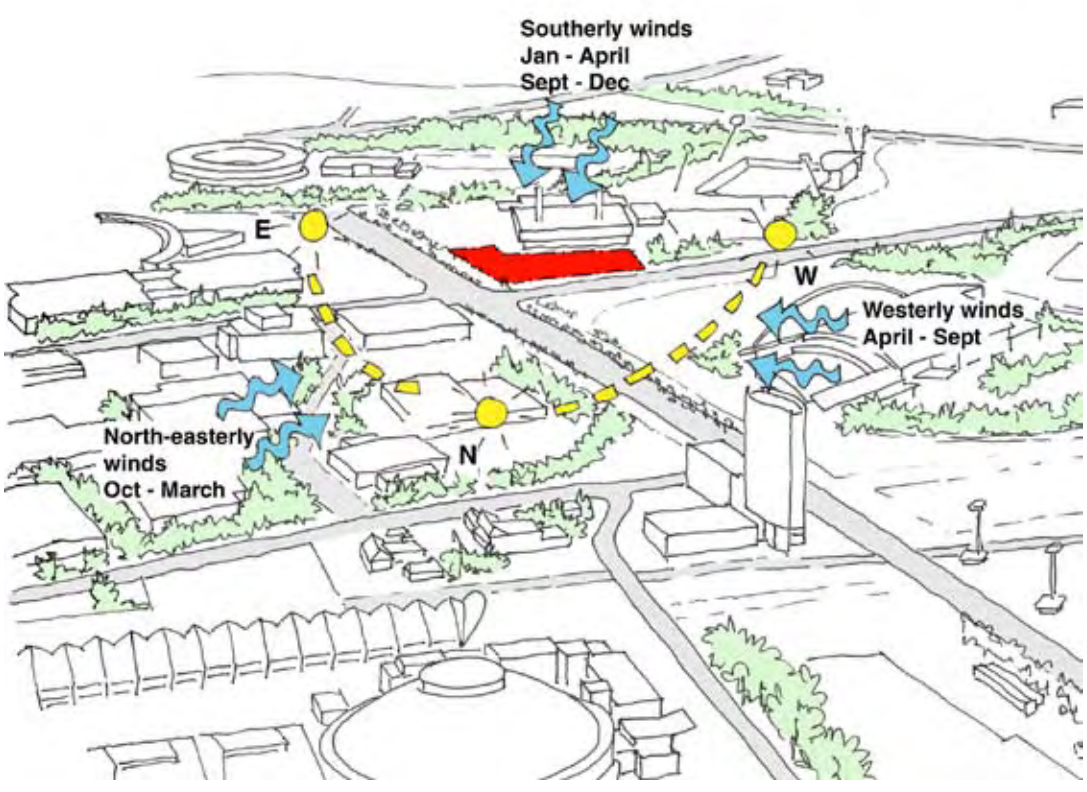
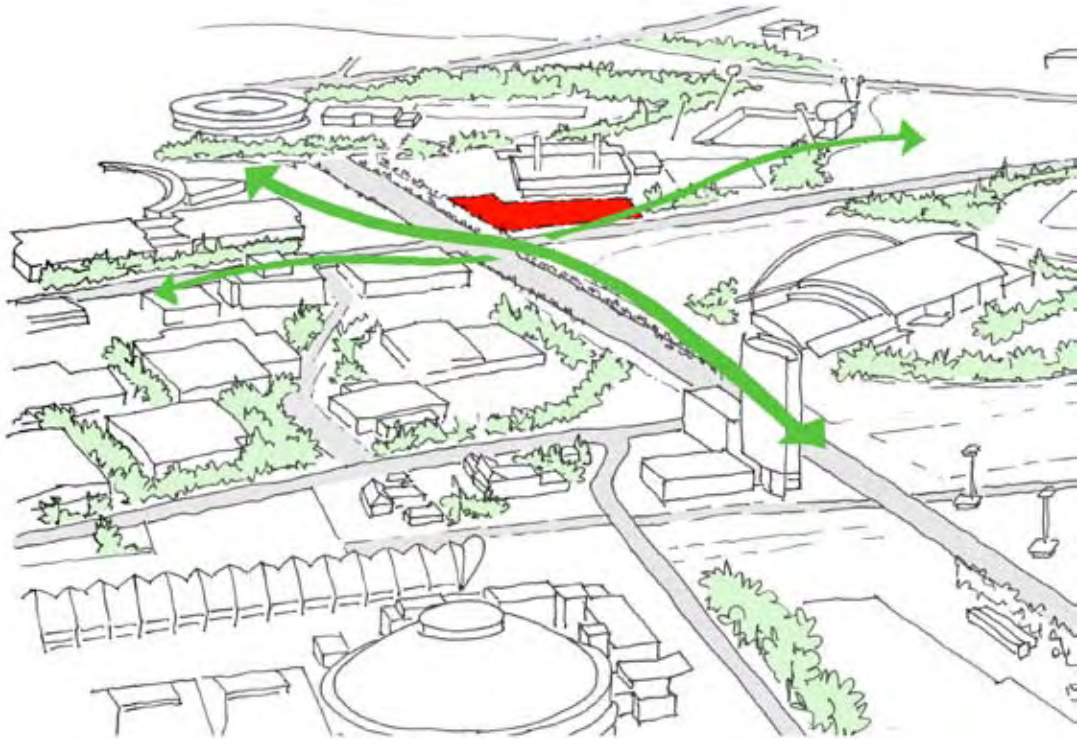
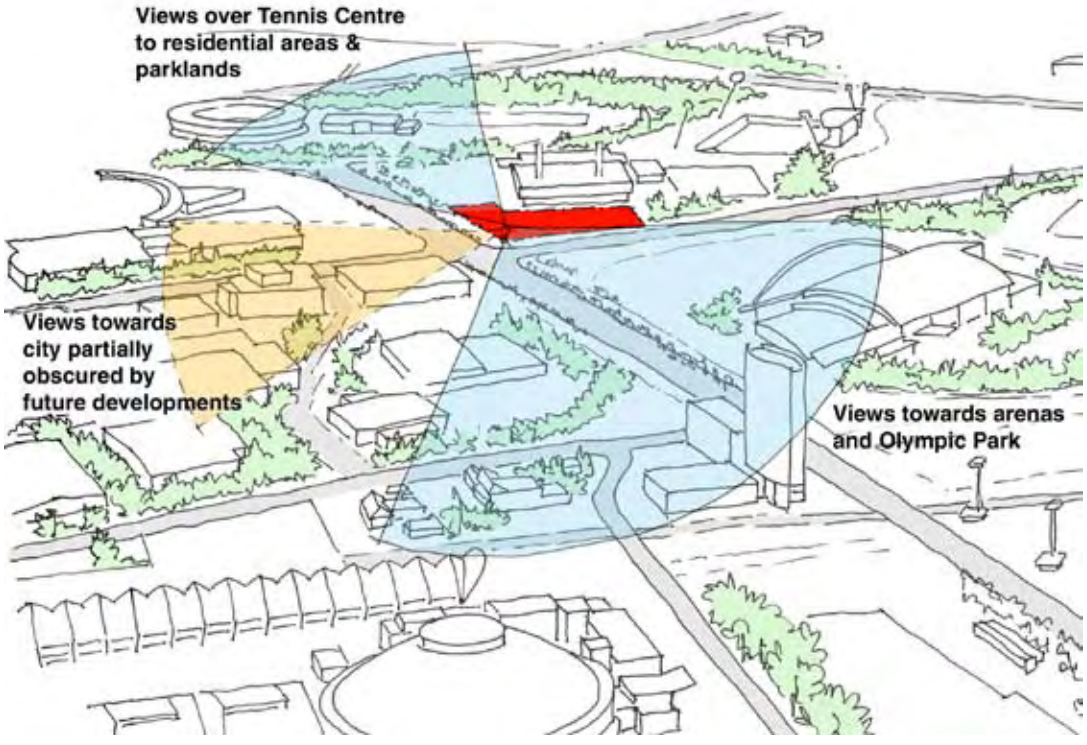


