing material.

#### **Care & Maintenance**

#### **Maintenance types**

The green wall has four main types of maintenance including;

- 1. Host wall maintenance
- 2. General plant maintenance (weeding, pruning, pest and disease)
- 3. Irrigation system maintenance
- 4. Fertigation system maintenance

#### Plant replacement

The plants root system is wrapped with fire compliant wraps; this creates an interchangeable system, allowing the possibility of simple plant re-arranging or replacement anywhere on the wall.

Fytogreen's typical preventative maintenance programme, has a cost allowance for 5% plant replacements per annum built in, a number rarely required.

#### **Frequency**

Visual inspections of the greenwall from ground level occur monthly.

Maintenance will occur at an average of 4 times per annum including monitoring of irrigation, nutrient balance, pruning, removal of unwanted species and replacements as required.

#### **Access**

Access to the green wall is similar to a standard building facade maintenance which includes a combination of BMU and ropes.

## MAINTENANCE

Fytogreen has prepared a Draft Maintenance Manual for the Little Spring Street Greenwall. Please see Appendix for the manual.

It includes information on Fytogreen Contact Personnel, FCFytoFelt green wall Component Specification Literature, Care & Maintenance Advice and Warranties.

Fytogreen prides itself on the quality of projects they deliver and adhere strictly to the guidelines and methods outlined in their Internal Quality Assurance System.



Sustainable bespoke greening solutions for the built environment

www.fytogreen.com.au

101225FCF 110 Walker Street
North Sydney, NSW

Fytogreen Australia Pty Ltd

FCFytoFelt Green Wall

TBC

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# BIKE PARKING

## **BIKE PARKING**

The design proposal has been amended to accommodate a fully compliant DCP provision for tenant and visitor bike parking.

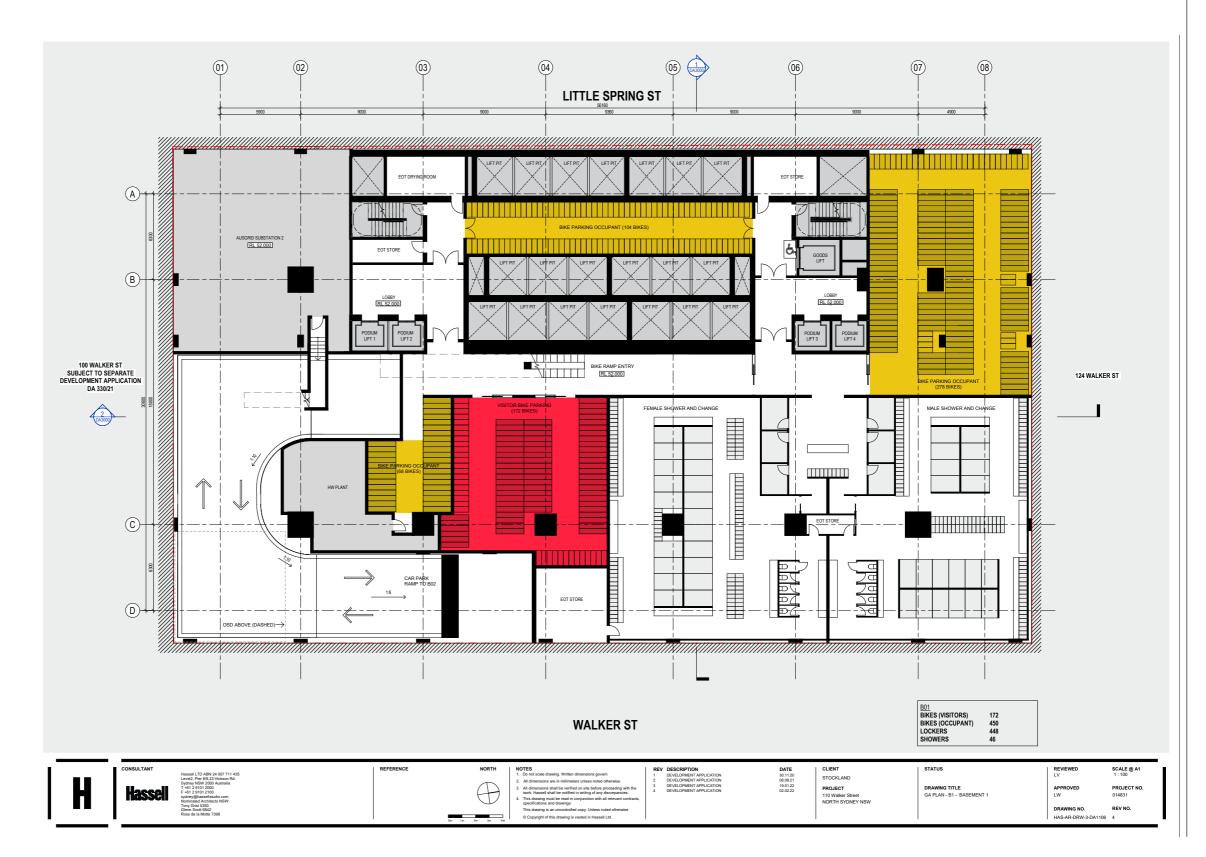
For the visitors bike parking, a total of 172 spaces have been accommodated in the basement with the other bike parking facilities. This is an increase of 134 spaces within the basement level from the previously provided 38 spaces.

