PITT ST SOUTH

OVER STATION DEVELOPMENT

RESPONSE TO SUBMISSIONS

SEPTEMBER 2020

BATESSMART™

CLIENT
Pitt St Developer South Pty Ltd

CONSULTANTS
Bates Smart gratefully acknowledge the development and consultant team who were integral to the preparation of this design concept:

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Heritage:	GBA Heritage
Structure:	Taylor Thomson Whitting
ESD:	Cundall Johnston & Partners
BCA:	Philip Chun
Fire Service:	CJ Arms
Fire Safety Engineering:	Warrington Fire
Hydraulic Services:	CJ Arms
Mechanical Services:	LCI Consultants
Electricals:	LCI Consultants
Vertical Transportation:	LCI Consultants
Wind Assessment:	CPP
Waste:	TTM Group
DDA:	Philip Chun
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PROJECT NUMBER
s12237

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1. DEMONSTRATE COMPLIANCE WITH VARIED SETBACK ALONG PITT STREET

(a) Demonstrate compliance with Condition B3 of the Concept Approval, and provide detailed illustrations showing how the proposed built form satisfies the following subclauses:

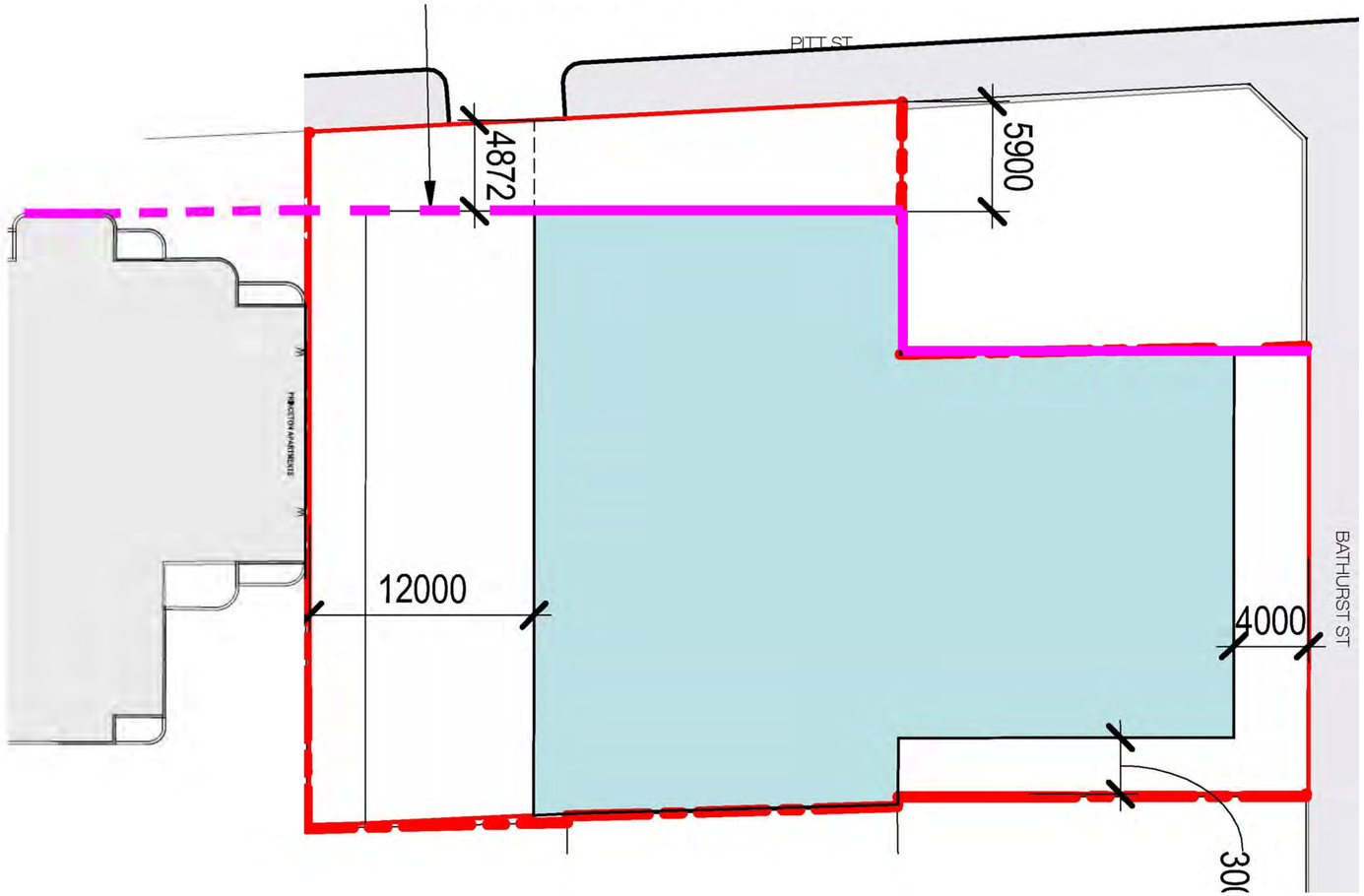
** (e) a varied setback from the Pitt Street boundary of the site, with the articulation of built forms be designed to minimise solar impacts to the living rooms of Princeton Apartments*

STAGE 1 APPROVAL

The adjacent drawing shows the setback to Pitt Street as approved in the Approved Concept Envelope stamped plans.

The approved setback is varied from the Pitt St Boundary and aligns with the setbacks for Princeton Apartments, as indicated by the note and dimensions on the stamped drawing.

The purple line (added) shows the variety in setback along this frontage for comparison with our Stage 2 proposal as lodged (overleaf).



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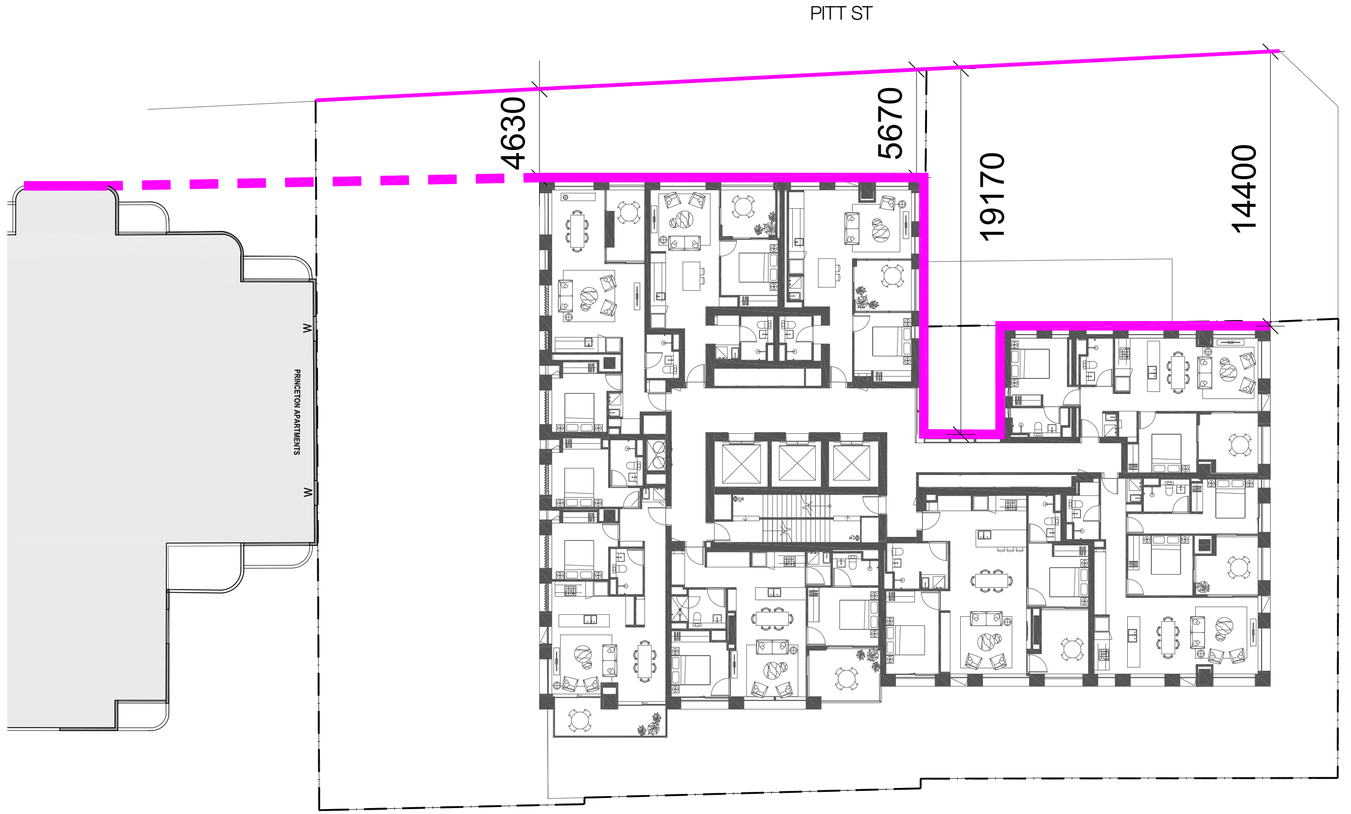
STAGE 2 AS LODGED

The adjacent drawing shows the setback to Pitt Street as proposed in the SSD DA application of April 2020. The setback is both varied and highly articulated, ranging from between 4.6m at the South Western corner, 14.4m at the North Western corner, and 19.1m in the glazed light and ventilation slot in the centre of the floorplate above the Edinburgh Castle Hotel. The setback is complying with the intent of the approved Stage 1 concept envelope, established to create a consistent alignment of tower massing between Princeton Apartments to the South, which is set back only 3m, and further developments along Pitt Street to the North.



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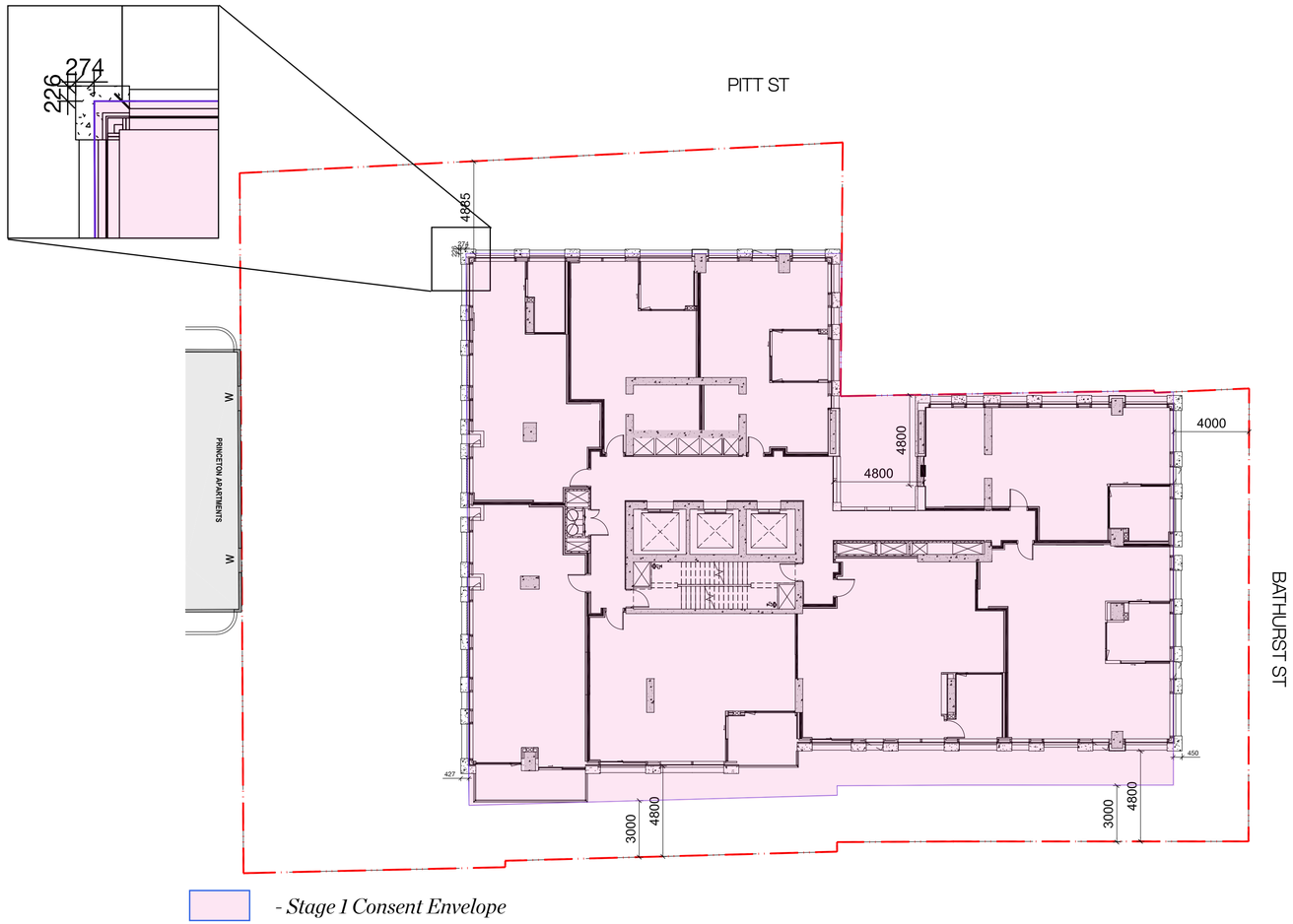
FACADE PROJECTIONS

The glazing line is contained wholly within the approved Stage 1 Envelope. 450mm deep, non-habitable external architectural shading elements project outside of the concept envelope by 225mm on the Pitt Street frontage for the portion between Princeton Apartments and the Edinburgh Castle Hotel, into the 4.6m setback zone. The remainder of the Western façade, including architectural shading elements, are contained wholly within the approved concept envelope.

To the south, fronting Princeton Apartments, a minimum 12m building separation is provided when measured from the boundary to the glassline, however non habitable architectural shading and privacy screening elements project south outside of the concept envelope by 274mm at the South West corner and up to a maximum of 427mm to the South East corner.

These architectural projections do not contain any floorspace, are endorsed by the Design Review Panel as achieving Design Excellence, and are provided only to assist with privacy and environmental factors of the proposed development, and enhance rather than reduce privacy of adjacent neighbours. However, the point at which these minor projections fall outside of the envelope on the South West corner results in 9 apartments within Princeton Apartments losing an average of 3 minutes of solar access per day on the 21st June when compared with the approved Stage 1 Envelope. It is worth noting however that 19 apartments also achieve an increase in solar access of between 8 to 30 minutes.



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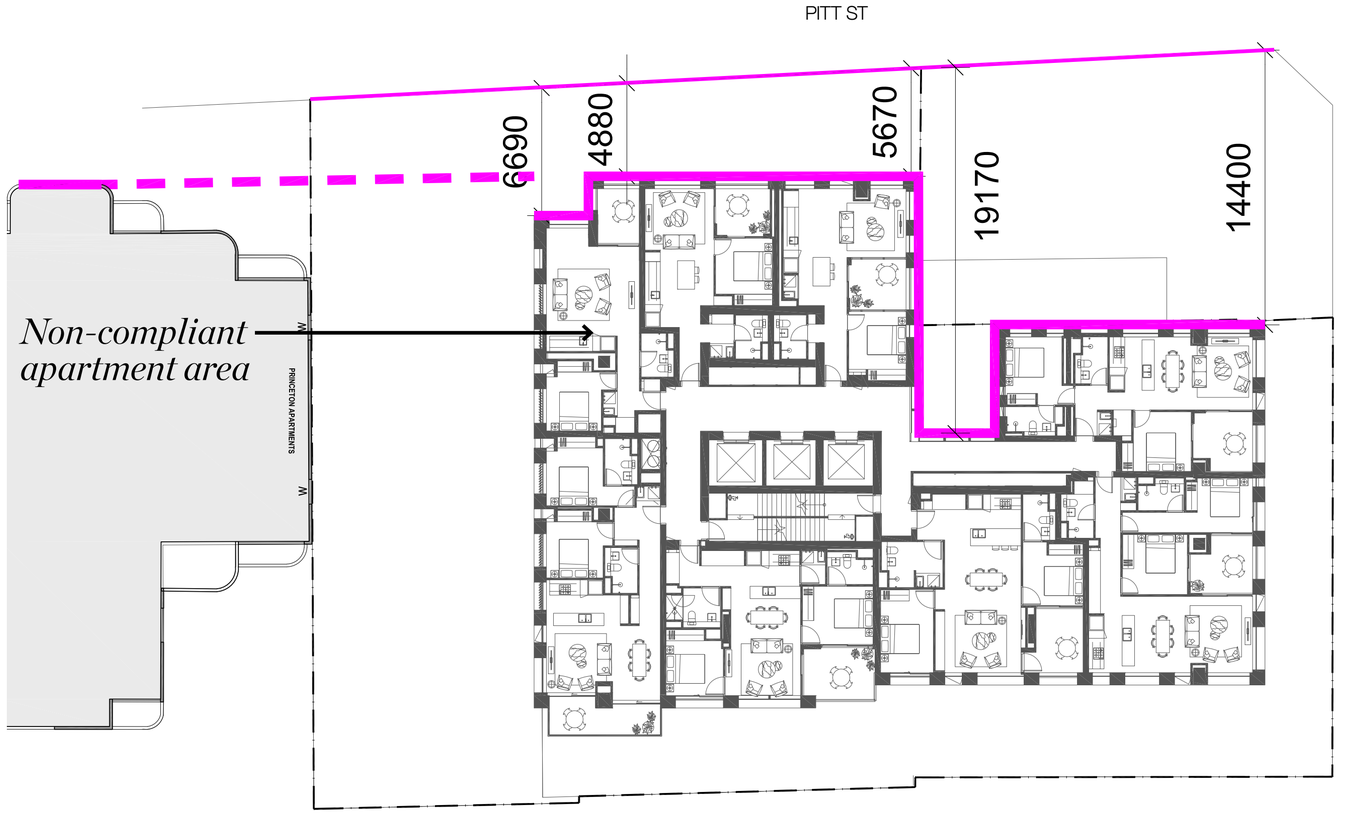
OPTIONS ANALYSIS

An options analysis has been undertaken to assess the impacts to both developments of a further setback variation. We have considered setting back the South Western corner by a further 2 metres as shown in the adjacent plan, the point at which the proposed development begins to cast shadow on the living areas of Princeton Apartments. Our analysis shows that while doing so would result in 1 apartment per floor on levels 9-25 of Princeton receiving a positive gain of up to 7 minutes, doing so would have the below detrimental impact to the amenity of the proposed development:

/ 20 apartments currently achieving 2 hours of solar access within the proposed development will fall substantially short of achieving 2 hours of solar access to either their living room or private open space, or both, during mid winter. This would reduce solar compliance of the proposed development from 50.0% to 41.5%.

/ In addition, the same 20 apartments to those losing solar access, plus an additional 10 on levels 7 to 16, would also be reduced in size below the ADG minimum 50sqm internal area required for 1 bedroom apartments.

This options analysis demonstrates that while an increased setback offers some minor benefit to 9 Princeton Residents of up to 7 minutes, the reduction in solar compliance from 50% to 41.5%, in addition to 30 apartments falling below ADG minimum apartment sizes, represents a far more substantial loss of amenity than that gained by Princeton. Our conclusion is that such an amendment would have a negative overall impact on resident amenity within the precinct and for this purpose such an amendment has not been pursued.



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PROPOSED FACADE PROJECTIONS

However, we have undertaken an extensive review of the external non-habitable architectural shading elements , (ie the elements responsible for the 3 minute loss of solar to Princeton beyond the approved concept envelope) in order to reduce this 3 minute impact.

Through extensive review and detailed design of the external elements, and tweaks to internal structure to the maximum extent possible without creating an impact to the metro station beneath, we have been able to reduce the façade depth from 450mm deep to 325mm deep on the west, north and eastern faces of the building, and from 450mm deep to 250mm deep on the southern face of the building. We have also pushed the Western glazing line inboard by 25mm, and the southern glazing line inboard by 77mm.

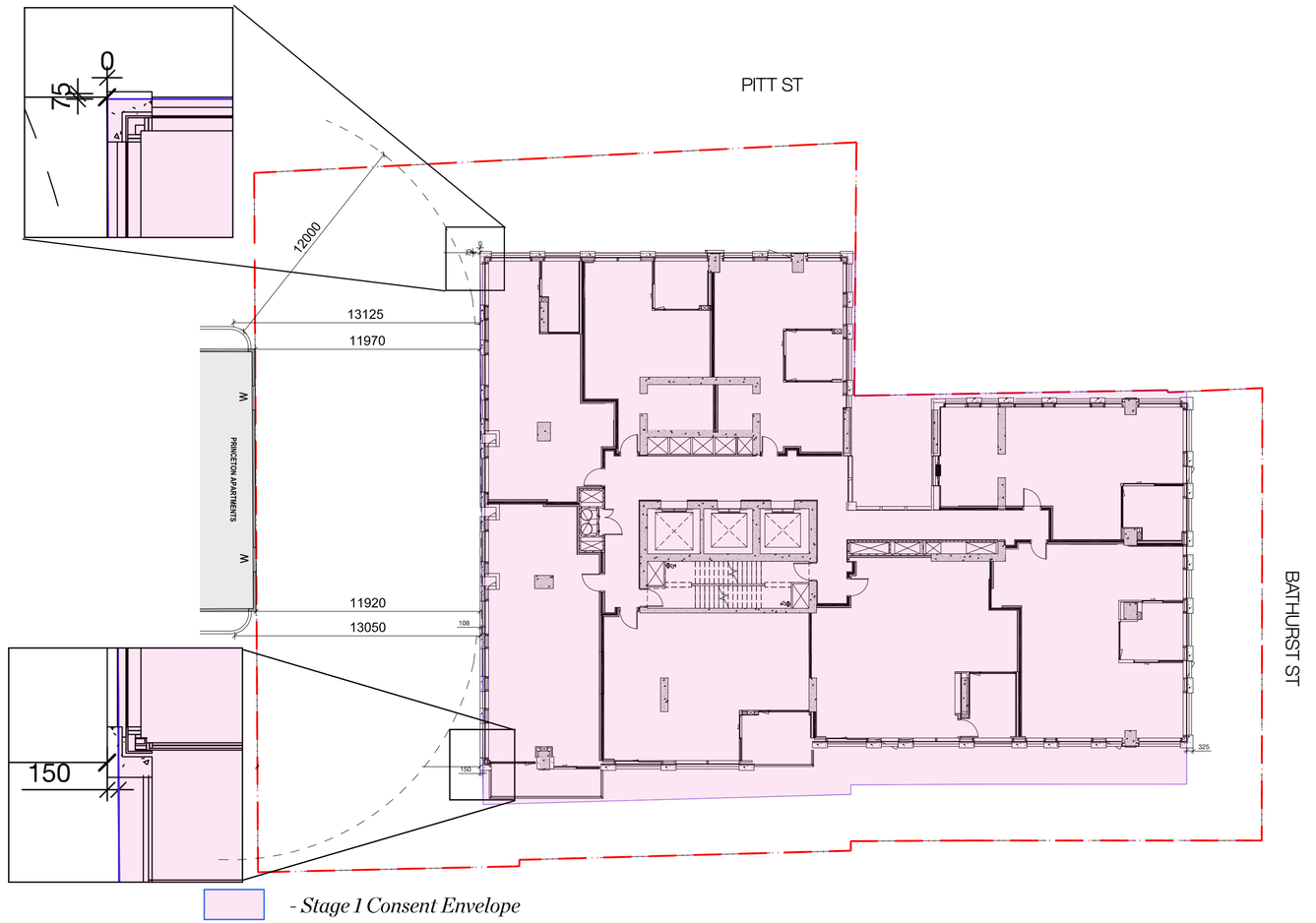
The result is:

1. An increase in building separation by to the south, facing Princeton Apartments, (see section 4 in this report for a comparison of revised dimensions)
2. A reduction in projection of southern façade elements from 277mm to 0mm at the south western corner, (compliant with the approved concept envelope setback at this point),
3. A reduction in projection of western façade elements from 225mm to 75mm facing Pitt street.

The resultant amendments:

1. Allow solar access for the proposed development to remain at 50.0%,
2. Result in a minor loss of apartment area to apartments 01, 02 and 03 but insignificant enough to enable all to remain compliant with ADG minimums,
3. Improve solar access to Princeton Apartments by an average of 3 minutes a day on 21st June.

The RTS architectural design has been amended to adopt the above approach. Further detailed analysis can be found in the accompanying Solar and Planning reports.



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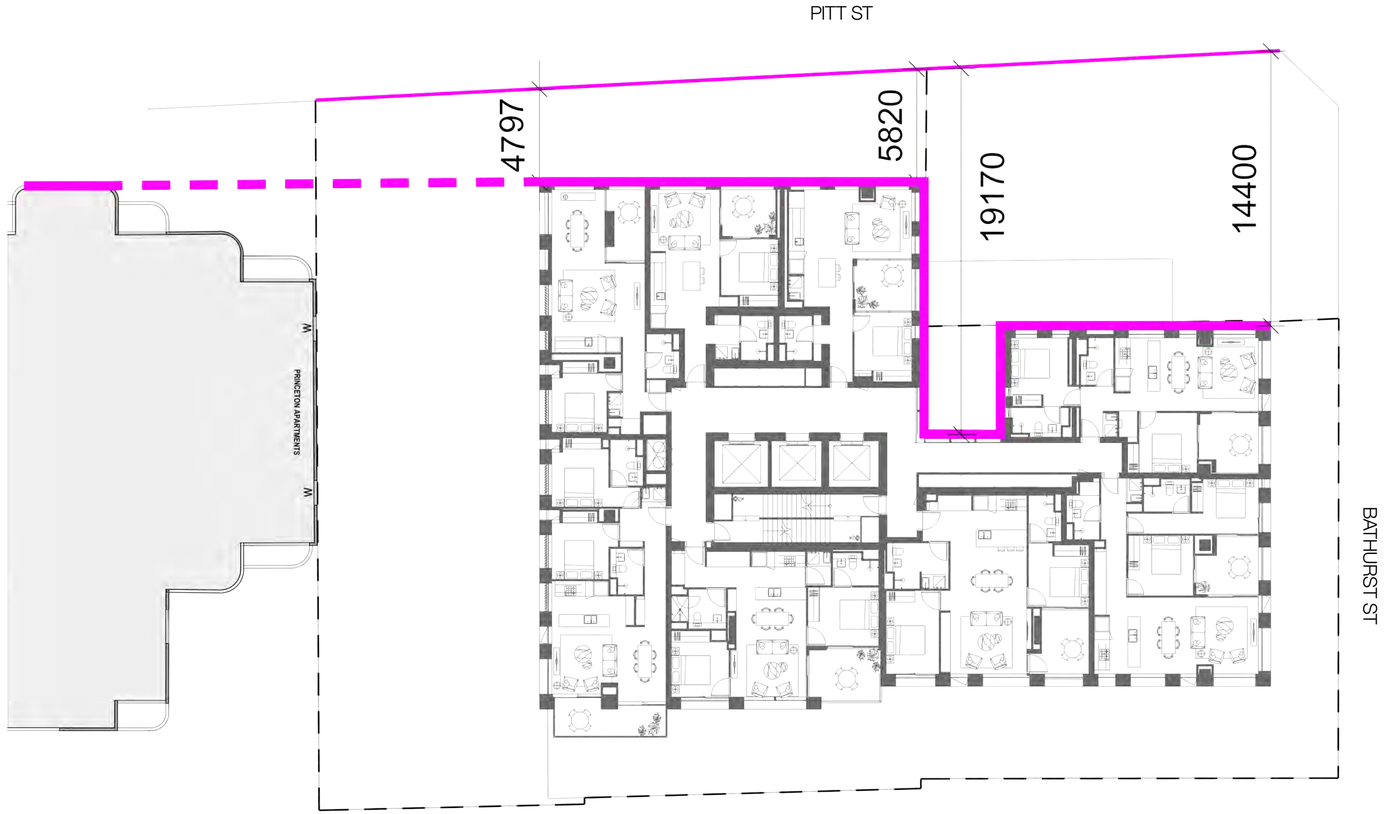
RESULTING PITT STREET SETBACK

The resulting proposed setback to Pitt Street is 4.797m at the South West corner, increased from 4.63m.



N

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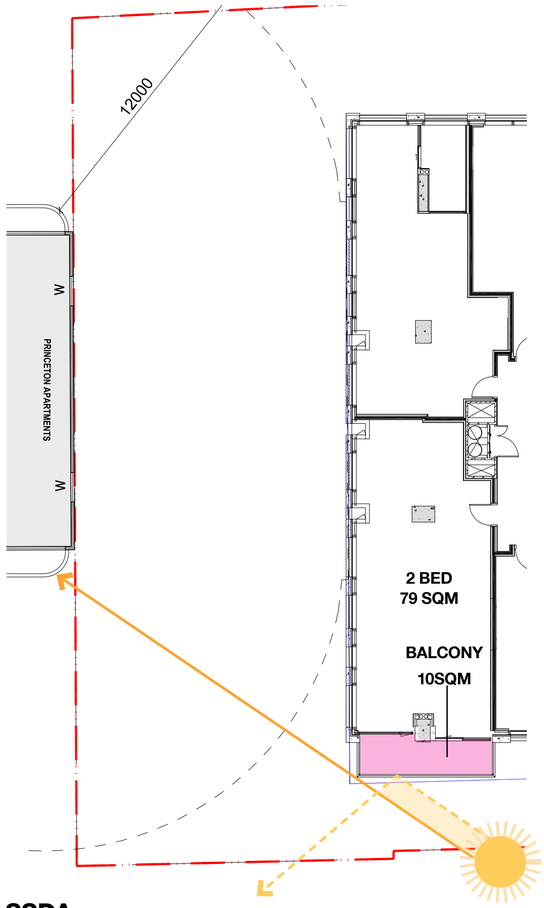
SOUTH EAST BALCONY

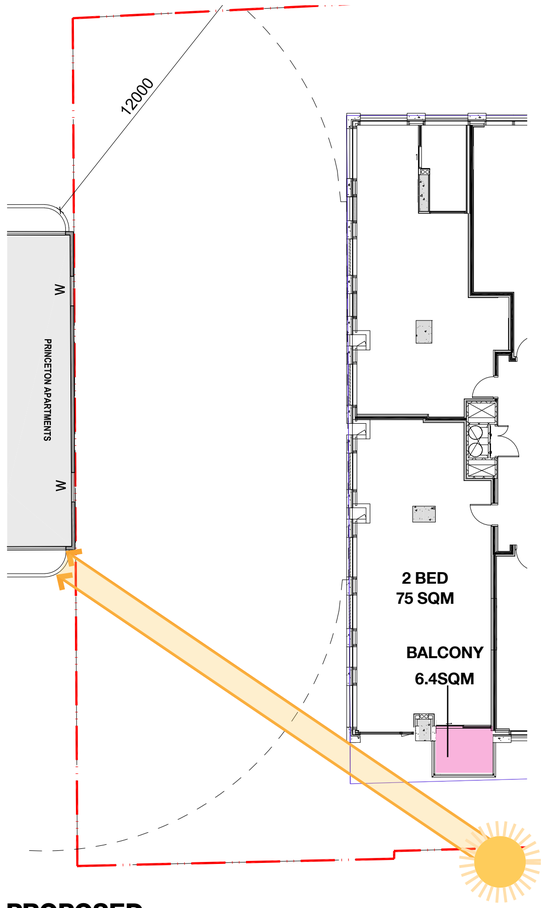
Although it is not possible to provide a materially increased setback to the South Western without significant loss of amenity to the proposed development, a similar sensitivity analysis described in section 3 of this report has determined that it is possible to achieve a material increase in setback on the South Eastern corner with negligible amenity impacts if agreed as beneficial to Princeton Apartments.

