

SUSTAINABILITY, BASIX & GREEN STAR

INTRODUCTION

This proposed scheme focuses on creating a building of iconic performance, being highly comfortable and efficient residential building designed for Sydney's climatic conditions.

The significant design targets include high levels of energy performance, environmentally low-impact materials, and efficient water management.

These targets are directed at reducing environmental impacts for the whole life cycle of the building.

The building design will embrace the social and health enhancing role of sustainability by demonstrating technology, nature and design initiatives to the larger public.

ESD AND BUILDING SERVICES

The design concept is based on initiatives that are capable of achieving the following industry benchmarks;

- BASIX plus 20% energy and water; and
- 5 Green Star Multi-Unit Residential rating V1;

Initiatives to reduce energy demand, to increase indoor environmental quality of the building, and to minimise environmental impact from the whole-of-life of the building were divided in this document in the following sections:

- Energy and Indoor Environmental Quality: is demonstrated through the selection of low energy mechanical cooling, high performance building envelope using operable external shading, regenerative lifting and corner flow ventilation.

- Water Efficiency: Achieved through water efficient fixtures, rainwater reuse for toilet flushing, water metering and leak detection systems. A storm water management strategy will be adopted to encourage natural drainage and minimize discharge to sewer where possible.
- Materials and Waste: Dematerialisation will be targeted followed by a green procurement of building materials and components in accordance with their entire life cycle assessment (from cradle-to-cradle);
- Site and Social Sustainability: The design addresses Sydney CBD's community and visitors through a dynamic space with visible references to passive envelope design.
- Innovation workshops were held to identify and develop the base build design to allow for and or address future environmental changes which may take place.

HIGH PERFORMANCE BUILDING ENVELOPE

Operable façade screens respond to East West orientation allowing for screens to be deployed in response to solar load while maintaining view.

Using high performance glazing with high light transmission allows apartments to achieve NATHERS ratings exceeding 6 Star. The minimum apartment performance is, Htg load 50 MJ/sq.m/yr Cig 41 MJ/sq.m/yr which equals better than 5 stars.

The building envelope comprises of a number of different façade types, with the proposed scheme using a combination of glass and screen performance to achieve;

- Very low solar heat gain coefficients (0.07) resulting in extremely low solar load <40 w/m2.
- Very clear (low iron 70%VLT) glass with high visibility.

LOW ENERGY MECHANICAL SYSTEMS

The air-conditioning strategy takes advantage of the district cooling and heating available in the Central Park precinct.

Generally fan coil units will be mounted in bulk heads over toilets and kitchens.

Fresh air may be ducted to the back of a small number of units while general apartments will use windows. This scheme is proposed as it provides energy efficient systems together with reduced air supply and significant reduction in energy use.

SEPP 65 COMPLIANCE

The current design complies with SEPP 65 natural ventilation requirements.

The ventilation scheme is based on providing a cross flow path for air to some of the single sided apartments through transfer ducts.

Sizing of these transfer ducts has been based on previous air flow analysis patterns for constrained apartment units compared to the SEPP65 standard.

LIGHT AND POWER

- Low power lighting for background lighting to be provided as part of the base building works with highly efficient fittings and luminaries.
- Internal lighting will be appropriately zoned with

accessible control by building occupants.

- Lighting quality will focus on providing a balance of lighting on all surfaces so minimise eye fatigue rather than lighting only the horizontal surface. This is done through wall washing, a combination of direct and indirect lighting and daylight control.
- Each apartment to be metered for energy