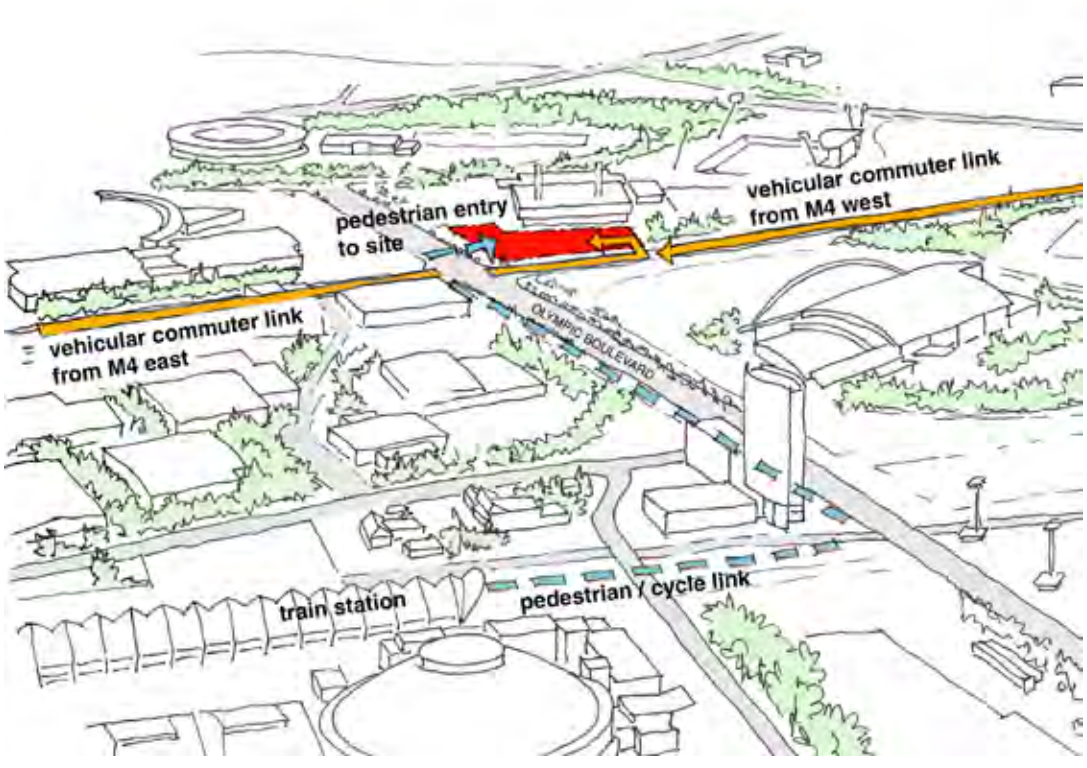
i. Solar & Wind
>The site is on the corner of Olympic Boulevard and Sarah Durack Avenue. The Olympic Boulevard frontage is approximately 55 degrees to the east of north, the Sarah Durack frontage approximately 37 degrees to the west of north.
>The site geometry provides good solar access to both street frontages and the public domain.



ii. Topography
>The site is situated at a natural low point in the topography along Sarah Durack Avenue and falls southwards along Olympic Boulevard towards the Tennis Centre.
>The site has approximately a 1.4m fall from the northern corner down Olympic Boulevard and a 1m fall from the western end on Sarah Durack Avenue towards the northern corner.



iii. Views
>There are views to the south-east over the Tennis Centre to residential areas and parklands.
>Due to the site being at a low point in the topography, the upper floors will have views looking north across Olympic Park towards the arenas, and partial views east towards the city.

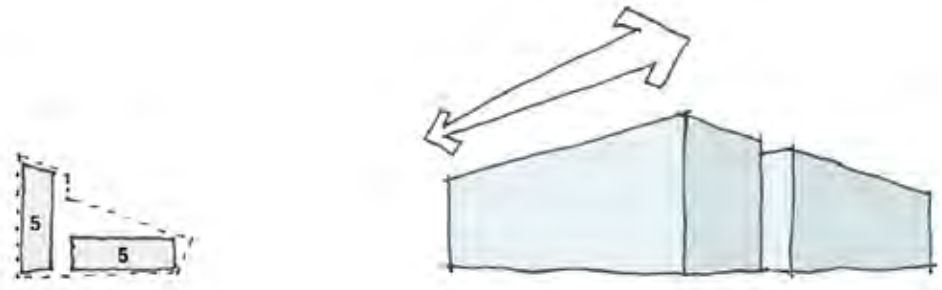


iv. Vehicular & Pedestrian Links
>Sarah Durack Avenue provides vehicular links for commuter traffic from the M4 East & West.
>The vehicular entry to the site is located appropriately on Sarah Durack Avenue at the western end of the site away from the intersection.
>The site is located within easy walking distance to Olympic Park train station. The pedestrian/ cycle route to the site would be along Olympic Boulevard, thus the primary pedestrian entry into the building is on the corner of Olympic Boulevard and Sarah Durack Avenue.

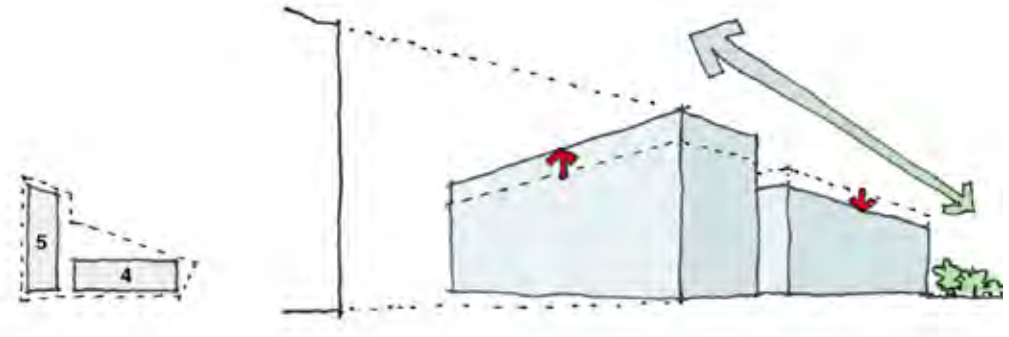
4. Concept Design

i. Urban Design Analysis
The following process describes the progression of massing, form and articulation in response to urban design criteria.

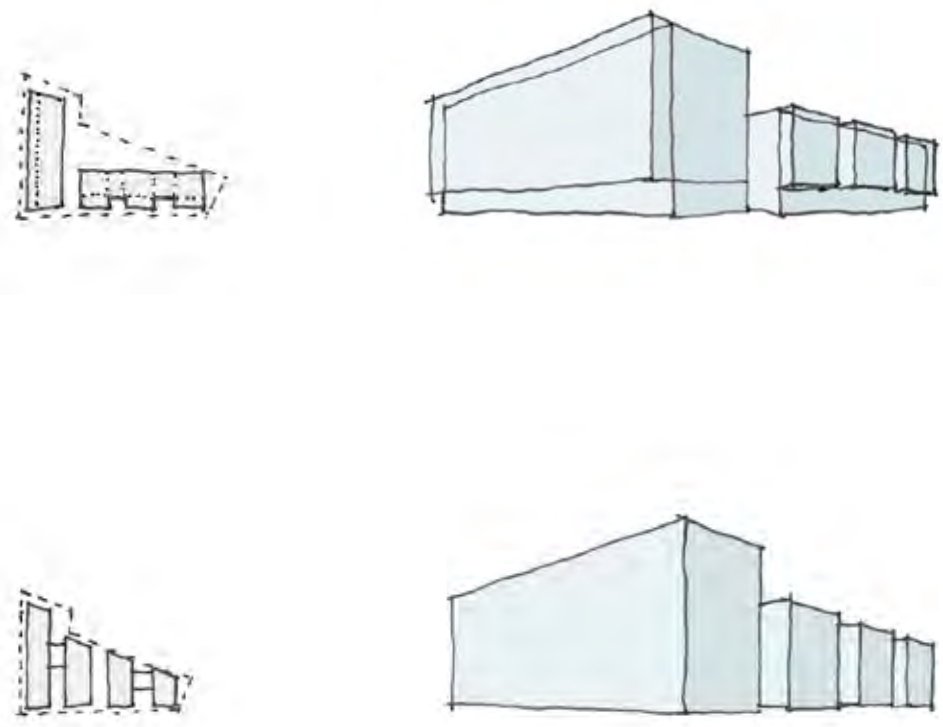
1. Large Corner Building
> Unarticulated building mass - the building is too large for the site
> No differentiation between Olympic Boulevard and Sarah Durack Avenue



