SUMMARY REPORT
FOR INFORMING
COST CONSULTANT AND VALUER
197 CHURCH STREET
PARRAMATTA

RAFAEL DE LA-HOZ
ARQUITECTOS

GROUPGSA

CONTENTS

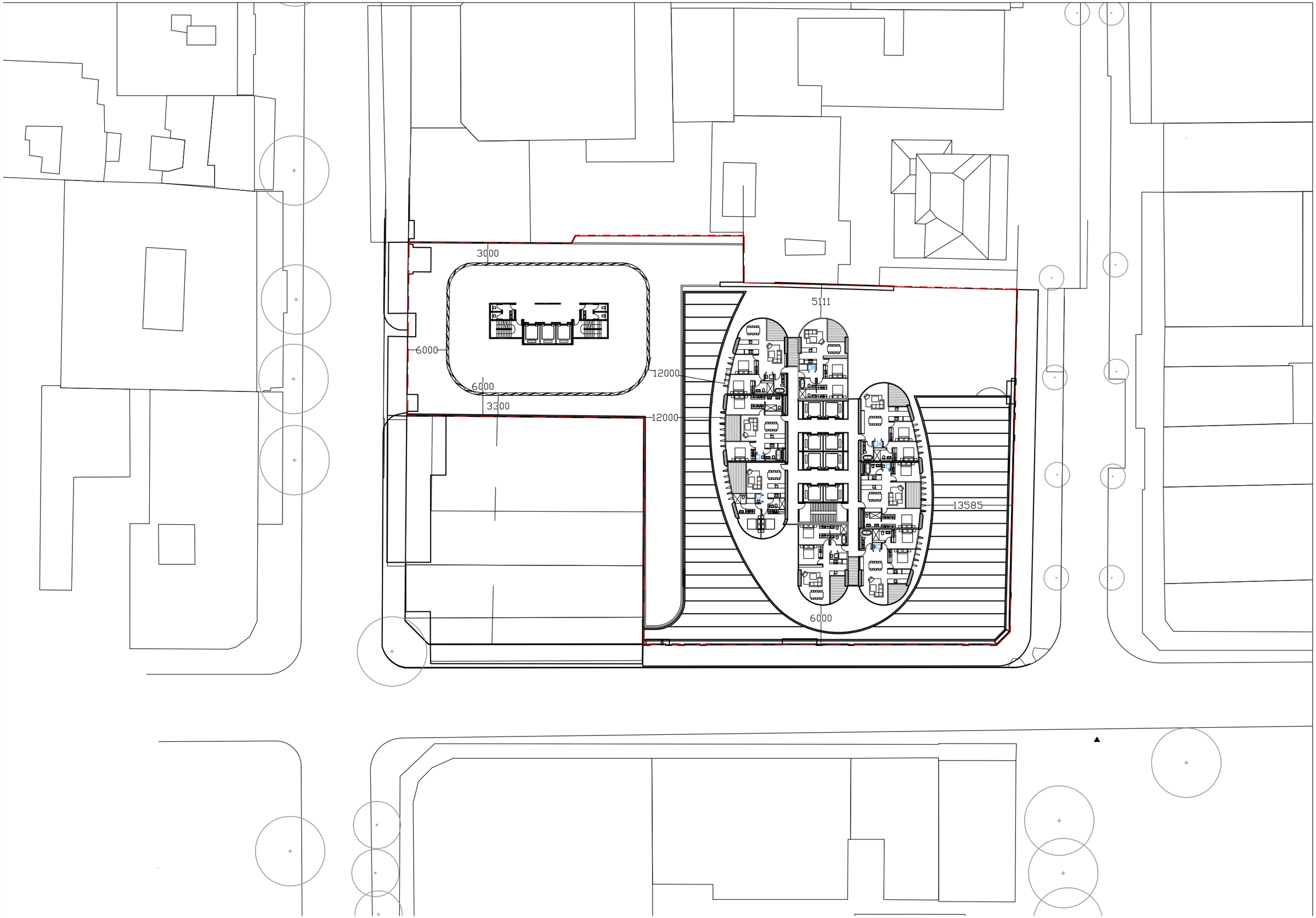
SITE PLANS

BUILDING SETBACKS – OFFICE TOWER
IN MARSDEN STREET

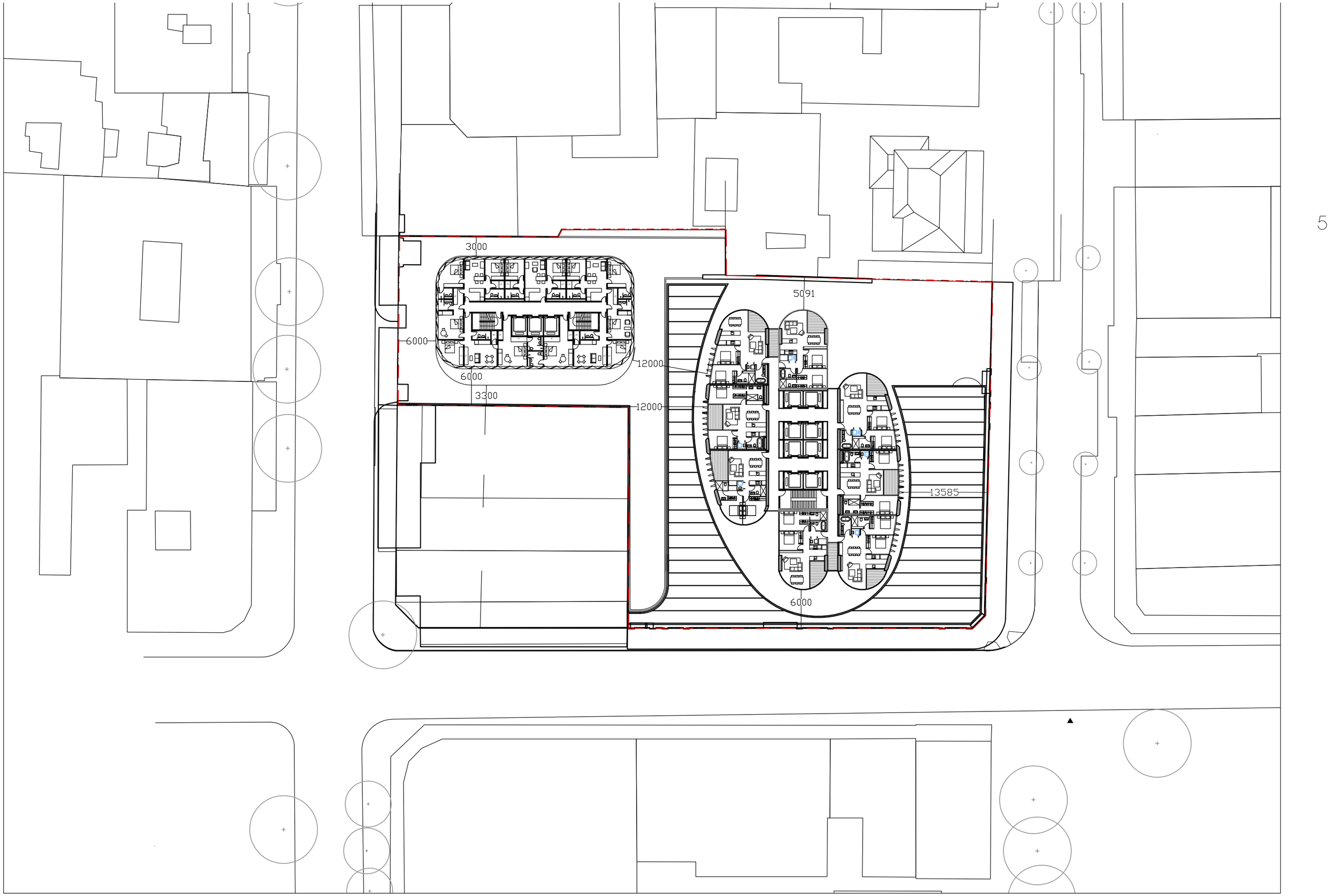
BUILDING SETBACKS – SERVICED APARTMENTS
TOWER IN MARSDEN STREET

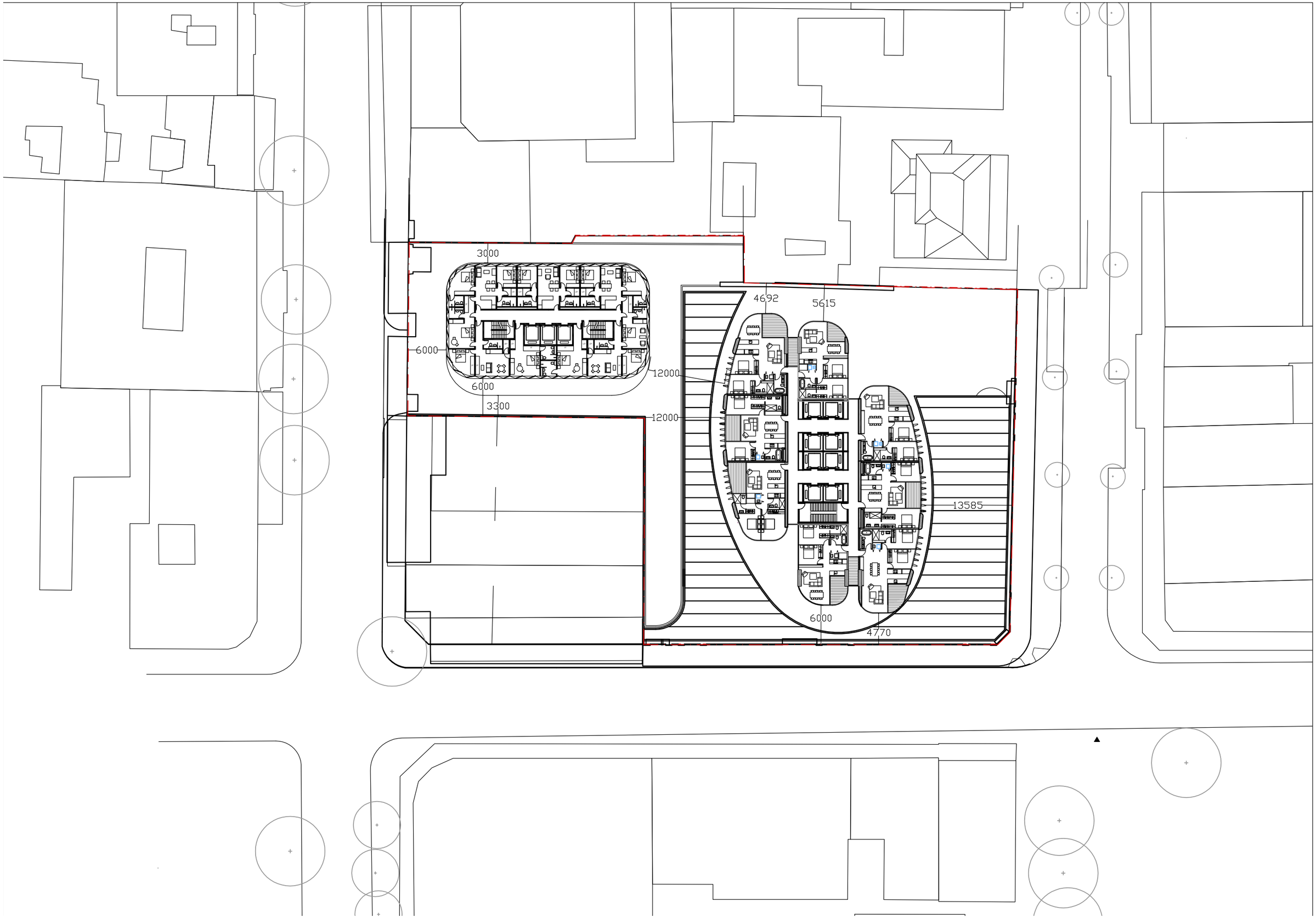
BUILDING SETBACKS – RECTANGULAR SHAPED
FLOORPLAN IN MAIN TOWER