The remaining 20 spaces have been accommodated along Walker Street as previously proposed.

-		Staff (Tenant)	Visitors	Staff (Tenant)	Visitors
Comn	nercial	<b>1 /150sqm GFA</b>	1 /400sqm GFA	439	165
Retail		1 /250sqm GFA	2 + 1/100sqm GFA	11	27
5			Totals	450	192

**Visitor Bike Parking** 

**Tenant Bike Parking** 



# PODIUM OPERABLE FACADE

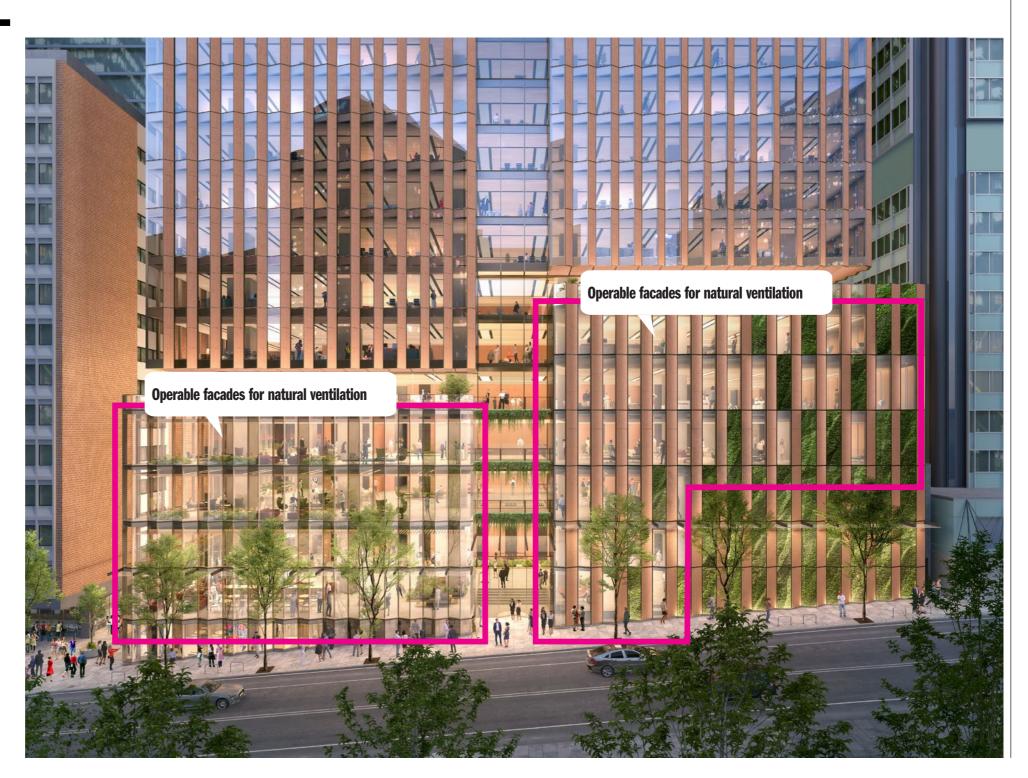
## OPERABLE FACADE

Natural ventilation has always been a key driver for the workplace and interior spaces from the competition scheme through to the Development Application.

An operable facade has been implemented on the podium to provide naturally ventilated spaces that will enhance the project's health and wellbeing initiatives.

The operable panels also present a more dynamic facade through the variation in relfections created by the variation in angles to the open and closed panels.

This assists in further providing articulation, detail and scale to the scheme at the lower floors of the building that interact more closely with street level.