Provided a relaxation in balcony area from 10sqm to 6.5sqm is permissible to the 2 bedroom apartment type facing East, it is possible to increase setback at the south eastern corner by a further 2 metres which will provide some improvement to solar access of Princeton (described in section 3) as well as view outlook from both Princeton and Century Tower (described in section 2).

In both cases, a 2 bed apartment with a complying 75sqm minimum internal area is achievable. Please refer to section 3 of this report for the outcome of the sensitivity analysis undertaken.



SSDA
10SQM BALCONY



PROPOSED
6.4SQM BALCONY

N

2. RETAIN VIEW TO ST MARY'S CATHEDRAL FROM CENTURY TOWER

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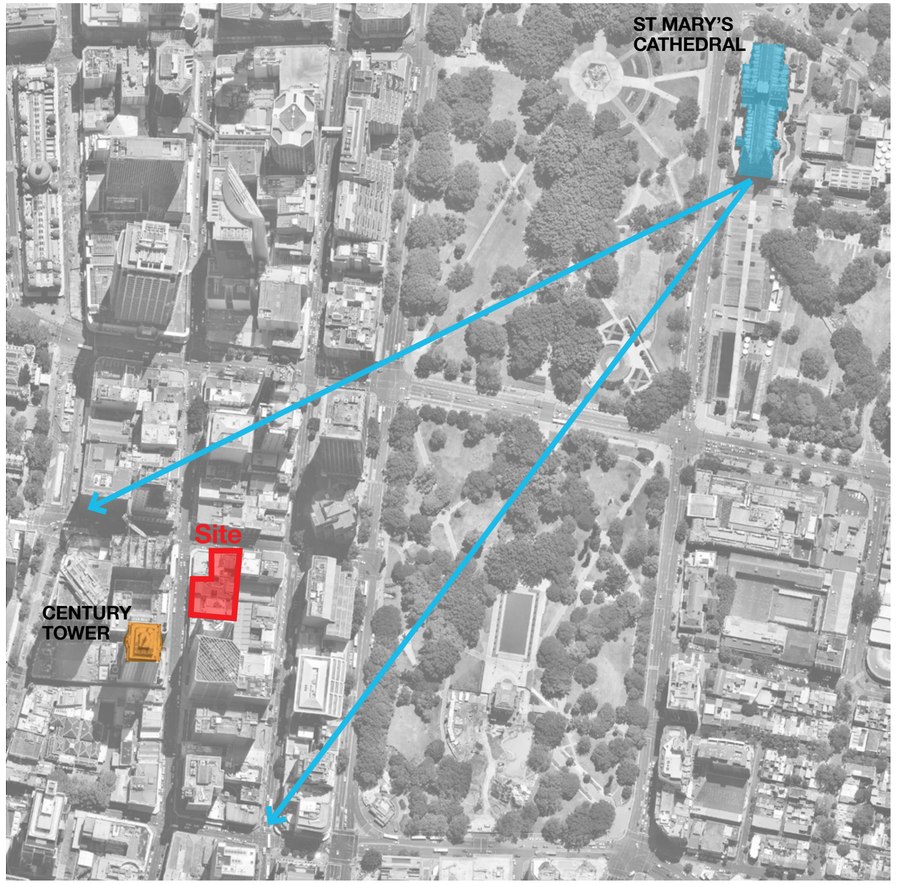
** (g) articulation of roof forms must consider opportunity to retain view to St Mary's Cathedral from Century Tower (343-357 Pitt Street, Sydney).*

CENTURY TOWER

Century tower is a 52 storey residential apartment building located south west of the proposed development on Pitt Street. Completed in 1997, it held the title of the tallest residential building in Australia between 1997 and 2002, and with a height of 186 metres, is roughly 16 stories taller than the proposed development at Pitt Street South.

Despite the proposed development being significantly lower than Century Tower, concern has been raised that the roof of the proposed development will limit or obstruct views from the top floors of Century Tower downwards towards St Mary's Cathedral 40 storeys below.

Not withstanding this, our intention has been to design the rooftop massing of the proposed development in such a way as to minimise view loss of St Mary's cathedral for these apartments.



AERIAL MAP OF SITE LOCATED BETWEEN ST MARY'S AND CENTURY TOWERS

N

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ROOF OPTIONS

Four alternative rooftop massing approaches were considered during the development of the proposed design, shown adjacent.

Option 1:

An orthogonal tower footprint with sloped roof form, fully contained within the approved Concept envelope.

Option 2:

A soft curved tower with sloped roof form, also fully contained within the approved Concept envelope.

Option 3:

It was considered to terminate the building with a flat roof part-way through the solar access plane. This would result in an incursion of approximately 2 storeys above the solar access plane to the East, and approximately 2 storeys below the solar access plane to the West. Although considered, such approach would have resulted in overshadowing of Hyde Park and therefore was deemed unacceptable.

Option 4:

A stepped roof form, fully contained within, but occupying significantly less volume than, the approved concept envelope. This roof form offered the following benefits over the above 3 options:

/ Best visibility of St Mary's cathedral to residents of Century Tower,

/ Contained within approved Concept Envelope hence no overshadowing to Hyde Park in accordance with planning controls,

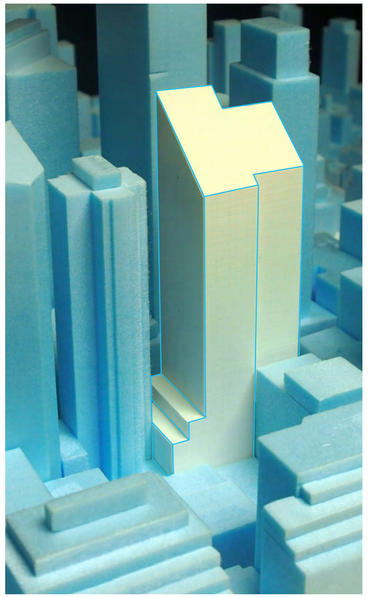
/ Facilitated a proposed communal resident rooftop terrace with harbour views for the amenity of residents,

/ Allowed an architectural rooftop form to be a continuous expression of the tower form beneath - that being, a slender volumes grouped into a cluster to form a highly articulated tower with a human scale. This approach was endorsed by the DRP.

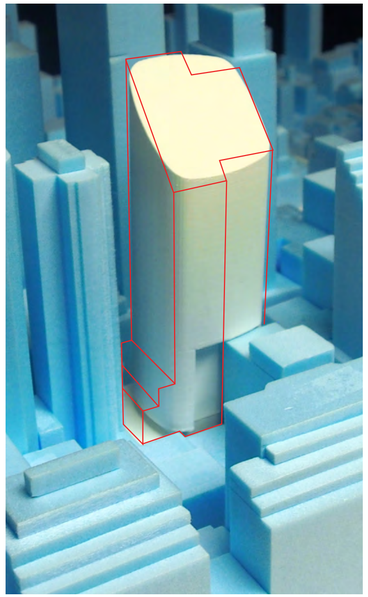
Option 4 was ultimately adopted.

The view analysis studies on the following pages show the view gains to apartments within Century Tower achieved as compared to the approved Concept envelope.

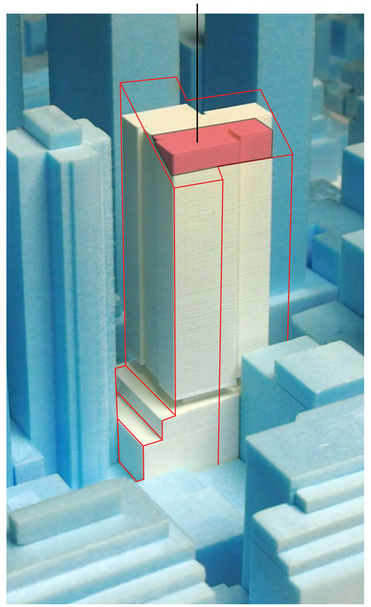
Please note that since SSD DA application, a reduction to the extent of external balconies at the south east corner has further improved outlook from both Century Towers and Princeton Apartments. This improvement is identified in the following studies, while also being described further in section 3 of this report.



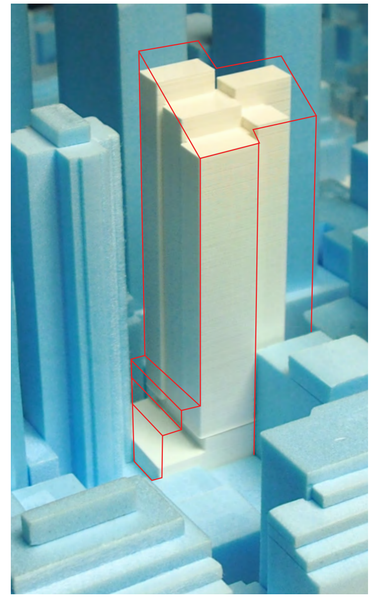
OPTION 1



OPTION 2



OPTION 3



OPTION 4

2. RETAIN VIEW TO ST MARY'S CATHEDRAL FROM CENTURY TOWER

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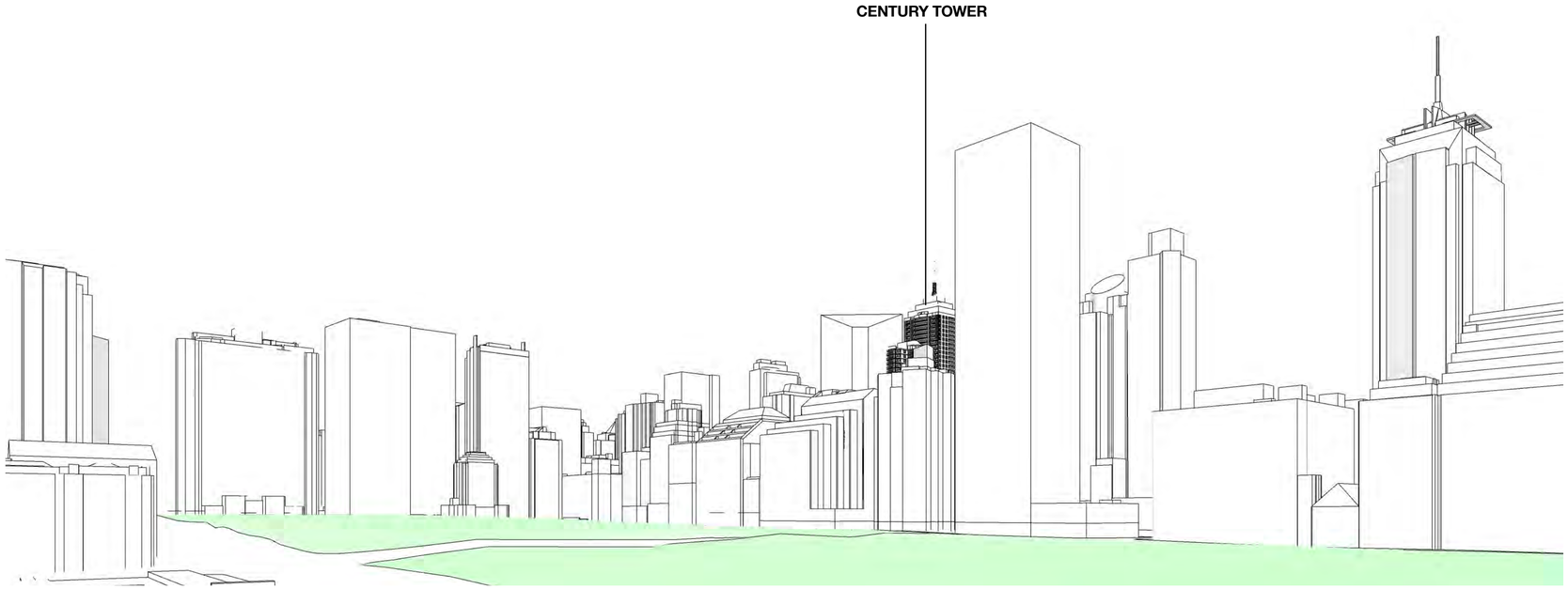
VIEW FROM ST MARY'S CATHEDRAL _FRONT STEPS

The adjacent reverse view analysis, undertaken from the front door of St Mary's cathedral, shows the extents of Century Tower able to see the front steps of the cathedral



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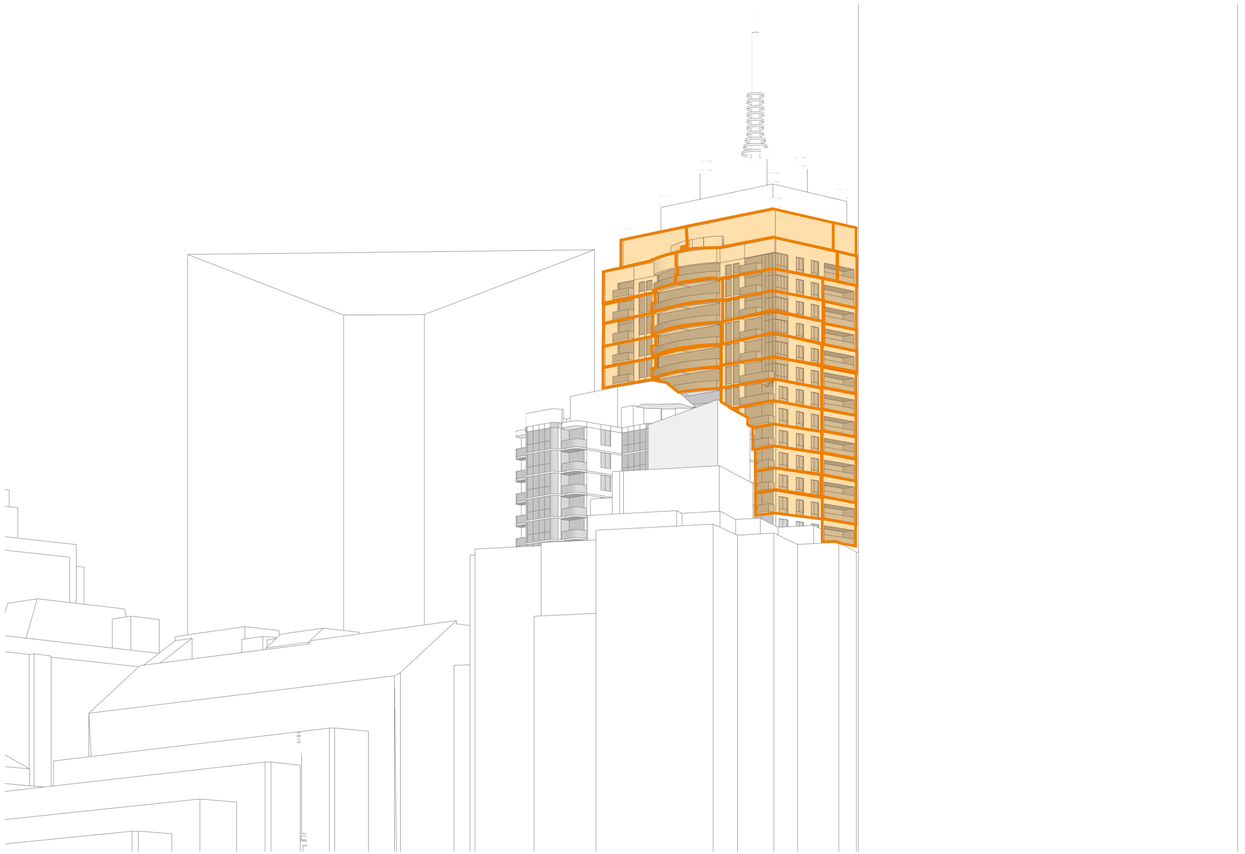
VIEW FROM ST MARY'S CATHEDRAL _FRONT STEPS

An enlarged view shows the subdivision of apartments per floor. Typical apartment floors contain 3 east facing apartments per floor. The top 2 floors contain 2 east facing apartments per floor.



3D View_View from St Mary's Cathedral_Existing Condition

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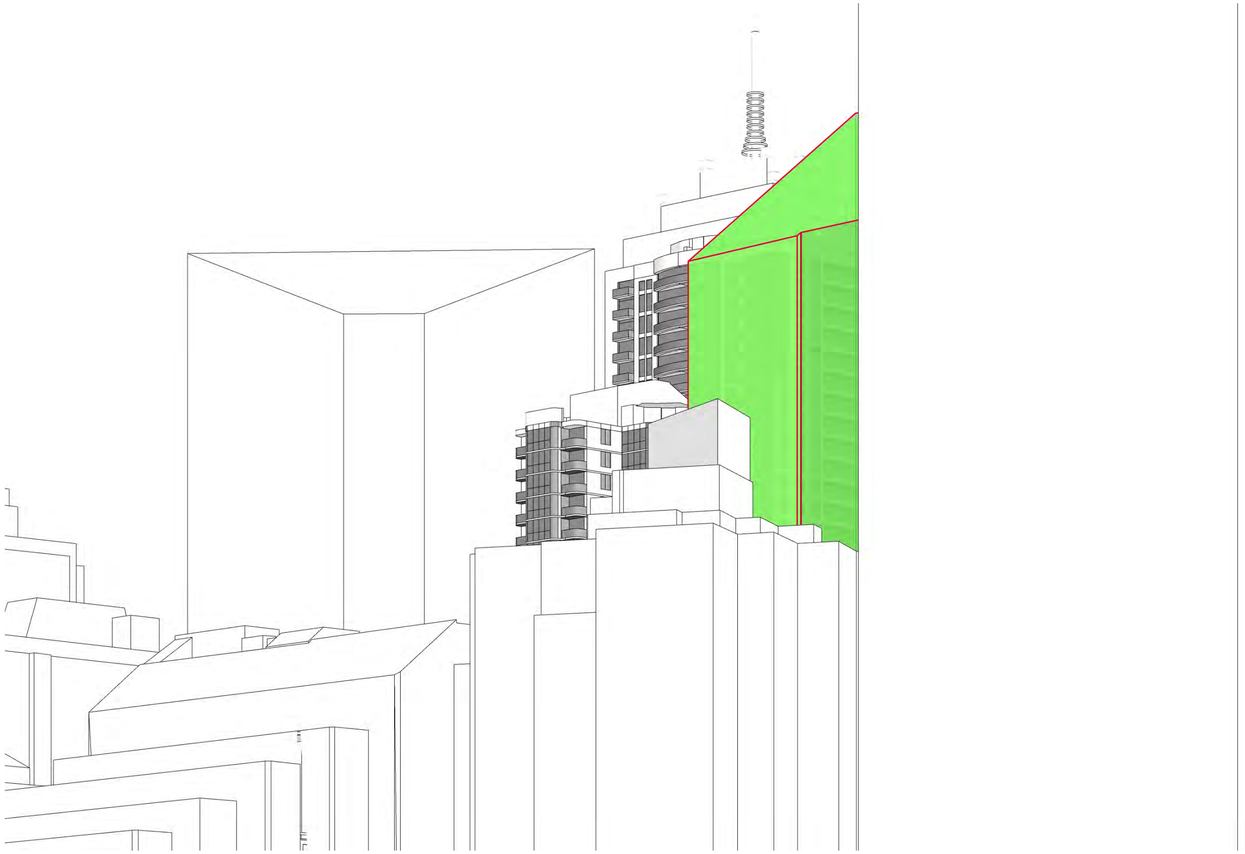
VIEW FROM ST MARY'S CATHEDRAL _FRONT STEPS

The green shaded area is the approved Concept envelope. Windows obscured by green will lose their views of the steps of St Mary's cathedral.



3D View_View from St Mary's Cathedral_ Approved Envelope

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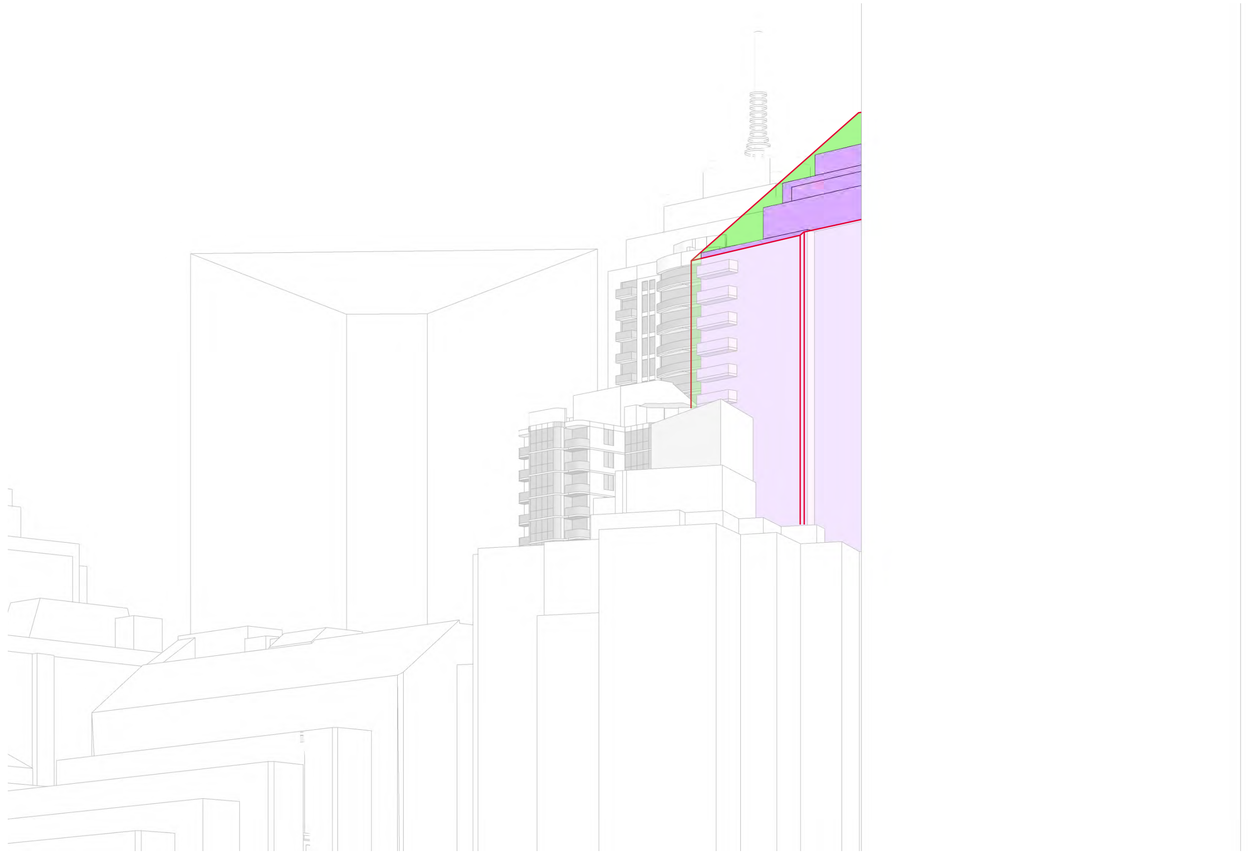
VIEW FROM ST MARY'S CATHEDRAL _FRONT STEPS

The adjacent drawing shows an overlay of the approved concept envelope (green) with the proposed SSD DA massing in purple. As can be seen, the proposed massing is wholly within the approved concept envelope. In addition, the proposed rooftop massing achieves a 38% reduction in obstruction of views of St Mary's Cathedral steps compared to the approved envelope.



3D View_ View from St Mary's Cathedral_SSDA

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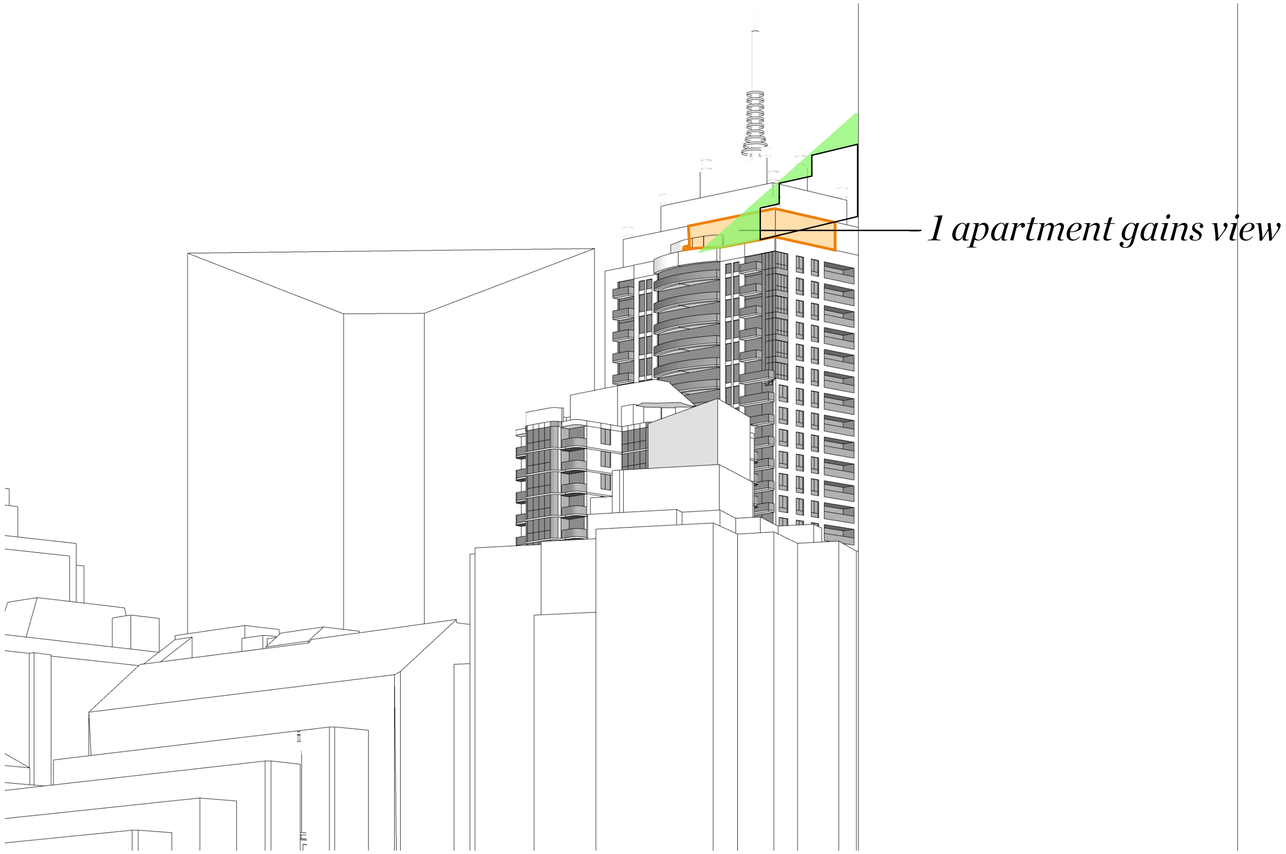
VIEW FROM ST MARY'S CATHEDRAL _FRONT STEPS

When overlaid over the strata subdivisions, it can be seen that the proposed roof form significantly improves views to 1 apartment compared with the approved concept envelope. The area in green shows the extents of glazing within Century Tower gaining this view.



3D View_ View from St Mary's Cathedral_SSDA

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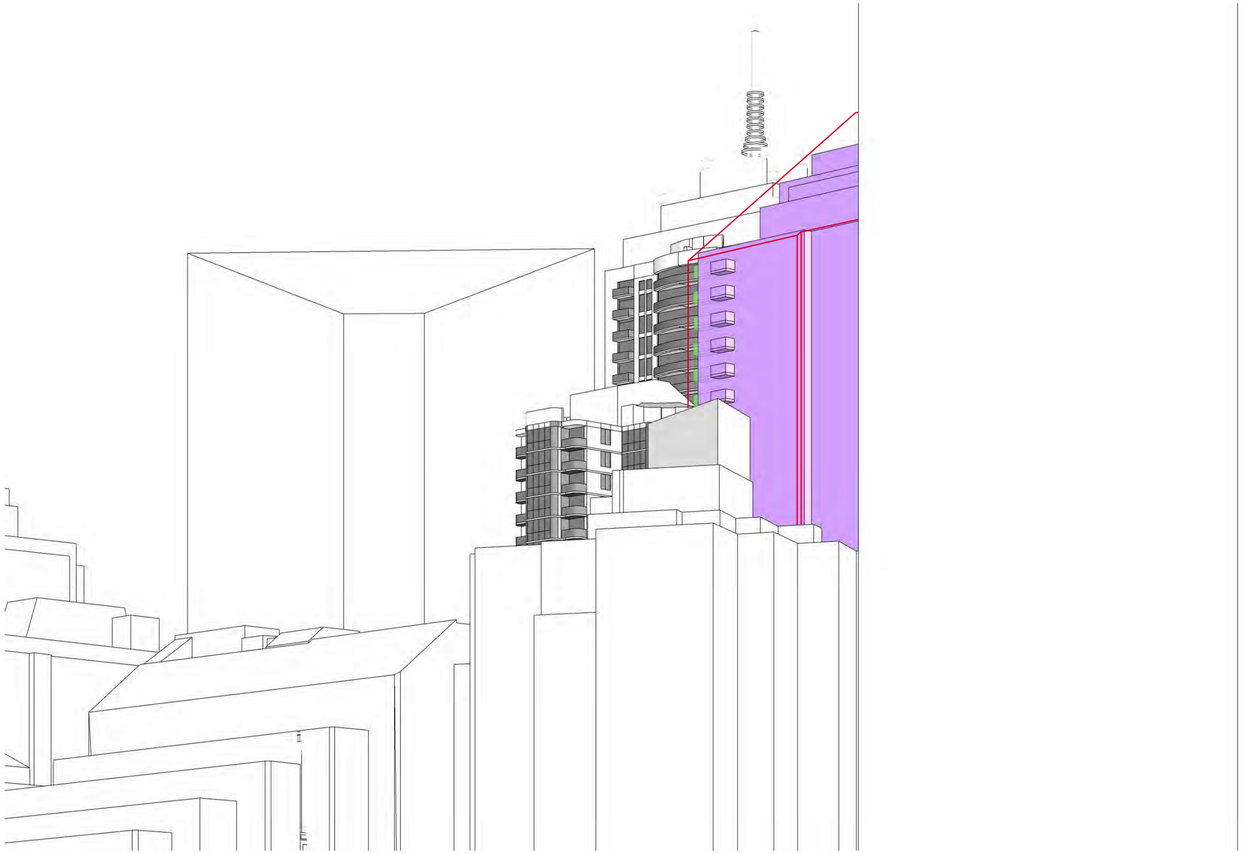
VIEW FROM ST MARY'S CATHEDRAL _FRONT STEPS

While not a result of the rooftop massing, the adjacent diagram shows the additional view gained as a result of amendments to the south eastern balcony made since the SSD DA, described in Section 3 of this report.