4



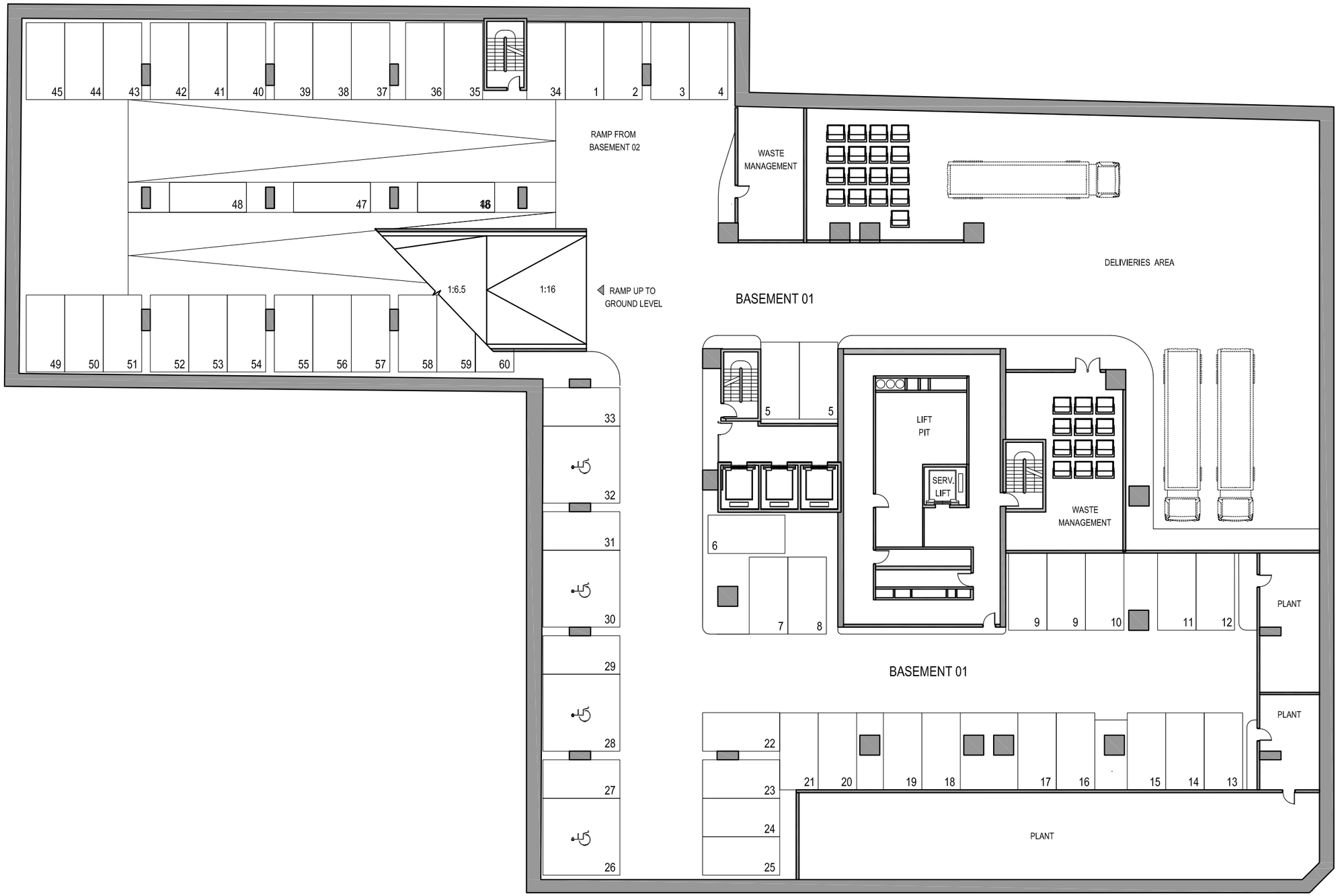
197 Church Street Parramatta


3000
6000
6000
3300
12000
12000
5091
13585
6000


3000
6000
6000
3300
12000
12000
4692
5615
13585
6000
4770

BASEMENT PLANS

LEVEL B1 – NEW CAR PARKING ARRANGEMENT
LEVEL B2 – NEW CAR PARKING ARRANGEMENT
LEVELS B3 TO B8 – NEW CAR PARKING ARRANGEMENT



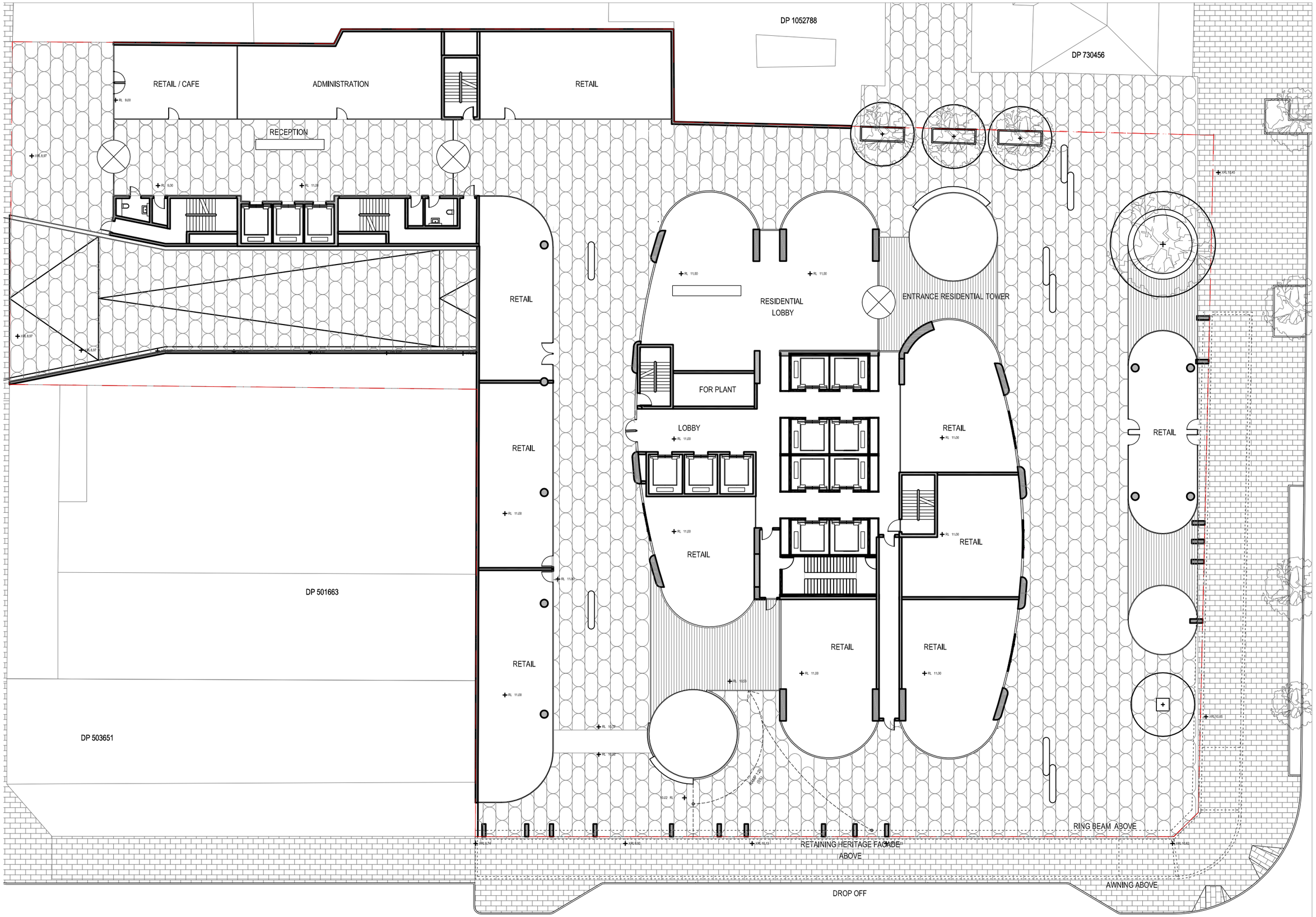
LEVEL B1 – NEW CAR PARKING ARRANGEMENT

LEVEL B2 – NEW CAR PARKING ARRANGEMENT

LEVEL B3 TO B8 – NEW CAR PARKING ARRANGEMENT

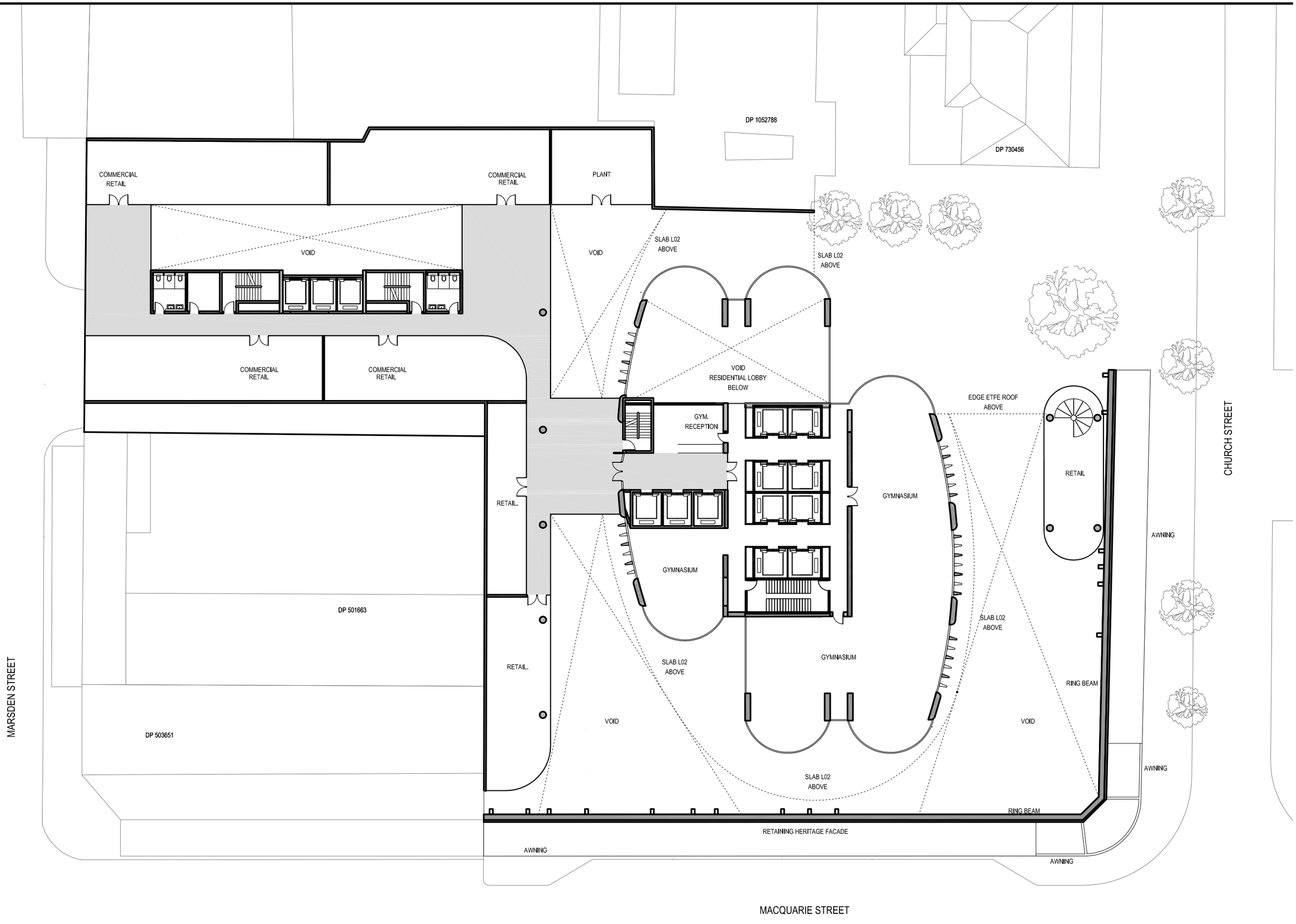
GROUND FLOOR

PUBLIC REALM SPACE / RETAIL PLAZA


DP 1052788
DP 730456
DP 501663
DP 503651
RETAIL / CAFE
ADMINISTRATION
RETAIL
RECEPTION
RETAIL
RESIDENTIAL
LOBBY
ENTRANCE RESIDENTIAL TOWER
FOR PLANT
LOBBY
RETAIL
RETAIL
RETAIL
RETAIL
RETAIL
RETAIL
RETAIL
RETAIL
RETAIL
RING BEAM ABOVE
RETAINING HERITAGE FACADE ABOVE
AWNING ABOVE
DROP OFF