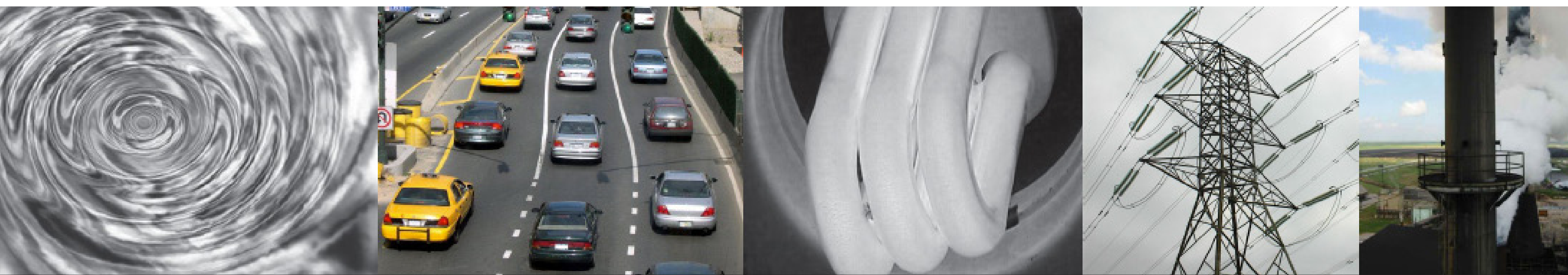
RENEWABLE ENERGY

The building is designed with enough flexibility to allow space on the roof for the installation of Photovoltaic panels to offset carbon emissions resulting from the base building operation. Roof mounted photovoltaics will be sufficient to cover between 10-15% of the buildings energy use.

WATER

The following strategies are proposed:

- Dual reticulation of potable and non-potable water from the Central Park water recycling facility
- Water efficient fixtures;
- Low flow dual flush toilets;
- 5 Star rated taps or spray taps;
- Showers to have a maximum flow rate of 6-7.5 litres per minute;
- Water metering and leak detection systems;
- Water meters and leak detection systems to be provided to ensure water consumption can be monitored, so that consumption can be managed and excess usage or leakage can be controlled;
- Water metres to be connected to a Building Management System (BMS);



- Major water uses will be metered separately (such as changing facilities with showers);
- A leak detection system will be installed to detect any major leaks within the building and site;
- A storm water management strategy will be adopted to encourage natural drainage and minimize storm water pollution where possible;

LOW ENERGY FIT-OUT INITIATIVES

The proposed scheme includes initiatives such as;

- Low-power appliances such as dishwasher, fridges and washing machines. It is suggested that integrated steam heater dryer units are considered installed to central hot water. In addition domestic scale micro fuel cell for penthouses might be considered;
- Smart Power meter displays in the apartment kitchens are proposed to clearly show power and water use to occupants.

MATERIALS AND WASTE

From cradle- to- cradle approach to materials and building components

Building materials and components such as floors, roofs, walls, windows, partitions, insulation and landscaping will be evaluated and considered for specification in accordance with their entire life cycle assessment (from cradle-to-cradle).

Materials will be assessed based on the ‘Green Guide to Specification’ methodology and ratings aiming to minimise impacts related to materials and building components, such as climate change, water extraction, mineral resources, human toxicity, toxicity to water and land, fossil

fuel depletion, waste disposal amongst others.

MATERIALS AND WASTE

Dematerialisation and natural finishes

The proposed base building will reduce the need for pipe work through considering the use of waterless urinals and by potentially replacing some of the roof cladding with PV’s or by improved area efficiencies.

LOW EMISSION MATERIALS

In addition to the benefits of indoor environmental quality derived from energy efficient measures, the use of natural low-emission materials in the apartment fit out are proposed to minimise impacts to occupant’s health and to improve occupant productivity. This will be accomplished by using low-VOC (Volatile Organic Compounds from carpets, adhesives and sealants) and non-formaldehyde (from composite timber) materials. Low ODP (Ozone Depleting Potential). Insulation will also be used to reduce impacts on climate.

SITE AND SOCIAL SUSTAINABILITY

- The design team seeks the opportunity to create education and environmental awareness by providing information that contributes to a more sustainable way of living. This includes initiatives to stimulate the use of public mass transport, monitor and communicate environmental results, and provide a space for creativity, diversity and innovation. The following strategies proposed for public spaces are key to this strategy:
- Media screens: to display real-time transport (to stimulate and facilitate the use of public

transport), weather, travel, events and community information as well as data on water and energy consumption and generation. This could be supported by advertising revenue.

- Health and wellbeing: Floor plate flexibility with the ability to incorporate inter-floor connections with internal stairs, greenery and amenable breakout spaces. This aims to stimulate social interaction amongst building occupants and provides a healthier environment that allows passive recreation and walking rather than using lifts to circulate around the building.
- Resources monitoring: BMS information made available to tenants and the broader community. This helps on promoting public awareness and contributes to the achievement of performance targets.
- Seek to incorporate car share: team up with car share companies to provide 10 car share locations on site.
- Bicycle storage spaces: to stimulate the use of alternative non-pollutant ways of transport.
- Travel Information Point: a designated area to provide information on forms of travel that minimises commute time and environmental impact.