3D View_ View from St Mary's Cathedral_PROPOSED

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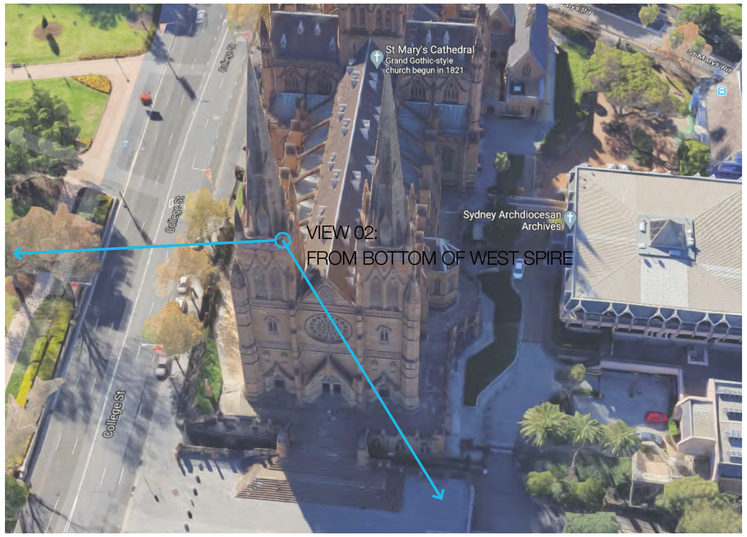
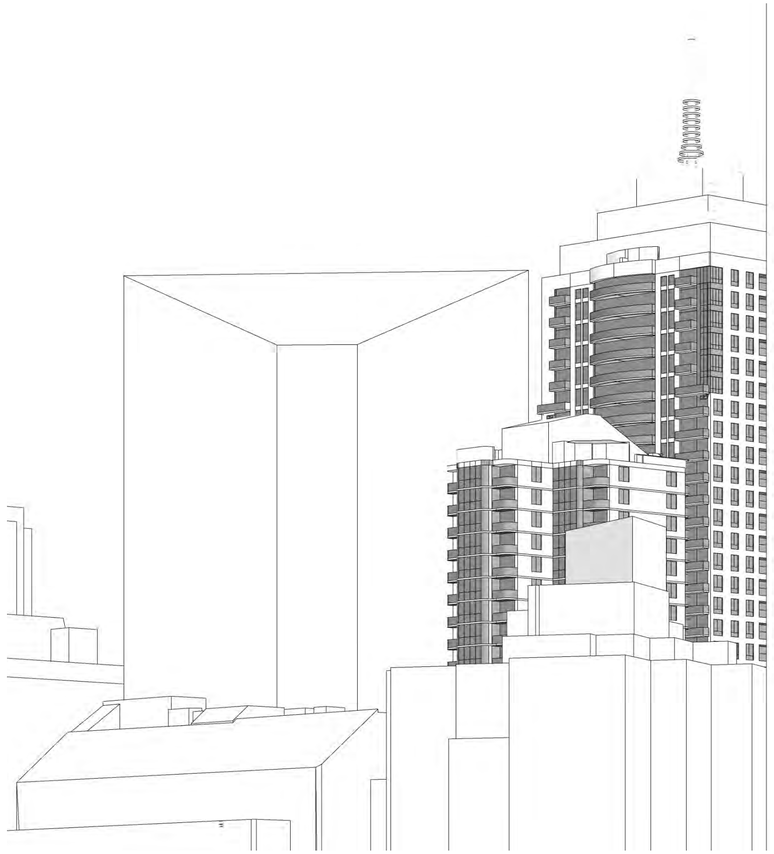
VIEW FROM ST MARY'S CATHEDRAL _BOTTOM OF SPIRE

The adjacent reverse view analysis, undertaken from the base of the Western spire of St Mary's cathedral, shows the extents of Century Tower able to see the base of this spire.





3D View_ View from St Mary's Cathedral_ Existing Condition

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VIEW FROM ST MARY'S CATHEDRAL _BOTTOM OF SPIRE

The green shaded area is the approved Concept envelope. Windows obscured by green will lose their views of the base of the Western spire of St Mary's Cathedral.

3D View_ View from St Mary's Cathedral_ Approved Envelope

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VIEW FROM ST MARY'S CATHEDRAL _BOTTOM OF SPIRE

The adjacent overlay of the approved concept envelope (green) with the proposed SSD DA massing in purple, shows that the proposed massing is wholly within the approved concept envelope. In addition, the proposed rooftop massing achieves a 44% reduction in obstruction of views of the base of St Mary's Cathedral west spire compared to the approved envelope.

3D View_ View from St Mary's Cathedral_SSDA

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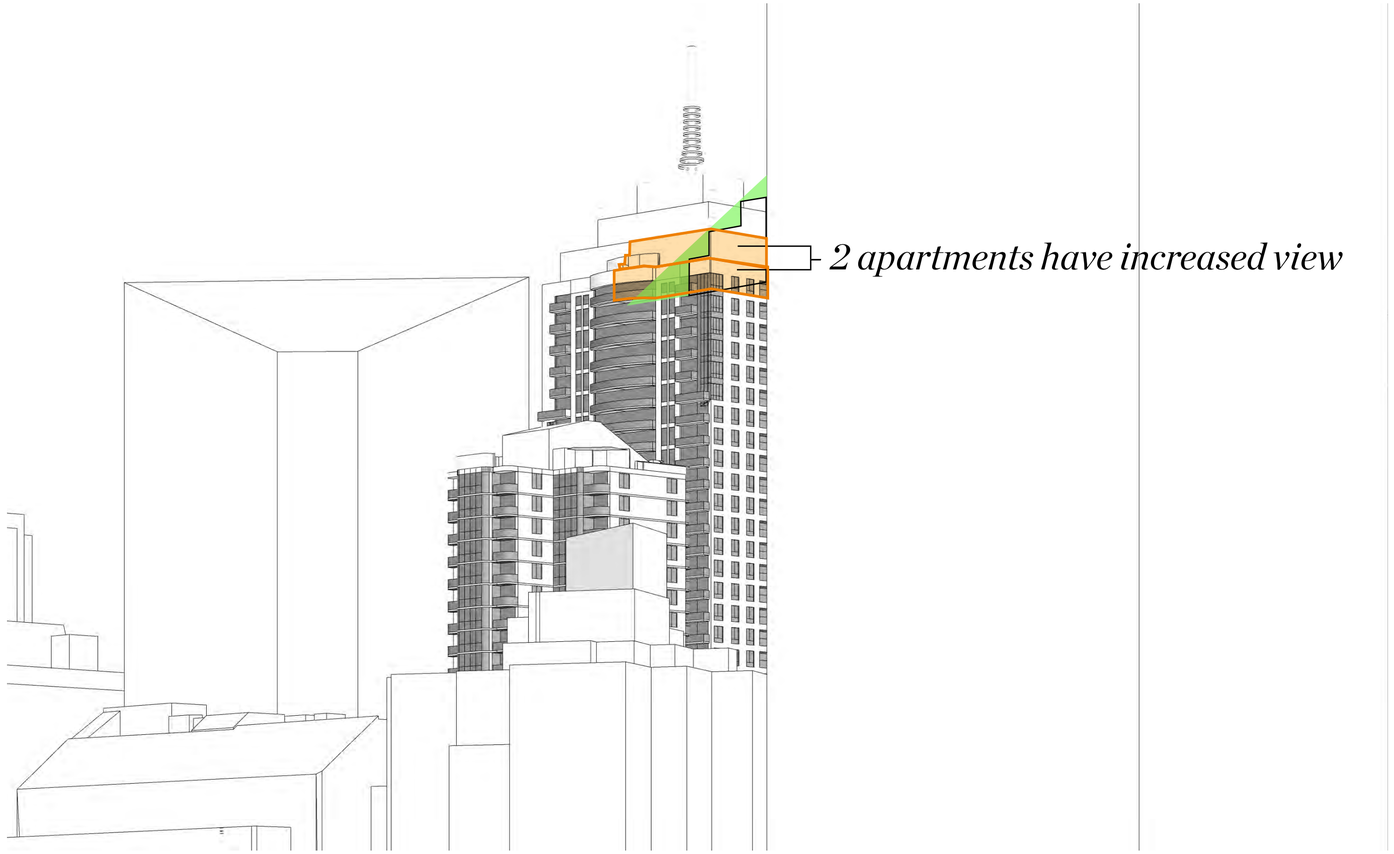
VIEW FROM ST MARY'S CATHEDRAL _BOTTOM OF SPIRE

When overlaid over the strata subdivisions, it can be seen that the proposed roof form improves views to 2 apartments compared with the approved concept envelope. The area in green shows the extents of glazing within Century Tower gaining this view.



3D View_ View from St Mary's Cathedral_SSDA

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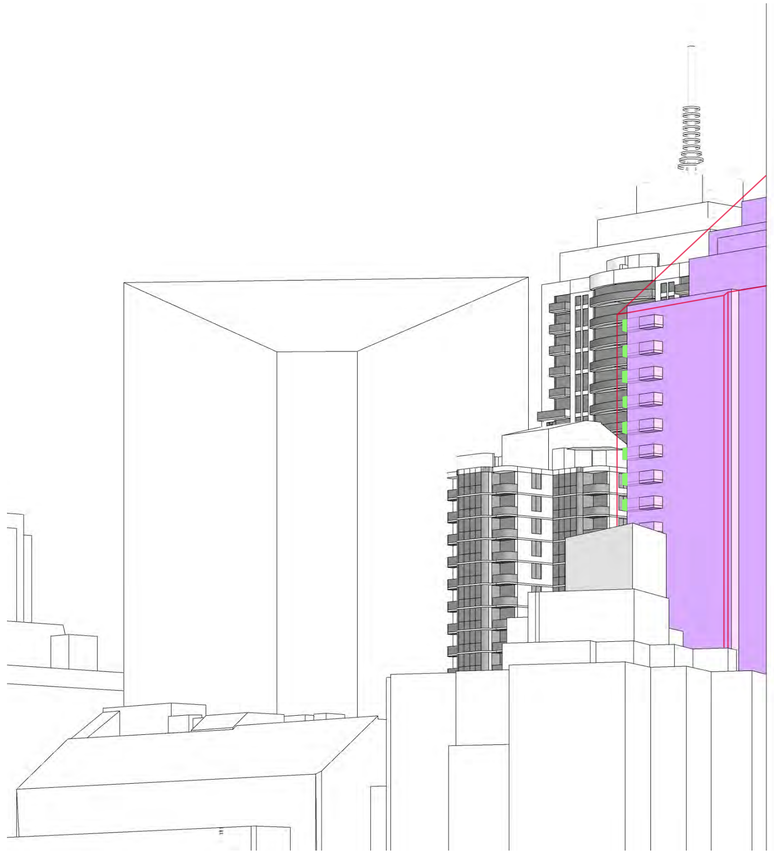
(a) Demonstrate compliance with Condition B3 of the Concept Approval, and provide detailed illustrations showing how the proposed built form satisfies the following subclauses:

** (g) articulation of roof forms must consider opportunity to retain view to St Mary's Cathedral from Century Tower (343-357 Pitt Street, Sydney).*

VIEW FROM ST MARY'S CATHEDRAL _BOTTOM OF SPIRE

While not a result of the rooftop massing, the adjacent diagram shows the additional view gained (in green) as a result of amendments to the south eastern balcony made since the SSD DA, described in Section 3 of this report.



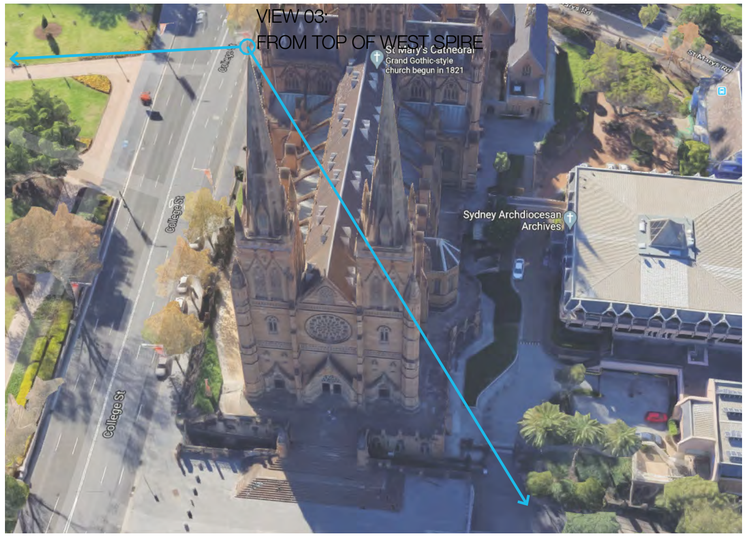
2. RETAIN VIEW TO ST MARY'S CATHEDRAL FROM CENTURY TOWER

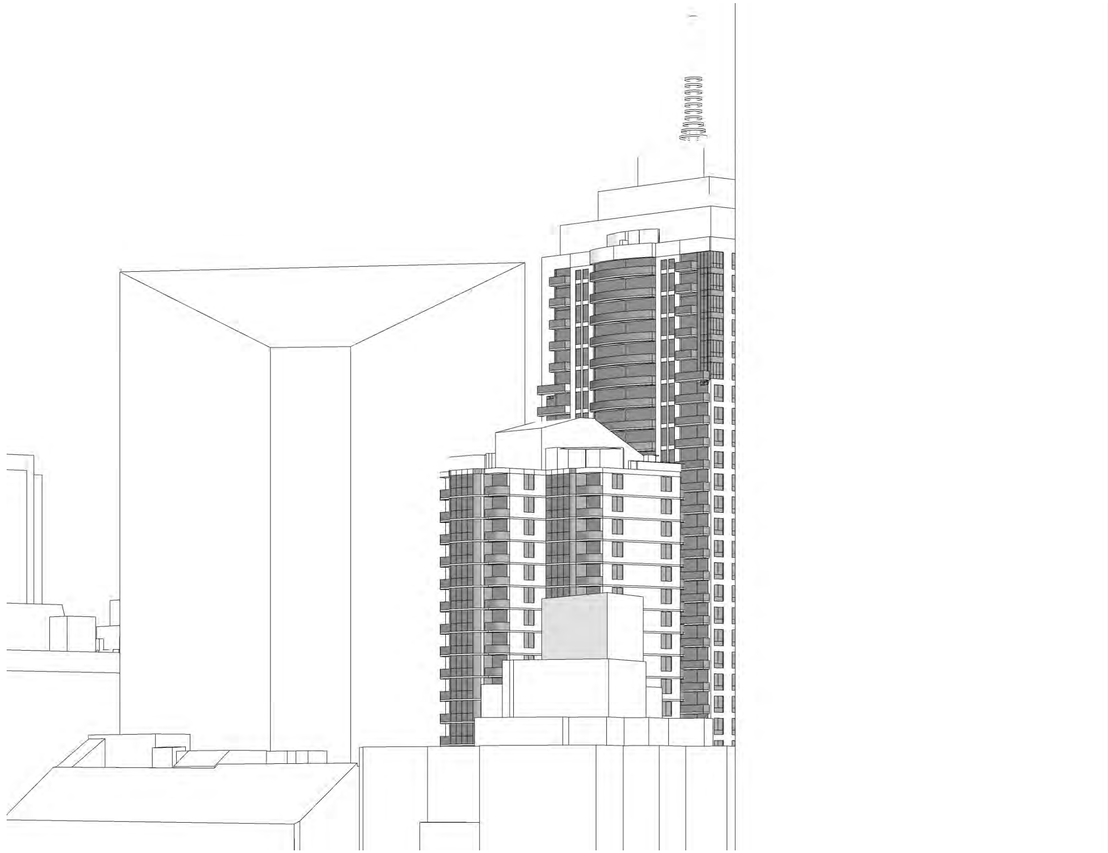
(a) Demonstrate compliance with Condition B3 of the Concept Approval, and provide detailed illustrations showing how the proposed built form satisfies the following subclauses:

** (g) articulation of roof forms must consider opportunity to retain view to St Mary's Cathedral from Century Tower (343-357 Pitt Street, Sydney).*

VIEW FROM ST MARY'S CATHEDRAL _TOP OF SPIRE

The adjacent reverse view analysis, undertaken from the top of the Western spire of St Mary's cathedral, shows the extents of Century Tower able to see the top of this spire.





3D View_ View from St Mary's Cathedral_ Existing Condition

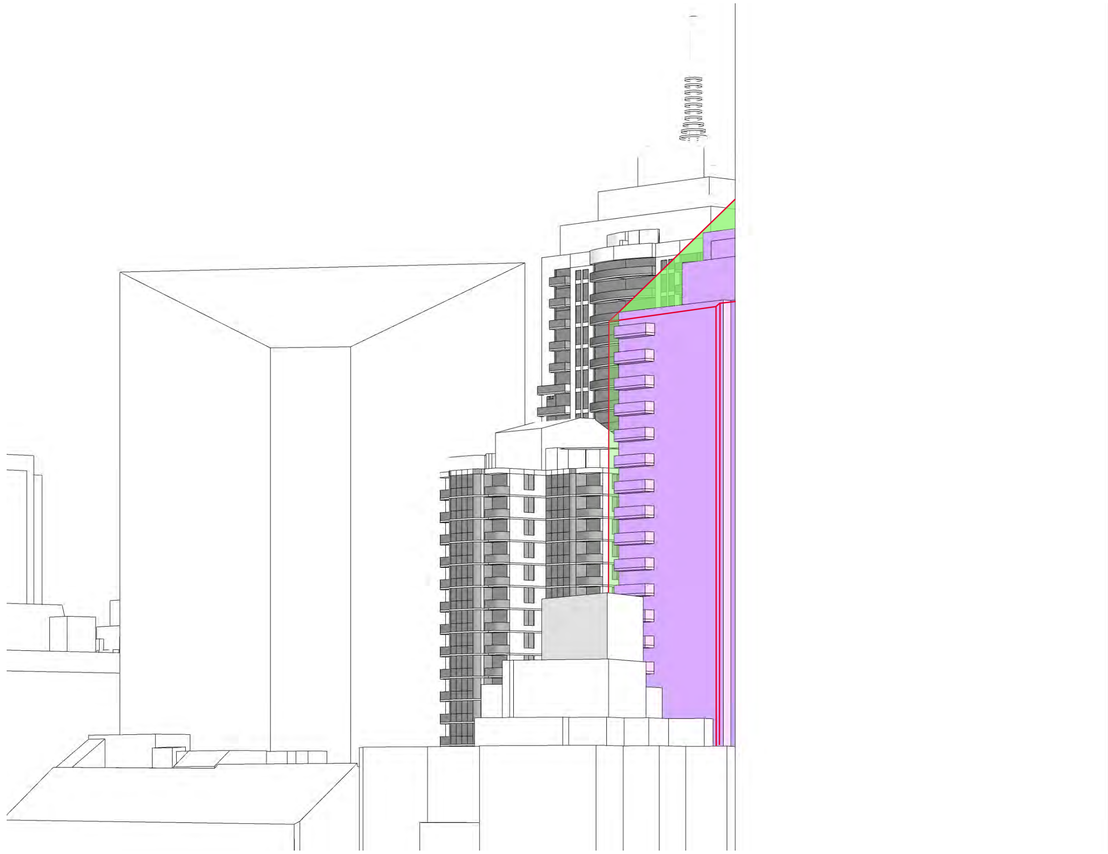
2. RETAIN VIEW TO ST MARY'S CATHEDRAL FROM CENTURY TOWER

(a) Demonstrate compliance with Condition B3 of the Concept Approval, and provide detailed illustrations showing how the proposed built form satisfies the following subclauses:

** (g) articulation of roof forms must consider opportunity to retain view to St Mary's Cathedral from Century Tower (343-357 Pitt Street, Sydney).*

VIEW FROM ST MARY'S CATHEDRAL _TOP OF SPIRE

The adjacent overlay of the approved concept envelope (green) with the proposed SSD DA massing in purple, shows that the proposed massing is wholly within the approved concept envelope. In addition, the proposed rooftop massing achieves a 54% reduction in obstruction of views of the base of St Mary's Cathedral west spire compared to the approved envelope.



3D View_ View from St Mary's Cathedral_SSDA

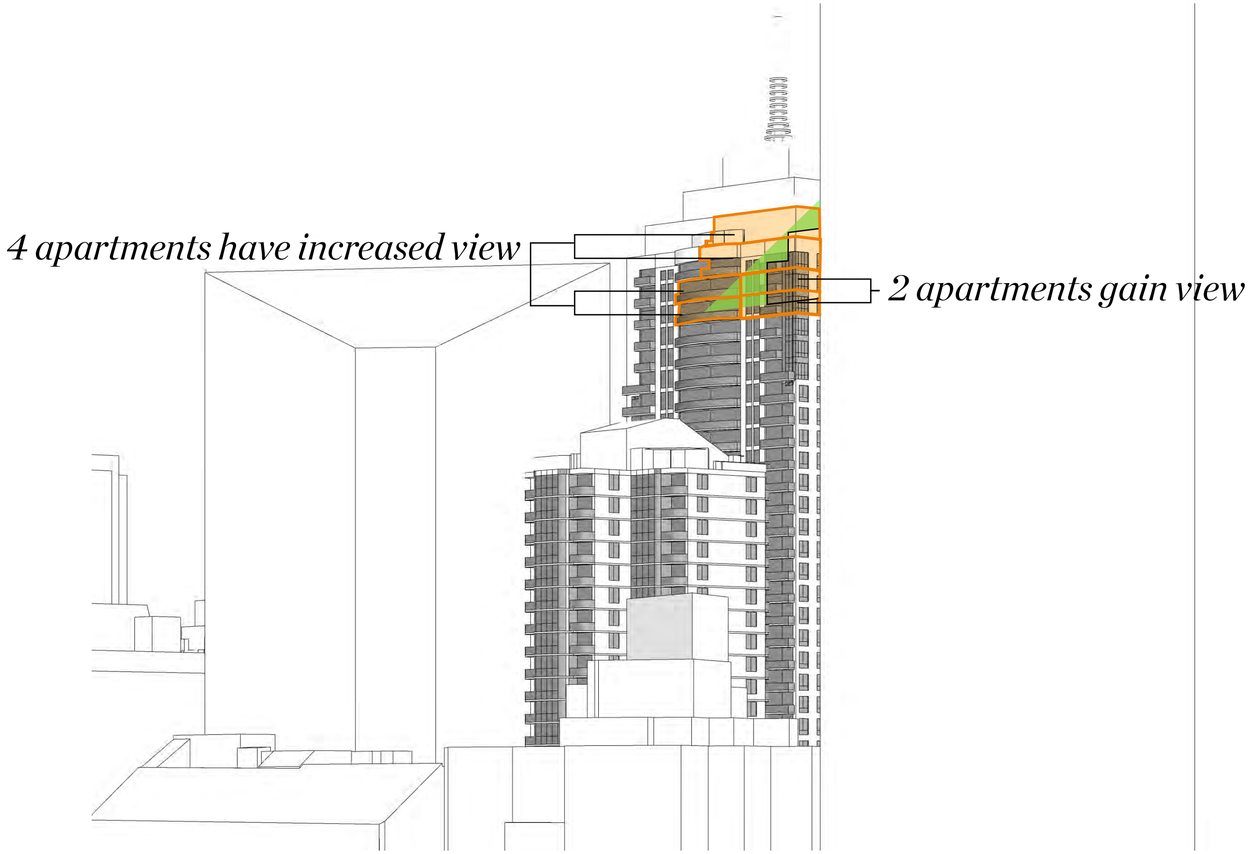
2. RETAIN VIEW TO ST MARY'S CATHEDRAL FROM CENTURY TOWER

(a) Demonstrate compliance with Condition B3 of the Concept Approval, and provide detailed illustrations showing how the proposed built form satisfies the following subclauses:

** (g) articulation of roof forms must consider opportunity to retain view to St Mary's Cathedral from Century Tower (343-357 Pitt Street, Sydney).*

VIEW FROM ST MARY'S CATHEDRAL _TOP OF SPIRE

When overlaid over the strata subdivisions, it can be seen that the proposed roof form improves views to 4 apartments when compared with the approved concept envelope, and achieves an additional 2 apartments now gaining a partial view which previously received no view. The area in green shows the extents of glazing within Century Tower gaining views of the top of the spire.



3D View_ View from St Mary's Cathedral_SSDA

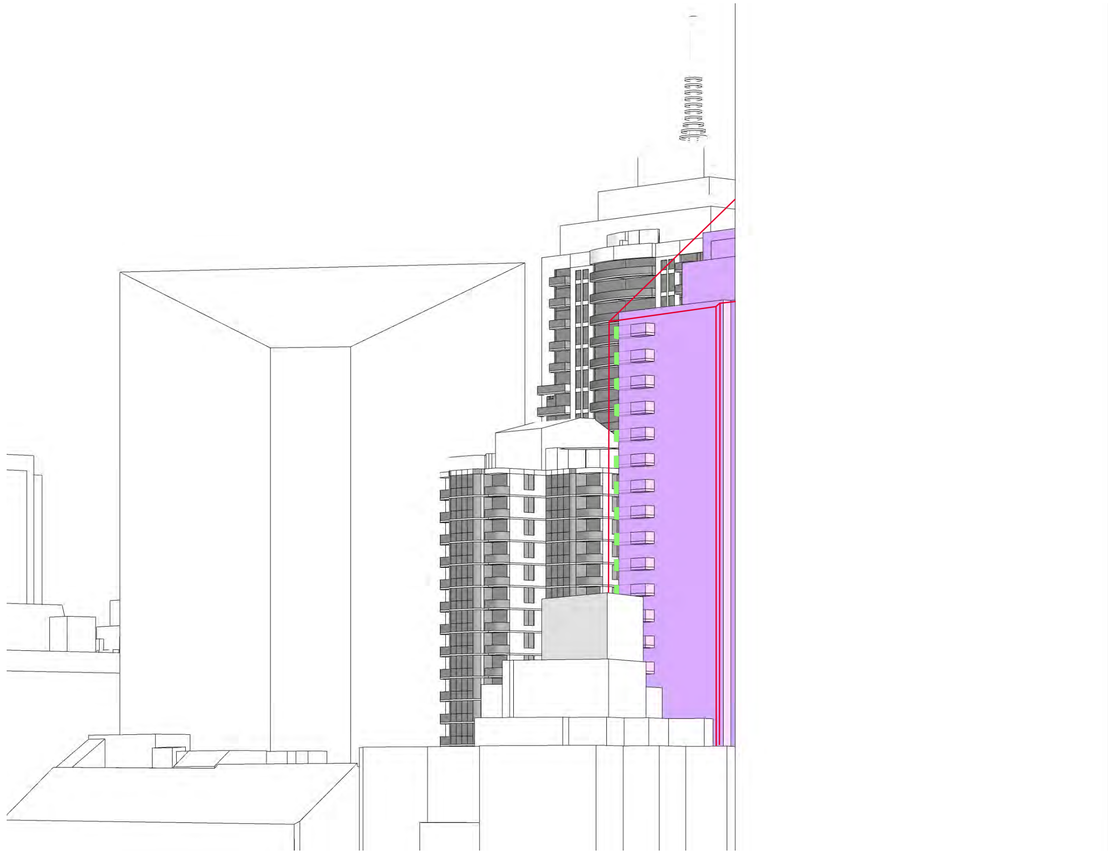
2. RETAIN VIEW TO ST MARY'S CATHEDRAL FROM CENTURY TOWER

(a) Demonstrate compliance with Condition B3 of the Concept Approval, and provide detailed illustrations showing how the proposed built form satisfies the following subclauses:

** (g) articulation of roof forms must consider opportunity to retain view to St Mary's Cathedral from Century Tower (343-357 Pitt Street, Sydney).*

VIEW FROM ST MARY'S CATHEDRAL _TOP OF SPIRE

While not a result of the rooftop massing, the adjacent diagram shows the additional view gained as a result of amendments to the south eastern balcony made since the SSD DA, described in Section 3 of this report.



3D View_ View from St Mary's Cathedral_Proposed

3. ADDITIONAL SOLAR ANALYSIS OF PROPOSAL'S OVERSHADOWING TO PRINCETON APARTMENTS

(b) Provide additional shadow analysis of the proposal's overshadowing impact on the Princeton Apartments. This must detail the amount of solar access (nil, 0-30 minutes, 30–60 minutes, 60-90 minutes, 90-120 minutes and >120 minutes) the dwellings within Princeton Apartments would receive between 9am and 3pm, 21 June (existing and proposed). Any discrepancies between the number of dwellings maintaining solar access between the Concept Approval assessment and the proposal must be clarified.

SOLAR IMPACT TO PRINCETON

For a full analysis of solar compliance of Princeton Apartments in response to this submission, please refer to the accompanying solar access report prepared by Scott Walsh Architects.

The below design amendments have been made to the initial SSD DA application in order to maximise solar access to Princeton Apartments:

1. As outlined in item 1, the South West Corner has been pulled North by 274mm, and West by 200mm, as the result of a sensitivity analysis seeking to maximise solar access to the Western apartments within Princeton,

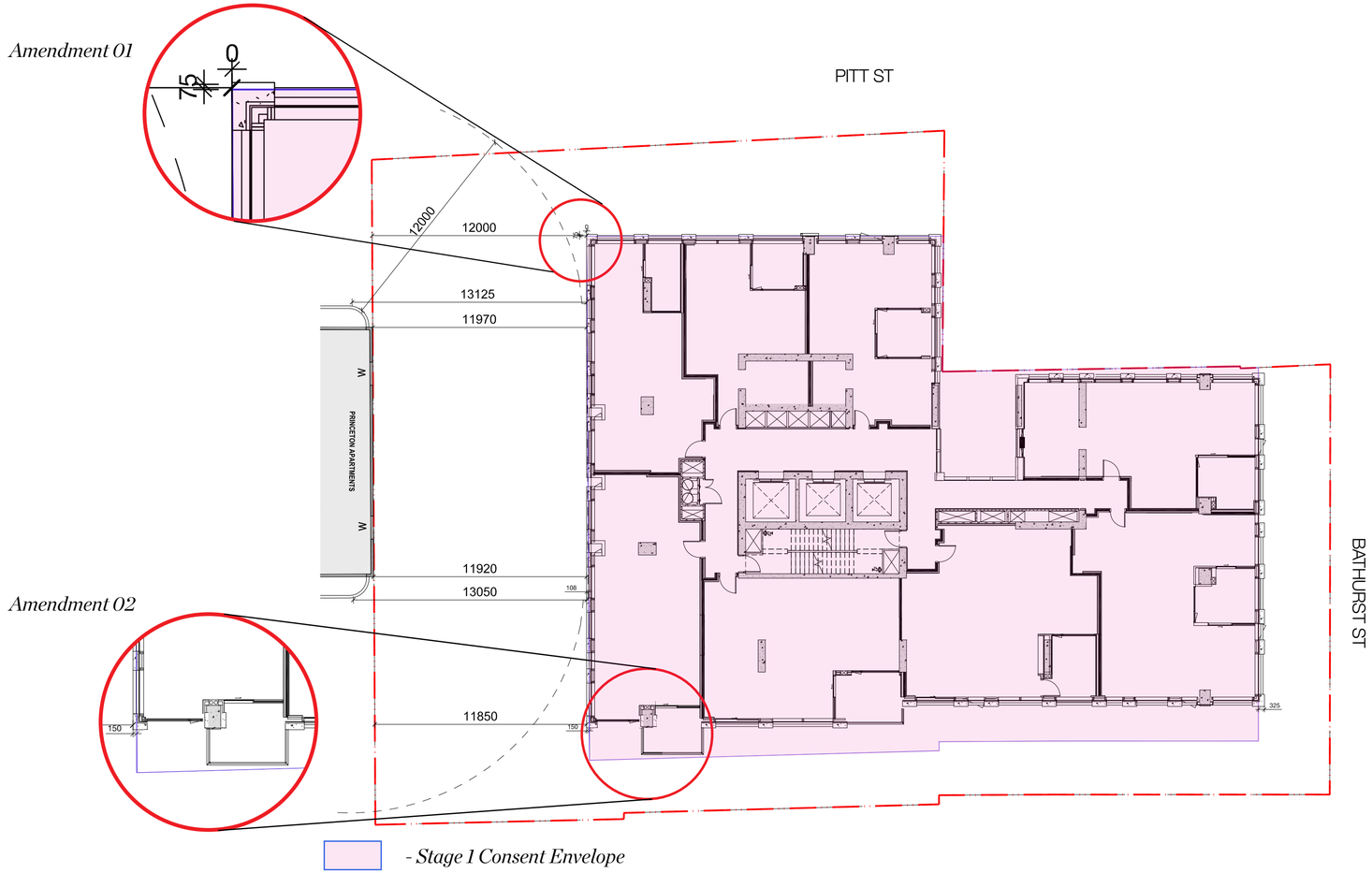
2. In addition, the below sensitivity analysis has been undertaken to understand whether any amenity improvements can be achieved to Princeton with amendments to the South Eastern corner.