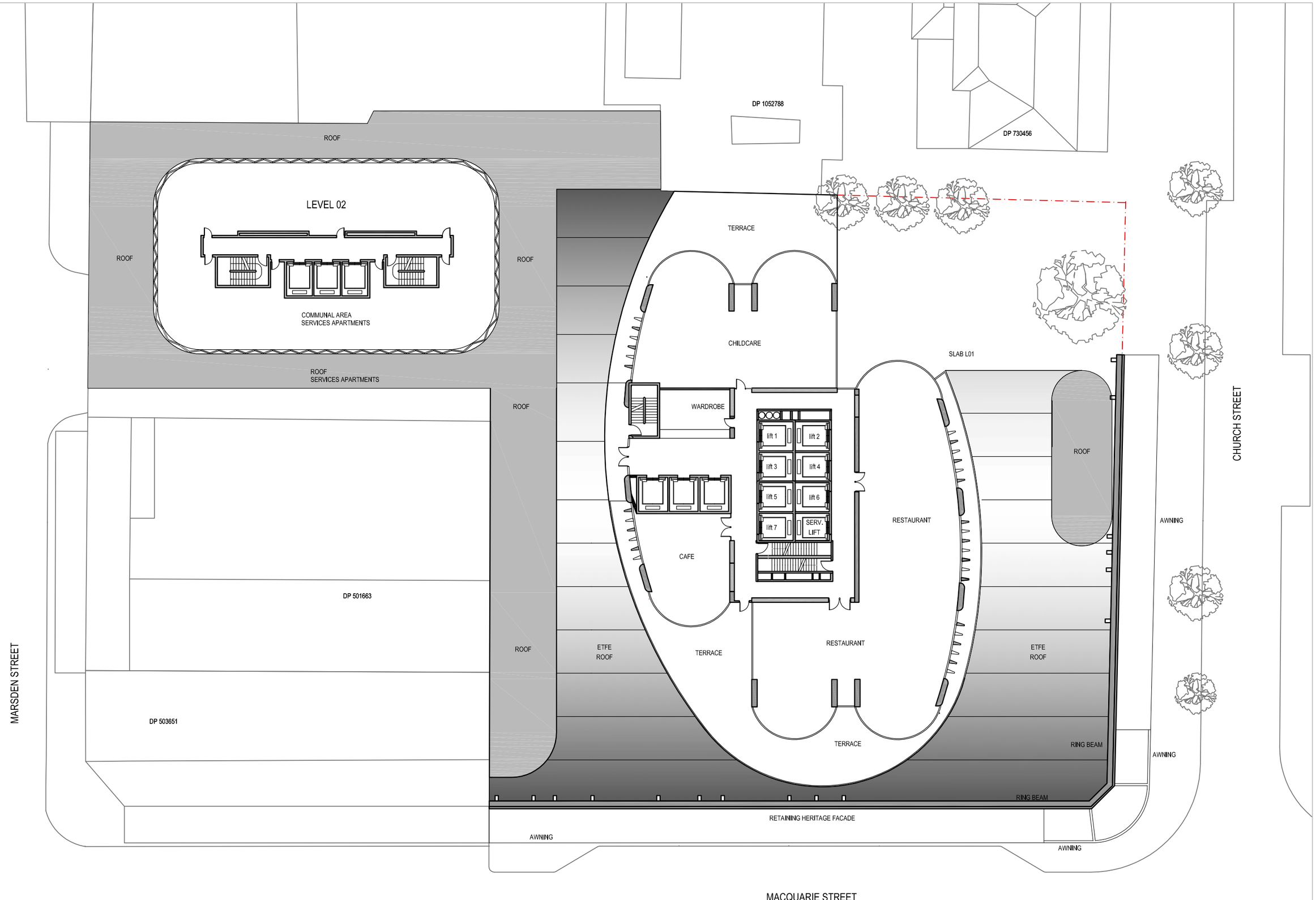
FIRST FLOOR

RETAIL PODIUM


DP 1052788
DP 730456
COMMERCIAL RETAIL
COMMERCIAL RETAIL
PLANT
VOID
VOID
SLAB L02 ABOVE
SLAB L02 ABOVE
COMMERCIAL RETAIL
COMMERCIAL RETAIL
VOID RESIDENTIAL LOBBY BELOW
EDGE ETFE ROOF ABOVE
GYM. RECEPTION
RETAIL.
GYMNASIUM
RETAIL
CHURCH STREET
AWNING
GYMNASIUM
DP 501663
SLAB L02 ABOVE
RETAIL.
SLAB L02 ABOVE
GYMNASIUM
RING BEAM
MARSDEN STREET
DP 503651
VOID
VOID
AWNING
SLAB L02 ABOVE
RING BEAM
RETAINING HERITAGE FACADE
AWNING
AWNING
MACQUARIE STREET