2. SOPA Masterplan Envelope
> Dominant volume reinforces Olympic Boulevard
> Articulation to secondary volume along Sarah Durack Avenue



3. Hierachy between volumes
> Increase height to Olympic Boulevard to complement scale of opposite building
> Reduce height along Sarah Durack Avenue to taper away to non-development sites



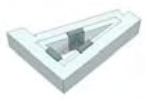
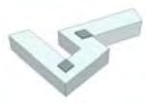
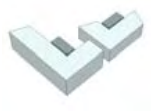
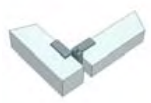
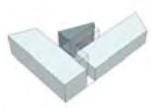
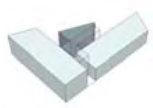
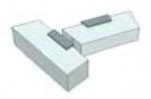
4. Articulation of volumes
> Articulate volume to scale of their respective streets
> Large scale response to Olympic Boulevard
> Articulate volumes along Sarah Durack Avenue to mitigate scale

5. Campus office floorplates
> Building volumes respond to urban design articulation
> Provide open flexible floorplates - linear ‘fingers’ of space
> Atriums provide campus ‘hearts’

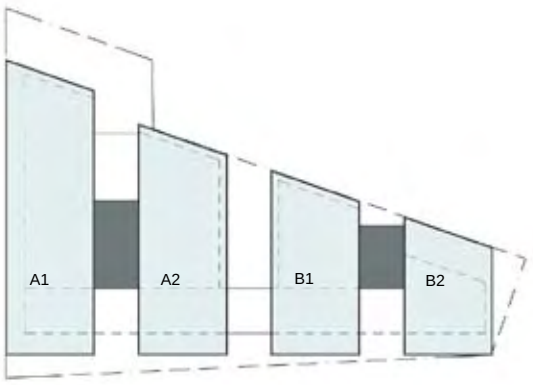
4. Concept Design

ii. Concept Options Analysis

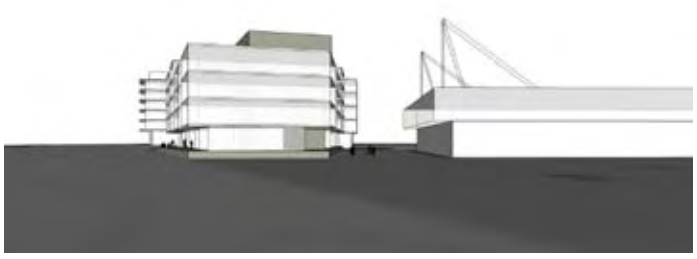
A number of concept options were tested against urban design criteria . The options that conformed to the majority of the urban design issues were then tested against the development criteria. The preferred Option 5a scored most highly and has been further developed for this application.

	Option	URBAN DESIGN ISSUES: Street aligning buildings	Streetwall to Olympic Bvd	Dominant volume to Olympic Bvd	Heirachy between volumes	Articulation of volumes to street scale	Relationship to Sports Centre	Recommendation	DEVELOPMENT CRITERIA: 2 buildings- 10,000sqm & 5,000 sqm	Large, regular open floorplates	Flexible leasing	Horizontal connectivity	Vertical connectivity	Ability to stage	Ability to create 'campus' building
	Single Interconnected														
	1a	✓	✓	✗	✗	✗	✗	not recommended							
	1b	✓	✓	✗	✗	✗	✗	not recommended							
	Two Buildings														
	2a	✓	✓	✓	✓	✗	✓	consider		✓	✓	✓	✗	✗	✓	✗
	2b	✓	✓	✗	✓	✗	✗	not recommended							
	2c	✓	✗	✓	✓	✗	✓	not recommended							
	Two Linear Floorplates														
	3a	✓	✓	✓	✓	✗	✗	consider							
	3b	✓	✓	✓	✓	✗	✗	not recommended							
	3c	✓	✓	✓	✓	✗	✗	consider		✓	✓	✗	✓	✓	✗	✓
	3d	✓	✓	✓	✓	✗	✗	consider							
	3e	✓	✓	✓	✓	✗	✓	recommended		✓	✓	✓	✓	✓	✗	✓
	3f	✗	✓	✓	✓	✗	✓	consider							
	Three Floorplates														
	4	✓	✓	✓	✓	✓	✓	recommended		✗	✓	✓	✓	✓	✗	✓
	Four Floorplates														
	5a	✓	✓	✓	✓	✓	✓	recommended		✓	✓	✓	✓	✓	✓	✓
	5b	✓	✓	✓	✓	✓	✗	consider							
	5c	✓	✗	✗	✓	✓	✓	not recommended							
	5d	✓	✓	✓	✓	✓	✓	consider							

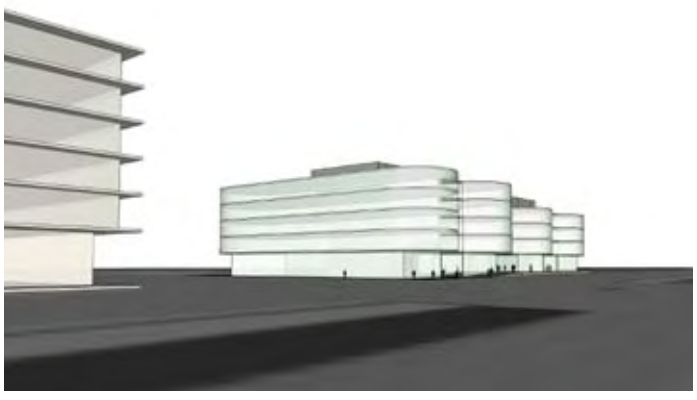
> View looking west down Sarah Durack Avenue



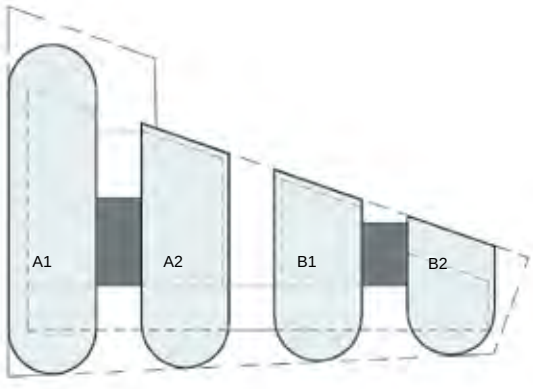
Option 1
>Rectilinear floorplate with squared ends to Sarah Durack Ave & 'sliced' ends to the south to respond to adjacent State Sports Centre.
>Articulation is minimal between the office floorplates and the recessive breakout areas.



> View looking east down Sarah Durack Avenue



> View looking west down Sarah Durack Avenue



Option 2
>Rectilinear floorplate with rounded ends to Sarah Durack Ave & rounded to both ends of Building A1 to create a dual aspect gateway building to Olympic Boulevard
>Articulation between forms more expressed and dynamic

> View looking east down Sarah Durack Avenue
>Rounded end to the southern end of Building A1 is visible while maintaining sliced end at ground floor

BATESSMART.

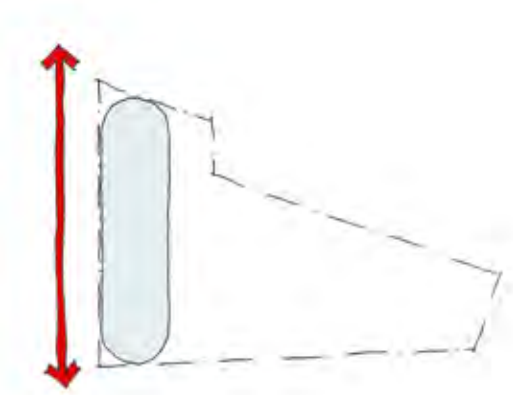
Olympic Park Site 13
Design Report
Major Project Application

BS Project Number S10849
14th March 2008

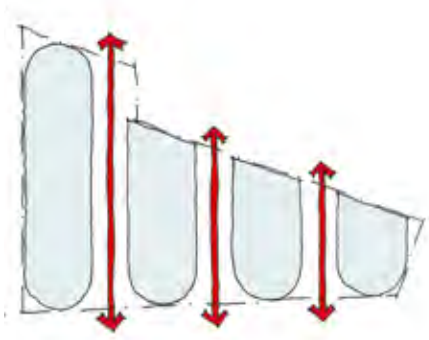
4. Concept Design

iv. Floorplate Concept
The following diagrams analyse the floorplate in terms of urban design criteria and a marketable office floorplate which is open, flexible and has good connectivity to encourage interaction.