GREEN STAR

The following initiatives form part of the core strategy to achieve the Green Star environmental targets:

- High performance facade with god levels of daylight penetration, thermal comfort, improved energy performance and reduction of glare whilst delivering good access to views.
- Highly efficient mechanical system with improved air quality above minimum standards.
- High efficiency centralised hot water plant
- High efficiency lighting system with dedicated zoning
- Highly efficient water fittings.
- Good ventilation
- Fit out package to include efficient white goods and appliances
- Reduction of waste in materials and extensive use of recycled or reused materials.
- Minimization of emissions associated with ozone depleting materials, light spill into the night sky and reduction of storm water pollution into the storm mains and watercourses.

A Green Star Preliminary Assessment is presented as an appendix to demonstrate the strategy designed to achieve the 5 star rating.



BASIX COMPLIANCE CERTIFICATE

BASIX[®]Certificate

Building Sustainability Index www.basix.nsw.gov.au

Multi Dwelling

Certificate number: 537121M

This certificate confirms that the proposed development will meet the NSW government's requirements for sustainability, if it is built in accordance with the commitments set out below. Terms used in this certificate, or in the commitments, have the meaning given by the document entitled "BASIX Definitions" dated 18/09/2014 published by Planning & Infrastructure. This document is available at www.basix.nsw.gov.au

Director-General
Date of issue: Thursday, 30 October 2014
To be valid, this certificate must be lodged within 3 months of the date of issue.



Project summary		
Project name	Block 11, Central Park	
Street address	O'Connor Street Chippendale 2008	
Local Government Area	Sydney City Council	
Plan type and plan number	deposited 1142053	
Lot no.	5	
Section no.	-	
No. of residential flat buildings	1	
No. of units in residential flat buildings	296	
No. of multi-dwelling houses	0	
No. of single dwelling houses	0	
Project score		
Water	 60	Target 40
Thermal Comfort	 Pass	Target Pass
Energy	 62	Target 20

Certificate Prepared by	
Name / Company Name: Cundall	
ABN (if applicable): 16104924370	

NATHERS COMPLIANCE CERTIFICATE

CUNDALL
30/10/14
Building 11
Central Park
SSD 6376 ESD Report

Prepared for:

By Cundall
Level 1, 48 Alfred Street
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Please contact: Hannah Morton

GREENSTAR POINT SUMMARY



Green Star Point Summary
Central Park Block 11
Multi Unit Residential - Design

Management (Weighting = 0.44)		Available	Base Case	TBC
Man-1	Green Star Accredited Professional	2	2	
Man-2	Commissioning Clauses	2	2	
Man-3	Building Tuning	1	1	
Man-4	Independent Commissioning Agent	1	1	
Man-5	Building Users' Guide	1	1	
Man-6	Environmental Management	3	3	
Man-7	Waste Management	2	2	
Man-16	Metering			
	Section 1: Water Meters	2	2	
	Section 2: Energy Sub Metering	2	2	
	Section 3: Smart-Metering	2	2	
Total unweighted		18	18	0
Total weighted		8	8.00	0.00

Indoor Environment Quality (Weighting = 1.00)		Available	Base Case	TBC
IEQ-4	Daylight	2	0	
IEQ-5	Thermal Comfort	2	0	
IEQ-6	Hazardous Materials	1	1	
IEQ-7	Internal Noise Levels	2	1	
IEQ-8	Volatile Organic Compounds			
	Section 1: Paints	1	1	
	Section 2: Adhesives and Sealants	1	1	
	Section 3: Flooring	1	1	
	Section 4: Wall and ceiling coverings	1	1	
IEQ-9	Formaldehyde Minimisation	1	1	
IEQ-13	Electric Lighting Levels	1	1	
IEQ-20	Private External Space	1	0	
IEQ-21	Dwelling Ventilation	3	3	
IEQ-22	Natural Ventilation	3	0	
Total unweighted		20	11	0
Total weighted		20	11.00	0.00

Energy (Weighting = 0.96)		Available	Base Case	TBC
Ene-0	Conditional Requirement	0	0	
Ene-1	Greenhouse Gas Emissions	20	6	2
Ene-7	Unoccupied Areas	2	2	
Ene-11	Energy Efficient Appliances	2	2	
Ene-12	Peak Electricity Demand Reduction	2	2	
Total unweighted		26	12	2
Total weighted		25	11.54	1.92