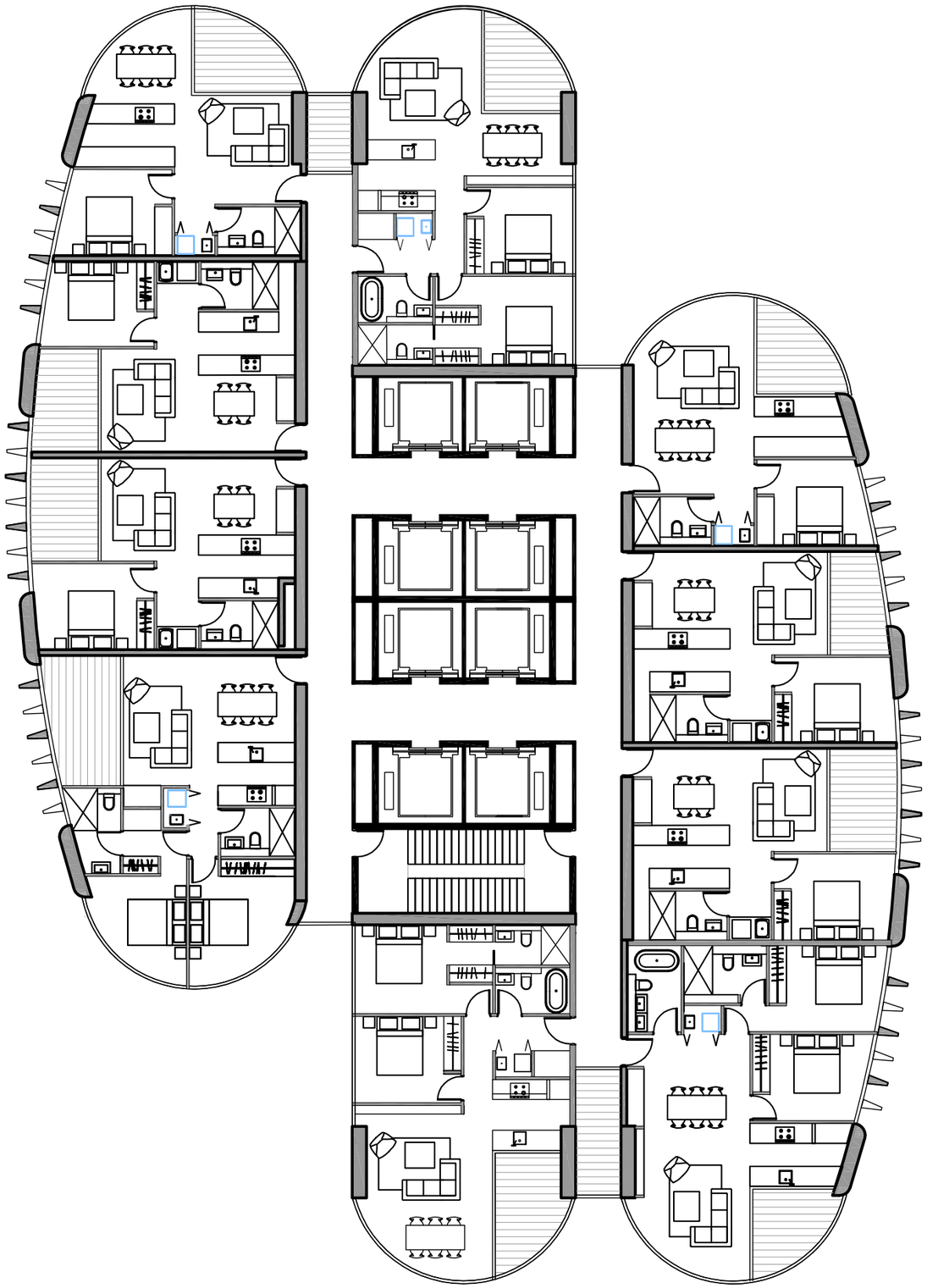
SECOND FLOOR

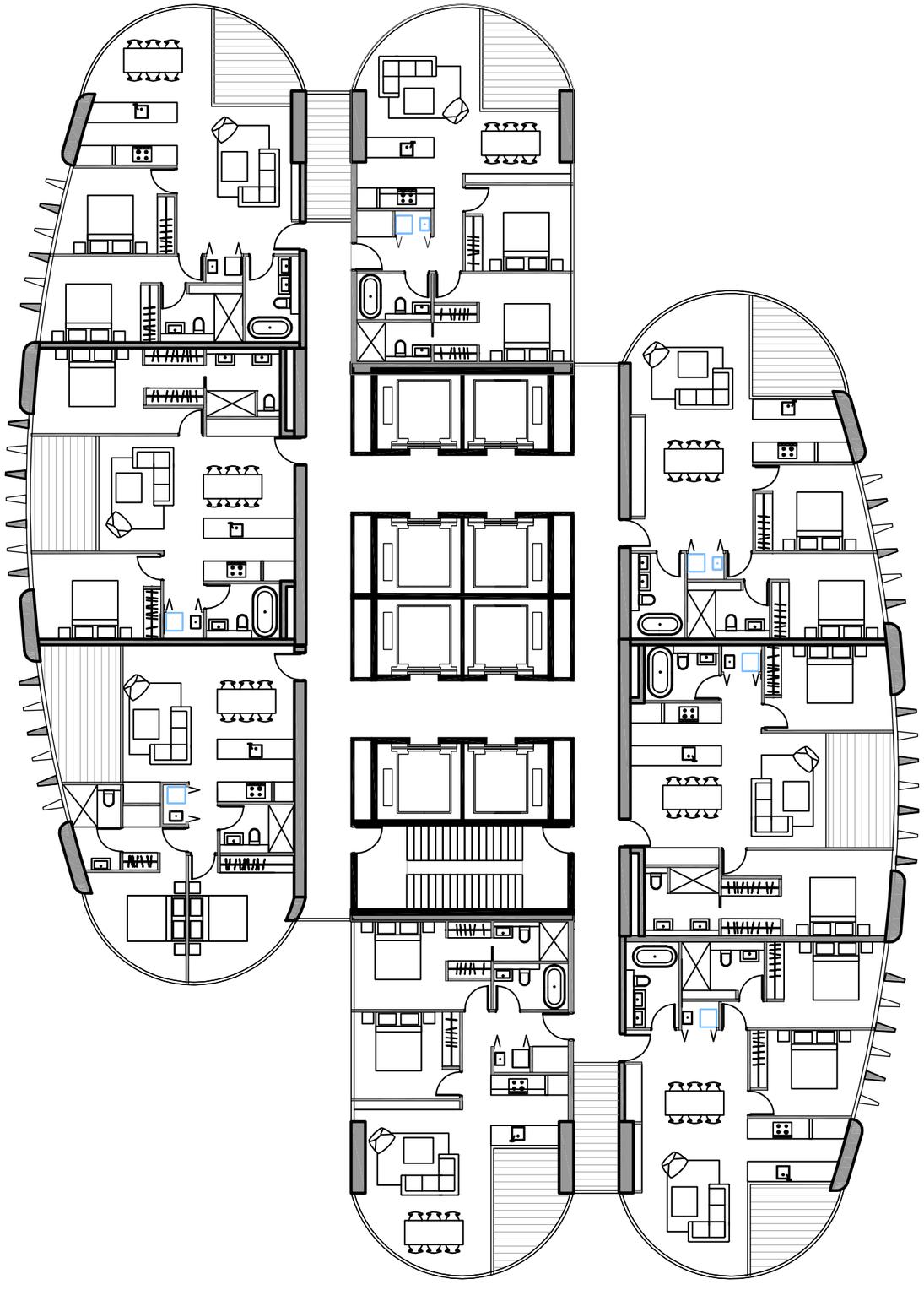
PODIUM ROOF RETAIL

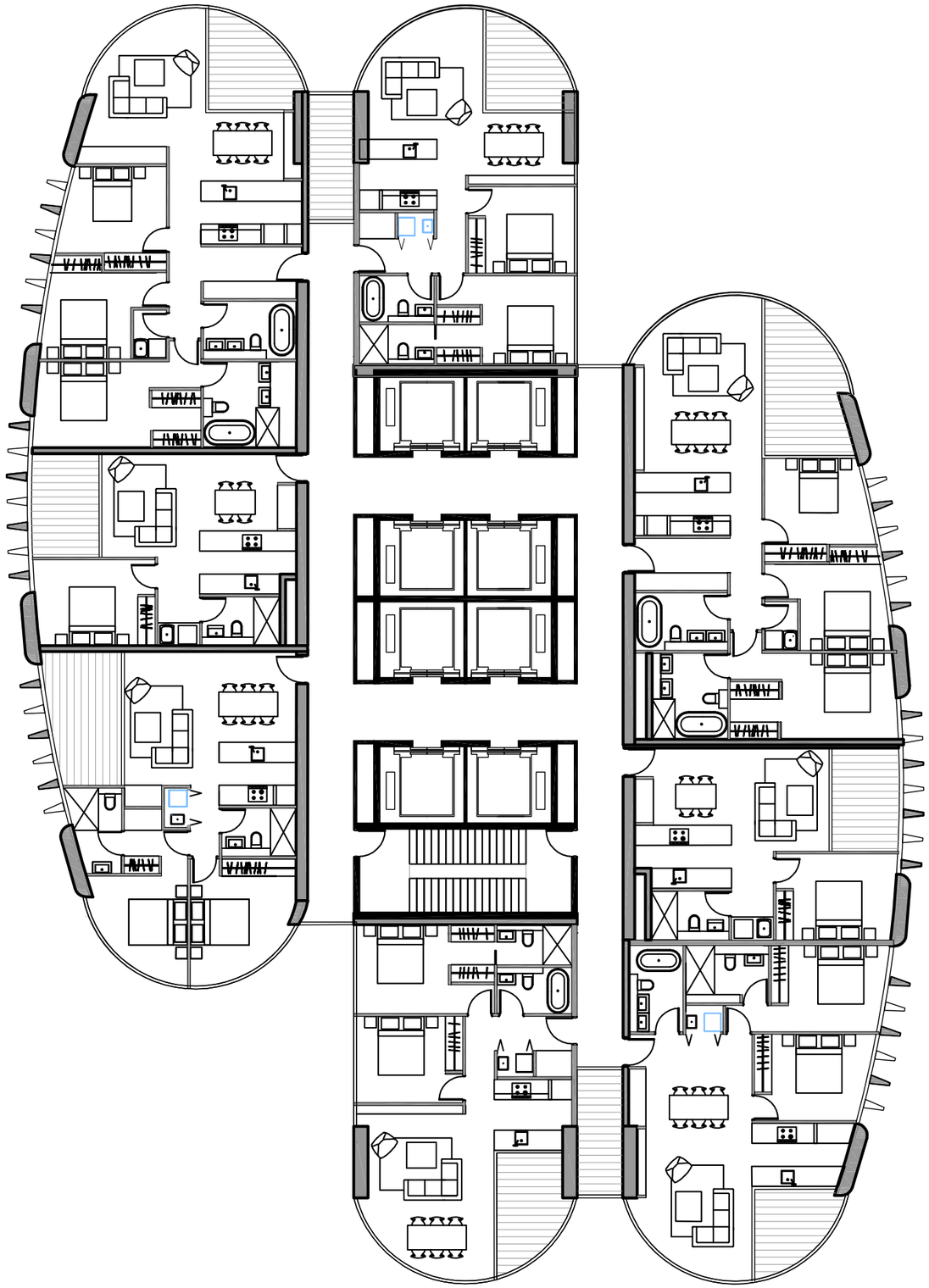

DP 1052788
DP 730456
ROOF
LEVEL 02
COMMUNAL AREA
SERVICES APARTMENTS
ROOF
ROOF
ROOF
SERVICES APARTMENTS
ROOF
TERRACE
CHILDCARE
WARDROBE
lift 1
lift 2
lift 3
lift 4
lift 5
lift 6
lift 7
SERV. LIFT
CAFE
RESTAURANT
SLAB L01
ROOF
AWNING
CHURCH STREET
DP 501663
DP 503651
MARSDEN STREET
ROOF
ETFE ROOF
TERRACE
RESTAURANT
ETFE ROOF
TERRACE
RING BEAM
AWNING
RING BEAM
RETAINING HERITAGE FACADE
AWNING
AWNING
MACQUARIE STREET

OPTION 1 – RESIDENTIAL FLOORPLAN

CURVED GLASS SOLUTION
APARTMENT FLOORPLAN WITH BALCONIES

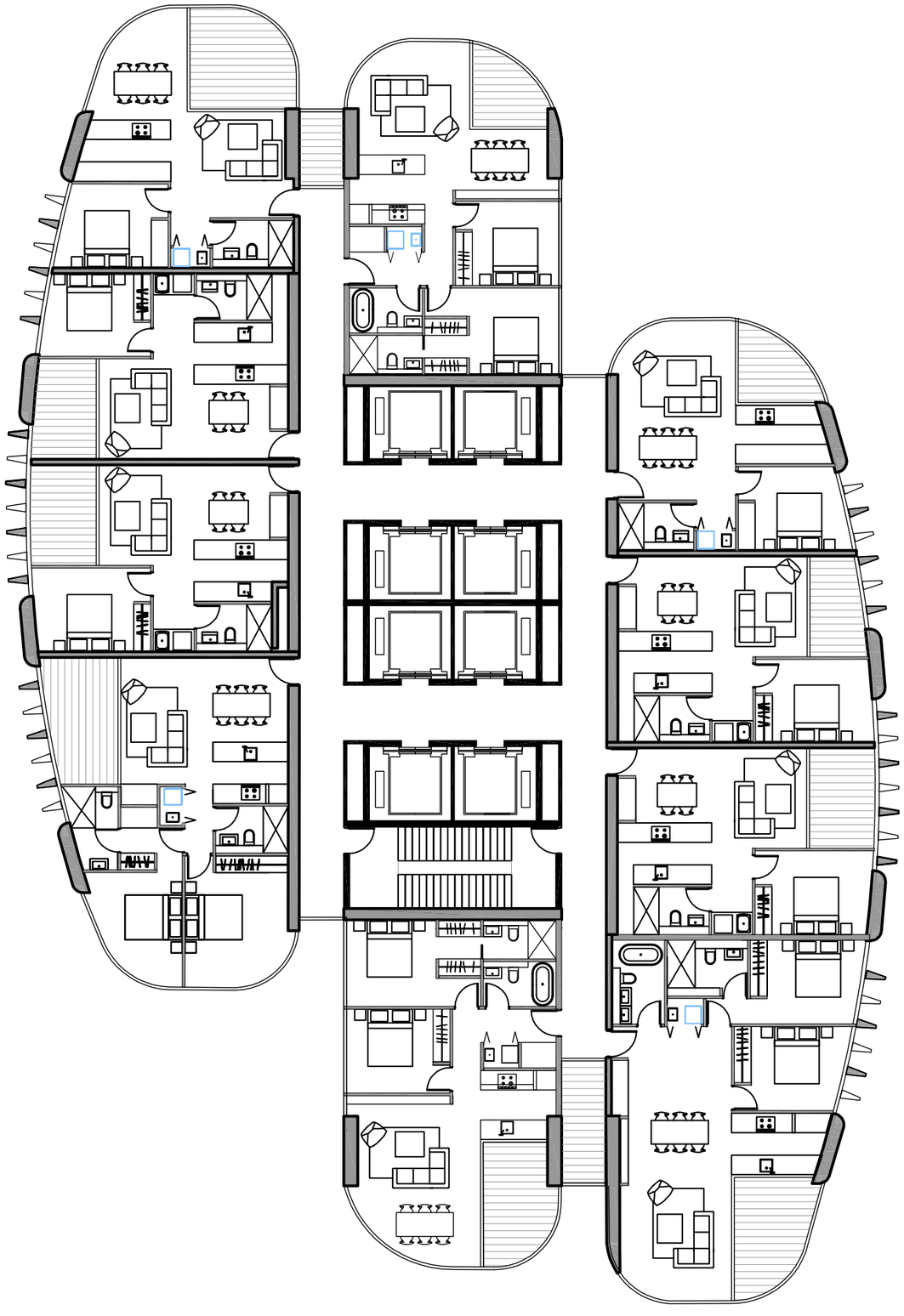






OPTION 2 – RESIDENTIAL FLOORPLAN

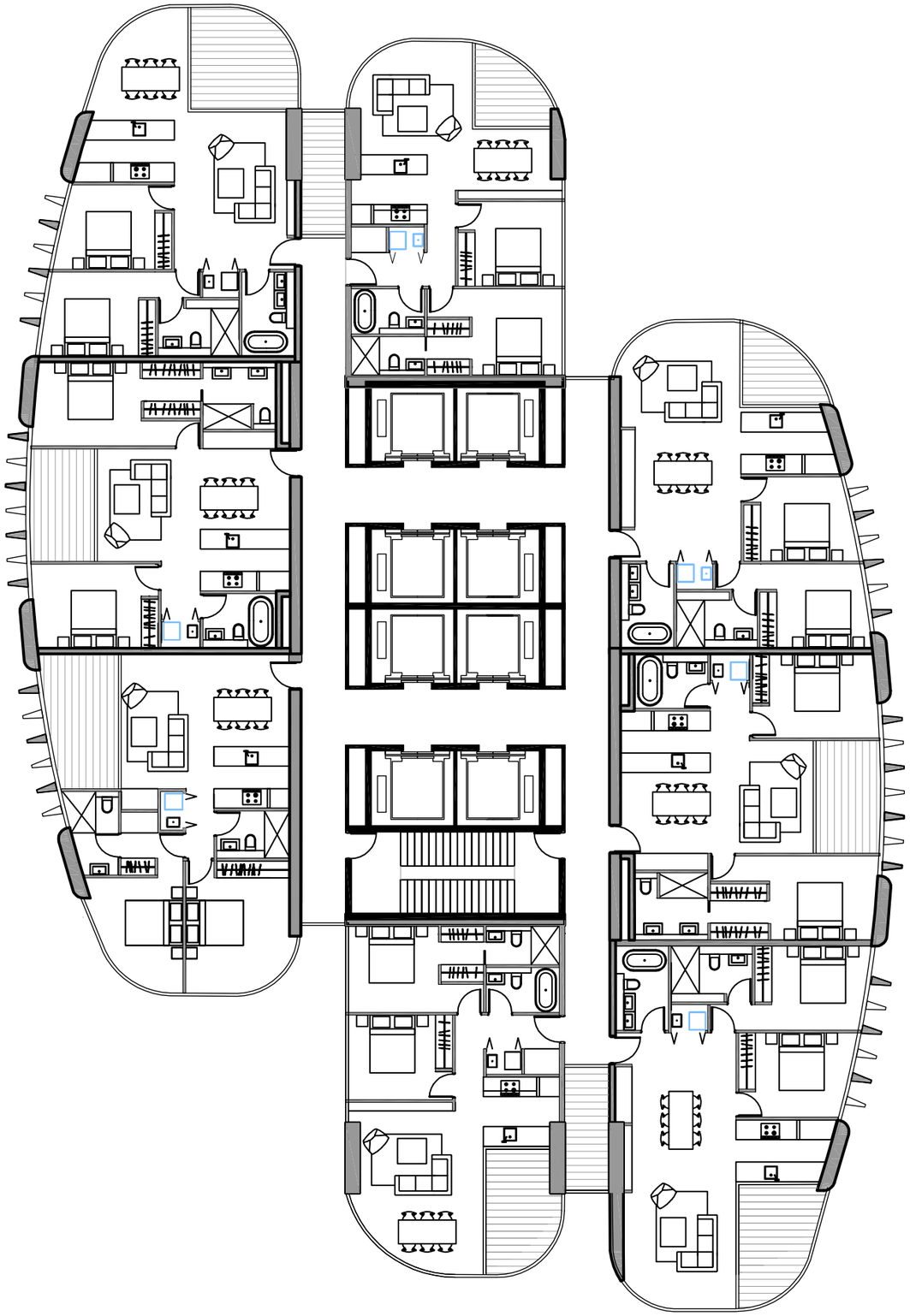
FLAKED GLASS SOLUTION
APARTMENT FLOORPLAN WITH BALCONIES