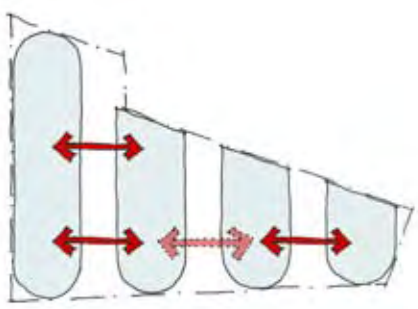
1. Office Market Preference
>Open, flexible, unencumbered floorplate
>Maximise connectivity



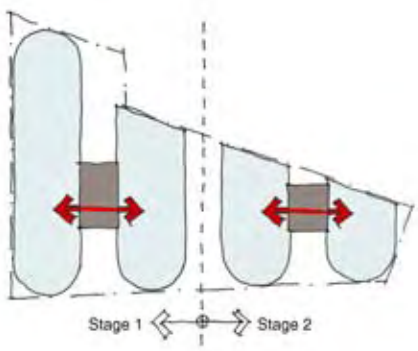
2. Urban Design Alignment
>Linear floorplate to reinforce Olympic Boulevard geometry



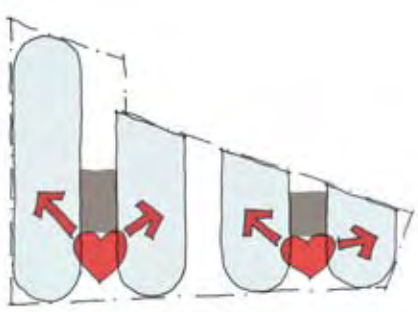
3. Market Flexibility & Urban Design
>Multiple open flexible floorplates of varying size
>All floorplates reinforce Olympic Boulevard
>Promotes through-site permeability



4. Horizontal Connectivity
>Horizontal connection of floorplates
>Increase flexibility of leasing



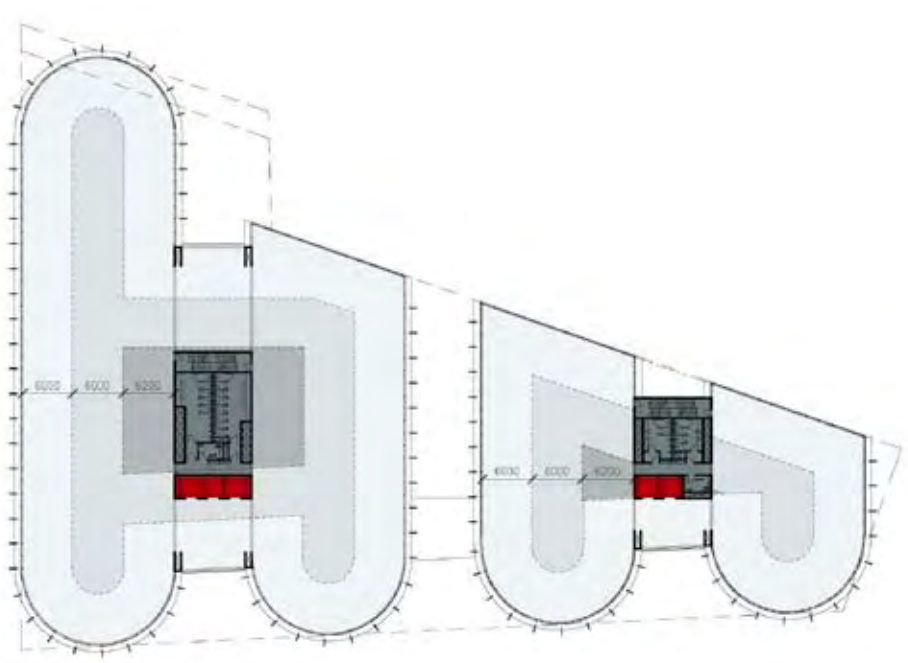
5. Efficiency & Staging
>Shared core between floorplates maximises efficiency
>Separate buildings allows staging



6. Vertical Connectivity
>Potential for atriums and intertenancy stairs within tenancies forms the central ‘heart’ for the building
>Atrium maximises natural light and provides vertical connectivity
>Potential to create ‘campus’ building

4. Concept Design

v. Floorplate Analysis
The floorplate was analysed in accordance with DEGW's criteria for natural light and tenancy efficiency.

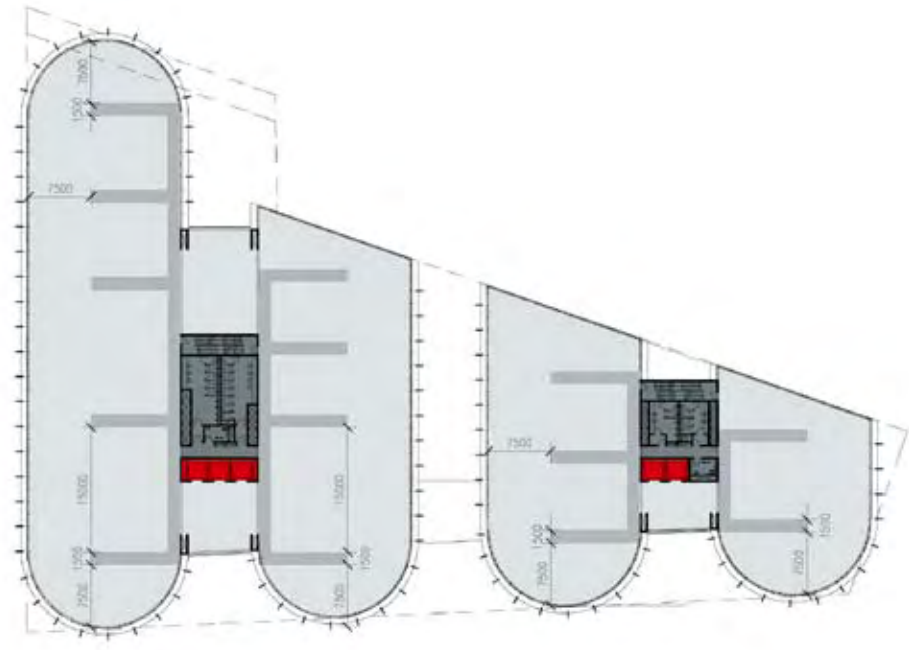


Depth of Space Analysis (DEGW Method)
>The floorplate has excellent access to natural light with only a small percentage of 'Type C' light which can be ideally utilised has storage/ compactus zones.

Type A = 62 % (within 6m of natural light)

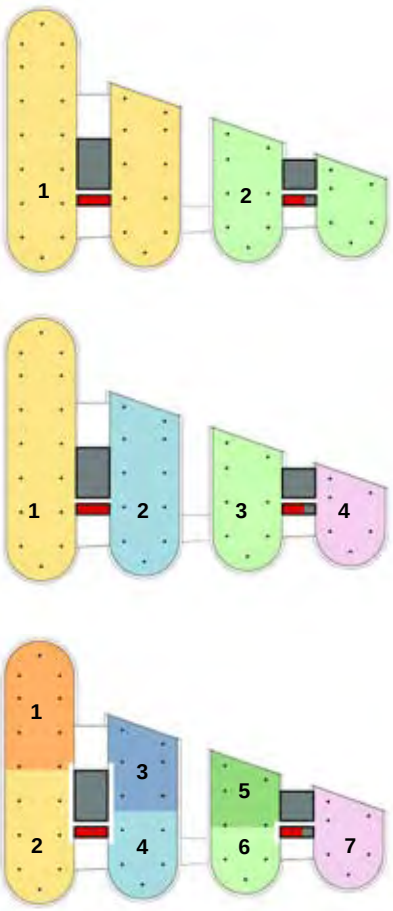
Type B = 32 % (within 12m of natural light)

Type C = 6 % (greater than 12m from natural light)