The SSD DA design as lodged proposed two balcony conditions:

i) Typical Condition: Inset balconies open to 1 face only, to achieve comfortable conditions even during periods of high wind, adopted on 7 out of 8 apartments per floor,

ii) Atypical Condition: An outboard balcony, open on 3 faces and enclosed by the west face only, identified in the wind study as experiencing unpleasantly high wind conditions. This configuration applies to 1 apartment per floor only, and was proposed as it allowed 3 x more apartments in total to achieve >2 hours of solar access to living rooms and private open spaces on 21st June than had a typical balcony been adopted in this location.

We have reviewed this balcony configuration to understand whether improvements can be made.



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SOLAR IMPACT TO PRINCETON

A sensitivity analysis was undertaken using the adjacent 4 apartment and balcony configurations to understand the potential benefits to either development of each scenario.

Option 1, as lodged within the SSD DA:

/ Offered a complying 10sqm balcony to the proposed 2 bedroom apartment, although the balcony had uncomfortable high wind conditions for much of the year,

/ Allowed 3 more of these apartments to achieve >2 hours of solar access than either of the remaining 3 options, but

/ Is built to the fullest extent of the south east corner of the envelope, and

/ As such offered the poorest outcome for residents of Princeton Apartments in terms of solar access, visual and acoustic privacy, and view outlook.

For options 2, 3 and 4, each progressive option improves amenity for Princeton apartments while reducing amenity for the proposed development. These options were then presented to the Design Review Panel on 18th August.

The DRP agreed that option 4, the preferred option of the Applicant, did provide the highest level of amenity to Princeton Apartments in terms of balcony proximity, but it also resulted in an unacceptably low level of amenity being achieved within the proposed new apartment, necessitating both net internal areas and room size dimensions falling below ADG minimums for a 2 bedroom apartment type as proposed.

The endorsed direction was that a balcony configuration similar to option 2 or 3, but that allowed ADG internal areas and room size dimensions to be compliant, would likely represent the best amenity outcome for the precinct as a whole.

Apartment Data:	*Option 1*	*Option 2*	*Option 3*	*Option 4*
Type:	*2B/2B*	*2B/2B*	*2B/2B*	*2B/2B*
Internal Area (75m2)	*79*	*76.5*	*72.4*	*70*
External Area (10m2)	*10*	*6.4*	*8*	*7*
ADG Data:				
Min. Apartment area (75m2)	√	√	X *(Complies 2B/1bth)*	X *(Complies 2B/1bth)*
Min. balcony area (10m2)	√	X	X *(Complies 1B)*	X
Living room width (4m)	√	X *(Complies 1B)*	X *(Complies 1B)*	X *(Complies 1B)*
2hr solar to living room	√	X *(1.5 Achieved)*	X *(1.5 Achieved)*	√
2hr solar to balcony	√	√	√	X
Resident requirements:				
2B/2B	√	√	√	√
Balcony amenity - wind	X	X	-	√
Balcony amenity - width	X	√	√	√
DPIE requirements				
Increased view	X	√	√	√
Increased privacy	X	X	X	√
Increased solar	X	X	-	-

3. ADDITIONAL SOLAR ANALYSIS OF PROPOSAL'S OVERSHADOWING TO PRINCETON APARTMENTS

(b) Provide additional shadow analysis of the proposal's overshadowing impact on the Princeton Apartments. This must detail the amount of solar access (nil, 0-30 minutes, 30–60 minutes, 60-90 minutes, 90-120 minutes and >120 minutes) the dwellings within Princeton Apartments would receive between 9am and 3pm, 21 June (existing and proposed). Any discrepancies between the number of dwellings maintaining solar access between the Concept Approval assessment and the proposal must be clarified.

SOLAR IMPACT TO PRINCETON

The resulting SSD DA and amended proposed RTS Amended SE apartment configuration is shown adjacent and is as per Option 2 in the table on the previous page.

Amenity Benefits to Princeton Apartments:

/ Improved solar access from the north east in mornings,

/ Improved view outlook towards North East

Amenity Benefits to both developments:

/ Improved visual and acoustic privacy between balconies of both developments.

Amenity Benefits to the proposed:

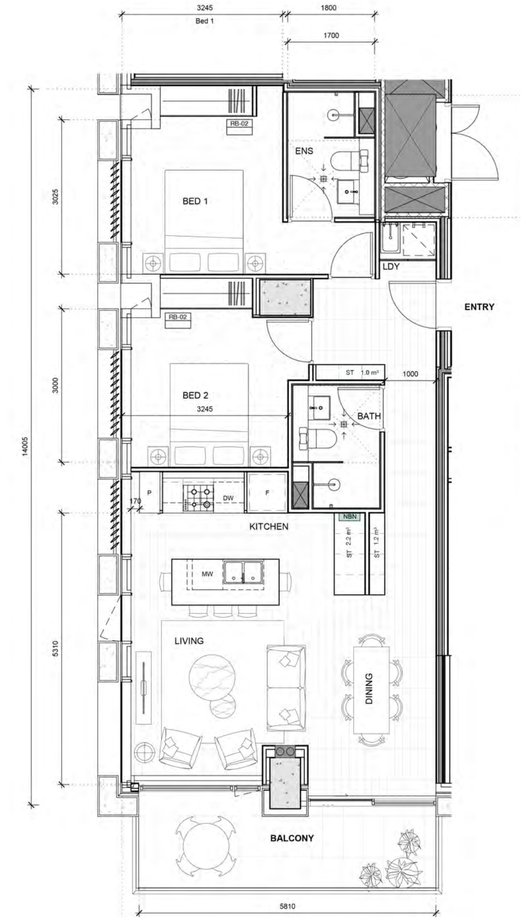
/ Improved wind conditions on the balcony.

Requires two planning concessions:

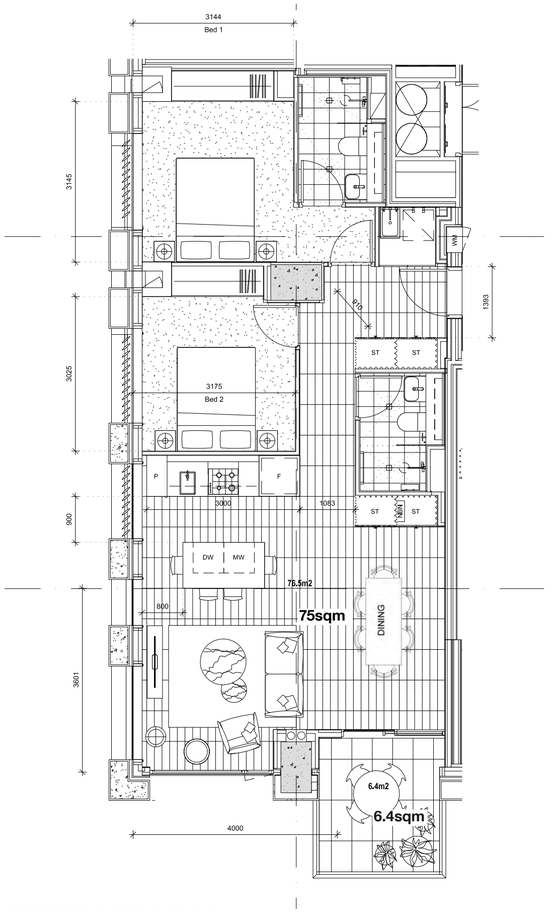
/ 3 x fewer apartments achieving >2 hours solar access on 21st June (this 50% revised total in lieu of 50.9%)

/ The 2 balcony of the 2 bedroom apartment can only achieve 6.5sqm and not 10sqm as proposed under the ADG.

In our assessment, the adjacent proposed amended design achieves the best balanced outcome for both developments.



SSDA SOUTH EAST APARTMENT



PROPOSED SOUTH EAST APARTMENT

4. REVIEW OF PROJECTIONS BEYOND THE BUILDING ENVELOPE

(c) Review the appropriateness of the proposed projections beyond the approved building envelope with respect to any additional impacts when compared to a complying development, including further consideration of any:

** overshadowing impacts to adjoining residential properties*

** privacy and visual impacts resulting from further encroachments on minimum building separations*

** streetscape impacts*

** ongoing maintenance of boundary conditions.*

SSD DA SCHEME AS LODGED:

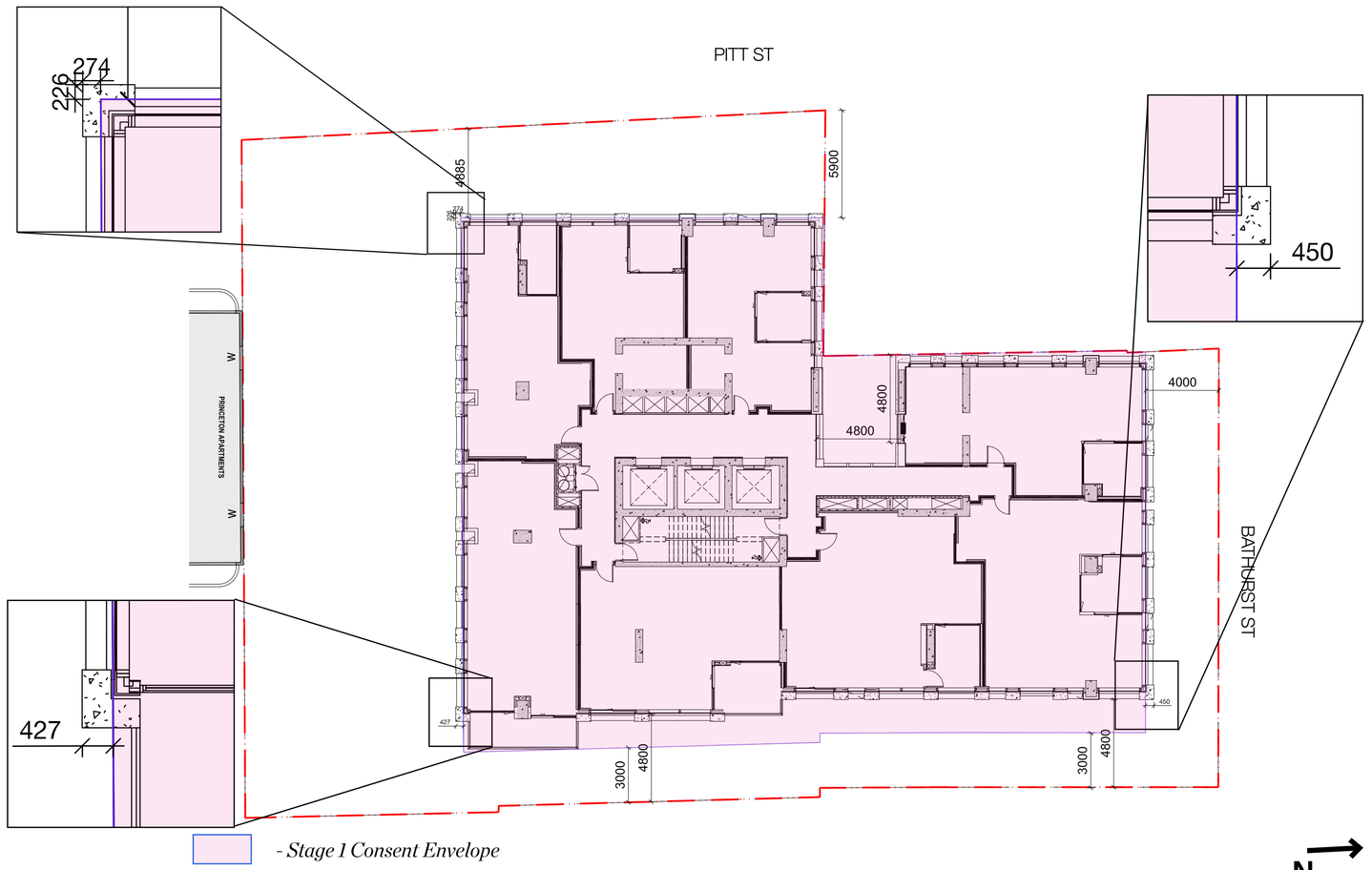
The adjacent drawing shows the proposed facade projections at the time of SSD DA lodgement which were based on a continuous projection depth of 450mm beyond the glassline.

West Face:
Max. projection of 226mm beyond envelope, for approx 50% of frontage length, in an area of 4.8 to 5m setback.

North Face:
Max projection of 450mm, in an area of 4m set back from Bathurst St.

East Face:
Wholly contained within envelope.

South Face
Projection varying from 274mm at South West corner, to 427mm at South East corner, with the variance due to the Southern boundary not being parallel to the building which has been set out to be parallel with the primary East/West Boundary, being Bathurst Street.



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** overshadowing impacts to adjoining residential properties*

** privacy and visual impacts resulting from further encroachments on minimum building separations*

** streetscape impacts*

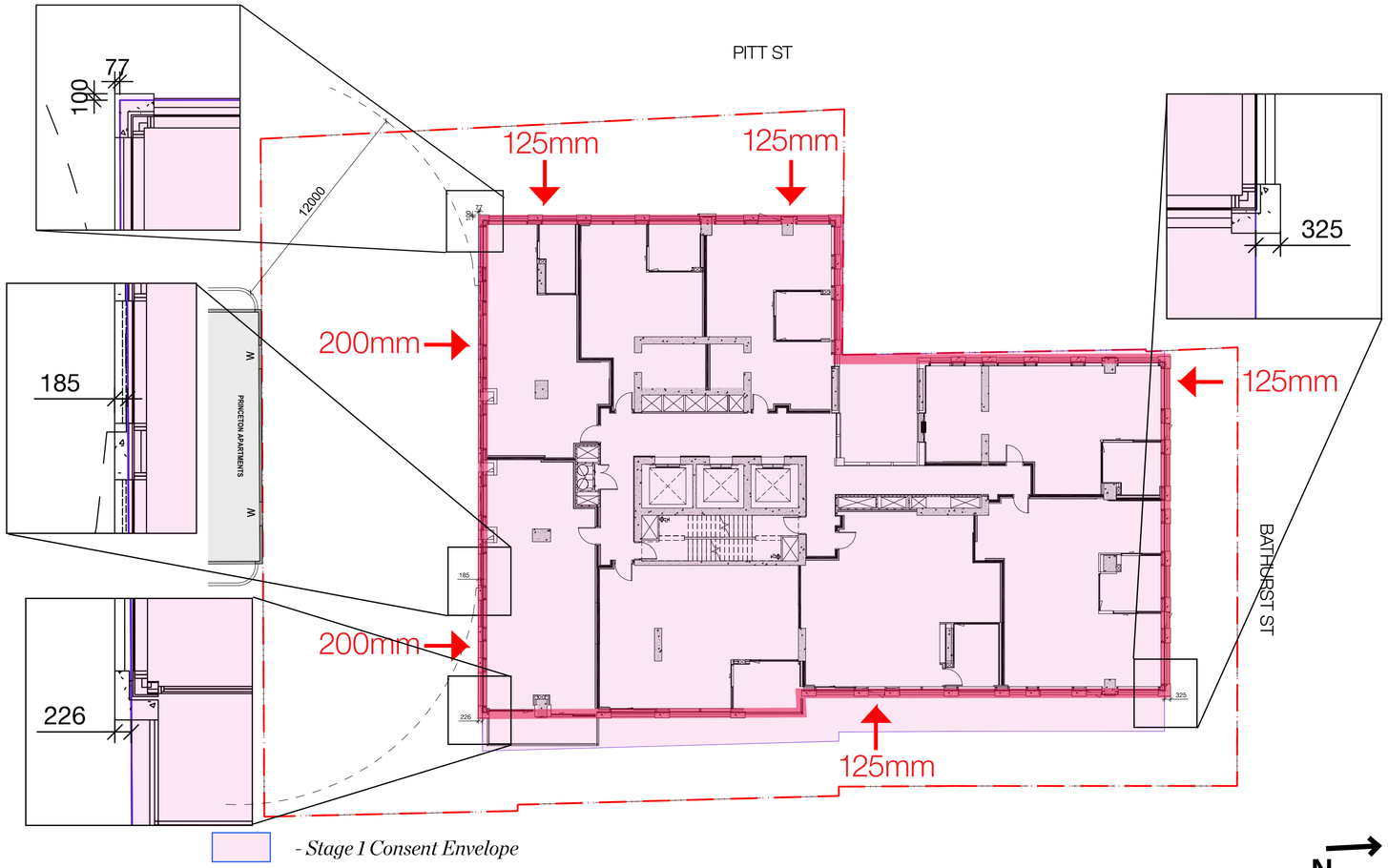
** ongoing maintenance of boundary conditions.*

REDUCTION IN FACADE DEPTH:

In order to minimise overshadowing to Princeton (described in Section 1), the West, East, and North facades have been reduced in depth from 450mm to 325mm. The architectural methodology behind this change is described further in this section.

In order to maximise building separation to Princeton Apartments, the Southern facade depth has been rediced from from 450mm to 250mm.

City of Sydney DCP permits non habitable architectural facade projections of up to 450mm above the public domain. All of the proposed facade projections are wholly contained on the proposed site.



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** streetscape impacts*

** ongoing maintenance of boundary conditions.*

BUILT FORM REDUCTION:

In addition, the West Facade glassline and perimeter columns have been moved 25mm East from the location proposed in the SSD DA, and the South Facade glassline has been pulled north by 77mm from the location proposed in the SSDA. These are the maximum adjustments that can be achieved:
/ without substantial changes to columns which would cause an impact to the station beneath,
/ without causing apartment or room dimensions to fall below ADG minimums.

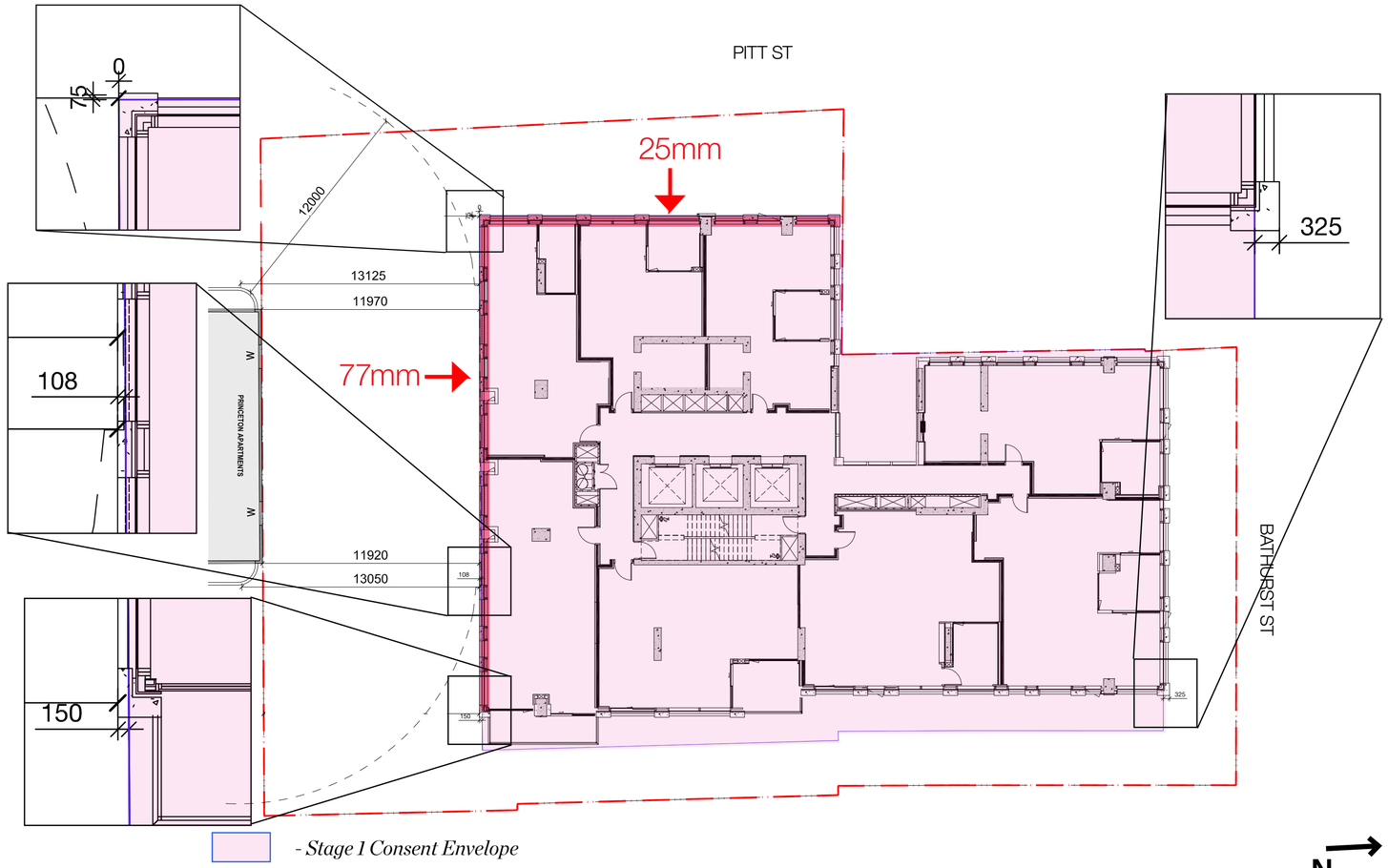
The resultant proposed facade projections are shown on the adjacent drawing:

West Face:
Max. projection of 75mm, down from 226mmm, improving Solar Access to Princeton,

North Face:
Max projection of 325mm, down from 450mm

East Face:
Wholly contained within envelope.

South Face
Wholly within the approved envelope at the South West, and a nominal projection of 150mm at the South East, due to the boundary not being parallel to the floorplate.



4. REVIEW OF PROJECTIONS BEYOND THE BUILDING ENVELOPE

(c) Review the appropriateness of the proposed projections beyond the approved building envelope with respect to any additional impacts when compared to a complying development, including further consideration of any:

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** privacy and visual impacts resulting from further encroachments on minimum building separations*

** streetscape impacts*

** ongoing maintenance of boundary conditions.*

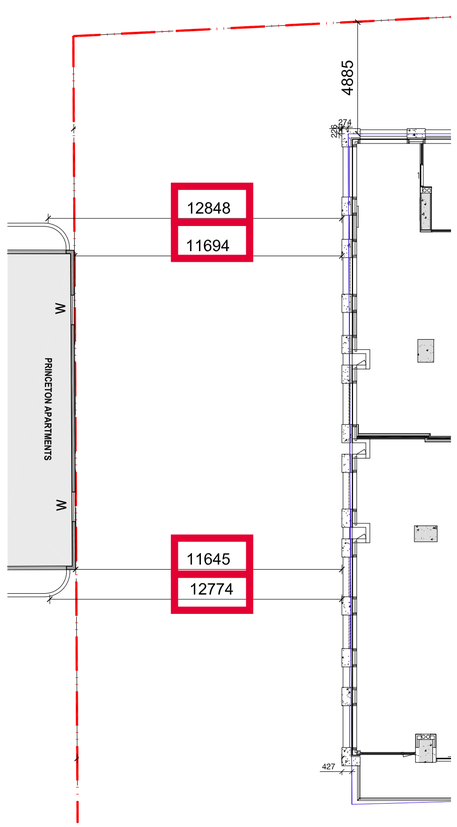
RESULTANT BUILDING SEPARATION

Both the SSD DA and the revised RTS design achieve a minimum of 12m building separation from Princeton Apartments when measured to the glassline.

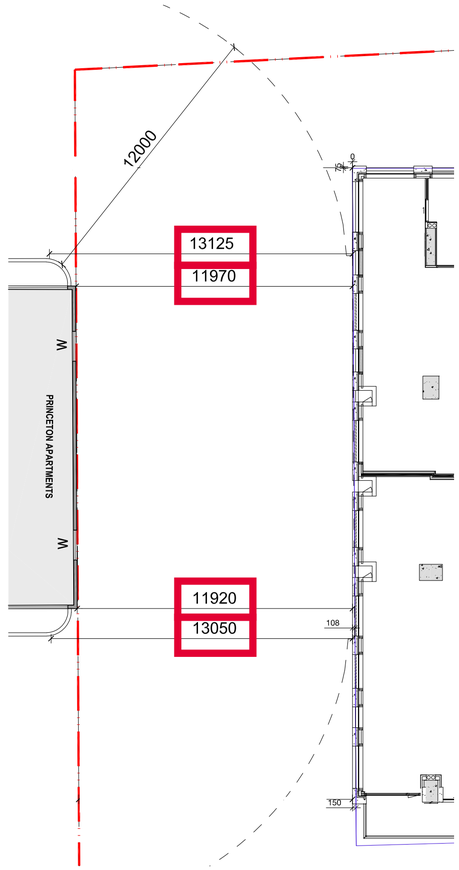
Despite non habitable projections less than 12m away posing no adverse impact to privacy, we have sought to minimise them for reasons of a) solar access and b) perceived amenity that can arise from spatial perceptions of building separation. The adjacent drawings compare the net building separation between Princeton Apartments achieved a) in the SSD DA and b) in the revised RTS design with reduced GRC and floorplate depth.

/ The reduced GRC depths increase building separation minimums by 275mm along the entire frontage,
/ The resultant separations are in excess of 12m at the point of both habitable balconies of Princeton Apartments,
/ The minimum point of building separation is now 11920mm as opposed to 11645mm,
/ The South Western corner is fully complying with the southern envelope setback,
/ The South Eastern corner, although projecting a maximum of 150mm beyond the envelope, occurs in an area of far greater than 12m building separation to Princeton Apartments.
/ The glassline remains in excess of 12m from Princeton Apartments.
/ The maximum incursion to 12m of building separation is 108mm and consists of non habitable architectural projections and not habitable floor area.

For further information regarding privacy and amenity considerations undertaken at this interface please refer to section 5 of this report.



SSD DA: BUILDING SEPARATION



REVISED RTS PROPOSAL: BUILDING SEPARATION

N

4. REVIEW OF PROJECTIONS BEYOND THE BUILDING ENVELOPE

(c) Review the appropriateness of the proposed projections beyond the approved building envelope with respect to any additional impacts when compared to a complying development, including further consideration of any:

** overshadowing impacts to adjoining residential properties*

** privacy and visual impacts resulting from further encroachments on minimum building separations*

** streetscape impacts*

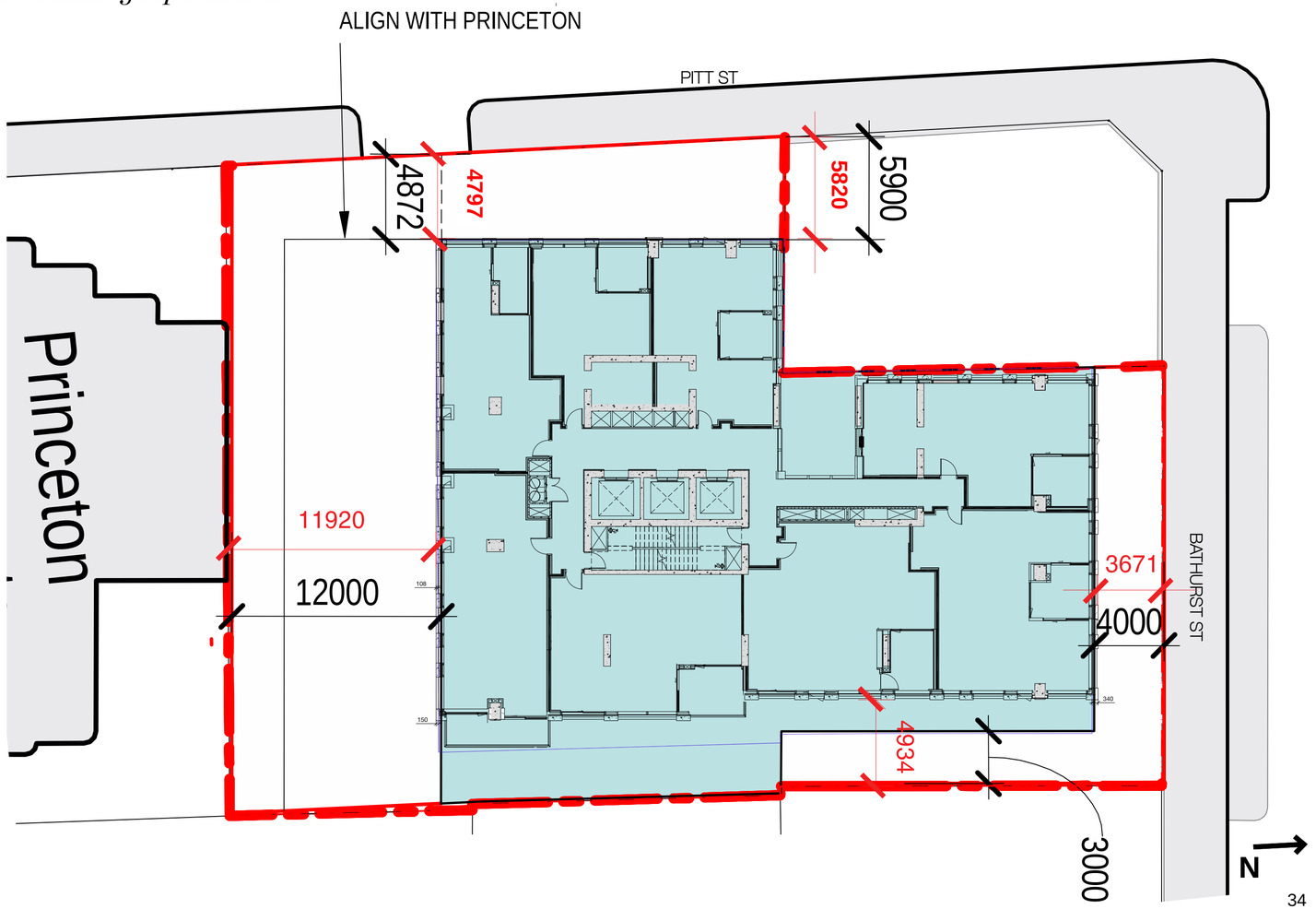
** ongoing maintenance of boundary conditions.*

RESULTANT BUILDING SETBACKS

The adjacent drawing is an overlay of the approved Stage 1 Concept Envelope, and the revised RTS design with reduced facade projections.

Dimensions in black are setbacks nominated by the concept envelope.

Dimensions in red are the setbacks being achieved by the revised RTS scheme.