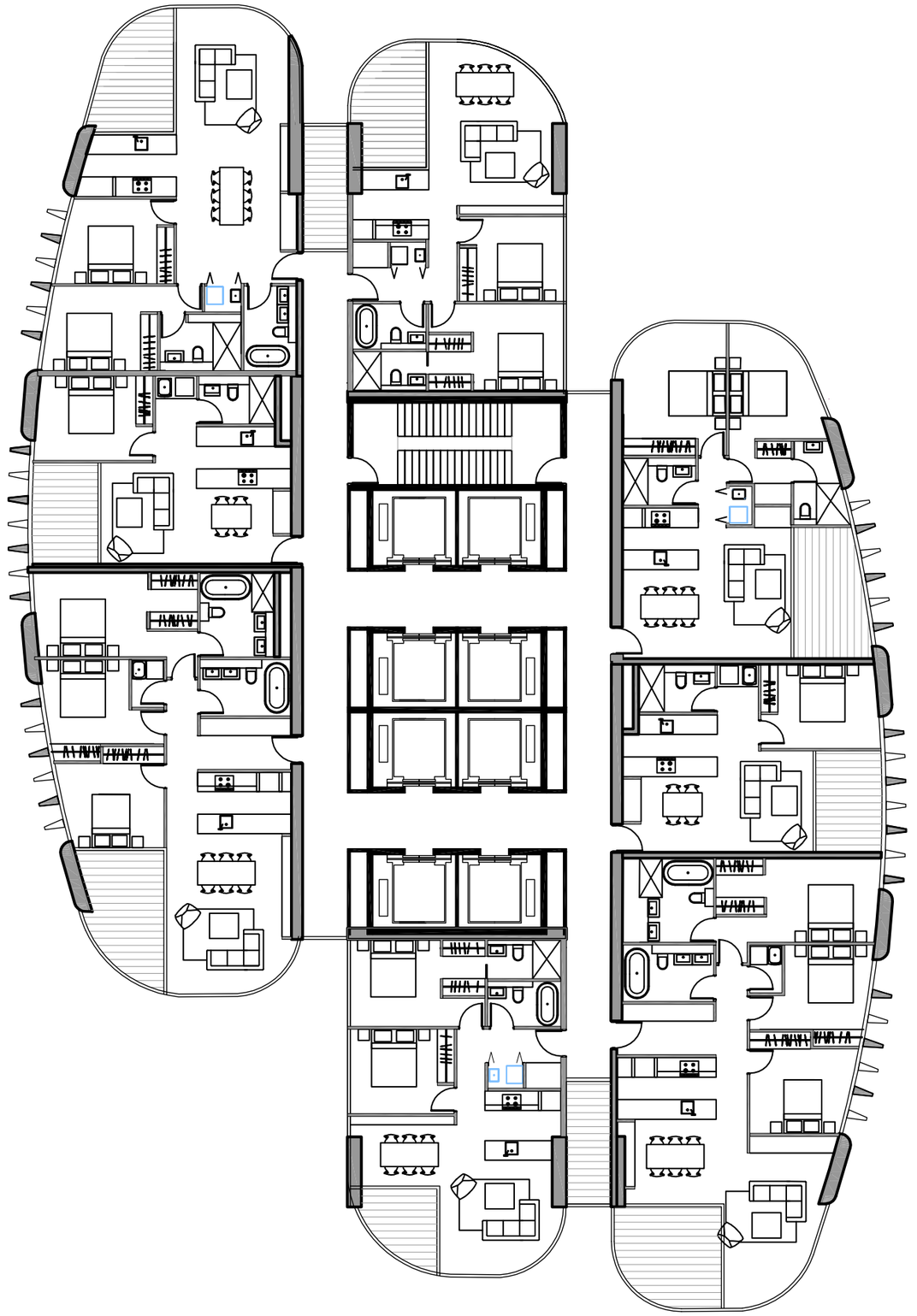


GROUPGSA RAFAEL DE LA-HOZ ARQUITECTOS

197 Church Street Parramatta

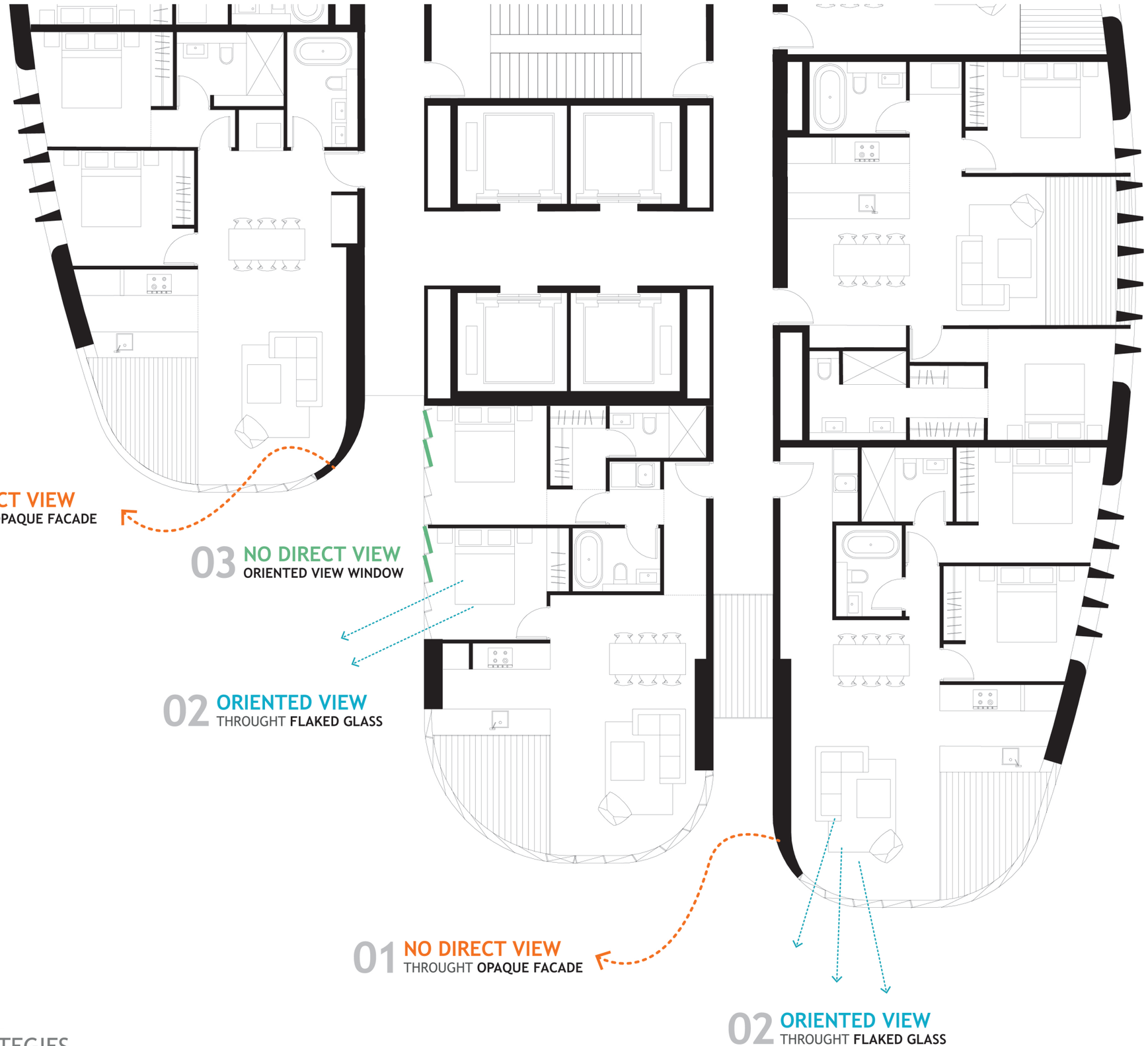
TYPICAL 1 BED OPTION 2 | DATE 6.06.16 | SCALE 1:200@A3 | NORTH





PRIVACY SOLUTIONS

FOR NORTH & SOUTH FACADES IN CHURCH ST TOWER

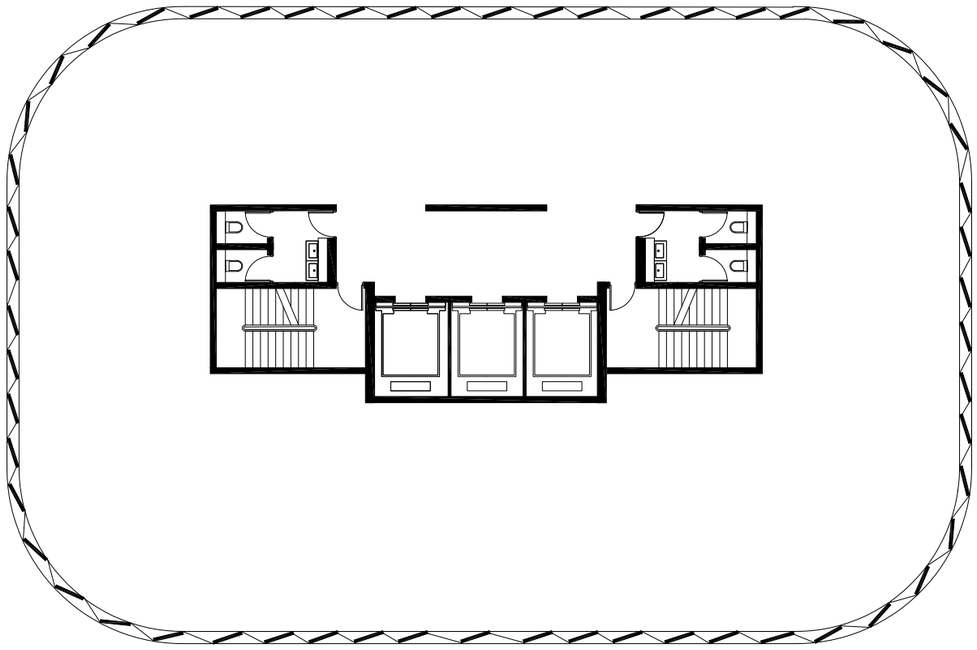


PRIVACY
FACADE STRATEGIES

COMMERCIAL TOWER TO MARSDEN STREET

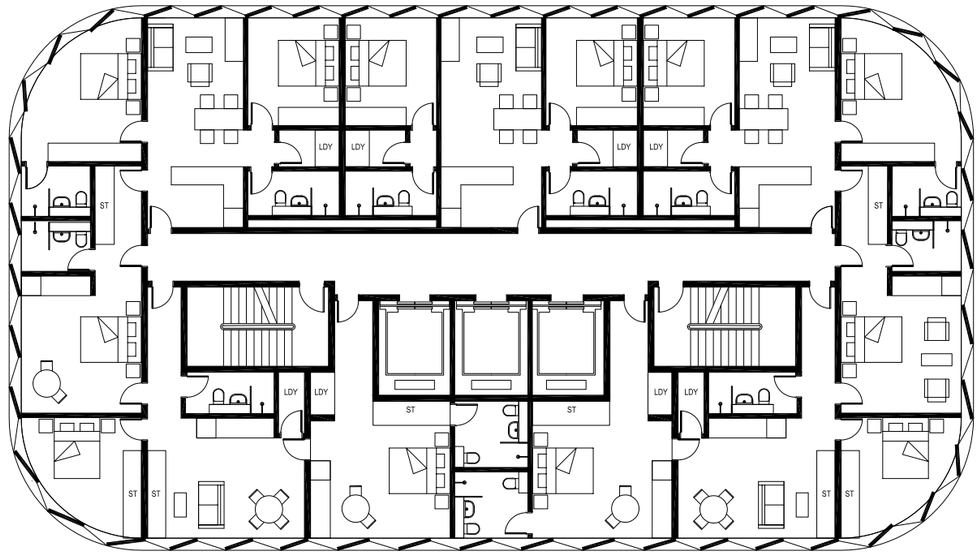
ALTERNATIVE USES

OPTION A - OFFICE LAYOUT (20 STOREYS IN TOTAL)