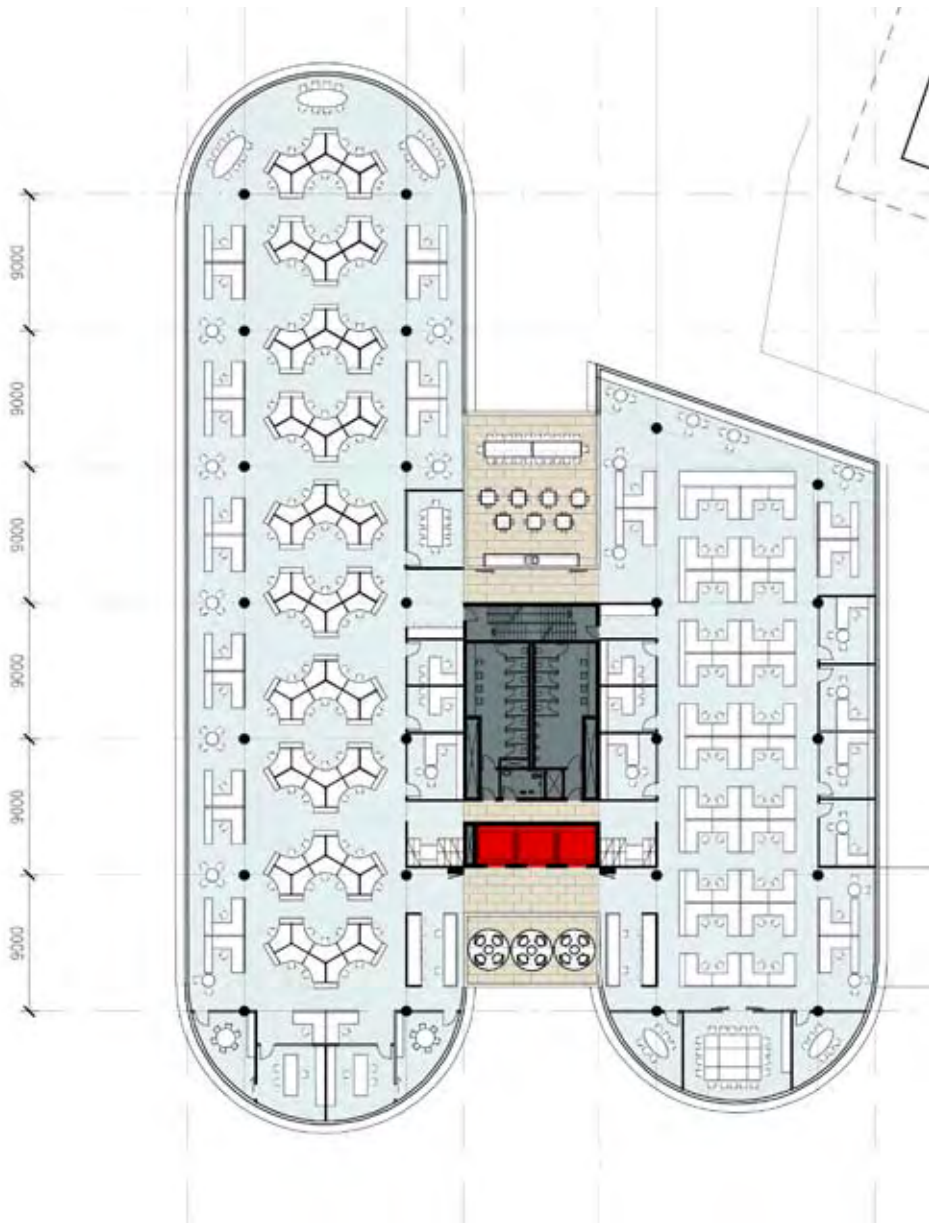


Tenancy Efficiency (DEGW Method)
>Circulation or tenancy efficiency is defined as the ratio of net usable area expressed as a percentage of the net internal area, with Net Usable Area defined as the Net Internal Area less a path of primary circulation that leaves no point further than 7.5m from a circulation path.
>The unencumbered floorplates with centrally located shared cores result in excellent tenancy efficiency.

Tenant Circulation Efficiency = 89 %



Floor Plate Flexibility & Team Zones
>Large open floor plates with centrally located points of entry to the floor allow for easy subdivision into separate tenancies and team zones.

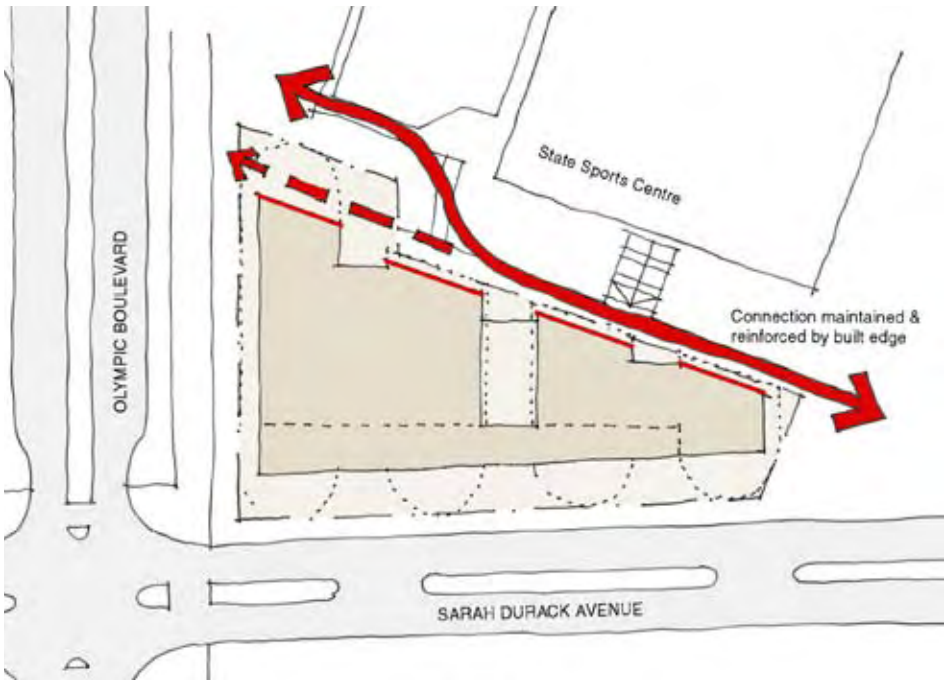


Typical Floor Fitout Option
1:500

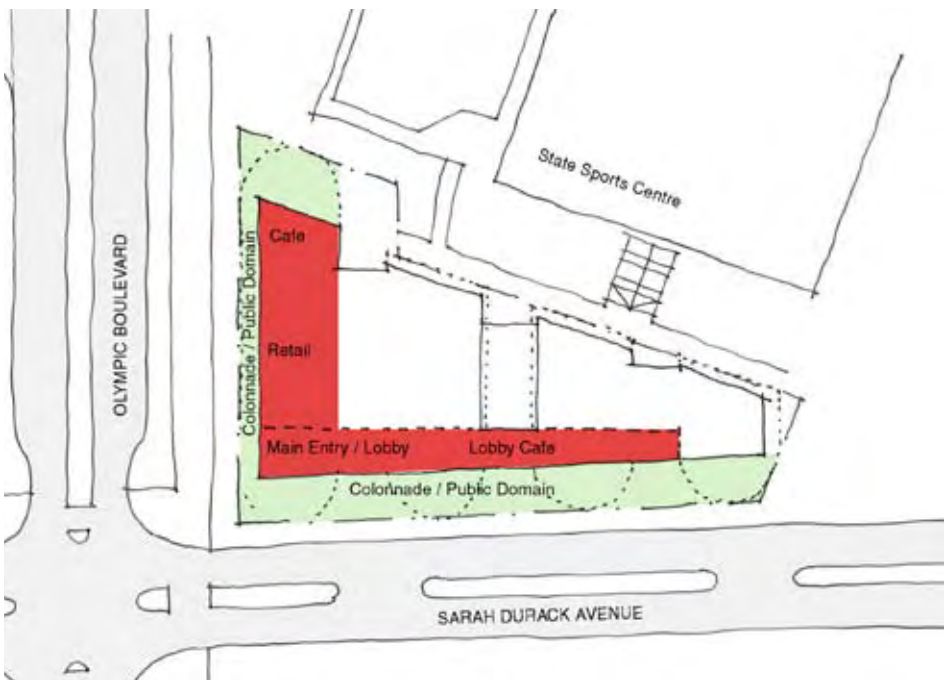
4. Concept Design

vi. Ground Plane Concept
The buildings are entered primarily off the corner of Olympic Boulevard and Sarah Durack Avenue via a lobby connecting Building A with Building B, giving the less significant Building B an Olympic Boulevard address. Continuous glazing provides increased connections between the public domain and the interior spaces.