Transport (Weighting = 0.71)		Available	Base Case	TBC
Tra-1	Provision of Car Parking	2	0	
Tra-2	Fuel-Efficient Transport	2	2	
Tra-3	Cyclist Facilities	3	3	
Tra-4	Commuting Mass Transport	5	5	



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Tra-5	Trip Reduction - Mixed Use	2	2	
Total unweighted		14	12	0
Total weighted		10	8.57	0.00

Water (Weighting = 1.50)		Available	Base Case	TBC
Wat-1	Occupant Amenity Water	5	4	
Wat-3	Landscape Irrigation	1	1	
Wat-4	Heat Rejection Water	2	2	
Wat-5	Fire System Water	1	1	
Wat-7	Water Efficient Appliances	1	1	
Wat-8	Swimming Pool/Spa Water Efficiency	N/A		
Total unweighted		10	9	0
Total weighted		15	13.50	0.00

Materials (Weighting = 0.53)		Available	Base Case	TBC
Mat-1	Recycling Waste Storage Recycling Waste Storage	2	2	
Mat-2	Building Re-use	N/A		
Mat-3	Recycled-Content & Re-used Products and Materials	1	0	
Mat-4	Concrete	3	2	1
Mat-5	Steel			
	Section 1: Old Credit	N/A		
	Section 2: New Credit	2	1	1
Mat-6	PVC Credit			
	Section 1: Old Credit	N/A		
	Section 2: New Credit	2	2	
Mat-7	Sustainable Timber			
	Section 1: Old Credit	N/A		
	Section 2: New Credit	1	1	
Mat-8	Design for Disassembly	1	0	1
Mat-9	Dematerialisation	2	0	
Mat-11	Flooring	1	1	
Mat-12	Joinery	1	1	
Mat-14	Internal Walls	2	2	
Mat-15	Universal Design	1	1	
Total unweighted		19	13	3
Total weighted		10	6.84	1.58

Land Use & Ecology (Weighting = 0.70)		Available	Base Case	TBC
Eco-0	Conditional Requirement	0	0	
Eco-1	Topsoil	N/A		
Eco-2	Re-use of Land	1	1	
Eco-3	Reclaimed Contaminated Land	2	2	
Eco-4	Change of Ecological Value	4	1	
Eco-5	Outdoor Communal Facilities	3	1	
Total unweighted		10	5	0
Total weighted		7	3.50	0.00

Emissions (Weighting = 0.33)		Available	Base Case	TBC
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Emi-1	Refrigerant ODP	1	1	
Emi-2	Refrigerant GWP	2	0	
Emi-3	Refrigerant Leaks	1	0	1
Emi-4	Insulant ODP	1	1	
Emi-5	Stormwater			
	Section 1: Main Section	2	2	
	Section 2: Riparian Buffer Zone	1	0	
Emi-6	Discharge to Sewer			
	Section 1: Reduced Building Outflows	4	4	
	Section 2: Blackwater Treatment Facility	1	1	
Emi-7	Light Pollution	1	1	
Emi-8	Legionella	1	0	
Total unweighted		15	10	1
Total weighted		5	3.33	0.33

Innovation (Weighting = 1.00)		Available	Base Case	TBC
Inn-1	Innovative Strategies & Technologies	4	1	
Inn-2	Exceeding Green Star Benchmarks	3		
Inn-3	Environmental Design Initiatives	3	3	
Total unweighted		10	4	0
Total weighted		10	4.00	0.00
Grand total unweighted		142	94	6
Grand total weighted		110.00	70.28	3.84

FACADE SYSTEMS

The proposed palette of materials of terracotta, metal and glass provide contemporary reference to the existing masonry buildings of the site, and responds to the new neighbouring developments.