COMMERCIAL TOWER TO MARSDEN STREET

OPTION B – SERVICED APARTMENTS LAYOUT
162 KEYS (24 STOREYS IN TOTAL)

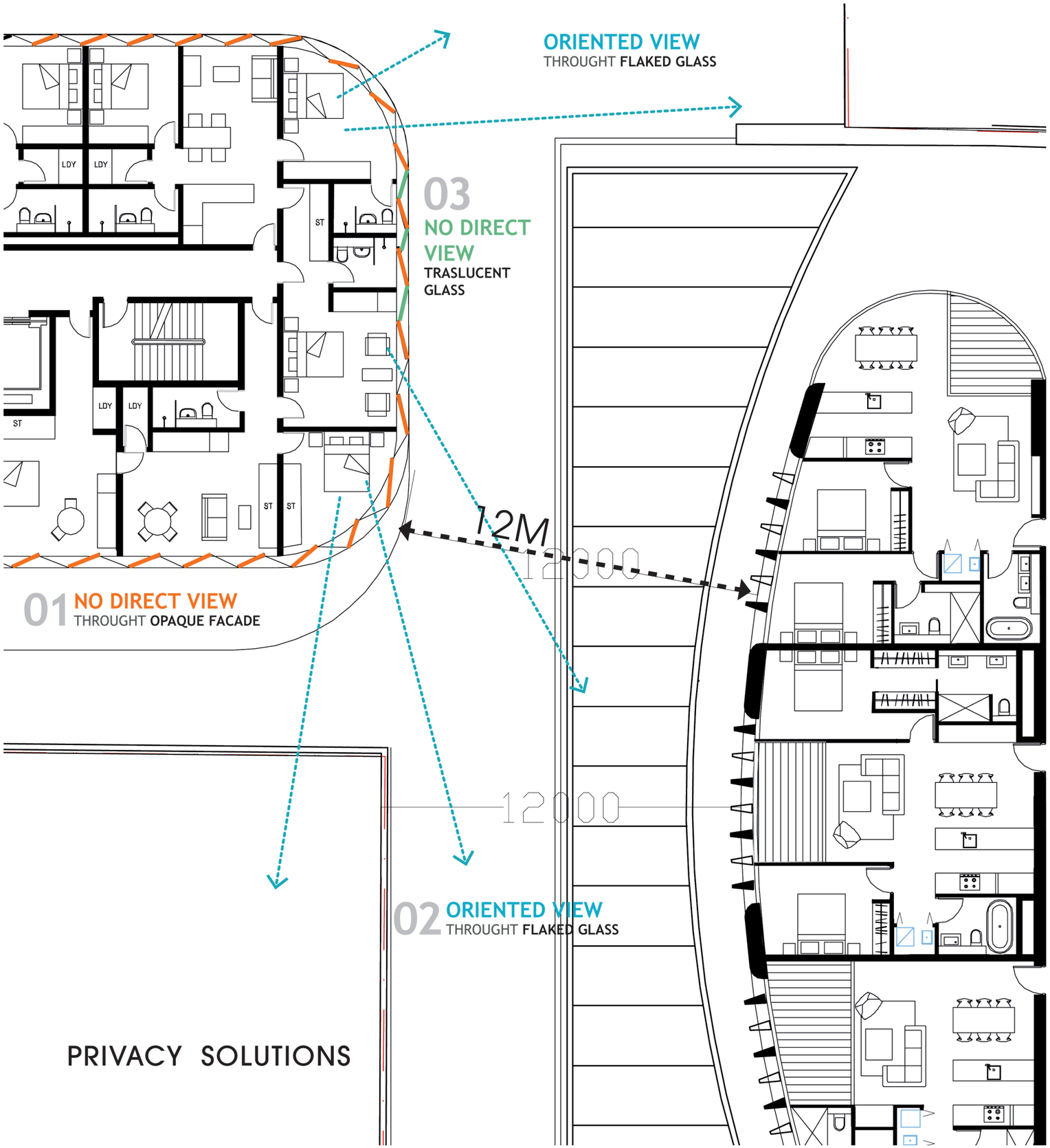


GROUPGSA RAFAEL DE LA-HOZ ARQUITECTOS

TYPICAL FLOORPLAN – SERVICED APARTMENTS | DATE 6.06.16 | SCALE 1:200@A3 | NORTH

COMMERCIAL TOWER TO MARSDEN STREET

OVERLOOKING AND PRIVACY SOLUTIONS FOR BOTH TOWERS



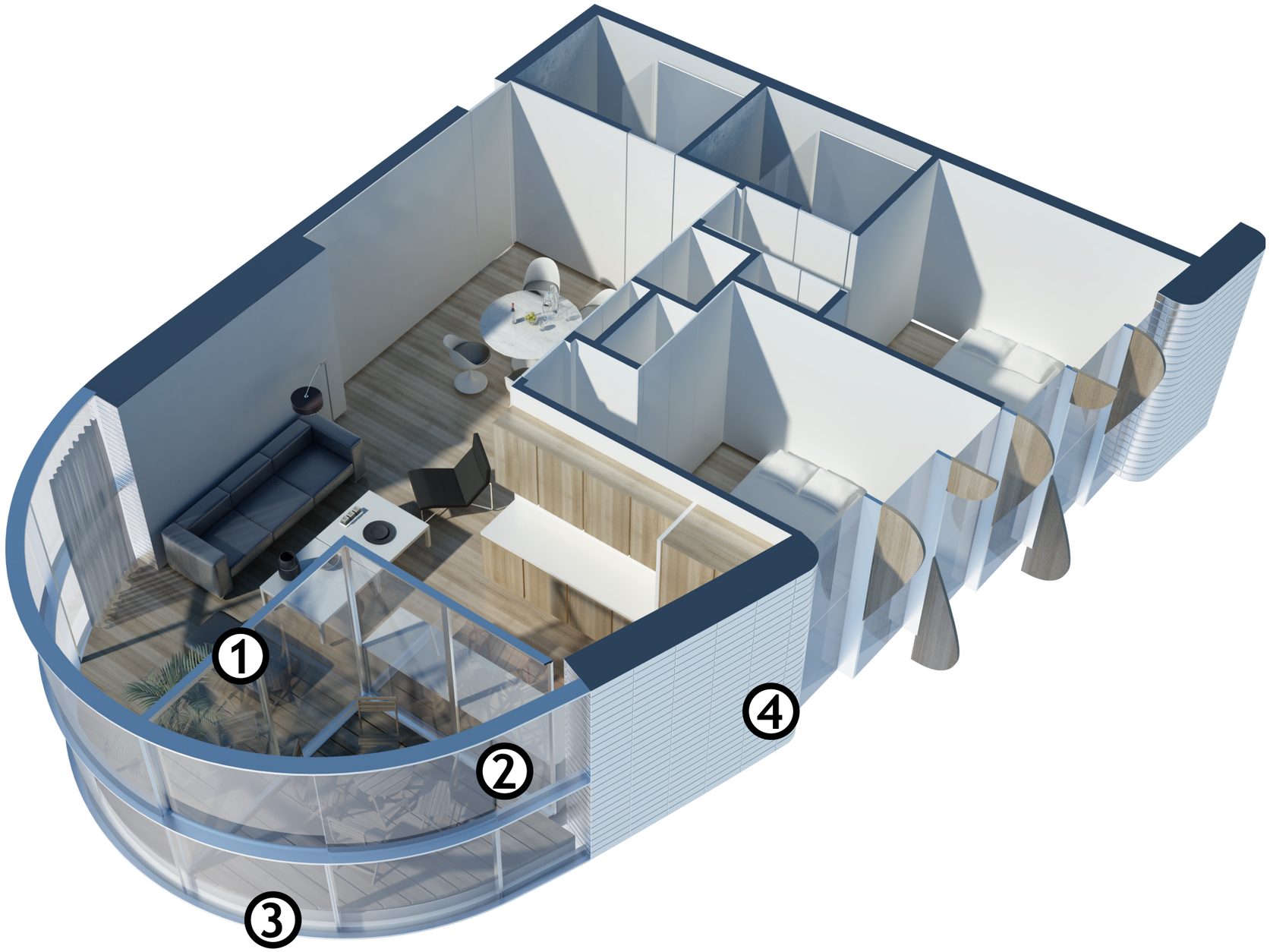
NORTH & SOUTH FACADES BALCONY TREATMENT

CURVED GLASS IRCULAR FLOORPLAN

FLAKED GLASS CIRCULAR FLOORPLAN

FLAKED GLASS RECTANGULAR FLOORPLAN

CURVED GLASS CIRCULAR FLOORPLAN



WINDOW
OPEN SYSTEM

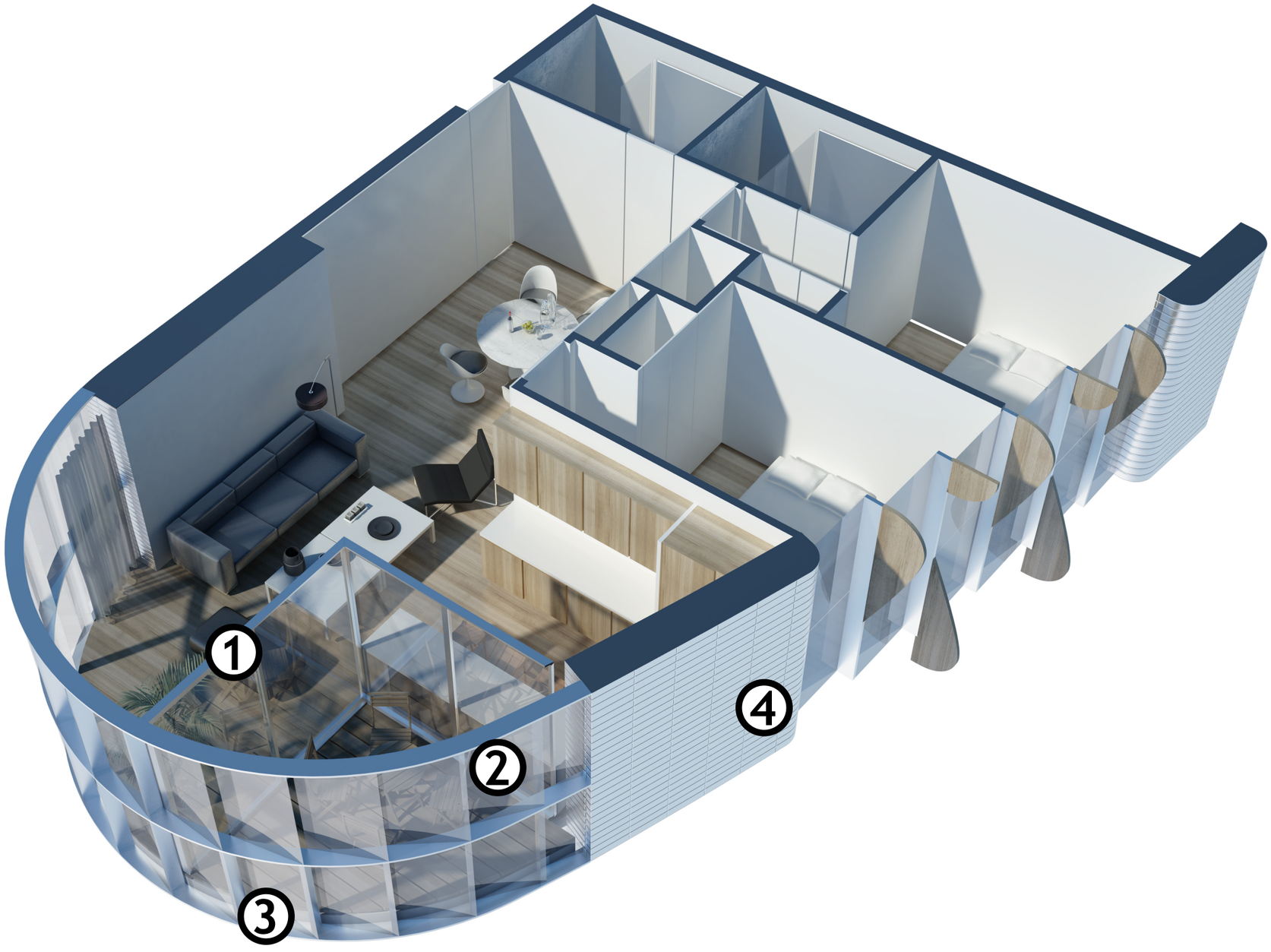
① **SLIDING DOOR**
SINGLE GLASS

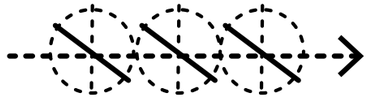
② **WIND SHIELD WINDOW**
FOLDABLE CURVED CLASS