**Example Precedent Facade Approaches for Natural Ventilation** 

### Operable facade openings indicated by dashed lines on elevation



#### **Southern Facade**



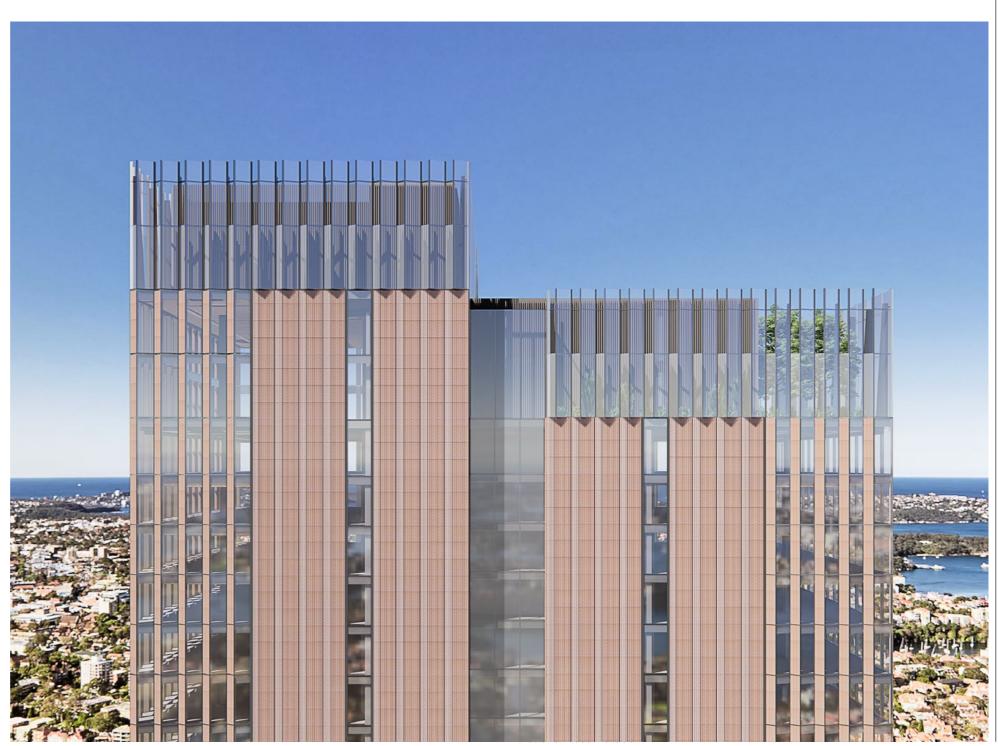
# WESTERN FACADE

## WESTERN FACADE

Inspired by the terracotta roofs of surrounding North Sydney, the facade's material palette is contextually responsive, tactile, warm and environmentally responsible.

To address recent comments from Council, the design has included additional areas of glazing to the western facade to 'lighten' the visual appearance, refine and articulate the facade better while still balancing its performance and contextual responses.





#### **Previous Western Elevation**



## WESTERN FACADE

The solid portions of the western facade have been designed to provide:

- a high quality outcome
- a facade with visual interest
- profiled and textured panels
- variation in colour
- variation in matt and glazed finishes
- scale of the panels

This is a similar approach undertaken at the Sydney Opera House which uses the above techniques to deliver a dynamic and beautiful, solid facade to its shells.

In the low rise portion of the core, the green wall provides much needed landscape and greenery to the CBD, better visual amenity, increased ecological benefits and a reduced urban heat island effect.



Terracotta/GRC or similar Terracotta/GRC or similar

Glazed Terracotta/GRC or similar

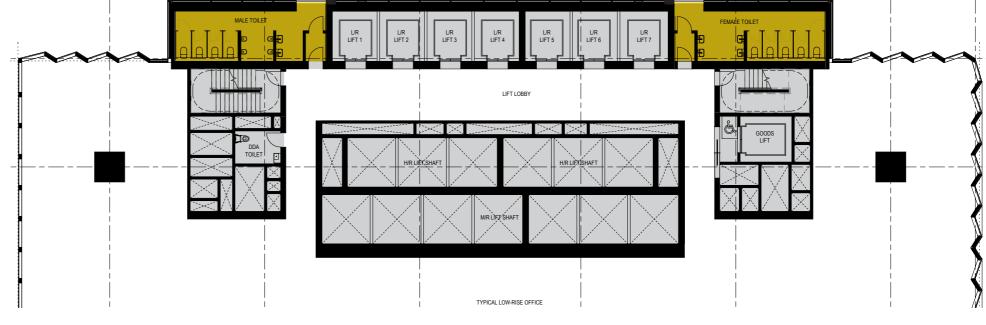
Profiled panels with variation in colour and matt / glazed finishes to pick up light and reflections at different angles and times of day.







The male and female low rise bathrooms are reconfigured to allow glazed windows along the facade as you enter. Frosted glass or other internal device is proposed to ensure privacy while allowing natural light into the space.



Additional glazed windows are proposed within the centre notch of the facade to further lighten the facades appearance. Frosted glass or other internal device is proposed to ensure privacy while allowing natural light into the bathrooms.