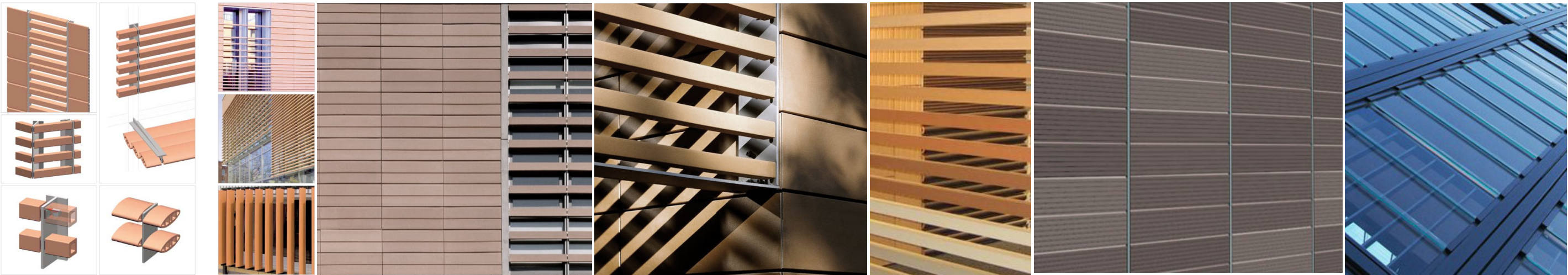
Durable and cost-effective materials have been proposed that are “timeless”, avoiding the flux of fashion trends. As evidenced at our recent apartment development at Little Bay, utilising natural materials such as terracotta provide an appropriate residential character and a market perception of quality.

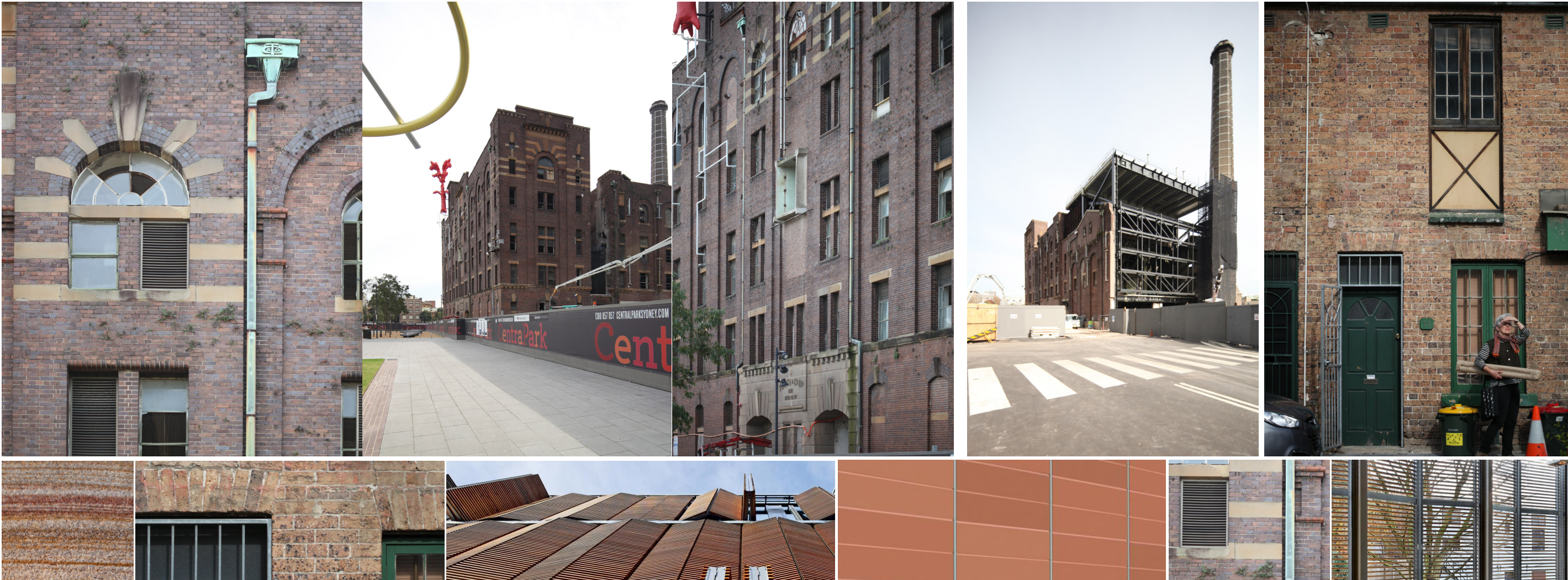
The development will complement and provide contrast to the signature glass buildings that address Broadway, and will reinforce the traditional materiality of Chippendale that is appropriate given its interface and proximity to the finer grain of the existing urban fabric.

The design intent is to provide a considered balance of solidity and transparency. Final material choices may be refined with Frasers, with a range of alternate options possible including ceramic panel and polished precast.