③ **FIXED WINDOW**
CURVED CLASS

④ **FACADE STRUCTURE**
ALUMINIUM CLADDING PANELS

FLAKED GLASS CIRCULAR FLOORPLAN





WINDOW
OPEN SYSTEM

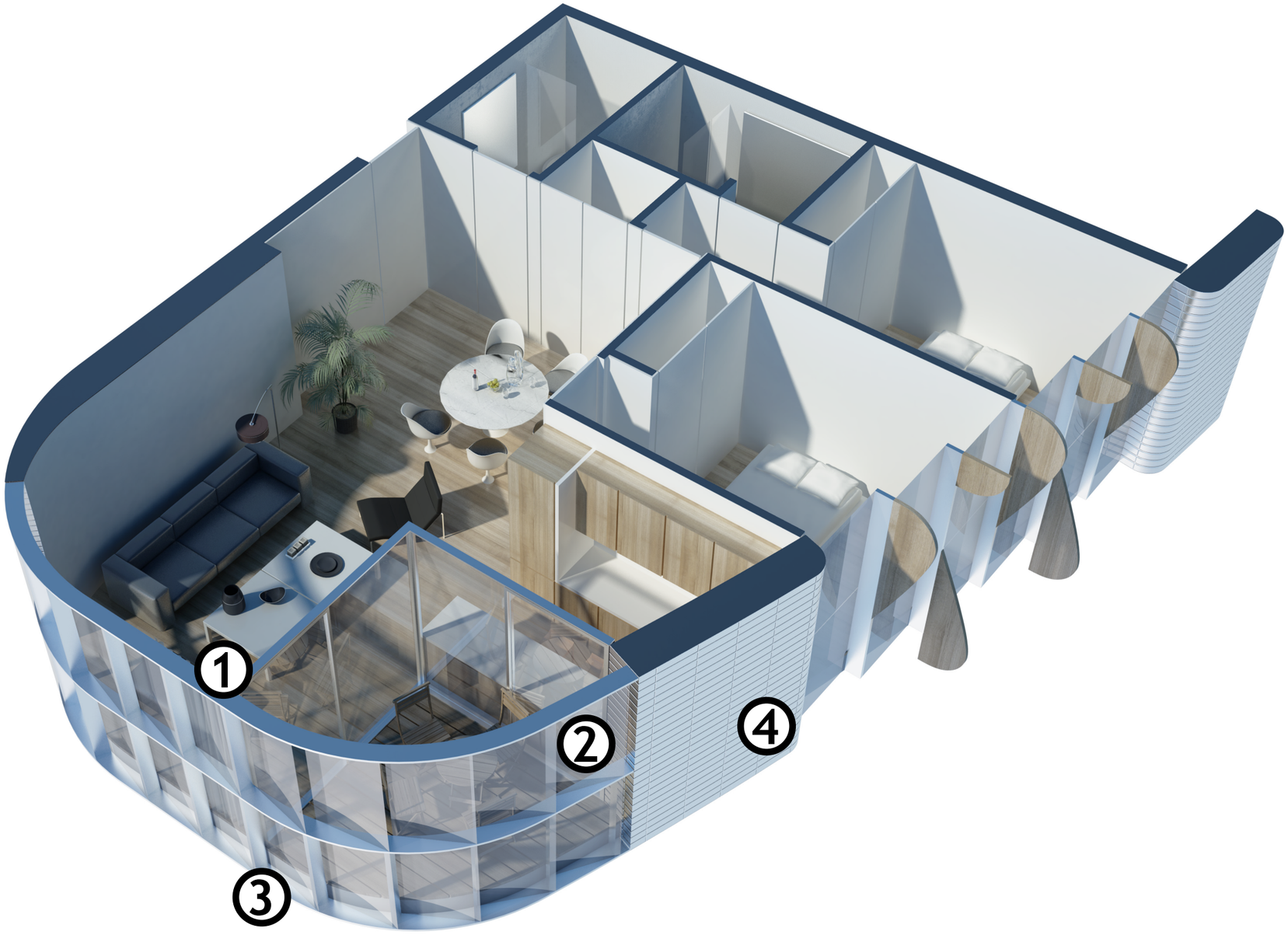
① **SLIDING DOOR**
SINGLE GLASS

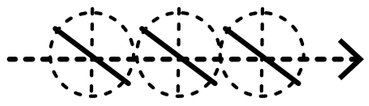
② **WIND SHIELD WINDOW**
FOLDABLE STRAIGHT GLASS

③ **FIXED WINDOW**
STRAIGHT CLASS

④ **FACADE STRUCTURE**
ALUMINIUM CLADDING PANELS

FLAKED GLASS RECTANGULAR FLOORPLAN





WINDOW
OPEN SYSTEM

① **SLIDING DOOR**
SINGLE GLASS

② **WIND SHIELD WINDOW**
FOLDABLE STRAIGHT GLASS

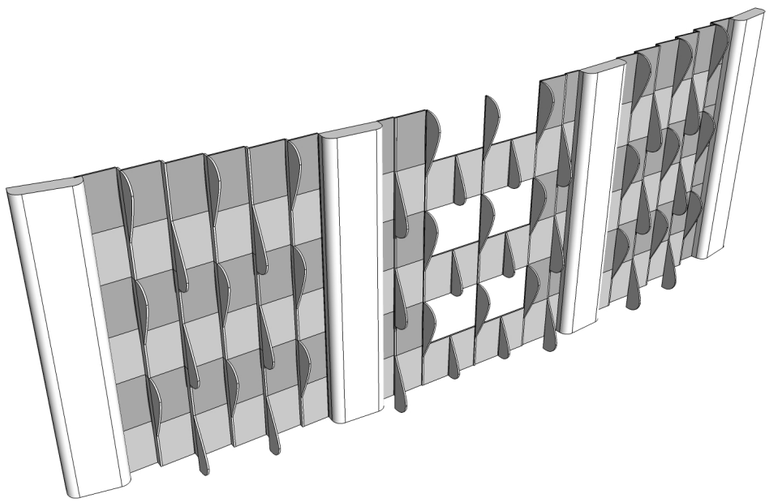
③ **FIXED WINDOW**
STRAIGHT CLASS

④ **FACADE STRUCTURE**
ALUMINIUM CLADDING PANELS

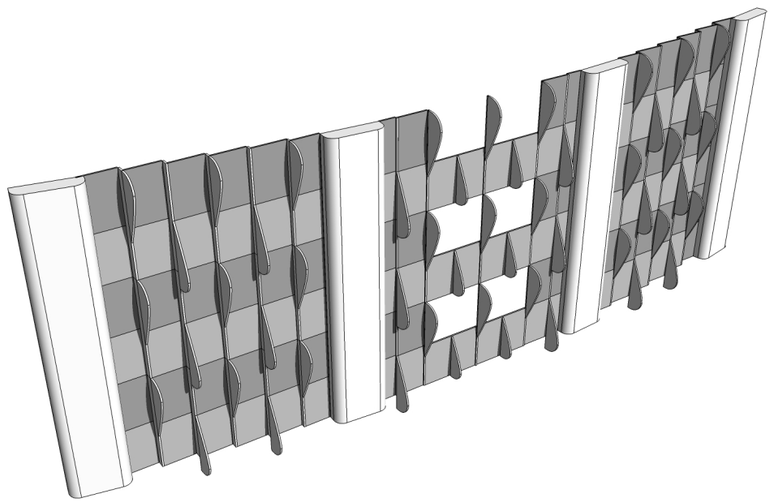
FINS SOLAR PERFORMANCE ANALYSIS FOR EAST & WEST FACADES