4. REVIEW OF PROJECTIONS BEYOND THE BUILDING ENVELOPE

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** streetscape impacts*

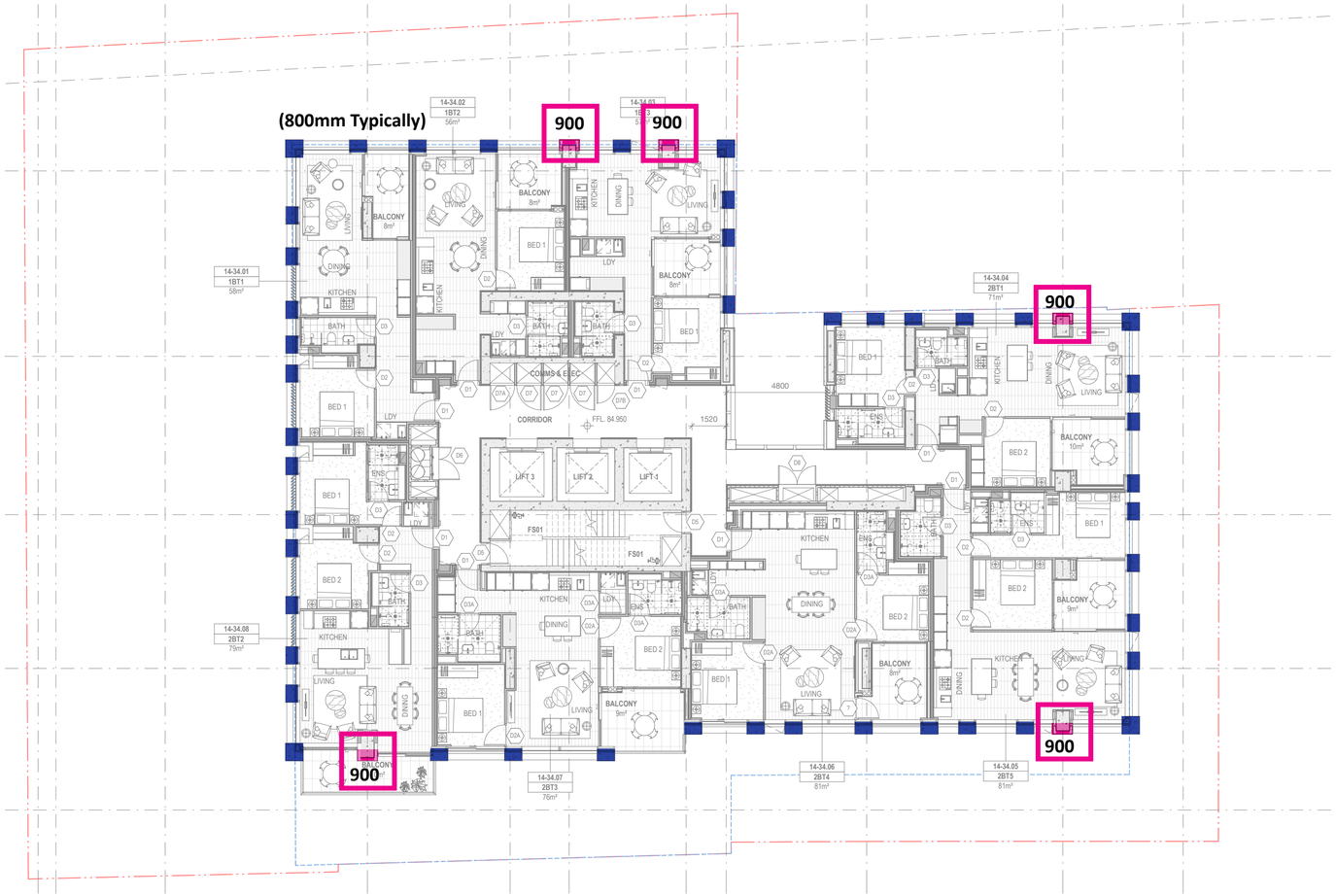
** ongoing maintenance of boundary conditions.*

FACADE DESIGN ADJUSTMENTS: METHODOLOGY

In adjusting the depth of the proposed facade, we have undertaken an entire fine scale redesign of the tower facade to ensure that design integrity is not eroded and visual 'solidity' is not lost. The scheme must remain of a solid, masonry expression with a human scale, and must continue to offer high levels of solar protection and amenity through facade privacy for occupants.

The adjacent design shows the design as lodged at SSD DA stage. The majority of facade projections consist of 800m wide x 400mm GRC rectangles, mounted 50mm outboard from the glassline, giving a total projection of 450mm.

Due to the presence of 4 perimeter columns, there were 4 atypical GRC elements which were 900mm wide, creating a slight inconsistency in facade geometry between 800 and 900mm.



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FACADE DESIGN ADJUSTMENTS: METHODOLOGY

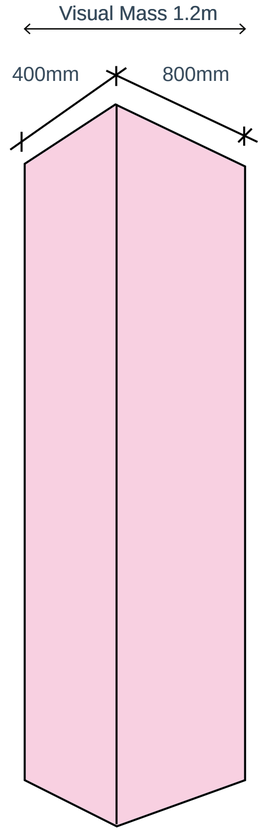
We have developed a methodology to measure and assess the 'visual solidity' of facade elements to enable us to compare different dimensions of GRC elements without eroding the 'visual mass' of the proposed facade.

Because all facade elements are seen in perspective, both the depths and widths of each element are always visible together. Therefore, the 'visual mass' is the combination of the width, and the depth, of each proposed element with a larger number leading to a more solid facade, and a smaller number meaning a less solid facade.

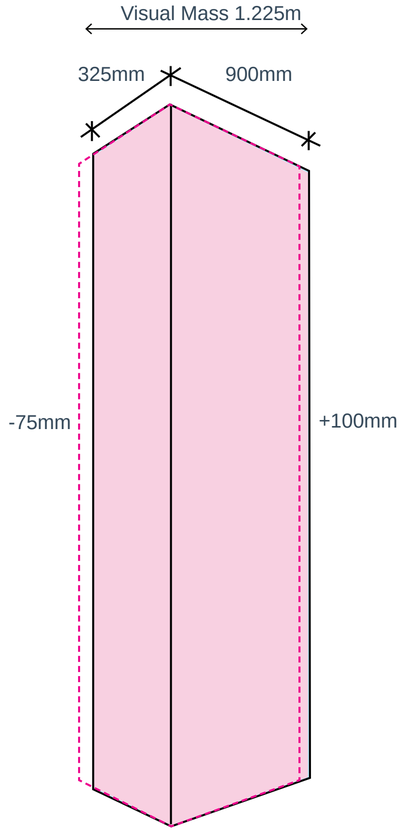
The example on the left shows the 'visual mass' of the 400 x 800mm GRC elements to be 1.2m. To the right, we see that widening each GRC element from 800mm to 900mm enables us to reduce the depth slightly from 400mm to 325mm and retain the same 'visual mass', albeit achieving a slight increase rather than decrease over the earlier design.

The revised design i) has the benefit of introducing consistency insofar as all elements now being 900mm wide, rather than a mix of 800 & 900, ii) achieves a slightly higher 'visial mass' for each vertical facade element than as initially lodged, and iii) has also been refined to eliminate a 50mm construction gap between the glassline and the GRC previously required to provide access to facade brackets. The resultant design is thus highly comparable visually but projects a total of 125mm less from the glassline.

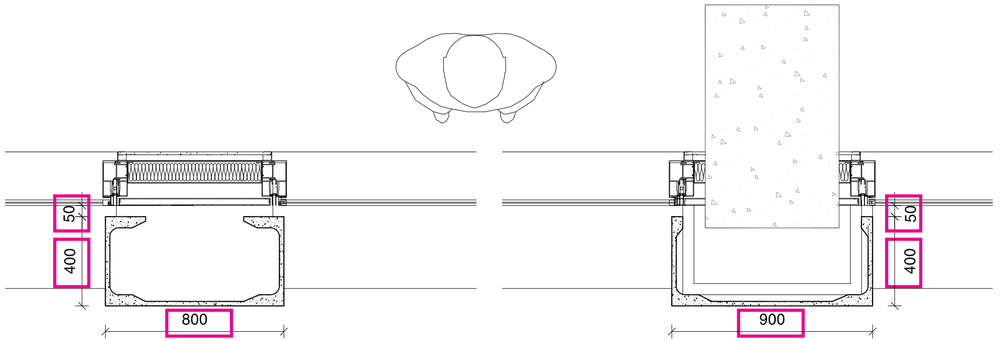
BATESSMART.



SSDA As Lodged

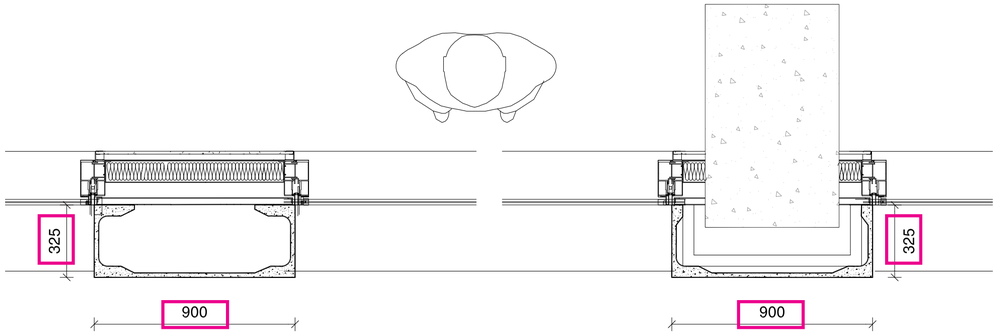


Revised RTS Design



SSDA As Lodged

Facade Detail_400mm Deep GRC



Revised RTS Design

Facade Detail_325mm Deep GRC

4. REVIEW OF PROJECTIONS BEYOND THE BUILDING ENVELOPE

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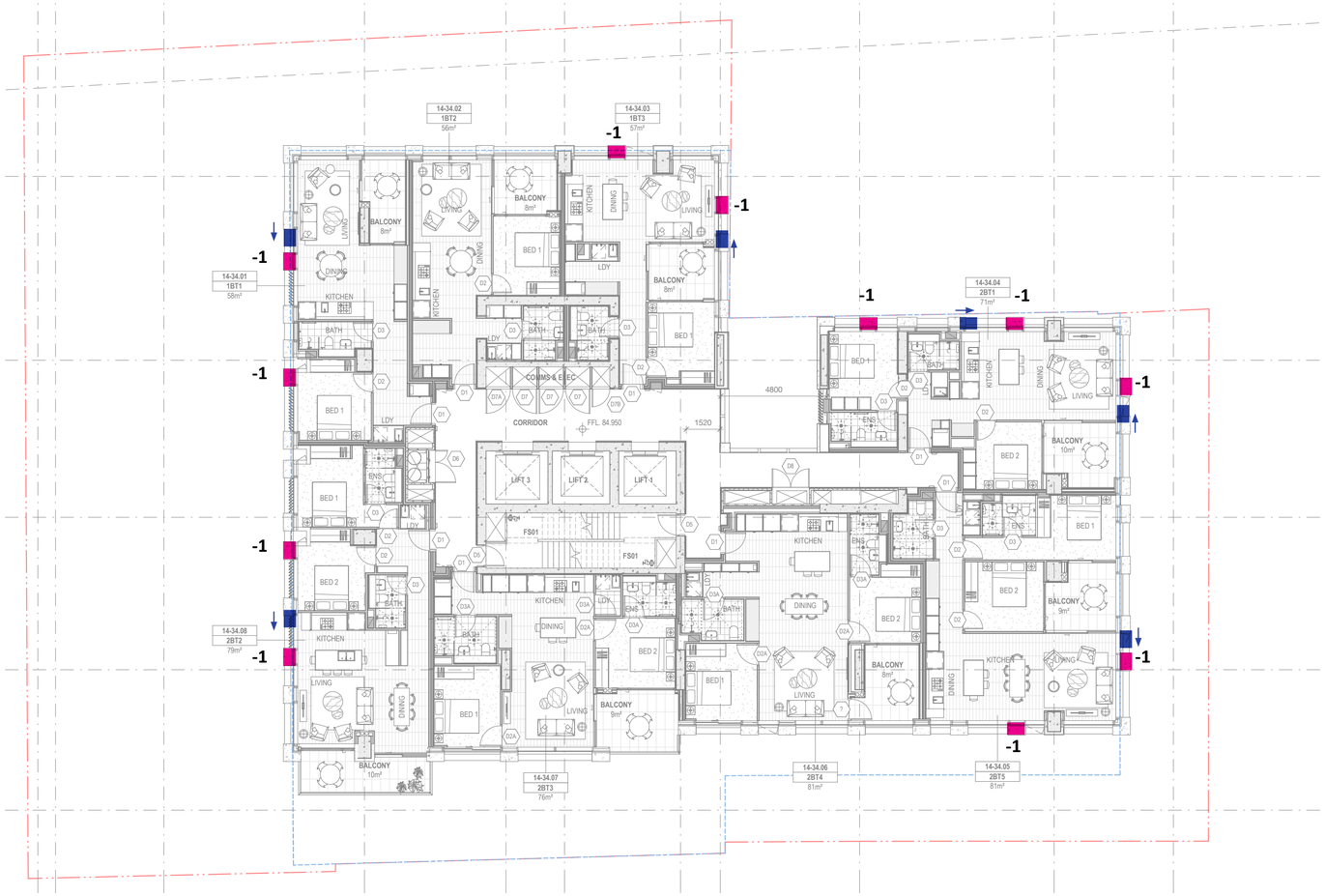
** streetscape impacts*

** ongoing maintenance of boundary conditions.*

FACADE DESIGN ADJUSTMENTS: METHODOLOGY

In the past 18 months since we initially designed the project, we have also been undertaking DD and studying the relationship of vertical elements relative to room planning and revised facade proportions arising from the above amendments.

This has resulted in a rationalisation and improvement of facade elements which has improved the external 'order' of the tower while improving the architectural rigour of the facade as a representation of internal room types.



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FACADE DESIGN ADJUSTMENTS: METHODOLOGY

The adjacent 3 images depict the 3 steps described above as viewed from Pitt St:

1. SSD DA design with 800 x 400mm GRC elements. Note the slightly chaotic spacing of modules within the same coloured volume - ranging from wide to narrow bays but without a direct relationship to room type internally.

2. Interim amended design with 900 x 325mm GRC elements.

3. Revised Proposed Design with 900 x 325mm GRC elements, rationalised to reflect the outcome of our DD process. The narrow bay is confined to the location of colour change between the two adjacent volumes, strengthening its clarity. The remaining elements are spaced out more appropriately to reflect the internal room uses within.

Bedrooms = More privacy
Balconies = Enclosed
Living Areas = More Outlook

In our view not only has this process improved the tower facade design but has had the compliance benefit of reducing projections beyond the envelope.

1. Facade Detail_400mm Deep GRC

2. Facade Detail_325mm Deep GRC

3. Facade Detail_325mm Deep GRC_GRC Rationalised

4. REVIEW OF PROJECTIONS BEYOND THE BUILDING ENVELOPE

(c) Review the appropriateness of the proposed projections beyond the approved building envelope with respect to any additional impacts when compared to a complying development, including further consideration of any:

** overshadowing impacts to adjoining residential properties*

** privacy and visual impacts resulting from further encroachments on minimum building separations*

** streetscape impacts*

** ongoing maintenance of boundary conditions.*

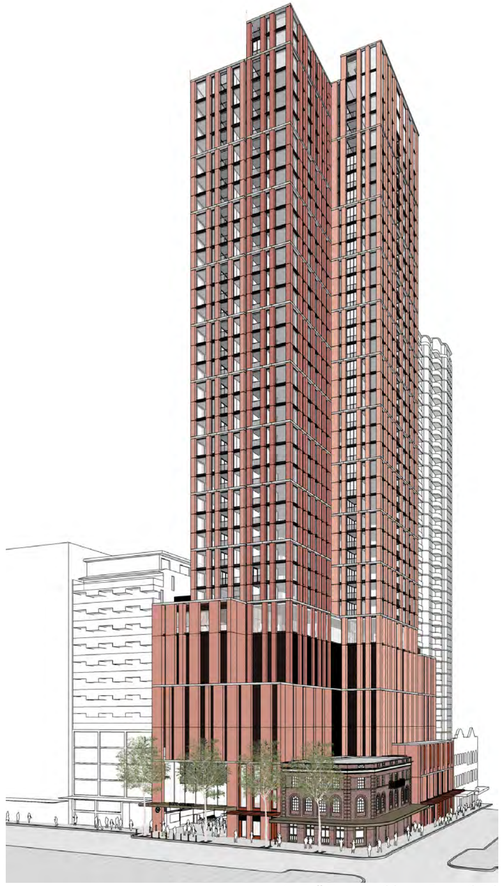
FACADE DESIGN ADJUSTMENTS: METHODOLOGY

The adjacent 3 images depict the 3 steps described above as viewed from the North West corner.

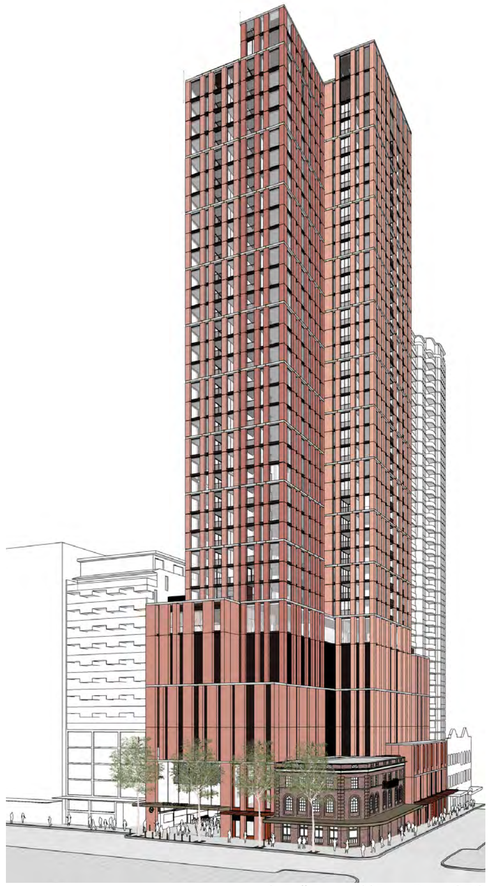
1. SSD DA design with 800 x 400mm GRC elements.

2. Interim amended design with 900 x 325mm GRC elements.

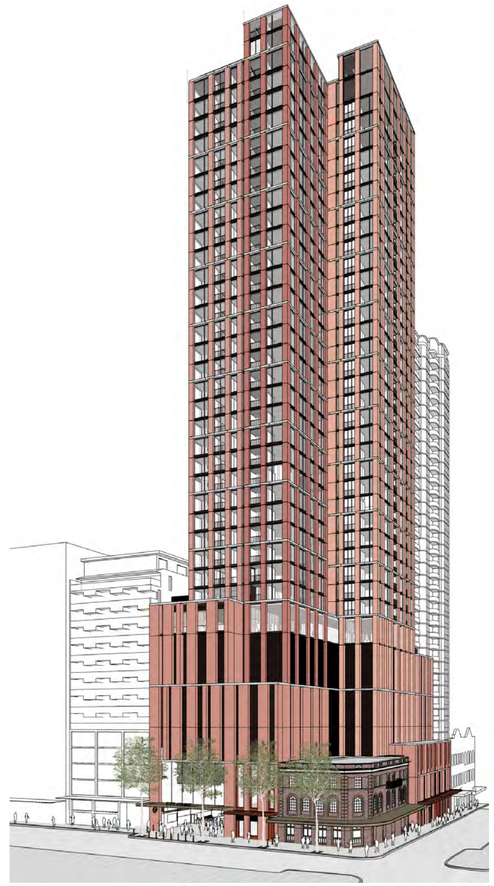
3. Revised Proposed Design with 900 x 325mm GRC elements, rationalised to reflect the outcome of our DD process. Note that a greater hierarchy is now visible, concentrating the 'narrow' spaced elements to the zone where a colour change occurs, enhancing the legibility of the colour change, while wider modules now express living rooms, creating a more rigorous relationship between facade and internal room types.



1. Full Tower_400mm Deep GRC



2. Full Tower_325mm Deep GRC



3. Full Tower_325mm Deep GRC_GRC Rationalised

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** streetscape impacts*

** ongoing maintenance of boundary conditions.*

FACADE DESIGN ADJUSTMENTS: COMPLIANCE

Insofar as compliance is concerned:

/ The entire podium facade is fully contained within the approved envelope.
/ The proposed development occupies significantly less floorspace in the podium than the approved concept envelope permits, both fronting Bathurst Street as well as at the interface with Princeton Apartments. This is due to our desire to create sensitive streetscape insertion which mediates the scale between adjacent development to the East with the 3 storey heritage Edinburgh Castle to the West.
/ This design approach has been endorsed by the Design Review Panel as achieving design excellence.
/ All habitable floor space throughout the development is wholly contained within the approved envelope.
/ A small number of non-habitable GRC facade elements project outside of the approved stage 1 envelope a maximum of 325mm in the tower, never closer than 3 storeys to the ground, to improve the environmental performance and visual appropriateness of the building given the masonry context.
/ Such projections would be fully permitted under City of Sydney DCP if they projected beyond the site boundary and into the public domain.
/ Yet all proposed facade projections however are wholly contained within the site footprint.

Podium_450mm Deep GRC

Podium_325mm Deep GRC

Podium_325mm Deep GRC_GRC Rationalised

5. DEMONSTRATE A REASONABLE LEVEL OF PRIVACY AND AMENITY CAN BE MAINTAINED BETWEEN THE PROPOSED BUILDING AND ADJOINING PRINCETON APARTMENTS

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** the appropriateness of the location and design of the proposed communal open space adjacent to the Princeton Apartments on Level 6*

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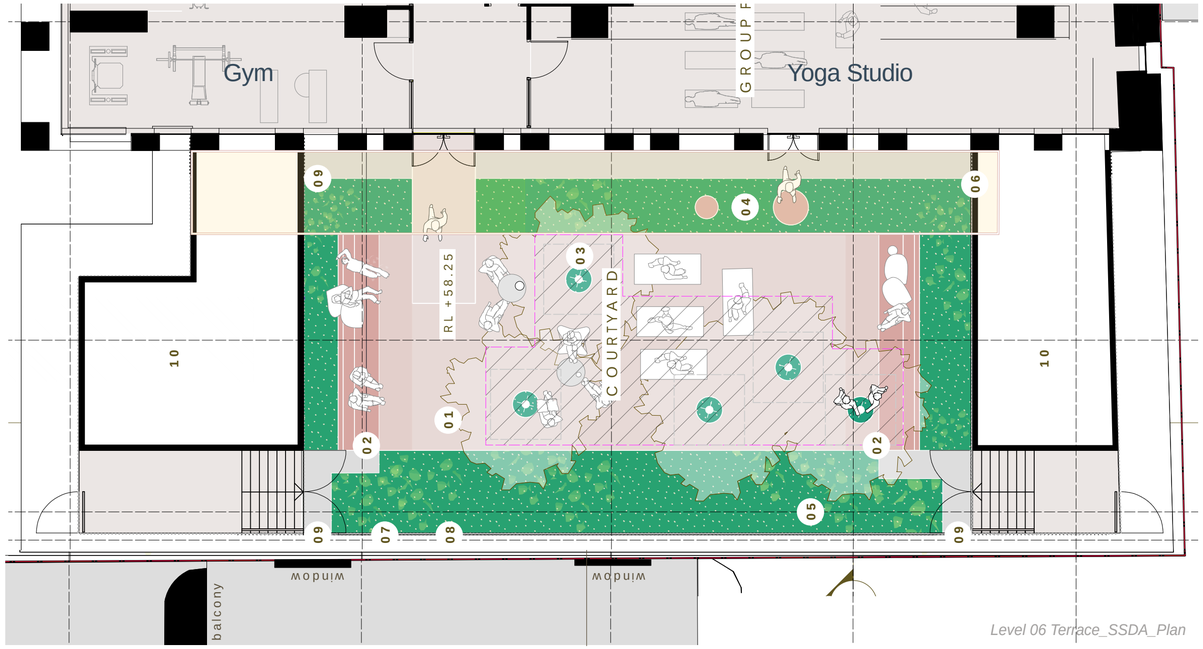
Level 06 Terrace_SSDA_3D

LEVEL 06 TERRACE_SSDA

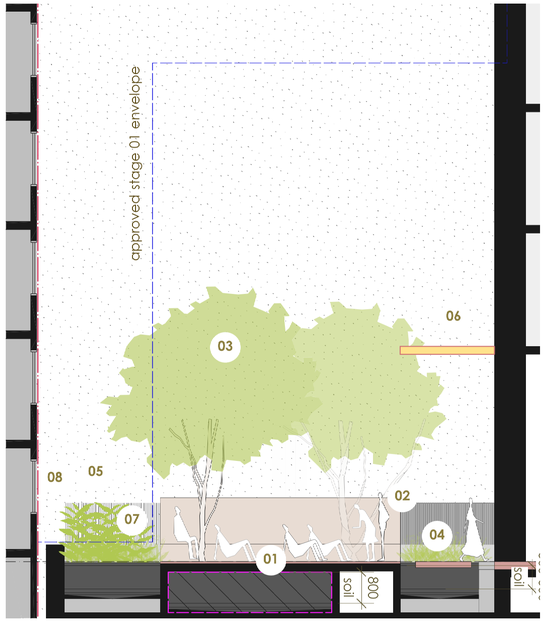
The adjacent drawings show the interface with Princeton Apartments as proposed in the SSD DA.

At level 06, a 207 sqm external landscaped communal open space was proposed spilling out from an indoor wellness centre. The internal wellness centre contains a 20m indoor pool, gym, and various yoga and amenity spaces for exclusive access to residents.

To the east and west of the external terrace, two partially recessed plant rooms rose a nominal 1.5m above terrace level, providing some protection from east / west winds and a comfortable sense of enclosure. These plant projections and surrounding privacy screen projected approx. 1 metre above the approved concept envelope in places, whilst a complying minimum of 3m was provided to the boundary of Princeton in accordance with the approved envelope. Screen planting was located along the southern edge of the terrace to provide a degree of visual privacy to low level windows on the boundary of Princeton apartments. The terrace received very little solar access during winter and was dependant on a canopy to protect against wind downdrafts.



Level 06 Terrace_SSDA_Plan



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LEVEL 06 TERRACE_PROPOSED

In response to concerns raised by residents of Princeton Apartments, the Applicant has reviewed their desire for communal open space in this area and wishes to address the neighbour concern by removing resident access to the terrace and making it a non-accessible landscaped terrace only.

The revised design (adjacent):

/ Removes resident access from the roof terrace and converts it to a non-accessible green roof providing a landscaped outlook only, therefore addressing privacy and acoustic concerns associated with residents potentially being outdoors and in close proximity to windows on the Princeton boundary,

/ Will provide a pleasant landscaped outlook for residents of both buildings

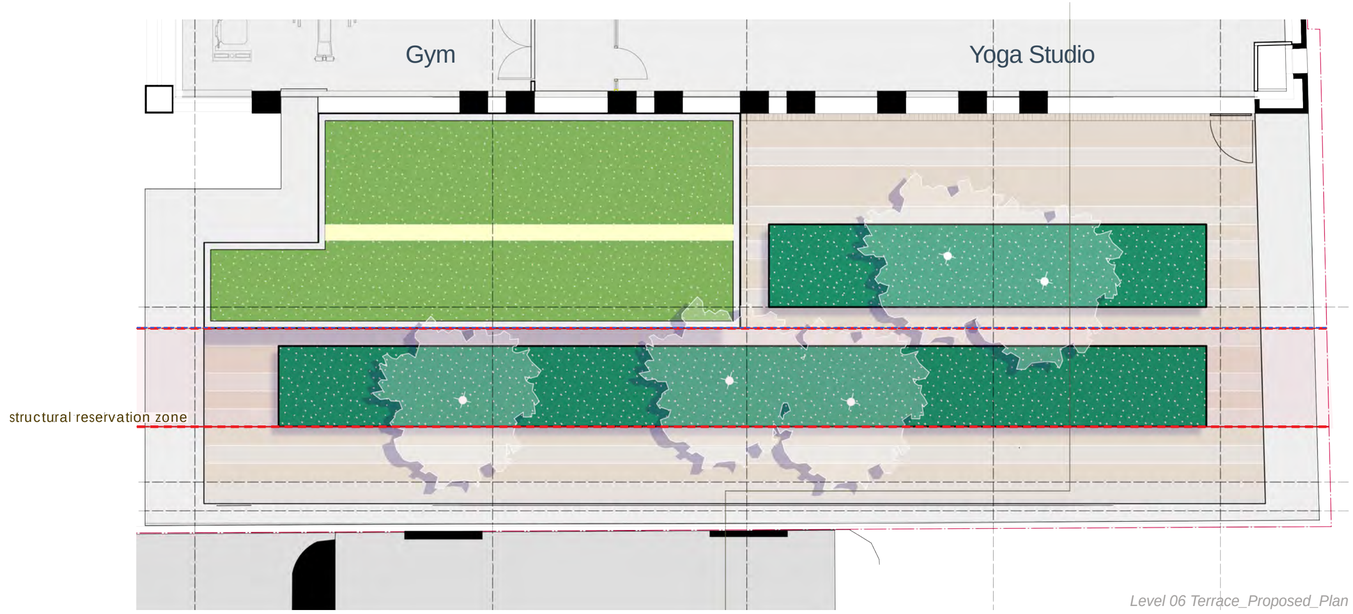
/ The landscaping is centrally located on the terrace so as to provide equal outlook and screening to both buildings,

/ The plant space has been consolidated to the East into a single volume, and is now wholly contained with the Approved Concept Envelope,

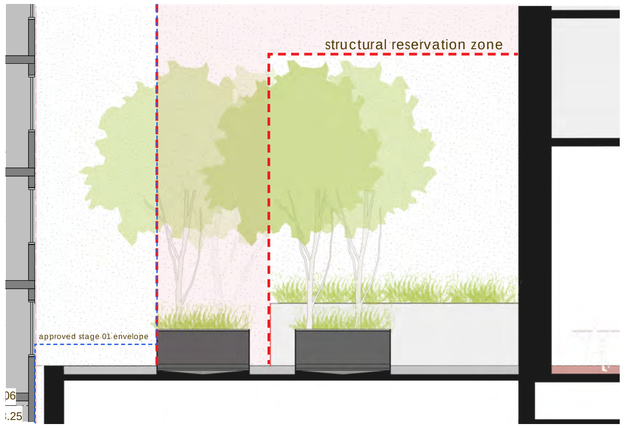
/ All built form has been removed from the structure reservation zone except for raised planters and trees,

/ Planting has been maximised within the permissible extents of the approved stage 01 envelope.

For further detail please refer to the accompanying landscape report prepared by Sue Barnsley.



Level 06 Terrace_Proposed_Plan



Level 06 Terrace_Proposed_Section

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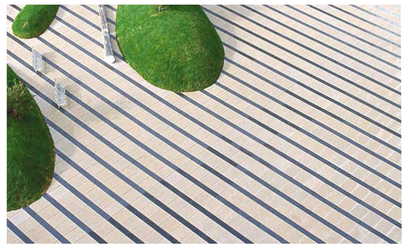
LEVEL 06 TERRACE_PROPOSED

The adjacent precedent images are extracted from the accompanying landscape report prepared by Sue Barnsley.



raised planters & banded paving
> hayes valley roof garden, andrea cochran
>minneapolis courtyard plaza, martha schwartz

tree planting

mass planting

5. DEMONSTRATE A REASONABLE LEVEL OF PRIVACY AND AMENITY CAN BE MAINTAINED BETWEEN THE PROPOSED BUILDING AND ADJOINING PRINCETON APARTMENTS

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COMMUNAL OPEN SPACE

Objective 3D-1 of the Apartment Design Guide requires:

Communal open space has a minimum area equal to 25% of the site.