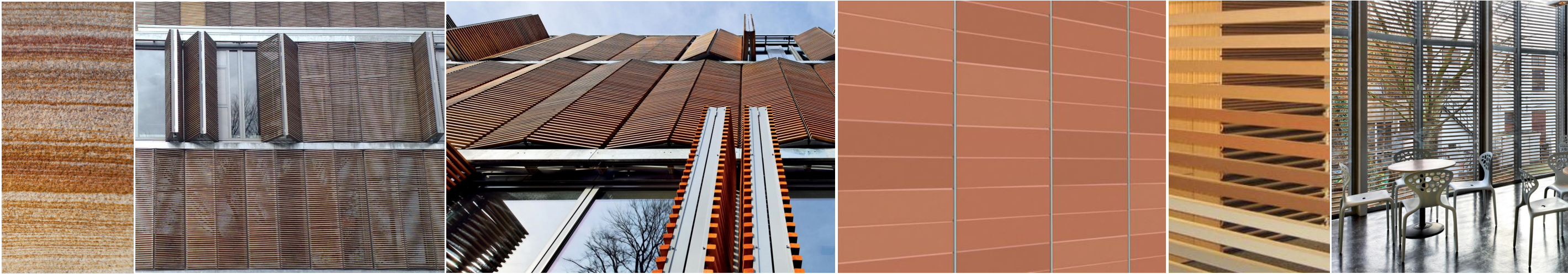


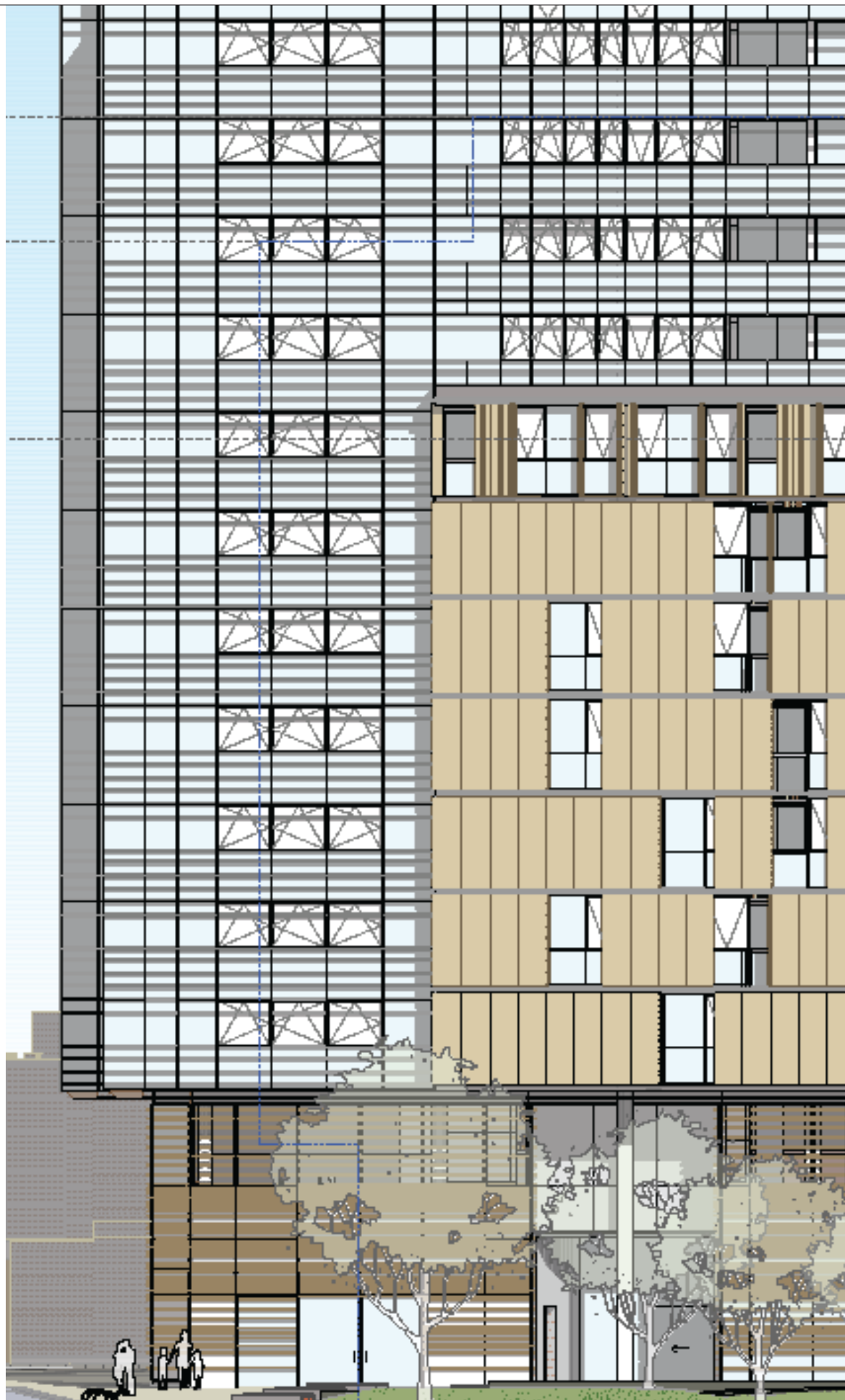
PROPOSED SCHEME , PERSPECTIVE VIEW FROM THE WEST