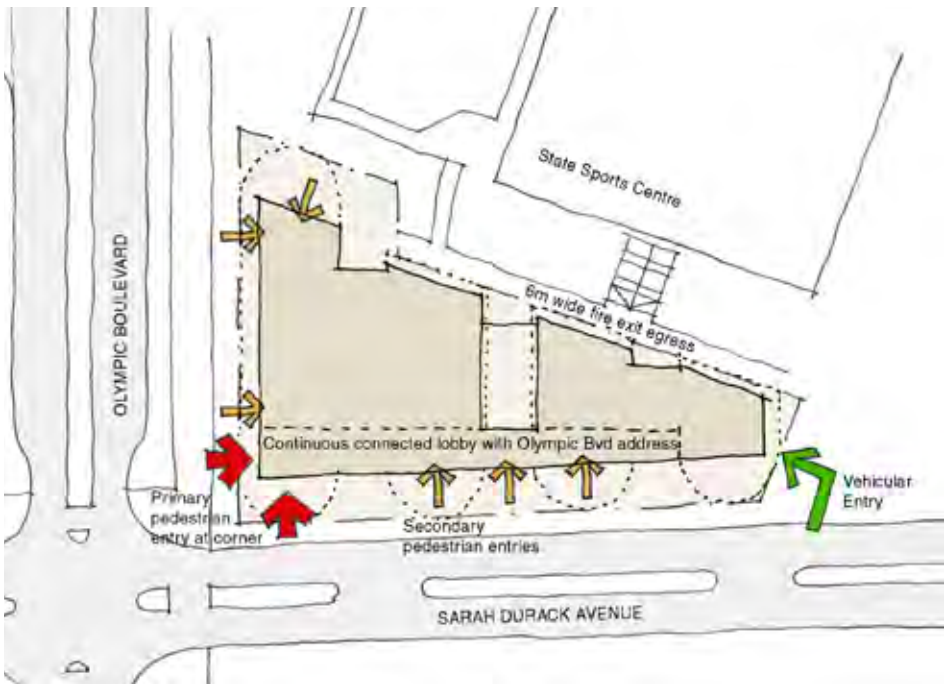
The four principles of Crime Prevention Through Environmental Design (CPTED) are addressed through the following ground plane concepts;
>1. Surveillance - There is a high level of natural surveillance in the public domain via active frontages and continuous glazing to Olympic Boulevard and Sarah Durack Avenue.
>2. Access Control - There is a legible public domain at the street frontges. The internal courtyard between Buildings A & B is clearly defined as a private courtyard with a planting wall and 1m level change acting as a secure barrier to the courtyard and channelling pedestrian movement along the pathway between the proposed building and the State Sports Centre.
>3. Territorial reinforcement - The public domain has been designed to encourage people to gather. Large circular seats are integrated with tree planters to provide shade and generally have a northerly aspect.
>4. Space Management - The public domain is closely linked with the lobby and cafes to ensure that it is appropriately utilised and well cared for.



1. Relationship to adjacent State Sports Centre
>Proposed built edge reinforces relationship to adjacent State Sports Centre building
>Connection between State Sports Centre and Site 13 maintained and extended through the site



2. Public Domain
>4m (minimum) colonnade to Olympic Boulevard and Sarah Durack Avenue
>Active frontages to street edges
>Public domain and lobby visually and physically connected



3. Pedestrian & Vehicular Entries
>Primary pedestrian entry at corner of Olympic Boulevard and Sarah Durack Avenue
>Continuous connected lobby acts as an internal street and gives Building B an Olympic Boulevard address
>Secondary entries along Sarah Durack Ave into the lobby and lobby cafe allow for permeability and activation
>Secondary entries along Olympic Boulevard for retail and cafe
>Vehicular entry off Sarah Durack Avenue utilising existing access drive to State Sports Centre

4. Concept Design

vii. Façade Concept Options
The following study describes the design process for treatment of the curved façade and analyses the shading elements to maximise natural light to the floorplate while maintaining a good level of solar shading to ensure good thermal comfort and energy efficiency.

Faceted glazed curve
>1500mm modules
>Facade differentiation required from office to breakout space

Vertical fins for sunshading
>NE / NW orientation
>Vertical fins at 1.5m centres
>Fins disguise segmented curve

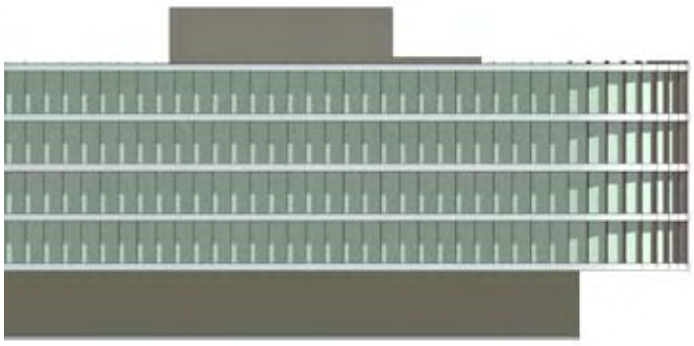
Horizonatal projection added at slab level
>Vertical fins at 1.5m centres
>600mm horizontal projection at slab level provides additional shading for high angle sun
>Facade aesthetic becomes heavy and restricts internal views from the office floorplate

Reduced extent of vertical fins
>Fins reduced in scale to 3m lengths between floor levels
>Fins increased in spacing to 3m centres
>Creates a more humanised scale
>Fins offset to animate facade and reduce number of shading elements
>Opens up views internally and increases natural daylight to floorplate
>Solar shading only effective for low-angle sun

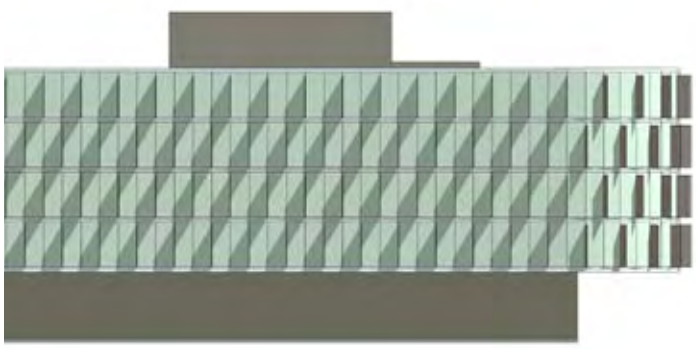
Horizonatal projection added at slab level
>Combination of vertical fins at 3m centres and 600mm horizontal projection at slab level provides efficient solar shading while animating facade

4. Concept Design

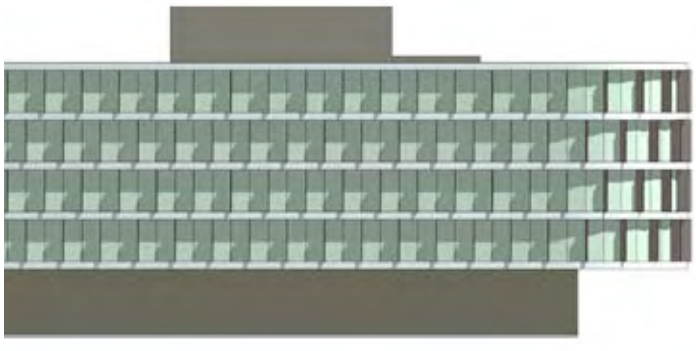
viii. Façade Shading & Internal View Study
The following study analyses the sun shading elements at midday equinox in terms of solar shading to the glazing and internal views from the floorplate.