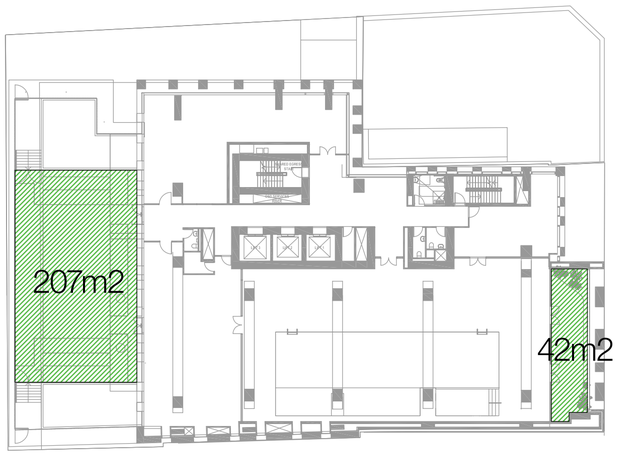
Where developments are unable to achieve the design criteria, such as on small lots, sites within business zones, or in a dense urban area, they should:

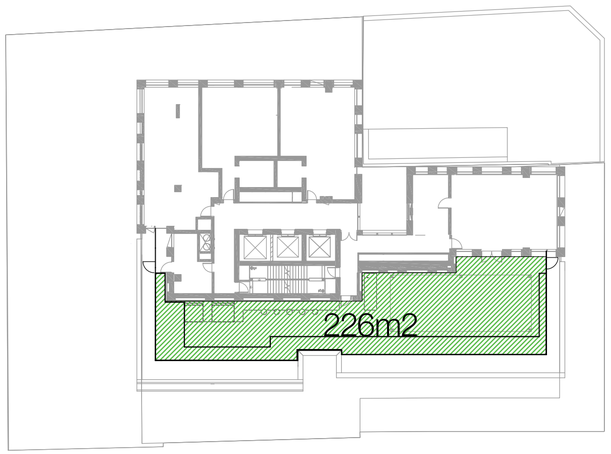
/ provide communal spaces elsewhere such as a landscaped roof top terrace or a common room

/ 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

The below diagrams show that a total of 526 sqm, or 30.8% of site area, was proposed as external communal open space within the SSD DA, well in excess of the minimum 25% requirement.





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COMMUNAL OPEN SPACE

While removing the level 06 terrace from communal open space reduces this to 19%, the ADG acknowledges that compliance within a dense urban area may not be possible and permits the inclusion of common rooms, or consideration of good proximity to public open space.

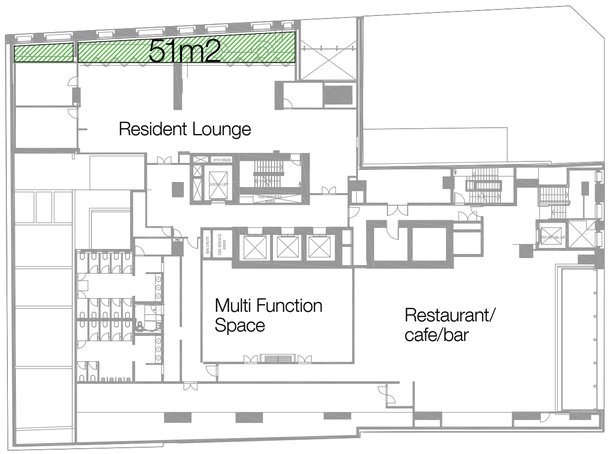
The proposed development achieves both.

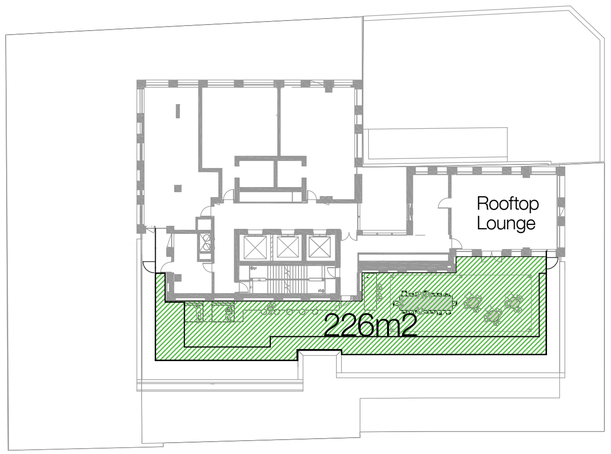
/ It is 160 metres from Hyde Park, with approximately 50% of Hyde Park falling within a 400 metre radius, and

/ The proposed development also contains two full floors of internal resident amenities including a 20m naturally ventilated internal swimming pool, a gym and yoga studio on level 6, a resident lounge, cinema and public bar / restaurant on level 2, and a resident banquet room on level 35. Very few residential developments within the Sydney CBD offer such a high quantity of communal internal space to residents.

/ The inclusion of just one of these internal areas, the naturally ventilated indoor swimming pool on level 6, will achieve a total communal open space of 715sqm, or 42% of site area, well in excess of the 25% minimum. It is proposed that this be acceptable alternative to external communal open space on the basis that a) the ADG proposes alternatives may be acceptable in dense urban areas, and b) an indoor pool will provide greater amenity and year-round usability than an external pool which would be limited in use to several months a year.

It is therefore proposed that removing an external, south facing terrace on level 06 results in negligible amenity loss to residents of the proposed development, but a significant increase to amenity of residents of Princeton Apartments. Residents of the proposed development will not be adversely impacted due to the significant quantum of resident amenity spaces located onsite and higher quality external open space with improved solar access is available on level 35.





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SOUTH FACING PRIVACY LOUVRES

The adjacent drawing displays visual privacy screening proposed to the southern wall facing Princeton Apartments:

/ Living rooms and balconies of southern apartments in the proposed development have a primary orientation of East and West, not South towards Princeton Apartments. This enables them to achieve both high quality view outlook and solar access, in accordance with sound planning principles and ADG requirements, while also protecting the privacy and amenity of Princeton residents to the South.

/ The only rooms with primary southern outlook towards Princeton are bedrooms.

/ Apartments within Princeton Apartments also have a primary orientation of East and West (and not north) for the same reasons of solar access and views.

/ Princeton apartments contains 2 north-facing windows per floor located on the boundary which are secondary windows and are of unconfirmed planning or building code status.

/ Princeton Apartments provides a 0m setback to the site boundary, contrary to current ADG requirements which requires a 12m setback from the site boundary if windows to habitable rooms are to be incorporated.

/ The proposed development sets back a minimum of 12m from the boundary to the glassline, in compliance with objective 3F-1 of the Apartment Design Guidelines which states:

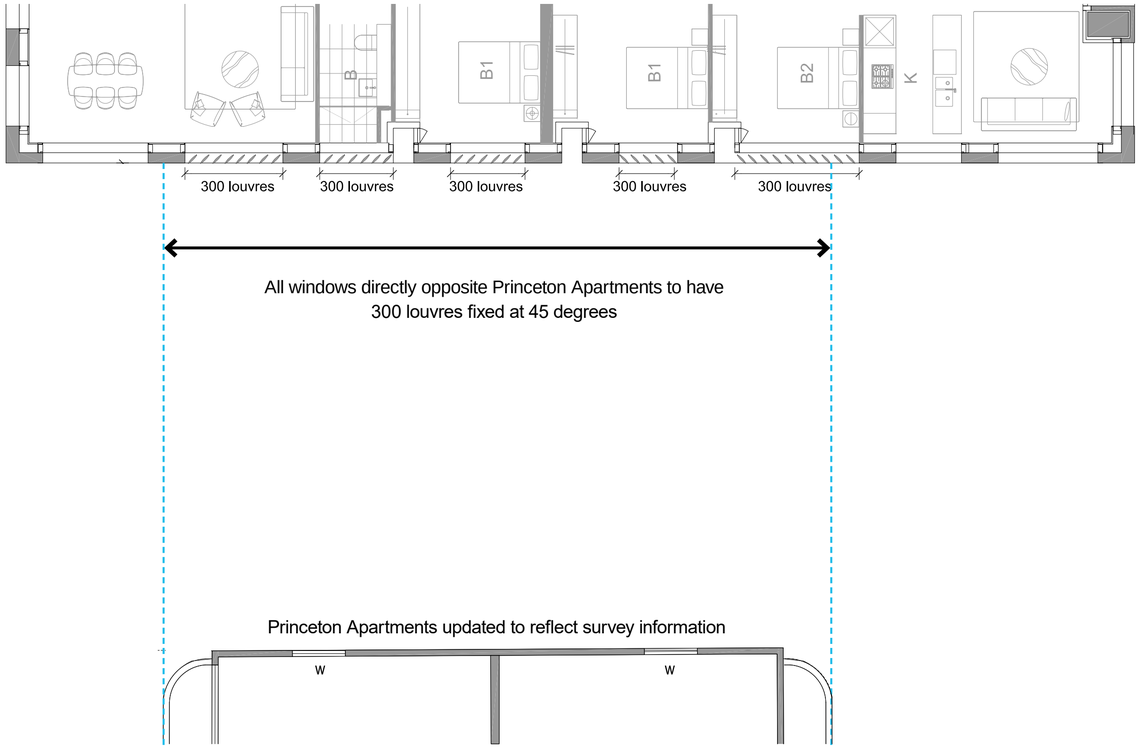
Separation between windows and balconies is provided to ensure visual privacy is achieved.

Minimum required separation distances from buildings to the side and rear boundaries are as follows:

Building height	Habitable rooms and balconies	Nonhabitable rooms
up to 12m (4 storeys)	6m	3m
up to 25m (5-8 storeys)	9m	4.5m
over 25m (9+ storeys)	12m	6m

To provide additional protection to the privacy and amenity of Princeton Apartments, beyond complying with the above ADG criteria, external privacy louvres are proposed to all windows which are directly north of boundary windows or balconies on Princeton. These privacy screens consist of fixed aluminium louvres oriented at 45 degrees to the façade, directing views out from the proposed bedrooms towards the south east and south and south west, rather than directly south towards Princeton Apartments.

The above configuration has been presented to the Design Review Panel and carries the endorsement of the panel insofar as visual privacy of both developments is concerned.



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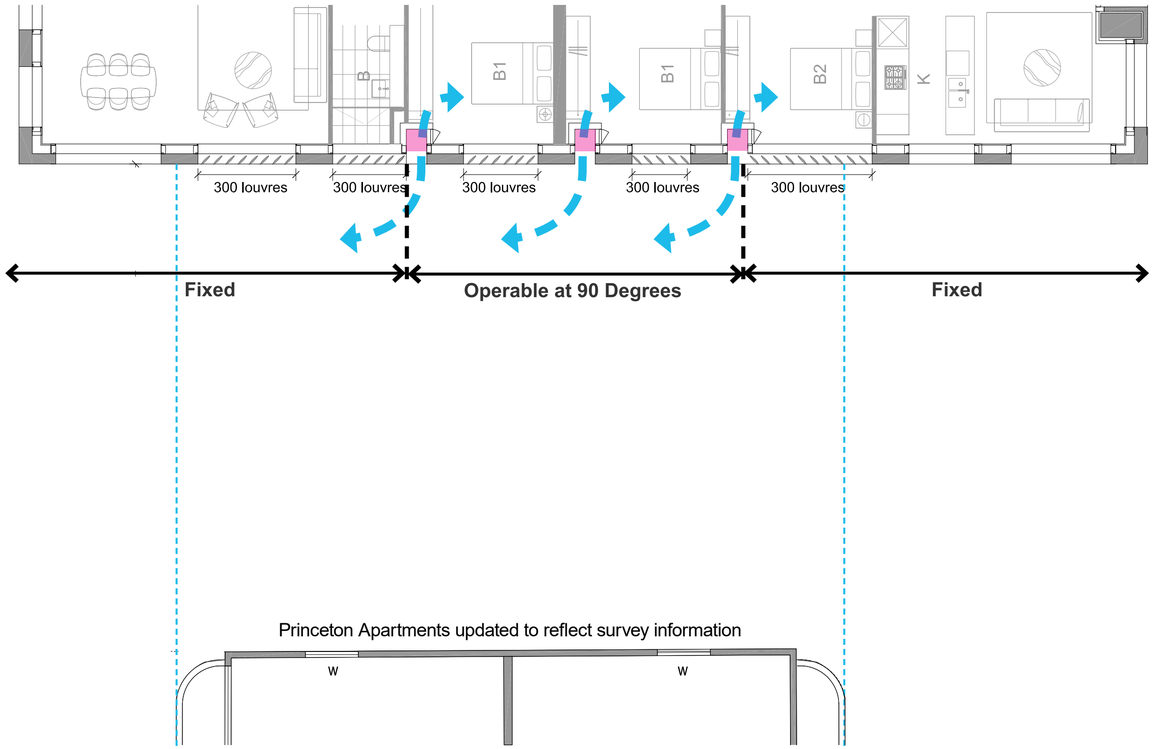
SOUTH FACING VENTILATION SLOT

The adjacent drawing displays the ventilation strategy adopted to enable south facing bedrooms to meet natural ventilation requirements whilst protecting the acoustic privacy of residents of Princeton Apartments. One vertical rebated 500mm wide 'slot' is provided within each of the 3 bedrooms. Recessed within the 'slot' is a full height operable casement window, 350mm wide, which opens a maximum of 125mm (to comply with maximum operable window opening limits permissible under BCA). These windows open into the rebated 'slot', rather than directly towards the adjacent building, thus eliminating directly opening opposing windows and therefore eliminating paths for direct acoustic transmission.

The proposed ventilation is compliant with BCA natural ventilation requirements and has also been presented to the Design Review Panel on a number of occasions, and carries the endorsement of the panel insofar as acoustic privacy of both developments is concerned.



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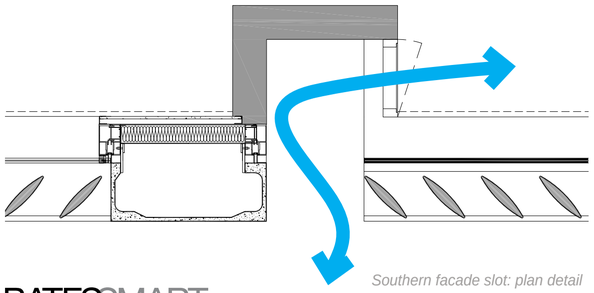
SOUTH FACING VENTILATION SLOT

The adjacent drawing is an elevation of the proposed southern façade, as seen from Princeton Apartments, showing:

/ The extent of privacy louvres incorporated to provide visual privacy between both developments,

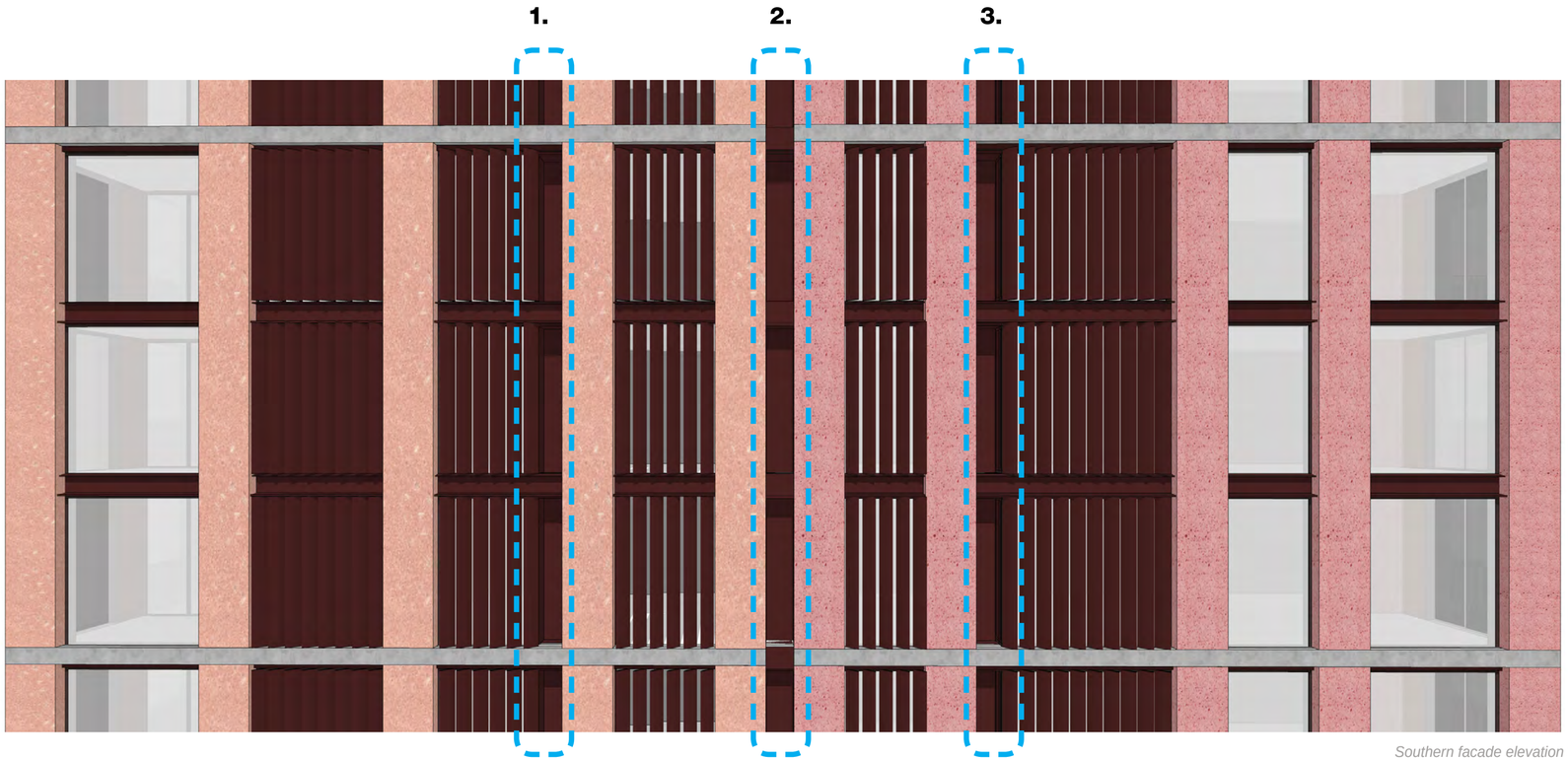
/ The three ventilation 'slots' located per floor providing natural ventilation to bedrooms,

/ The configuration of each operable window within each 'slot'.



Southern facade slot: plan detail

VENTILATION SLOT LOCATIONS:



Southern facade elevation 3D

BATESSMART.

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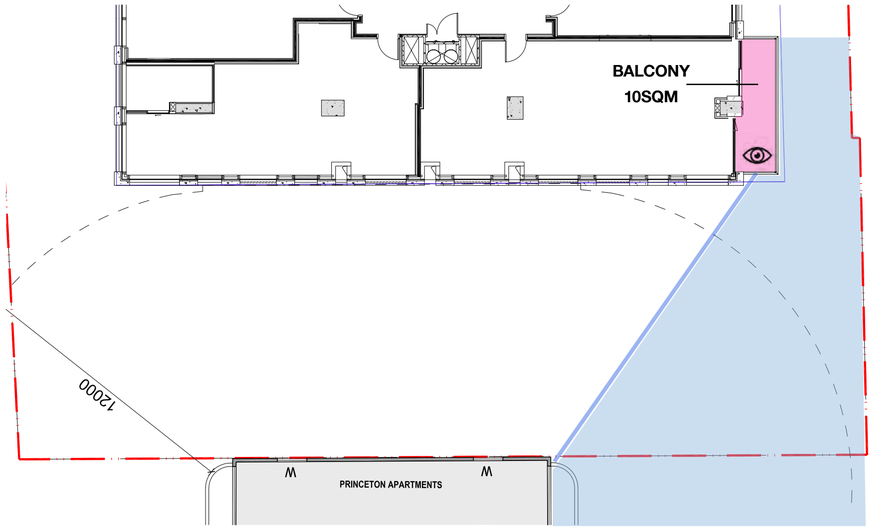
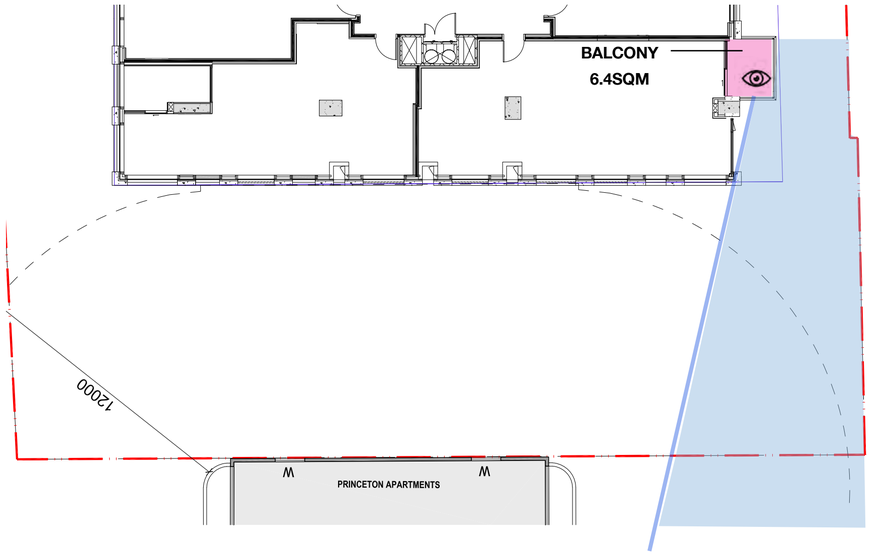
SOUTH EAST BALCONY

The proposed reduction in external balcony area to the South East apartment, described in item 3 and made in order to improve solar access and view outlook to residents of Princeton Apartments, will also further improve visual and acoustic privacy to residents of Princeton Apartments.



SSDA
10SQM BALCONY



PROPOSED
6.4SQM BALCONY

6. MINIMISE OVERSHADOWING IMPACTS ON ADJOINING DEVELOPMENT AND HYDE PARK

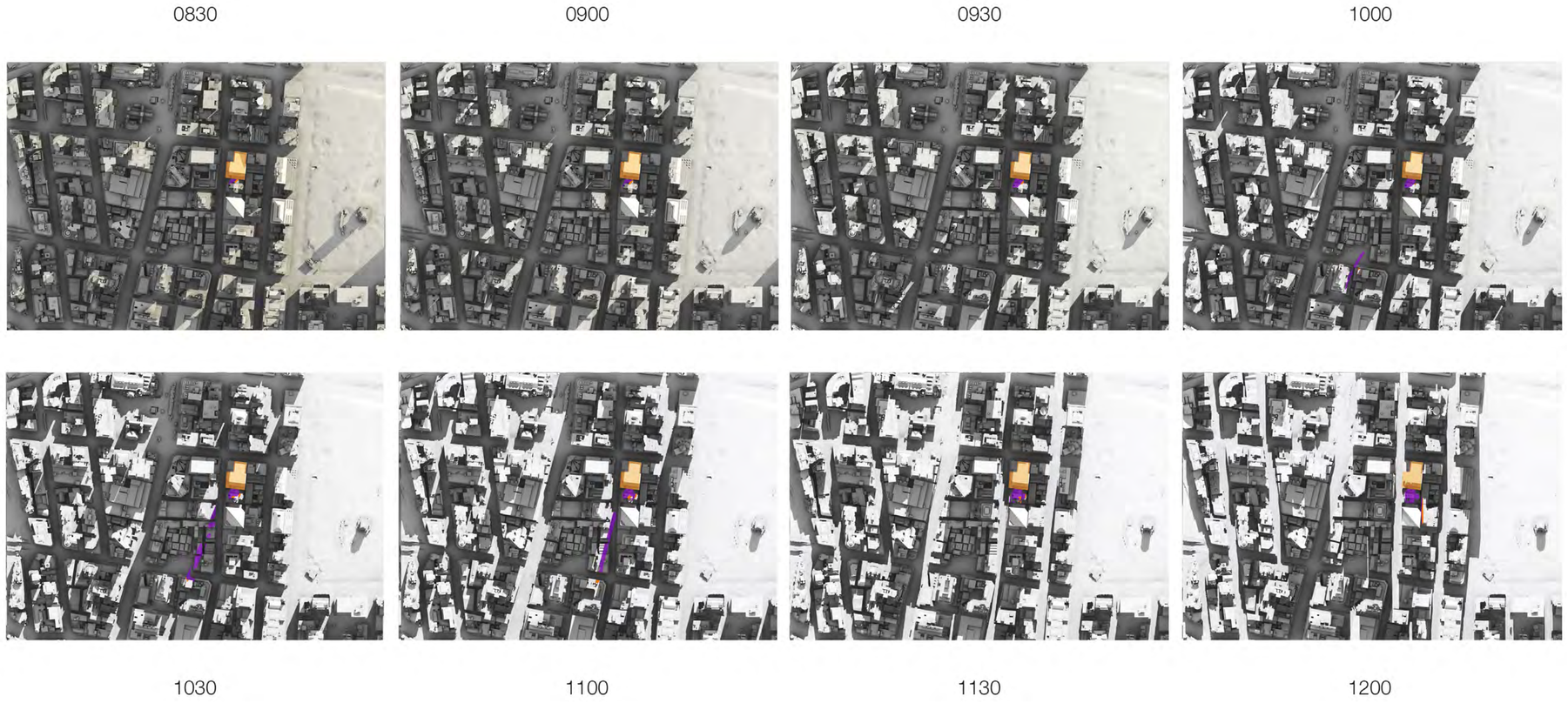
(f) Demonstrate consistency with Design Guidelines (clause 4 (Built Form above the Podium)), which requires the proposal to minimise overshadowing impacts on adjoining residential development and Hyde Park. This shall include illustration of design options considered and their potential benefits and impacts.

SHADOWS TO HYDE PARK, WINTER SOLSTICE

Clause 4a of the Design Guidelines states:

'Design and articulation of the built form above the podium to ensure no additional overshadowing to Hyde Park on June 21st, between 12pm and 2pm (required by SLEP 2012 Sun Access Plane Controls).

The adjacent shadow diagrams undertaken on 21st June demonstrate that the proposed development casts no shadow on Hyde Park between 8.30am and 2pm and is thus in full compliance with the control.



Shadow from proposed

Additional solar access

BATESSMART.

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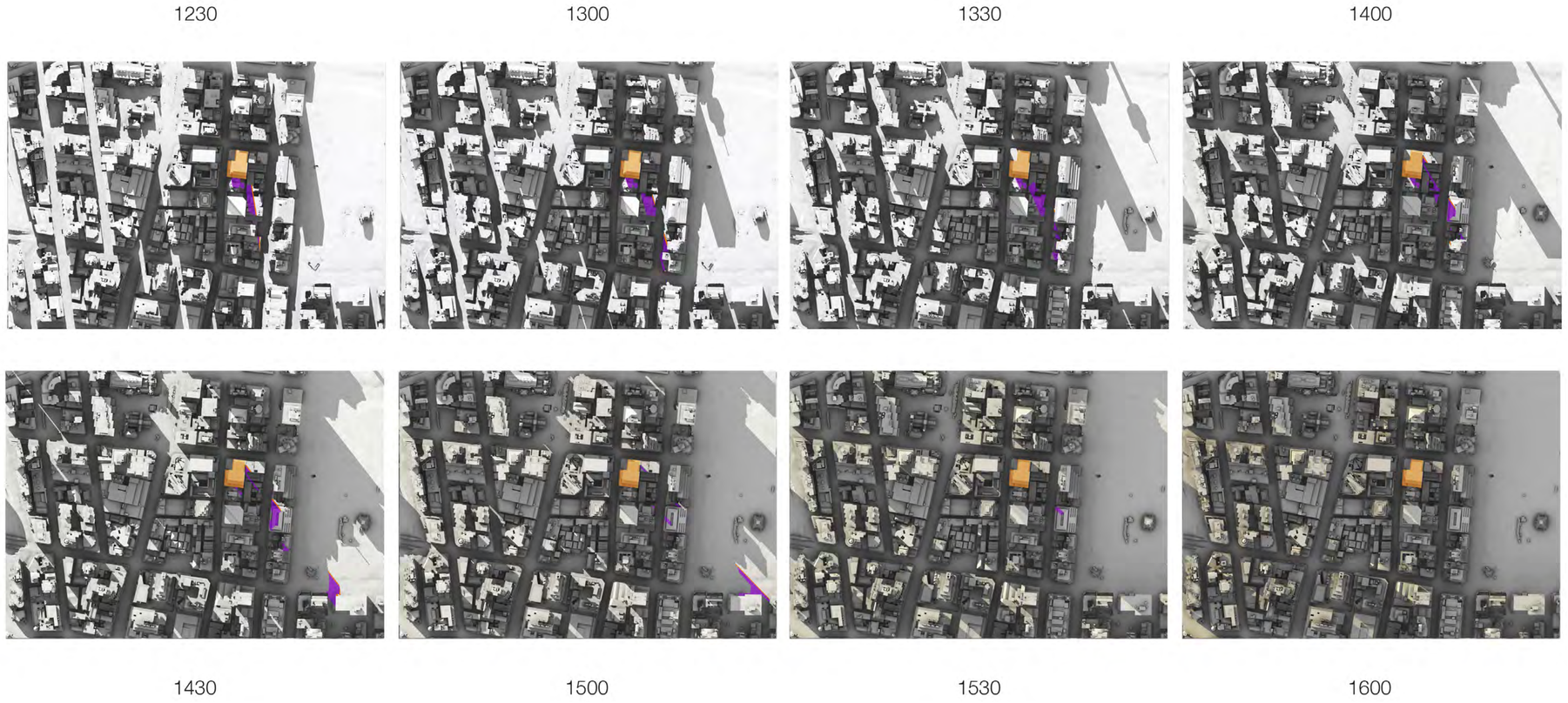

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SHADOWS TO HYDE PARK, WINTER SOLSTICE

Shadowing only occurs at 2.30pm, outside of the protected timeframe, at a small location adjacent to the site boundary where the park is currently shaded by trees, and to an extent smaller than, and wholly contained within, the area anticipated by the approved concept envelope.

The adjacent studies also demonstrate that any reduction in tower height would not create additional solar access to Hyde Park, even outside of the hours of the protected timeframe. But rather, would allow a small amount of additional sun to fall on the road reserve, and not the park itself, at 2.30 and 3.30pm.

1430

1500

Shadow from proposed

Additional solar access

7. REVIEW AND REVISE THE PROPOSAL WITH RESPECT TO COMPLIANCE WITH SEPP 65 AND THE ADG TO MEET SOLAR ACCESS CRITERIA

*Review and revise the proposal with respect to compliance with SEPP 65 and the Apartment Design Guidelines (ADG) (as required by Condition B3(h) of the Concept Approval), including further consideration and illustration of: * apartment design, size and density to meet solar access criteria.*

Note: The Applicant's response to the above must include appropriate modelling, drawings and specifications as necessary to demonstrate compliance with ADG.