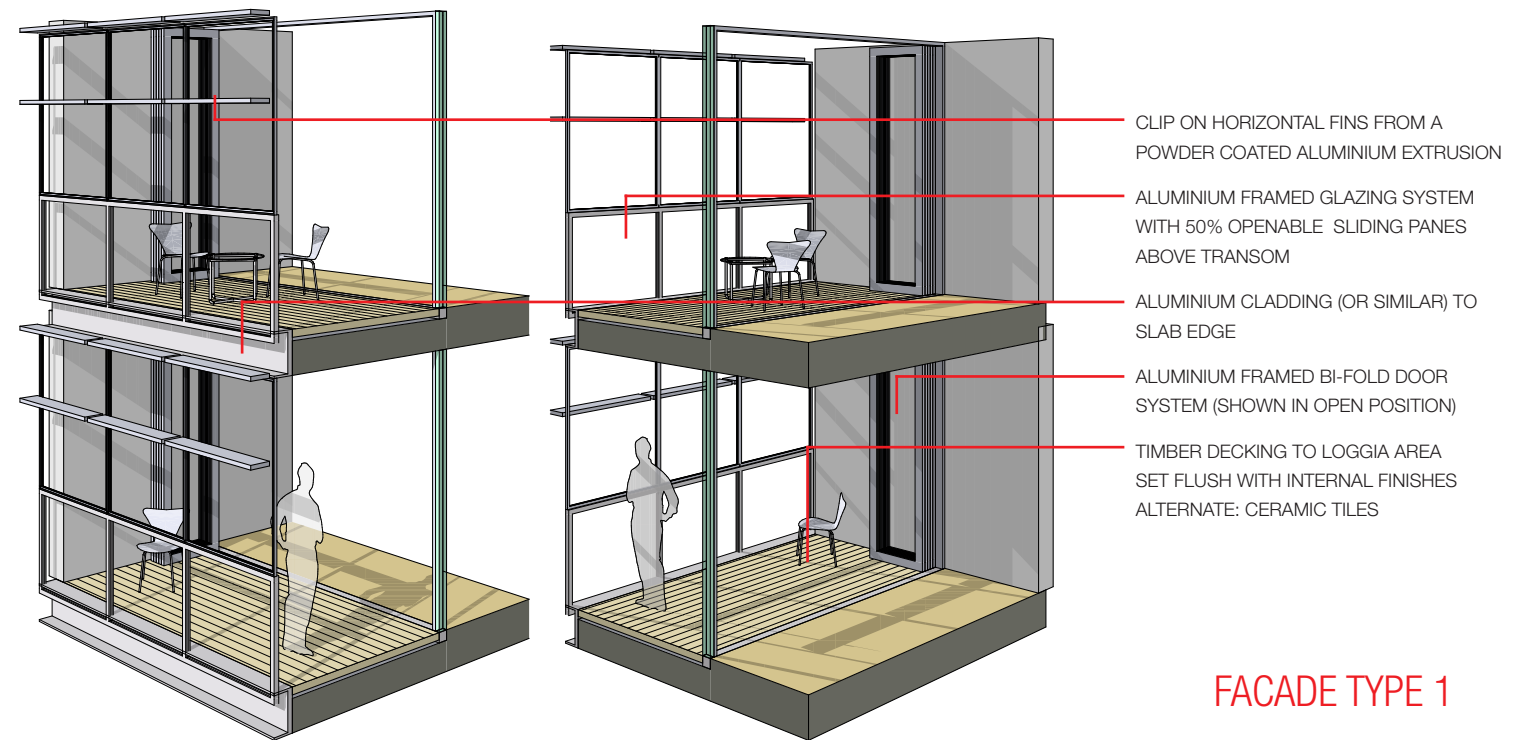


SITE PHOTOGRAPHS BLENDED WITH REFERENCE IMAGES OF MATERIALITY