>Vertical fins @ 1.5m centres with horizontal projection
Equinox - 12 midday



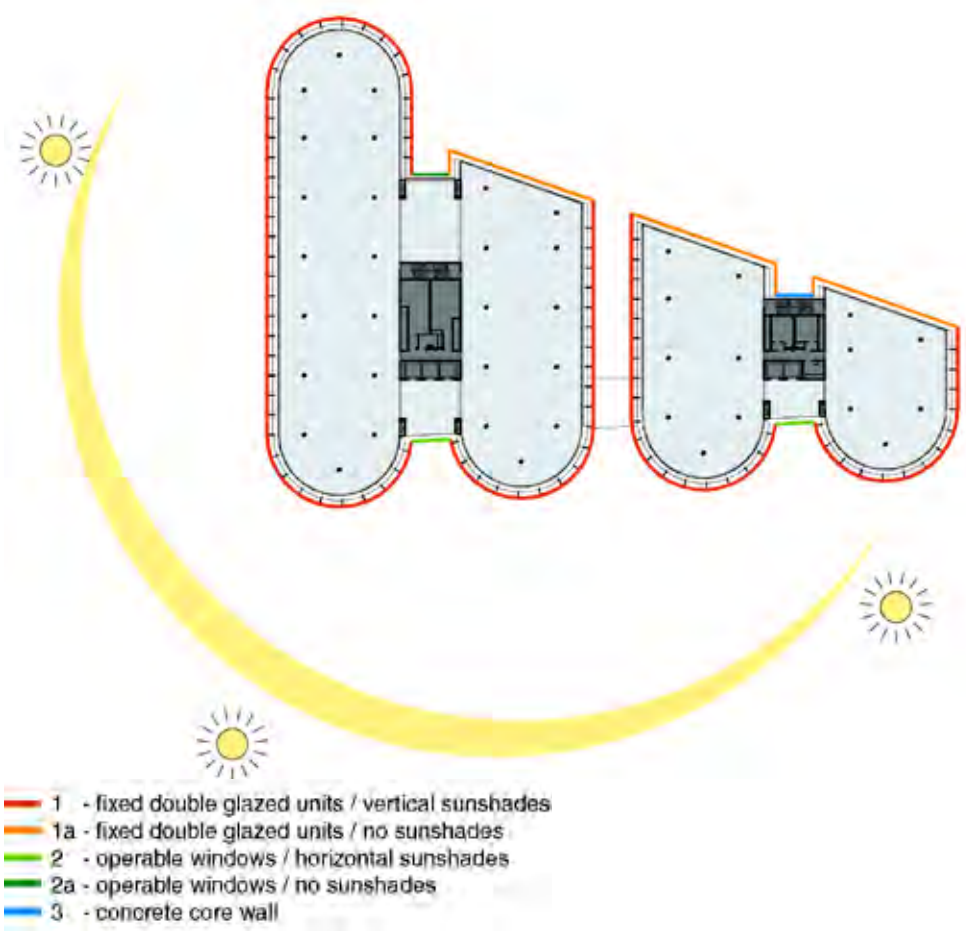
>Vertical fins @ 3m centres - no horizontal projection
Equinox - 12 midday

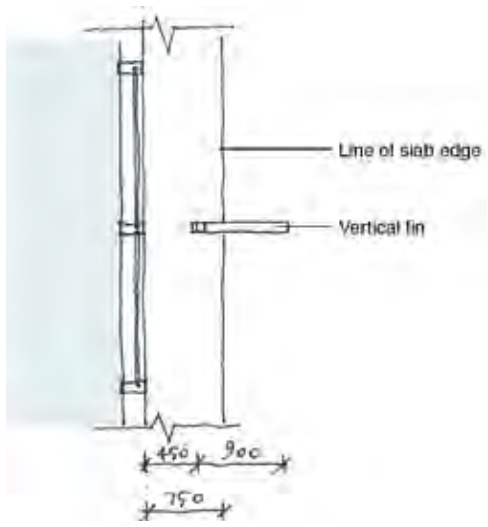


>Vertical fins@ 3m centres with horizontal projection
Equinox - 12 midday

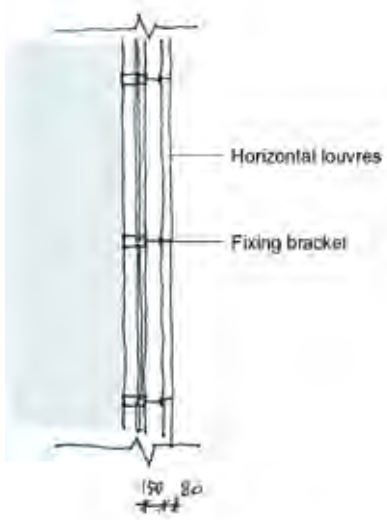
4. Concept Design

ix. Façade Details
A system of horizontal and vertical sunshades are proposed to maximise natural light to the floorplate and provide effective solar shading. There are primarily two façade types;
- Type 1 (to the office floorplates) is a combination of 900mm vertical fins at 3m centres offset from the glazing line by 450mm for shading from low angle sun and a 750mm horizontal projection of the slab edge to provide additional shading for high angle sun.
- Type 2 (to the breakout areas linking the floorplates) are operable windows to allow for natural ventilation to the breakout zones. A fine horizontal louvred screen is attached externally.