SSDA SOLAR ACCESS

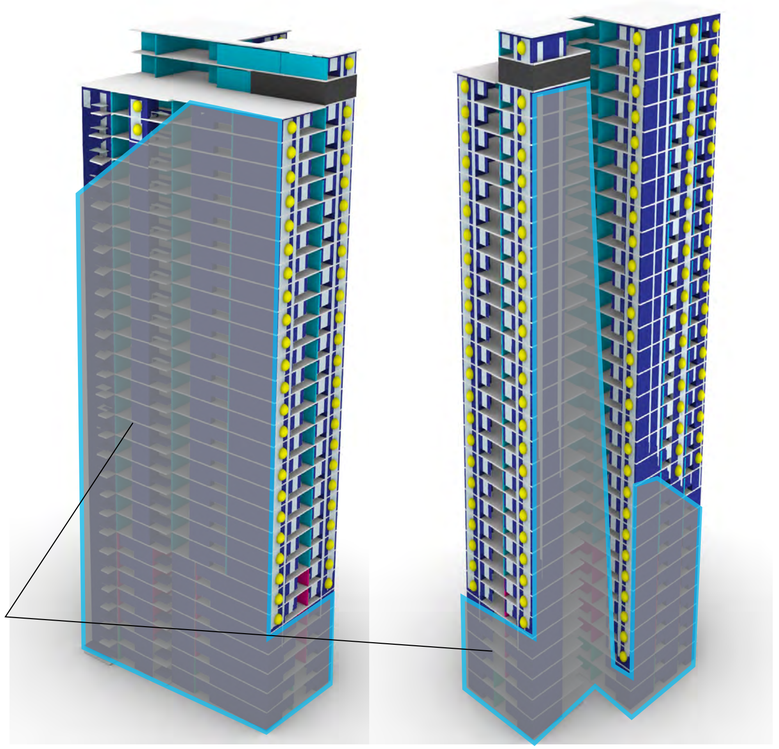
To the North East of the site, 201 Elizabeth Street is a 32 storey commercial tower on the corner of Pitt and Elizabeth Streets. It is over twice the current permissible height limit for a building on that site, and as such, casts some shadow on Hyde Park in contravention of current permissible controls, and also on the eastern façade of the proposed development during mid winter. Between the hours of 9am and approximately 9.45am on 21st June, the shortest day of the year when sun access is most limited, the building casts shadow on approximately 80% of the Eastern façade, preventing the majority of east facing apartments from achieving 2 hours minimum of solar access to living rooms and balconies on this date, despite achieving well in excess of 2 hours of solar access on the majority of other dates in the year.

As such, 50.0% of apartments achieve a minimum of 2 hours solar access during mid winter between 9am and 3pm.

The adjacent diagrams show the areas of tower façade not achieving 2 hours of solar access on 21st June in grey. Within the remaining areas which receive 2 hours or more, yellow dots represent apartments achieving or exceeding 2 hours.

While Objective 4A-1 states that at least 70% of apartments should achieve a minimum of 2 hours direct sunlight between 9am and 3pm in mid winter in the Sydney Metropolitan Area, the document also provides design guidance as to how this criteria can be achieved.

As described on the following pages, the scheme has been designed to be fully in accordance with all of these guidelines.



Shadow cast by existing context

Objective 4A-1

To optimise the number of apartments receiving sunlight to habitable rooms, primary windows and private open space

Design criteria

1. 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
2. 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
3. A maximum of 15% of apartments in a building receive no direct sunlight between 9 am and 3 pm at mid winter

Design guidance

The design maximises north aspect and the number of single aspect south facing apartments is minimised

Single aspect, single storey apartments should have a northerly or easterly aspect

Living areas are best located to the north and service areas to the south and west of apartments

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

7. REVIEW AND REVISE THE PROPOSAL WITH RESPECT TO COMPLIANCE WITH SEPP 65 AND THE ADG TO MEET SOLAR ACCESS CRITERIA

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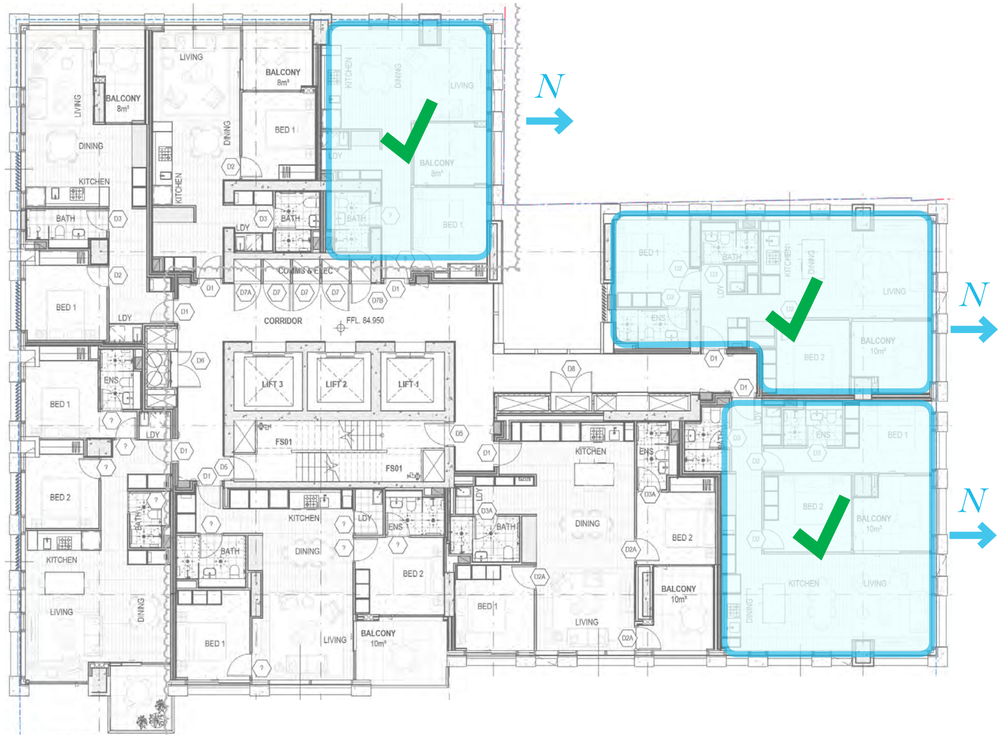
Note: The Applicant's response to the above must include appropriate modelling, drawings and specifications as necessary to demonstrate compliance with ADG.

NORTH ASPECT APARTMENTS

North aspect has been maximised with 3 out of 8 apartments oriented North, the maximum able to be achieved within the geometry of the envelope, fully in compliance with the guidance.



Objective 4A-1

To optimise the number of apartments receiving sunlight to habitable rooms, primary windows and private open space

Design criteria

1. 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
2. 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
3. A maximum of 15% of apartments in a building receive no direct sunlight between 9 am and 3 pm at mid winter

Design guidance

The design maximises north aspect and the number of single aspect south facing apartments is minimised

Single aspect, single storey apartments should have a northerly or easterly aspect

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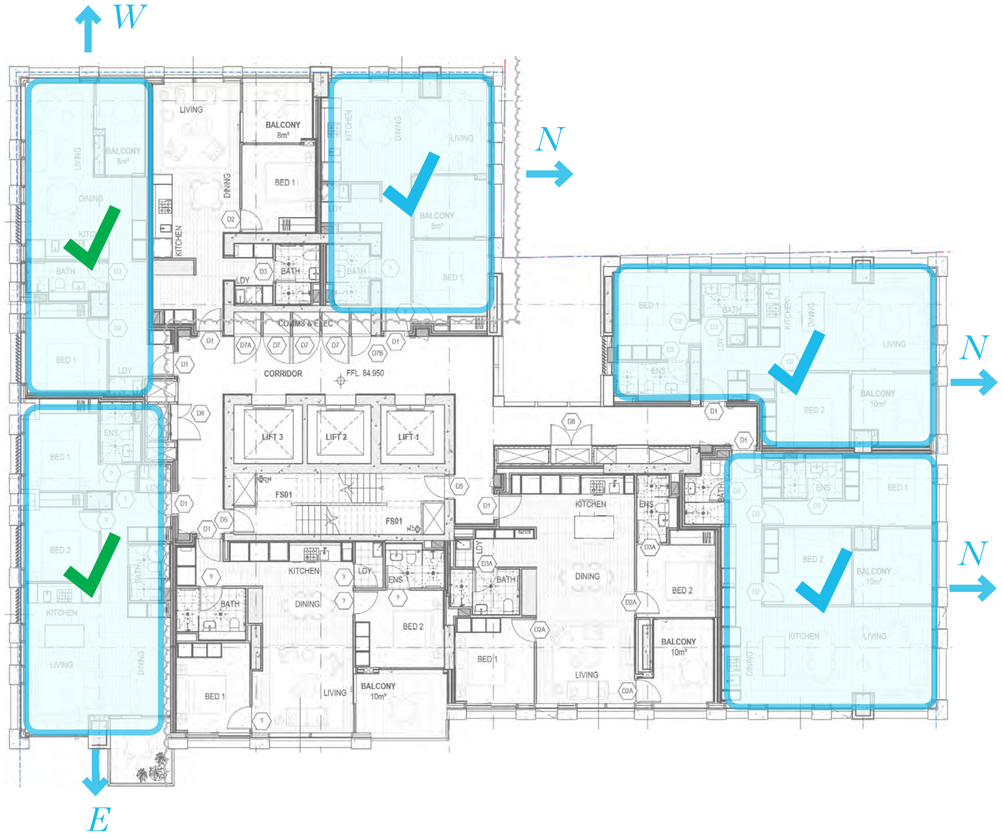
SOUTH ASPECT APARTMENTS

There are no south facing apartments, fully in compliance with the guidance.



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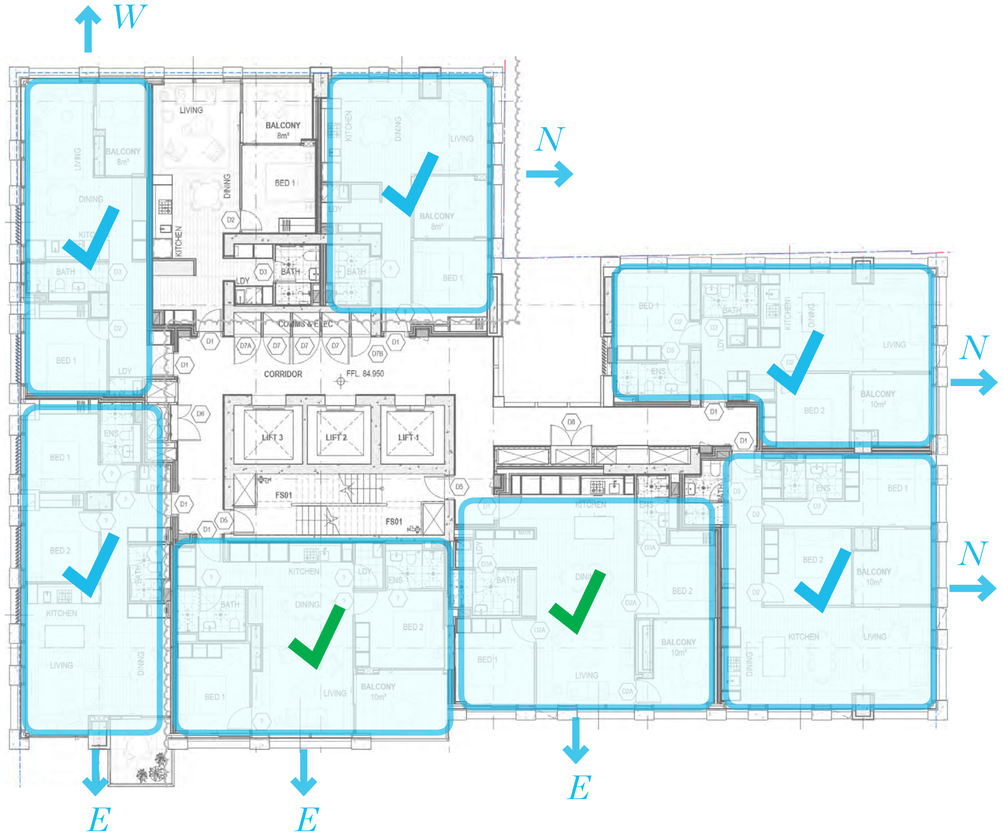
EAST ASPECT APARTMENTS

2 of the 3 remaining single aspect, single storey apartments have an easterly aspect, fully in accordance with the design guidance. However these 2 apartments fall short of achieving 2 hours of solar access in mid winter due to overshadowing by 201 Elizabeth Street.

The remaining single aspect, single storey apartment has a western aspect, which although not being listed as a favourable aspect, does achieve 2 hours of solar access throughout most floors of the tower.



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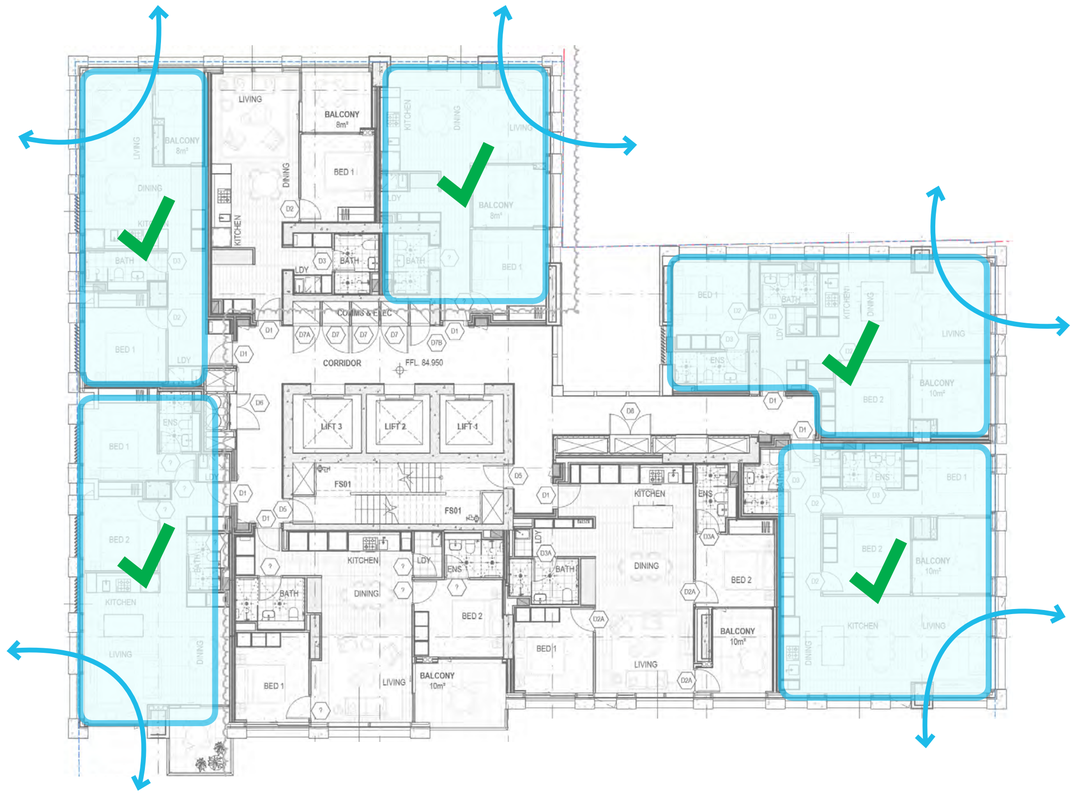
DUAL ASPECT APARTMENTS

5 apartments per floorplate, or 62% of apartments, enjoy the benefit of both dual aspect and crossflow ventilation, in accordance with the guidance and in excess of ADG crossflow ventilation requirements.



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SHALLOW APARTMENTS

7 out of 8 apartments per floor also achieve compliance with shallow apartment criteria, with the back of the kitchen being no greater than 8m from a daylight source.

In summary, the proposed development has been designed to be fully in accordance with the ADG design objective 4A-1: To optimise the number of apartments receiving a minimum of 2 hours of solar access to habitable rooms and private open space in mid winter.

As described in the attached solar access report by Scott Walsh, and subsequently endorsed by the Design Review Panel on 18th August, the design has maximised the possible solar compliance of the site.

A full solar analysis and justification of the proposed approach is contained in the accompanying solar report by Scott Walsh Architects.

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Review and revise the proposal with respect to compliance with SEPP 65 and the Apartment Design Guidelines (ADG) (as required by Condition B3(h) of the Concept Approval), including further consideration and illustration of:

** how the proposed light-well, window and balcony designs will achieve adequate ventilation and natural cross-ventilation*

Note: The Applicant's response to the above must include appropriate modelling, drawings and specifications as necessary to demonstrate compliance with ADG.

BCA COMPLIANCE: VENTILATION

BCA fire separation requirements prevent operable windows being located within 3 metres of a site boundary.

Under the BCA, a light and ventilation shaft is able to provide natural ventilation to habitable rooms, provided the minimum dimension of the shaft is derived from the below formula::

$$\frac{\sqrt{\text{height}}}{2}$$

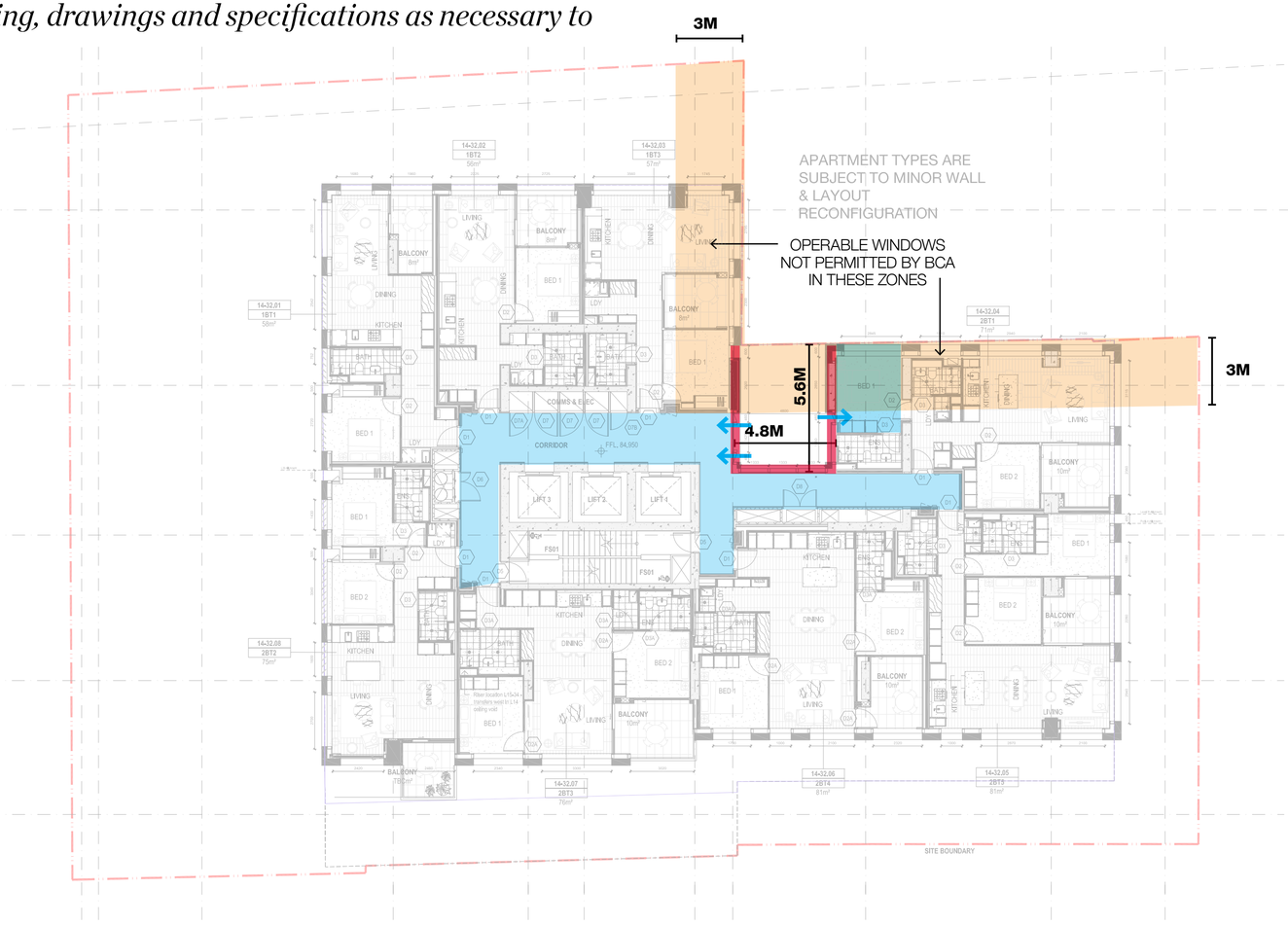
Height from first window still to last window head = 92.33m

$$\frac{\sqrt{92.33\text{m}}}{2}$$

= 4.8m

Under this provision, 1 x room per floorplate (a bedroom), and the common lobby circulation corridor, receive BCA compliant natural ventilation via an over-sized light and ventilation shaft running the full height of the building and open on the Western face, measuring 4.8m north south, and 5.6m east west.

Operable windows not permitted under BCA in this zone



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Note: The Applicant's response to the above must include appropriate modelling, drawings and specifications as necessary to demonstrate compliance with ADG.

ADG COMPLIANCE: VENTILATION

The ADG contains only 2 Design Criteria related to natural ventilation, shown adjacent as Objective 4B-3 #1 and #2.

The scheme is not only fully compliant with both, but exceeds the requirements of both:

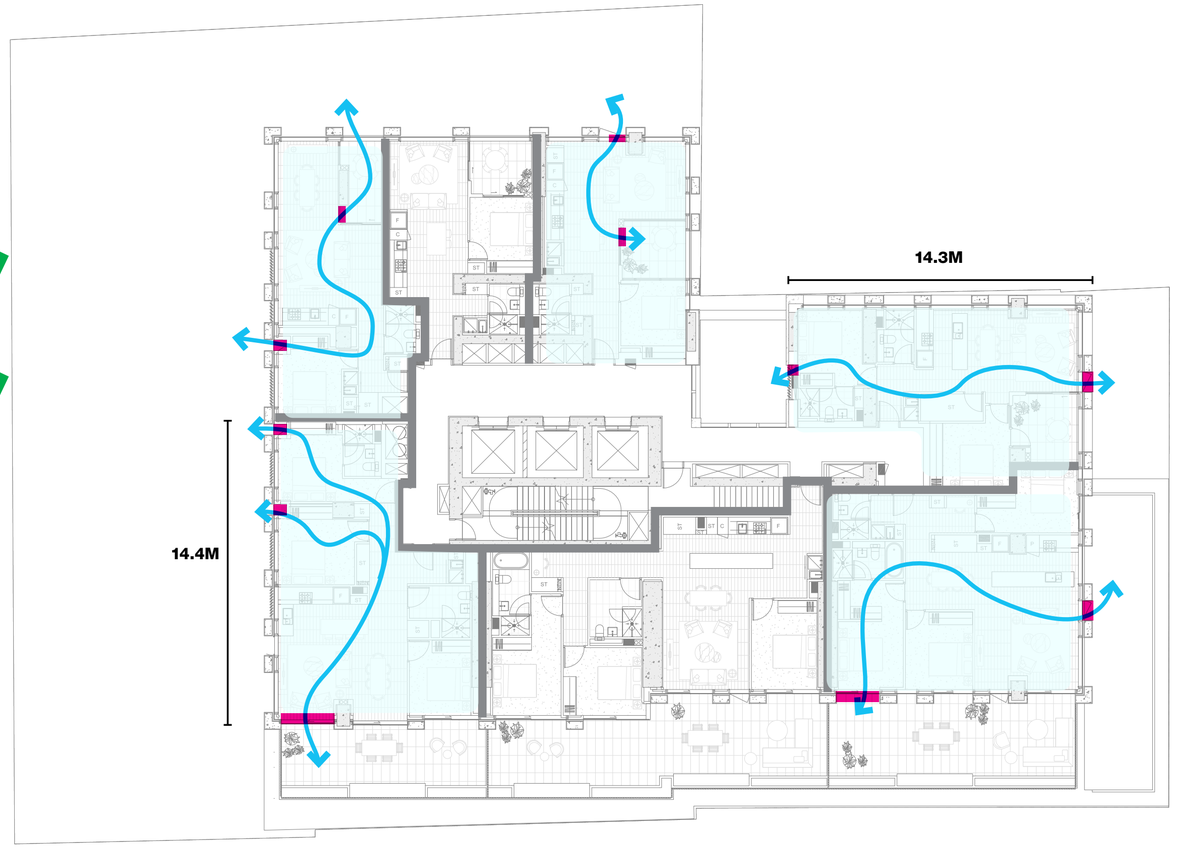
4B-3 #1. The first nine storeys of the building contain 3 residential floors, levels 7, 8 and 9.

L7: 5 out of 7 apartments achieve natural cross ventilation.
L8: 5 out of 7 apartments achieve natural cross ventilation.
L9: 5 out of 9 apartments achieve natural cross ventilation.

15 x Crossflow Apartments / 23 x Total Apartments = 65% of apartments are naturally ventilated in the first nine storeys of the building, in excess of the 60% minimum required.

4B-3 #2. The maximum depth of a cross-through apartment is 14.4 metres measured from glass line to glass line, well below the maximum 18m permitted.

Objective 4B-3	
The number of apartments with natural cross ventilation is maximised to create a comfortable indoor environment for residents	
Design criteria	
1.	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
2.	Overall depth of a cross-over or cross-through apartment does not exceed 18m, measured glass line to glass line



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** how the proposed light-well, window and balcony designs will achieve adequate ventilation and natural cross-ventilation*

Note: The Applicant's response to the above must include appropriate modelling, drawings and specifications as necessary to demonstrate compliance with ADG.

OPERABLE WINDOW TYPES

There are 7 different operable window types used on residential floors to achieve compliance with natural ventilation controls. All habitable rooms are naturally ventilated, as required under BCA and Objective 4B-1 of the ADG.

Objective 4B-1
All habitable rooms are naturally ventilated

Opening Type 01 - 900mm Casement Window

Opening Type 02- 500mm Balcony Casement Window

Opening Type 03- Balcony Sliding Window

Opening Type 04- Southern Ventilation Slots

Opening Type 05- Western Casement Windows

Opening Type 06- Western Ventilation Flap

Opening Type 05- Juliette Balcony

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** how the proposed light-well, window and balcony designs will achieve adequate ventilation and natural cross-ventilation*

Note: The Applicant's response to the above must include appropriate modelling, drawings and specifications as necessary to demonstrate compliance with ADG.

BCA VS ADG:

Both the ADG and BCA appear to be aligned insofar as natural ventilation requirements are concerned:

The BCA requires:
"The ventilating area must not be less than 5% of the floor area of the room required to be ventilated."

The adjacent ADG Design Guidance proposes:
"The area of unobstructed window openings should be equal to at least 5% of the floor area being served."

Both appear to be identical requirements. However, there is a discrepancy in the glossary of the ADG which places it in direct contradiction to that of the BCA and makes it virtually impossible to achieve the 'Design Guidance' on any high rise building.

Under the BCA, windows in high rise developments must be restricted to an opening of 125mm maximum to prevent human injury from falls. Acknowledging this, adjacent BCA Advisory Note 2013-1 was issued to clarify how to measure the 'ventilating area' for high rise windows so as not to compromise fall protection. 100% of windows in the proposed development comply with this criteria.

The ADG however makes no such distinction, with its glossary proposing a far more onerous measurement which is impossible to achieve compliance with, unless:
a) Window restrictors are removed, placing occupants at risk of falling from the building, in contravention of the BCA, or
b) Windows becoming so large they are impossible to build or operate.

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BUILDING CODE OF AUSTRALIA (BCA):

Extract from Australian Building Codes Board Advisory Note 2013-1 Protection of Openable Windows

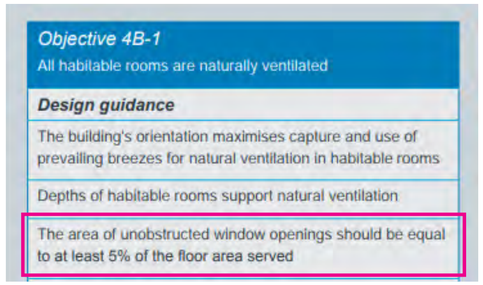
Natural Ventilation
The Deemed-to-Satisfy Provisions of NCC Volume One Clause F4.6 and NCC Volume Two Clause 3.8.5.2 require that natural ventilation must be provided to a habitable room and must consist of permanent openings, windows, doors or other devices which can be opened. The ventilating area must be not less than 5% of the floor area of the room required to be ventilated.

If window barriers are installed which restrict the opening of the window to less than 125 mm, it raises the question whether compliance with the natural ventilation provisions is affected.

The short answer is no. The NCC provisions include the words 'windows, doors or other devices which can be opened" and the ventilating area "must not be less than 5%". Therefore, the window is not required to be always fully open; it just needs to be openable or capable of being opened. The Explanatory information in NCC Volume Two states that "the ventilating area of a window is measured as the size of the openable sash of the window, i.e. - whether it is an awning, casement or sliding window and irrespective of the restrictions on the openable sash". In other words, even with a window restricting device, whether the device has a child resistant release mechanism or not, the window sash is still capable of being fully opened and thus the ventilating area is measured as the size of the sash. For an awning window, the ventilation calculation area is the area of the sash i.e. the area =
coloured in orange in Figure 2a below. It is not the area coloured in orange in Figure 2b.

Figure 2: Ventilation area calculation for awning window (correct area shown in Figure 2a, incorrect area shown in Figure 2b)

APARTMENT DESIGN GUIDE (ADG):



Effective Openable Area (EOA)
The minimum area of clear opening of a window that can take part in providing natural ventilation. The effective openable area of a sliding or hung sash window can be measured in elevation. Hinged windows such as casement, awning and hopper windows may measure the diagonal plane from the sash to the jamb and add the triangles at either end up to a total area of the window opening in the wall. Obstructions within 2m of a window reduce the effective openable area as measured in elevation. Fly screens and security screens will reduce the effective openable area by half.

FIGURE 2A:
CORRECT MEASUREMENT TECHNIQUE AS REQUIRED BY BUILDING CODE OF AUSTRALIA

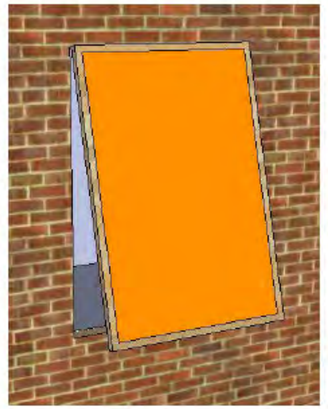
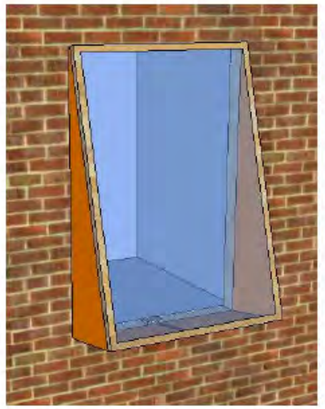


FIGURE 2B:
CORRECT MEASUREMENT TECHNIQUE AS REQUIRED BY APARTMENT DESIGN GUIDE



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BCA VS ADG:

The adjacent diagram is representative of a single master bedroom in an apartment, with an ADG minimum complying area of 10sqm and width of 3m on a high rise building requiring 125mm restricted window openings in accordance with the BCA.

BCA natural ventilation criteria requires an opening of minimum 5% of the floor area measured in accordance with figure 2A, resulting in a minimum complying window size of 1m tall by 0.5m wide (shown in red). Ie, a typical window dimension, albeit slightly smaller than could be considered a high amenity outcome.

The ADG Design Guidance also requests 5% of the floor area, but measured in accordance with figure 2B resulting in a **minimum** window size of 3 metres wide x 1m tall (shown in orange) which only barely achieves 5% compliance.