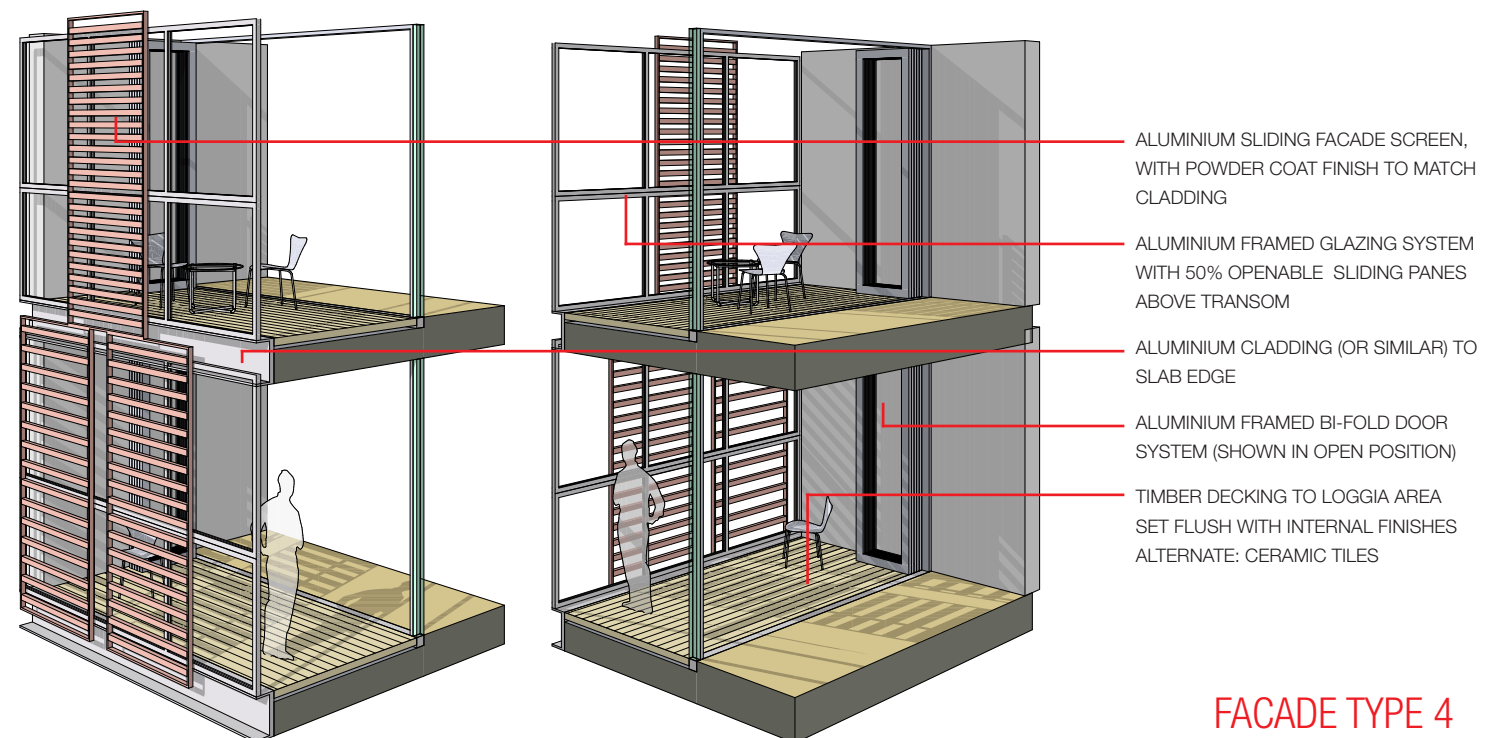




DETAIL OF NORTH FACADE TO PROPOSED SCHEME



FACADE TYPE 1



FACADE TYPE 4