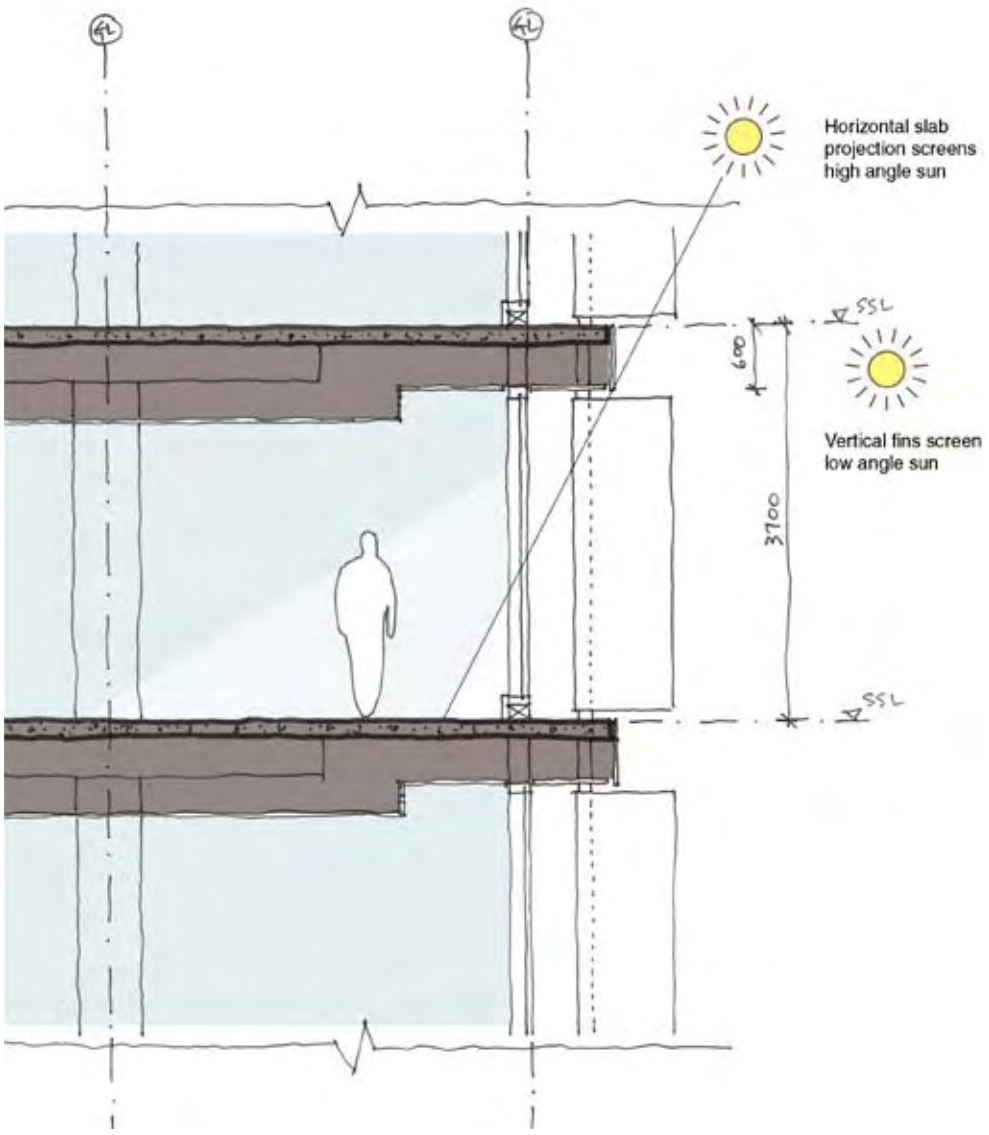




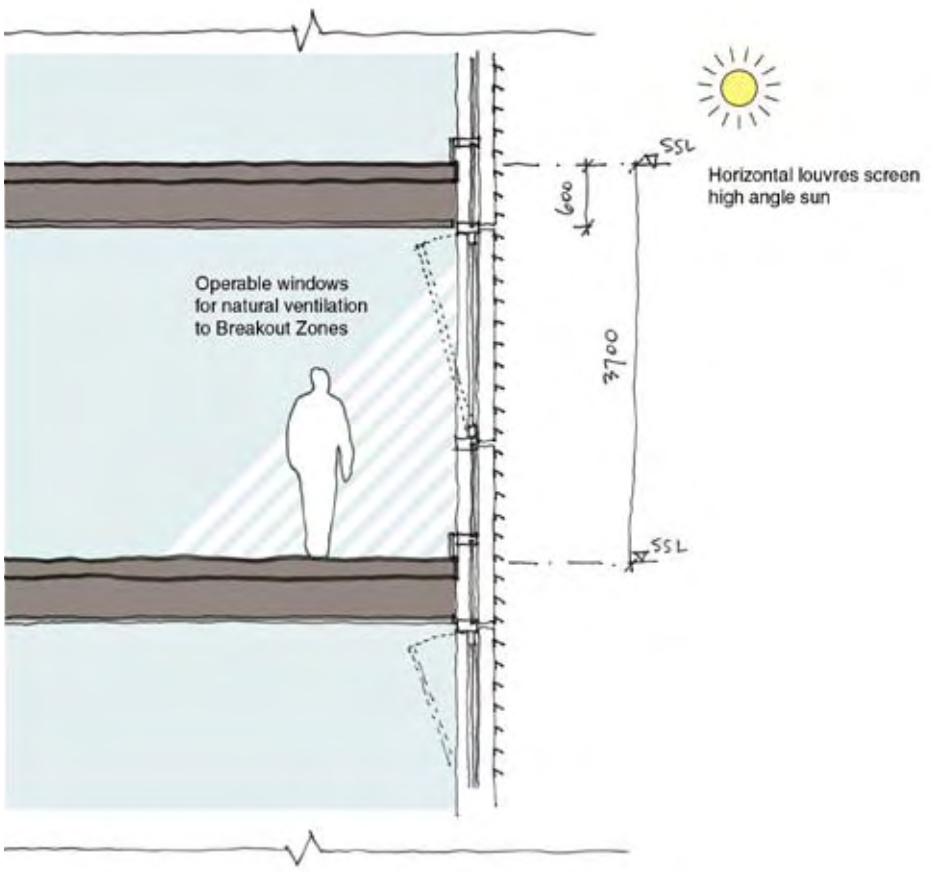
Type 1 - Plan Detail



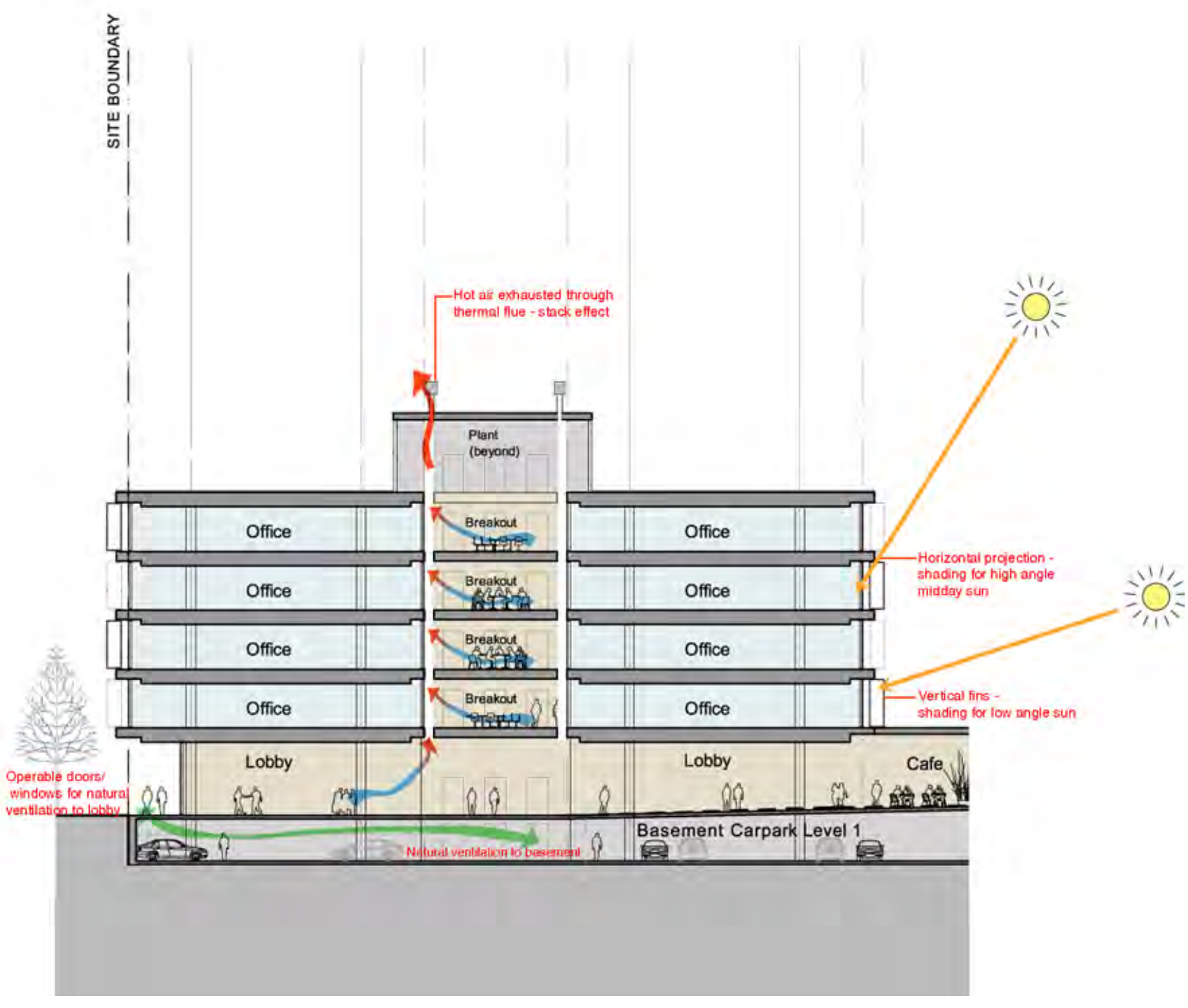
Type 2 - Plan Detail



Type 1 - Section Detail



Type 2 - Section Detail


SITE BOUNDARY
Hot air exhausted through thermal flue - stack effect
Plant (beyond)
Office
Office
Office
Office
Office
Breakout
Breakout
Breakout
Breakout
Office
Office
Office
Office
Horizontal projection - shading for high angle midday sun
Vertical fins - shading for low angle sun
Lobby
Lobby
Cafe
Operable doors/ windows for natural ventilation to lobby
Natural ventilation to basement
Basement Carpark Level 1

	GBA (sqm)	GFA (sqm)		NLA (sqm)
Building A			**Building A1**	
Ground Floor	1,760	1,608	Ground Floor	610
Level 1	2,418	2,292	Level 1	1,210
Level 2	2,418	2,292	Level 2	1,210
Level 3	2,418	2,292	Level 3	1,210
Level 4	2,418	2,292	Level 4	1,210
			SUB TOTAL	5,450
			Building A2	
			Ground Floor	476
			Level 1	801
			Level 2	801
			Level 3	801
			Level 4	801
			SUB TOTAL	3,680
			Building A Breakout	
			Ground Floor	81
			Level 1	184
			Level 2	184
			Level 3	184
			Level 4	184
			SUB TOTAL	817
TOTAL BUILDING A	**11,432**	**10,776**		**9,947**
Building B			**Building B1**	
Ground Floor	924	584	Ground Floor	311
Level 1	1,206	1,112	Level 1	603
Level 2	1,206	1,112	Level 2	603
Level 3	1,206	1,112	Level 3	603
			SUB TOTAL	2,120
			Building B2	
			Ground Floor	0
			Level 1	404
			Level 2	404
			Level 3	404
			SUB TOTAL	1,212
			Building B Breakout	
			Ground Floor	0
			Level 1	48
			Level 2	48
			Level 3	48
			SUB TOTAL	144
TOTAL BUILDING B	**4,542**	**3,920**		**3,476**
TOTAL BUILDING A + B	**15,974**	**14,696**		**13,423**

	GBA (sqm)	car spaces
Basement Level 1	4,077	105