Such a window:
/ Has no engineering precedent in terms of hardware type or built example anywhere in the world in our knowledge,
/ Would weigh in excess of 200kg and be impossible for a human to operate, and
/ Would prevent any bedroom being larger than 10sqm in area without the window becoming even larger, which is impossible within a 3m bedroom width.
/ Could only be reduced in size if fall prevention restrictors were removed, in contradiction of the BCA.

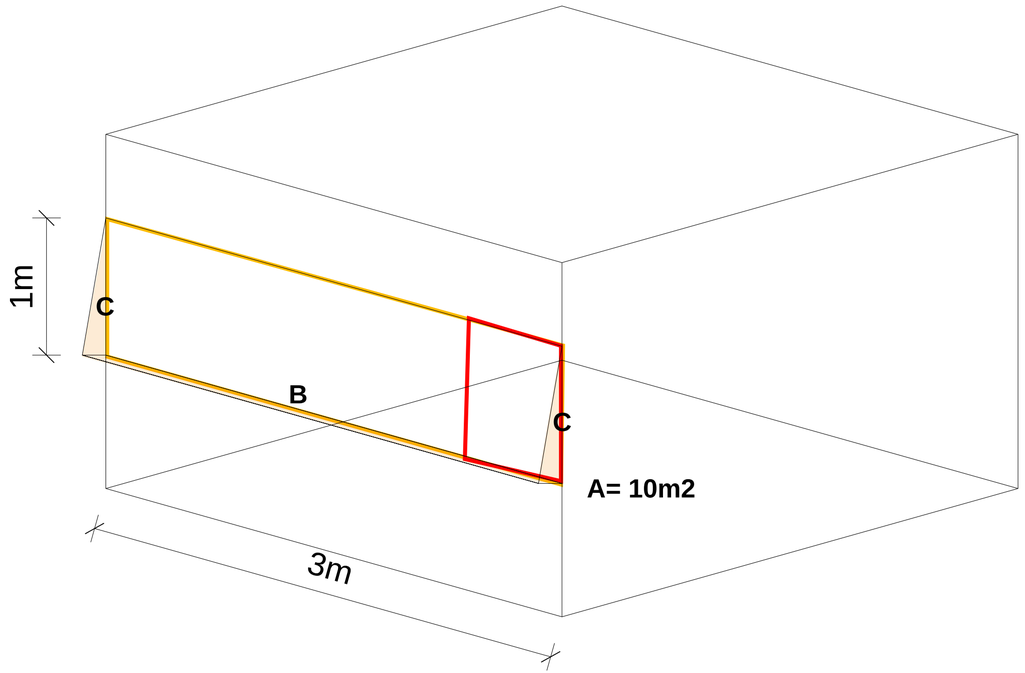
In light of the above, we have designed the proposed operable windows in this development to be 100% compliant with the legally binding instrument, the Building Code of Australia, in terms of both natural ventilation compliance and fall prevention.

In summary:
/ The scheme complies with all Design Criteria required by the ADG with regards to Natural Ventilation.
/ The scheme complies with the BCA in terms of both natural ventilation and fall prevention.
/ In our opinion, satisfying the 'Design Guidance' of the ADG using the measurement methodology outlined in the appendix of the ADG is:
- not only a mandatory requirement of achieving ADG compliance, but a 'guidance' only,
- cannot reasonably be achieved without removing safety devices from windows of high rise buildings and exposing residents to potential injury.

Although not required by the BCA, or the ADG, all apartments are also fully air conditioned.

The combined amenity of these ventilation features is as high, if not higher, than any residential project previously undertaken by Bates Smart in Sydney.

In addition, a CFD ventilation analysis has been undertaken by CPP Wind Consultants confirming that airflow requirements for the proposed design either meet or exceed natural ventilation airflow requirements as required by City of Sydney Draft DCP: "Alternative Natural Ventilation of Apartments in Noisy Environments". Please refer to accompanying report. The following pages are a description of every window type contained within the proposed development.



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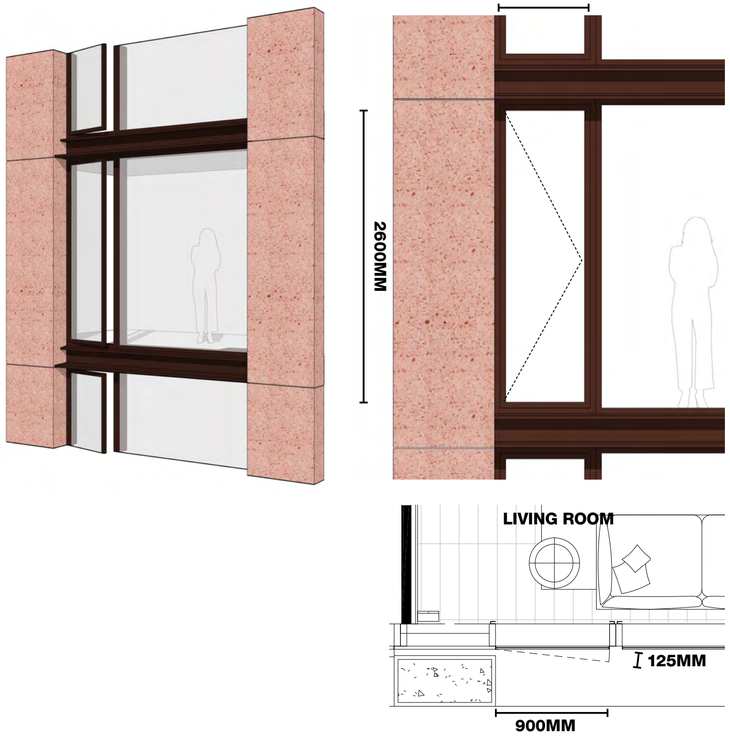
Opening Type 01 - 900mm Casement Window

TYPICAL LIVING ROOM

Most living rooms, in addition to full height balcony sliding doors, also have a full height operable casement window, 2.6m in height and 900mm in width restricted to 125mm maximum under BCA requirements.

With an average living area being 6m x 4m (24sqm), this window provides a natural ventilation of 10% when measured in accordance with the BCA, in excess of the 5% required. Combined with a balcony slider, the majority of living rooms achieve 15-20%.



Opening Type 02- 500mm Balcony Casement Window

TYPICAL BEDROOM

Bedrooms interfacing with balconies also have a full height operable casement window, 2.6m in height and 500mm in width. Due to there being no risk of falls when opening onto a balcony, window openings are not restricted.

With an average bedroom being 3m x 3.3m (10sqm), this window provides a natural ventilation of 13% when measured in accordance with the BCA, in excess of the 5% required.

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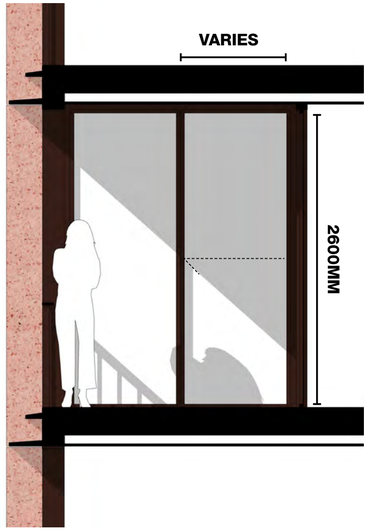
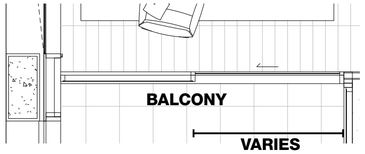
Opening Type 03- Balcony Sliding Window

TYPICAL BALCONY SLIDER

Most living rooms have a typical sliding door onto the balcony, 2.6m in height and 0.8-1.0m wide.

With an average living area being 6m x 4m (24sqm), this window provides a natural ventilation of 9-10% when measured in accordance with the BCA, in excess of the 5% required. Given most living areas are augmented by window type 01, the total for most living areas is closer to 20%, 4 times that required by the BCA.





Opening Type 04- Southern Ventilation Slots

SOUTHERN VENTILATION SLOT WINDOW

The southern ventilation slots, providing natural ventilation to 3 x bedrooms on the south, have full height operable windows of 2.6m in height and 350mm in width. These windows are again requred by the BCA to be restricted to 125mm max. opening to protect against falls, irrespective of the type of window proposed.

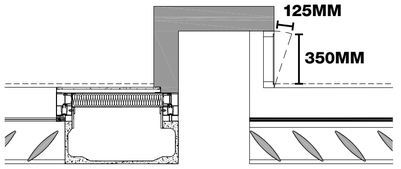
With a master bedroom being 10sqm and a second bedroom being 9sqm, the resultant ventilation areas are for each room type as defined under the BCA are:

Master Bedroom = 9%, in excess of 5% required.
Second Bedroom = 10%, in excess of 5% required.

Making these ventilation windows comply with ADG design guidelines however would necessitate:

/ Removing the fall restrictors on the windows, introducing a fall hazard to occupants, contrary to the Building Code of Australia and placing residents in danger of injury,
/ Adopting a 3m wide awning window as proposed 2 pages prior, or
/ Designing balconies into the south face of the building fronting Princeton, purely to allow window restrictors to be omitted, introducing substantial visual and acoustic privacy concerns to both developments,
/ Doubling the number of operable windows in this facade, creating additional acoustic privacy implications to Princeton.

The proposed scheme is however fully compliant with the Building Code of Australia (BCA) insofar as natural ventilation and fall prevention is required.



8. REVIEW AND REVISE THE PROPOSAL WITH RESPECT TO COMPLIANCE WITH SEPP 65 AND THE ADG WITH REGARDS TO THE LIGHT-WELL, WINDOWS AND BALCONY DESIGN TO ACHIEVE ADEQUATE VENTILATION

Review and revise the proposal with respect to compliance with SEPP 65 and the Apartment Design Guidelines (ADG) (as required by Condition B3(h) of the Concept Approval), including further consideration and illustration of:

** how the proposed light-well, window and balcony designs will achieve adequate ventilation and natural cross-ventilation*

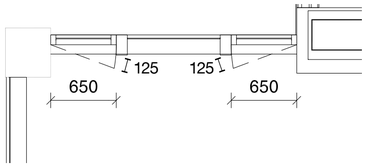
Note: The Applicant's response to the above must include appropriate modelling, drawings and specifications as necessary to demonstrate compliance with ADG.

Opening Type 05- Western Casement Windows

TYPICAL LOBBY WINDOWS

The circulation corridor contains 2 operable windows per floor, 2.6m high and 650mm wide.

The typical lobby corridor is 65sqm. This achieves a natural ventilation of 5.2%, slightly exceeding the 5% required by BCA.



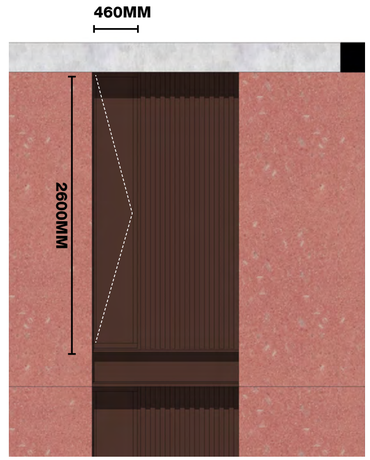
Opening Type 06- Western Ventilation Flap

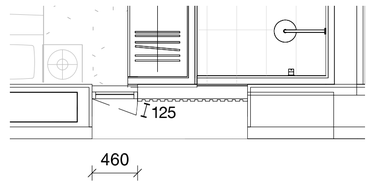
BEDROOM TO LIGHTWELL

1 x Bedroom per floorplate receives its natural ventilation from the lightwell, however enjoys a 3m wide window on the boundary facing West.

In order to provide visual privacy from the lift lobbies opposite, this operable ventilation 'window' has been designed as opaque for privacy reasons but remains operable in the way a typical window would.

The operable panel is 2.6m tall by 460mm wide and achieves a BCA compliant area of natural ventilation of just under 12%, in excess of the 5% requirement.





BATESSMART.

8. REVIEW AND REVISE THE PROPOSAL WITH RESPECT TO COMPLIANCE WITH SEPP 65 AND THE ADG WITH REGARDS TO THE LIGHT-WELL, WINDOWS AND BALCONY DESIGN TO ACHIEVE ADEQUATE VENTILATION

Review and revise the proposal with respect to compliance with SEPP 65 and the Apartment Design Guidelines (ADG) (as required by Condition B3(h) of the Concept Approval), including further consideration and illustration of:

** how the proposed light-well, window and balcony designs will achieve adequate ventilation and natural cross-ventilation*

Note: The Applicant's response to the above must include appropriate modelling, drawings and specifications as necessary to demonstrate compliance with ADG.

Opening Type 05- Juliette Balcony

JULIETTE BALCONY SLIDERS

2 apartments per floor, bedrooms facing East with views of Hyde Park, are provided with Juliette Balcony Sliders, 2.6m tall and approx 1m wide, achieving a BCA compliant natural ventilation of 26% of floor area for a typical 10sqm master bedroom, in excess of the 5% requirement.

9. ADG STATEMENT OF COMPLIANCE

Submit a statement by a qualified designer prepared in accordance with clause 50 of the Environmental Planning and Assessment Regulation 2000.

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26th August 2020

Architecture
Interior Design
Urban Design
Strategy

BATESSMART.™

Design Statement
SEPP 65 / ADG Design Verification

Project: 300-302 Pitt Street Sydney
Purpose: SSD DA Application, RTS
Reference: Response to Submissions #9

We confirm that Philip Vivian of Bates Smart directed the design of the enclosed Development Application and that Mr Vivian is registered as an architect in accordance with the Architects Act 1921.

We confirm that in our professional opinion the proposed design is capable of achieving the design principles set out in State Environmental Planning Policy 65 - Design Quality of Residential Flat Development, and has been designed with regard to the publication Apartment Design Guide. (ADG).

Mr Vivian is also a qualified and competent person practising in the relevant area of work.

……..
Mathieu Le Sueur
Studio Director

Nominated NSW Registered Architects: Philip Vivian Reg. 6696 / Simon Swaney Reg. 7305 / Guy Lake Reg. 7119
S:\12200-12299\S12237_Oxford_300-302PittStreet\50_Documents\Design Statements\200826_ADG_Design_Statement.docx
Page 1 of 1

10. BASIX STATEMENT OF COMPLIANCE

d. Submit amended architectural drawings confirming BASIX commitments

BASIX

Please refer to accompanying revised BASIX package prepared by Cundall

11. SETBACKS AND ENVELOPE COMPLIANCE

Include additional dimensions on the architectural drawings to confirm compliance with the required boundary setbacks

UPDATED DRAWINGS

Please refer to amended architectural drawings accompanying this RTS submissions

12. SOUTH FACING WINDOWS

Southern facing windows - Removed blade, acoustic/wind consultant

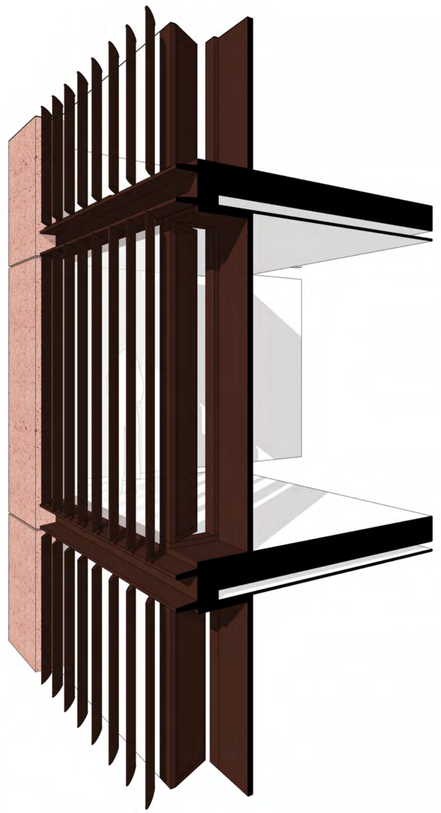
SOUTH FACING WINDOWS

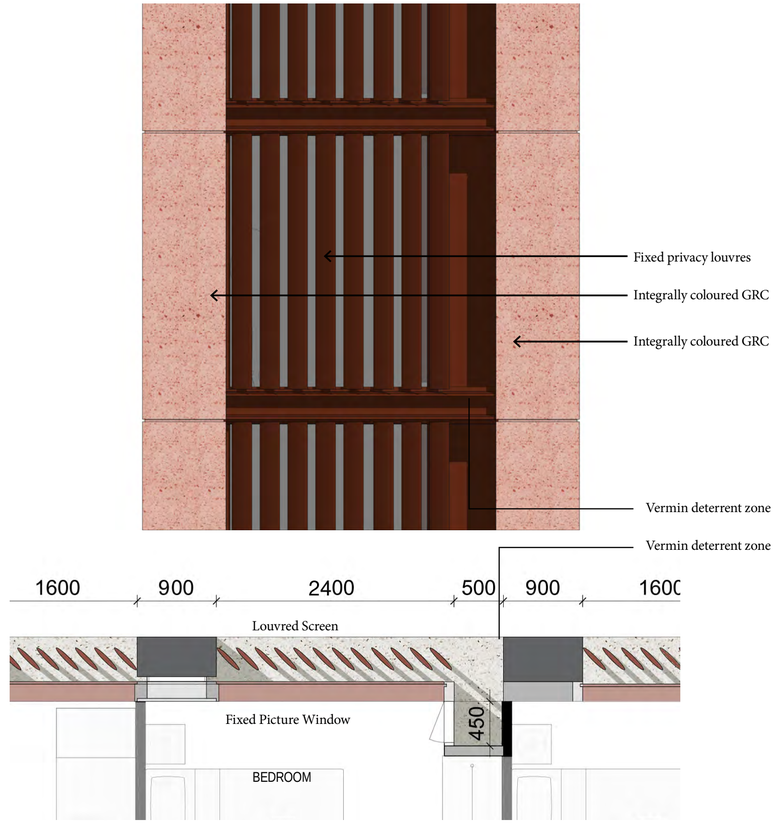
For clarity, the proposed detail of the southern ventilation 'slot' is shown on this page. We understand some confusion has arisen as a result of an earlier design being reflected in one document among the SSD DA application which featured an additional vertical louvre blade located within the slot.

There is no vertical blade located within the slot. The proposed detail is as shown adjacent:

/ All ventilation openings are greater than 50mm in width, thus not conducive to risk of whistling as per advice received from CPP Wind Consultants,

/ There are no adverse maintenance implications of the proposed design. A standard swing stage & rope access maintenance regime is proposed, with fixed screening louvres sized appropriately for access by a cleaning squeegee in accordance with advice received from façade access consultants Inhabit Group.





13. JULIETTE BALCONIES

Juliette windows appear to be fully enclosable and so are they counted in the GFA

Council has exemption for partial enclosure of wind affected balconies. Are these fully or partially enclosed?

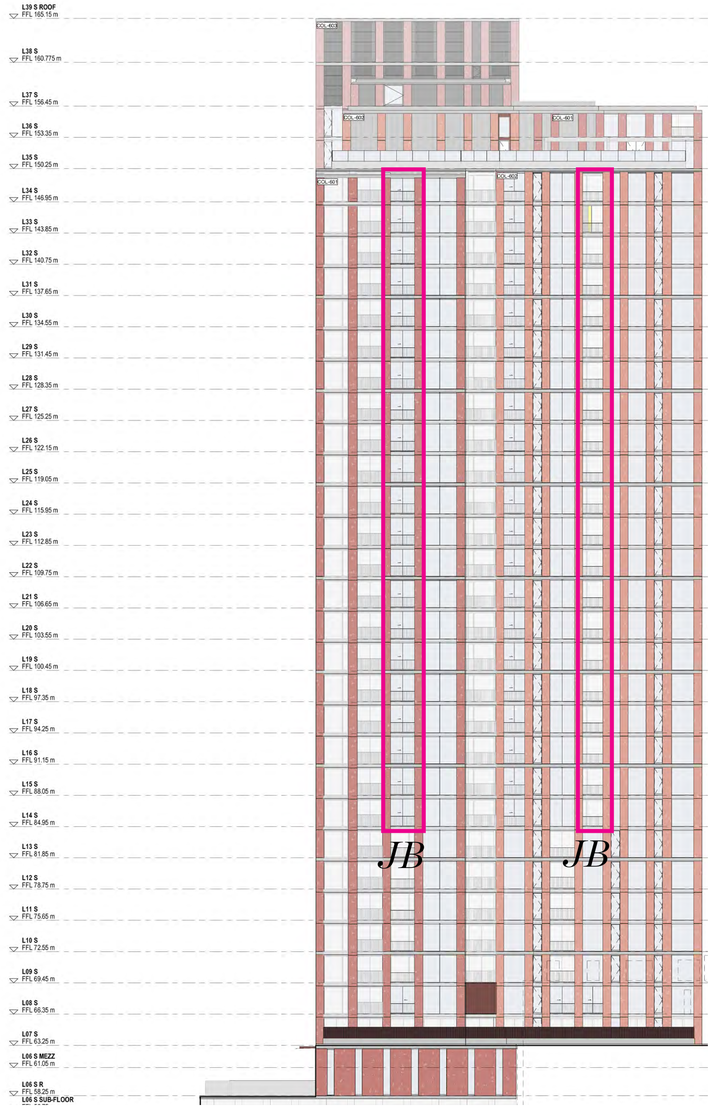
JULIETTE WINDOWS

Two Juliette balconies are proposed per typical floor as a means of achieving natural ventilation and improved outlook and amenity to bedrooms fronting Hyde Park. These juliette balconies consist of a full height single sliding window integrated into the tower curtain wall façade design. A fixed balustrade is provided approximately 100mm in front of the operable window leaf to provide fall protection when the window is in the open position. The balconies are fully enclosed, and therefore the entire bedroom has been counted as GFA in accordance with LEP 2012.

13. JULIETTE BALCONIES

Juliette windows appear to be fully enclosable and so are they counted in the GFA

Council has exemption for partial enclosure of wind affected balconies. Are these fully or partially enclosed?



14. AWNINGS

a) To provide adequate weather protection, it is recommended that a downturned edge to the awning (rather than stepping the awning) would provide a continuous awning along Pitt Street as required by the provisions of the SDCP 2012.

AWNINGS

The awnings at street level form part of the CSSI application and are not part of the SSD DA application.

For clarity of design intent however, we are happy to provide the below design rationale for the proposed canopy designs at street level:

Continuous street awnings are provided along both Pitt Street and Bathurst Street frontages as required by City of Sydney DCP 2012.

Due to the natural gradient of the site on both Pitt and Bathurst Streets, it is not possible to adopt a single canopy height along the entire frontage which falls within the permissible minimum and maximum height ranges outlined within SDCP2012. A stepped height approach is required to both frontages.

Our design approach has been to adopt a hierarchy of both heights and materiality to:

1. Provide clear and legible wayfinding to the two primary entrances of the building, being:

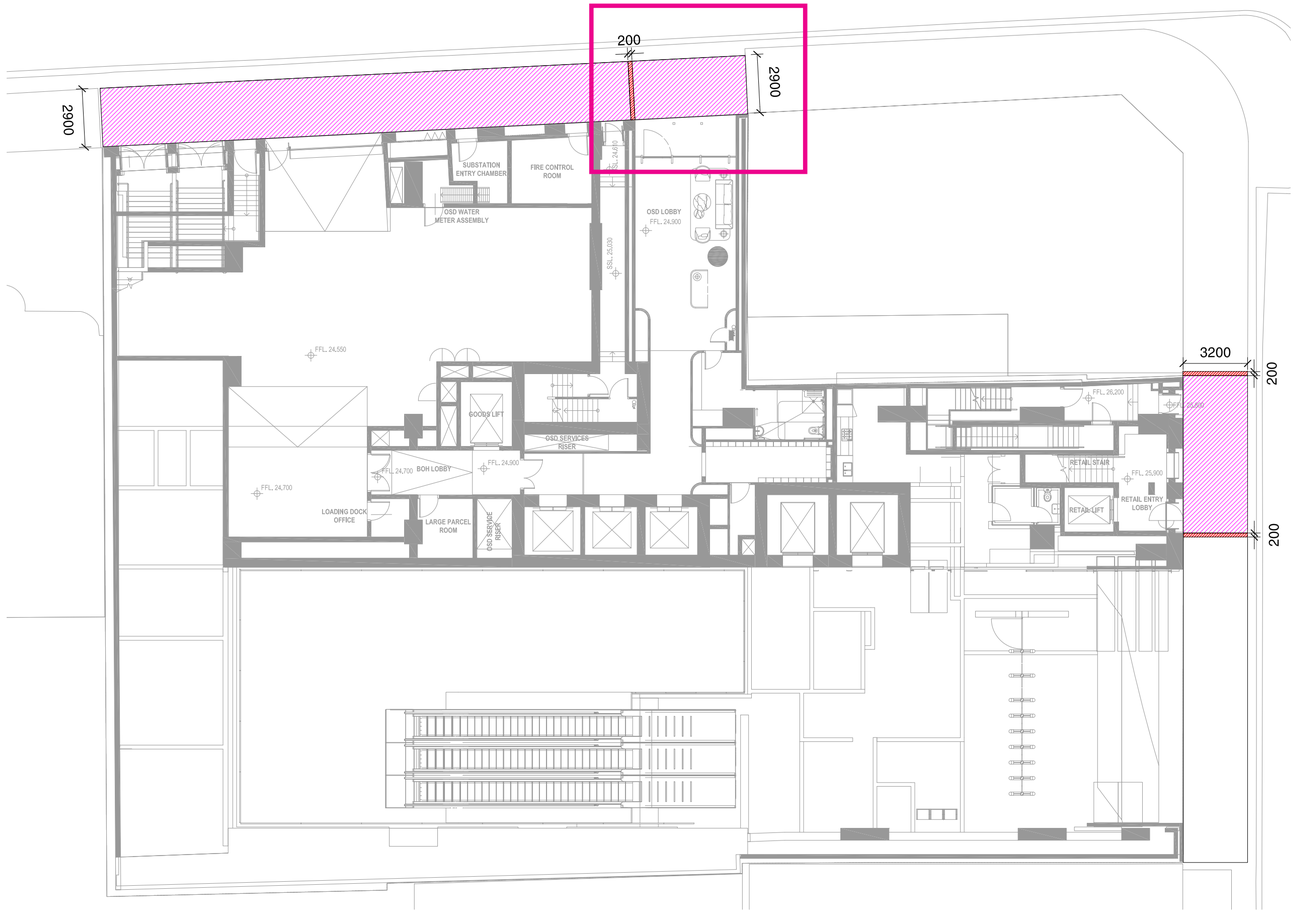
a) The metro entry on Bathurst St, and

b) The OSD entry on Pitt St.

2. Create a sensitive scale transition between proposed canopies and the existing heritage fabric and canopy of the Edinburgh Castle Hotel,

3. Create a gradual stepping language that reflects the natural topography of the precinct.

OSD Lobby



Awning Design_Proposed

14. AWNINGS

a) To provide adequate weather protection, it is recommended that a downturned edge to the awning (rather than stepping the awning) would provide a continuous awning along Pitt Street as required by the provisions of the SDCP 2012.

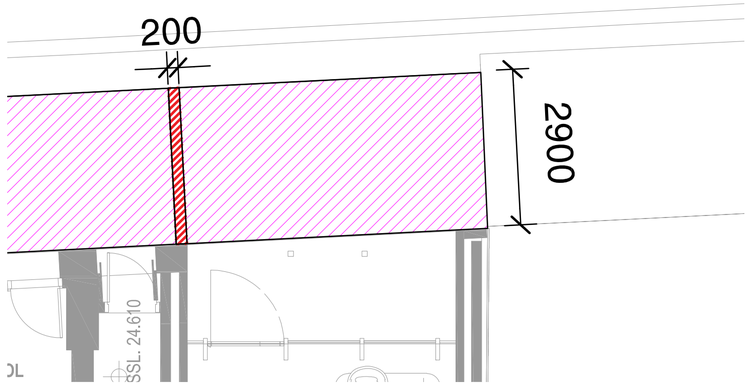
AWNINGS

The adjacent drawings show the proposed awning design at the OSD entry on Pitt Street from south and north of Pitt Street. The OSD entry awning is intentionally glazed in order to:

a) Not compete visually with the adjacent heritage awning,

b) Clearly identify the OSD lobby conceptually as ‘a space between buildings’, allowing the heritage building to be read in the round with brickwork extending internally, a concept supported as contributing to Design Excellence by the DRP.

In order to maximise weather protection, overlaps are proposed between the glazed awning and the adjacent awnings of 200mm.



14. AWNINGS

a) To provide adequate weather protection, it is recommended that a downturned edge to the awning (rather than stepping the awning) would provide a continuous awning along Pitt Street as required by the provisions of the SDCP 2012.

AWNINGS

The adjacent two images show the necessary amendments to the proposed design (in red) needed in order to achieve the requested criteria of downturned edges necessary to provide a continuous awning.

As can be seen, not only is the identity of the OSD entry awning lost, but the visual clarity of both the Edinburgh Castle Hotel awning, and the remaining proposed awning on Pitt Street, is lost, resulting in a poorer urban outcome.

In addition, the upturned edge to the North, shown in red interfacing with the awning of the Edinburgh Castle Hotel, would also involve interfering with the heritage fabric in order to obtain a waterproof connection and is therefore not permissible under heritage restrictions.

For further detail on street level interfaces, please refer to the CSSI application.

15. BUILDING SLENDERNESS

W2A [Walsh2 Analysis]: The proposed building envelope is a relatively slim tower form.

Comment:

The slimness of the tower form is a matter of opinion and the proponent has not identified the benchmark against which its relative 'slimness' has been measured.

BUILDING SLENDERNESS

The nominated terminology appears within the Solar Analysis report prepared by Scott Walsh Architects. Please refer to his revised report for an explanation of the proposed terminology.

16. SOUTHERN SETBACK AND SOLAR ACCESS TO PRINCETON APARTMENTS

W2A: It was determined that Princeton Apartments compliance is only marginally sensitive to the size of the setback on the eastern boundary, and insensitive to the setback on the western boundary.

Comment:

There has been no sensitivity testing to ascertain whether there would be any improvement in terms of solar access to Princeton Apartments if the building separation was increased to 24m and whether the increased separation combined with some modulation to the south eastern corner of the proposed building would result in a further increase in apartments receiving solar access.

SOUTHERN SETBACK

Please refer to the accompanying Solar Access Report by Scott Walsh Architects.

17. SOUTH SETBACK

Due to non-compliant building separation, dwellings in Princeton Apartments will suffer from a loss of both visual and acoustic privacy.

This item is addressed in detail in Section 5 of this report.

18. SOUTH SETBACK

A series of louvres are proposed to be installed along parts of the southern elevation of the proposed development. However it is noted that it is not proposed to provide louvres to the windows of the living rooms/dining rooms or the balconies that have an interface with the southern elevation and therefore there will be a significant loss of privacy for residents of Princeton Apartments

This item is addressed in detail in Section 5 of this report.

19. SOLAR ACCESS TO PRINCETON APARTMENTS ROOF TOP

In our previous submission (in relation to SSD-8876) we advised that Princeton Apartments was investigating options for alternative, renewable power sources, including solar panels. If the OSD proceeds in its current form, it will negate the opportunity for the Princeton to install solar panels as an alternative source of power generation, further impacting on sustainability.

Whilst planning controls are in place to protect solar access to existing solar panels, no known controls are in place to guarantee solar access to future solar panels which are yet to be planned or installed. Such a requirement would result in it being impossible to overshadow the non-accessible plant rooftops of any development, which is not a feasible outcome in any inner city urban environment.