EAST WING
SOLAR IMPACT ANALYSIS

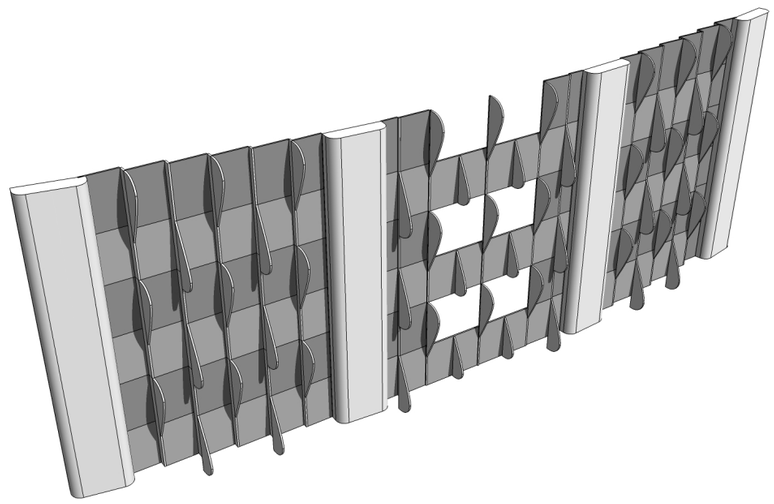
DECEMBER 21st



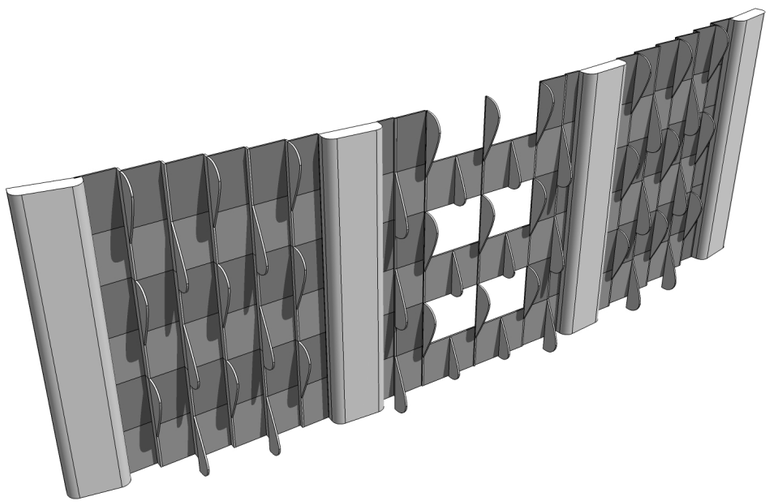
07:00am



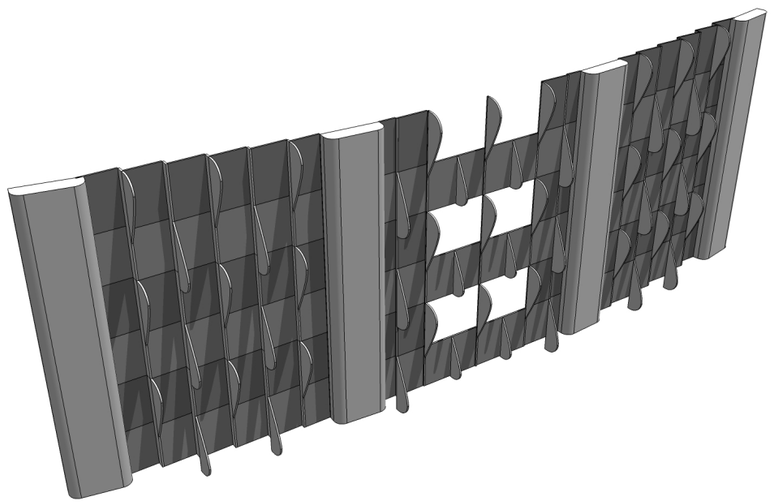
08:00am



09:00am

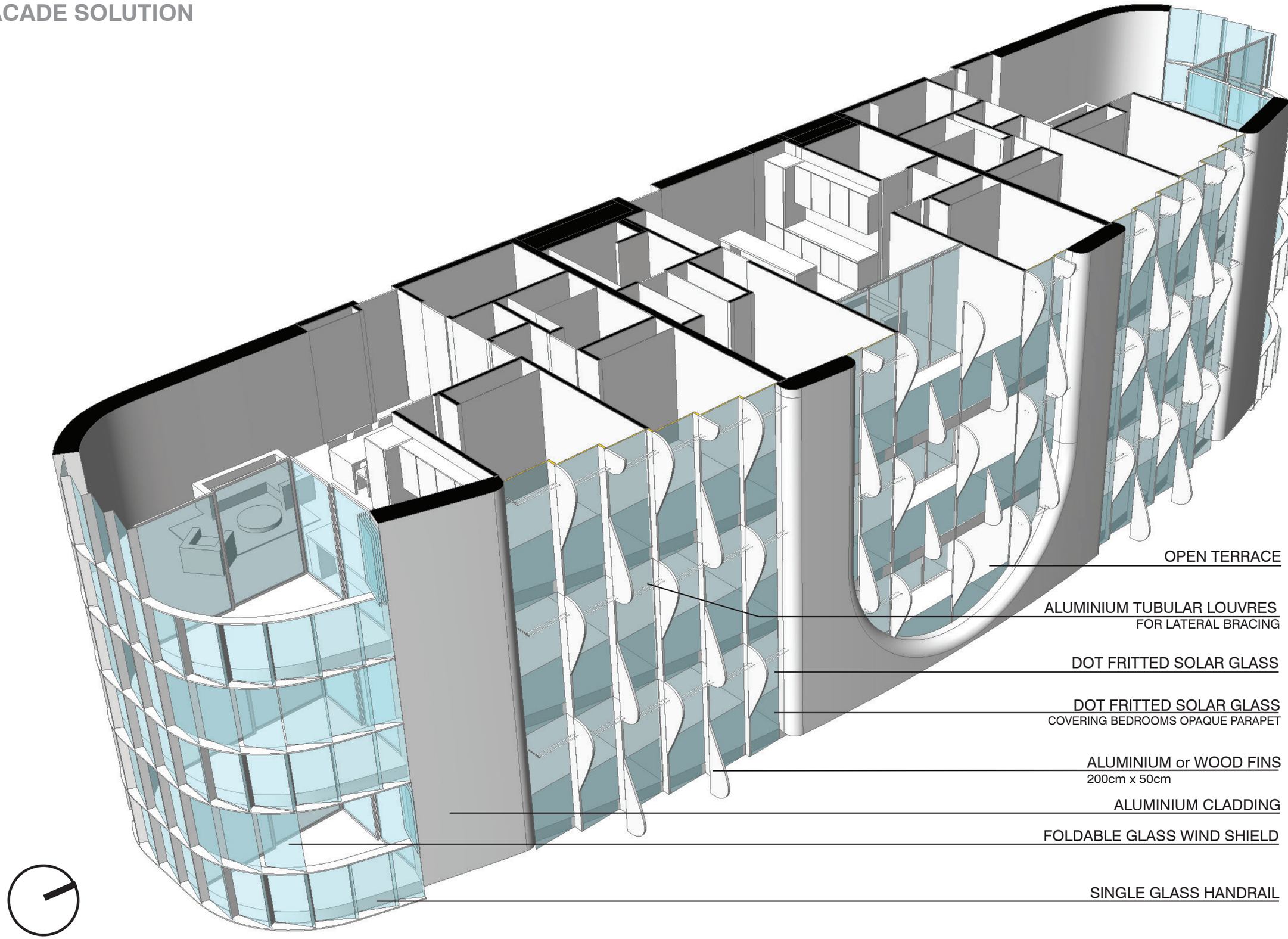


10:00am



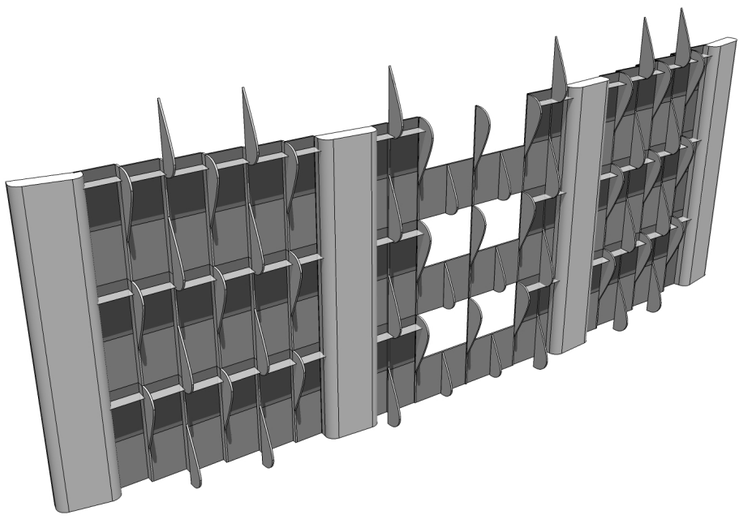
11:00am

EAST WING
FACADE SOLUTION

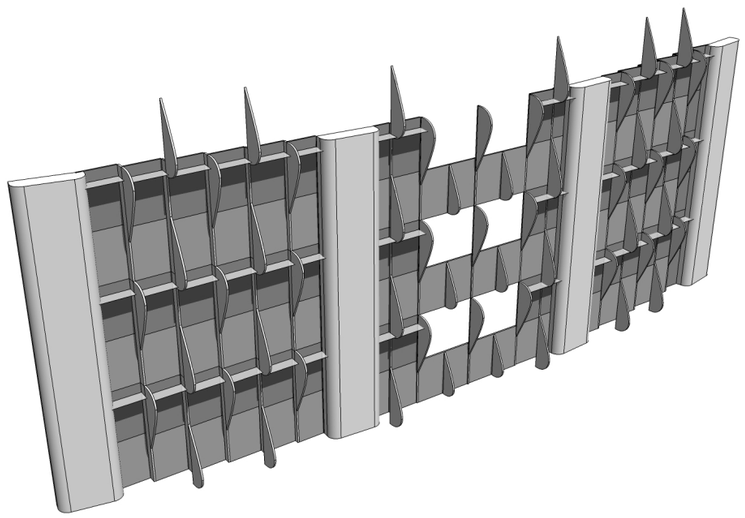


WEST WING
SOLAR IMPACT ANALYSIS

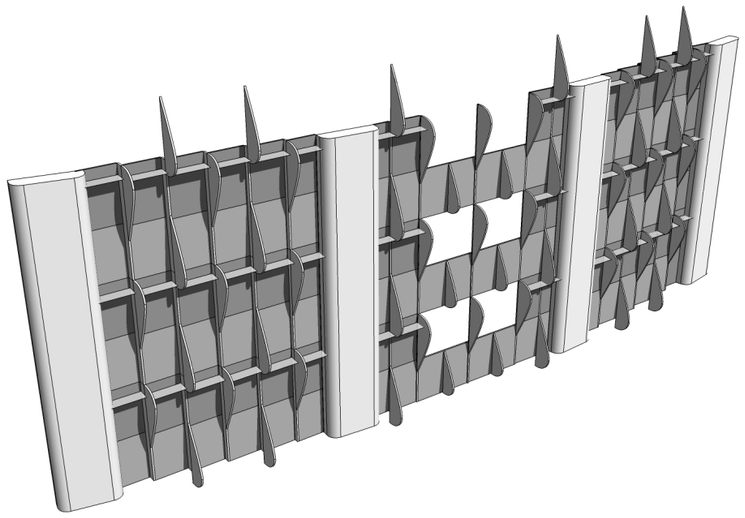
DECEMBER 21st



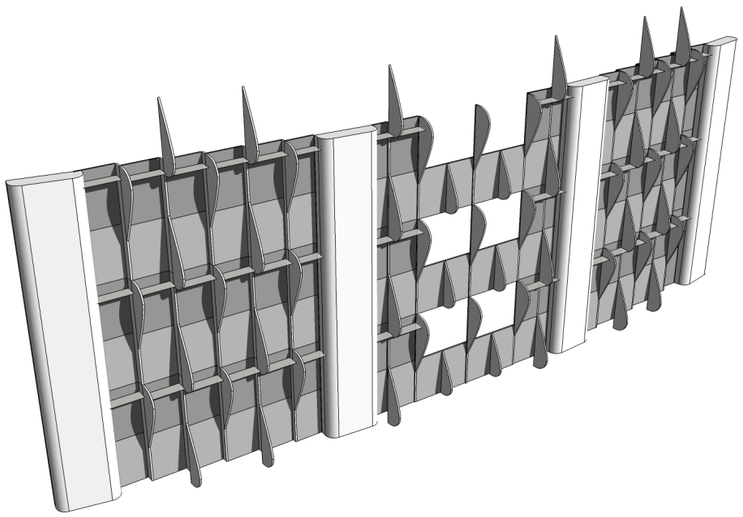
13:00am



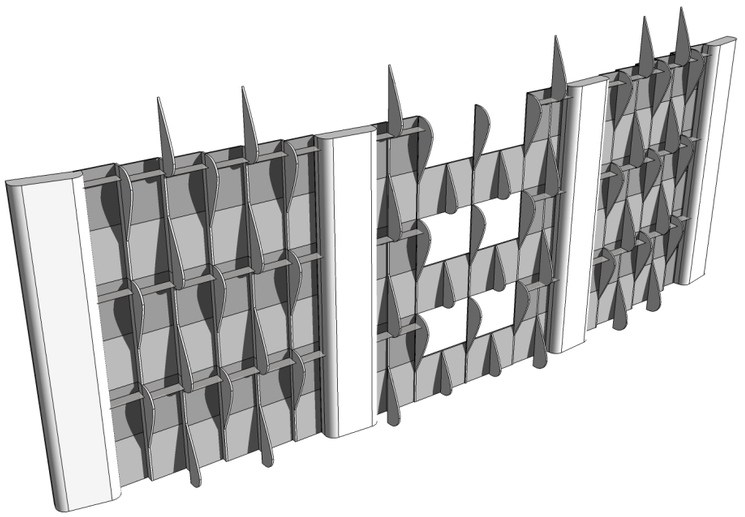
14:00am



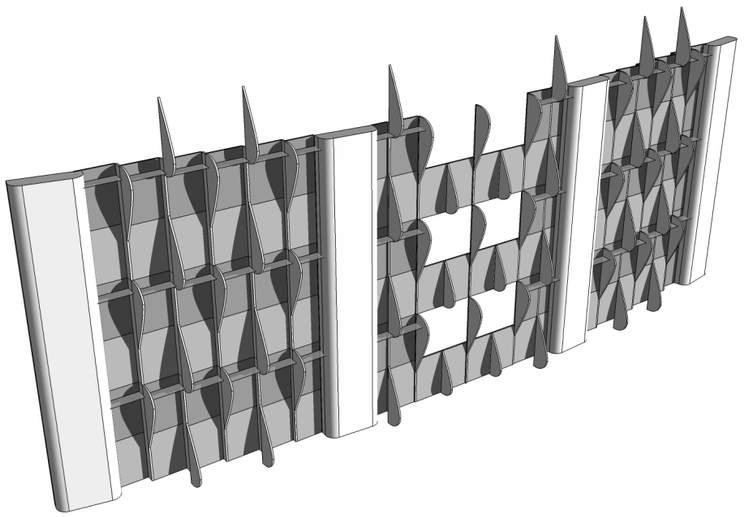
15:00am



16:00am

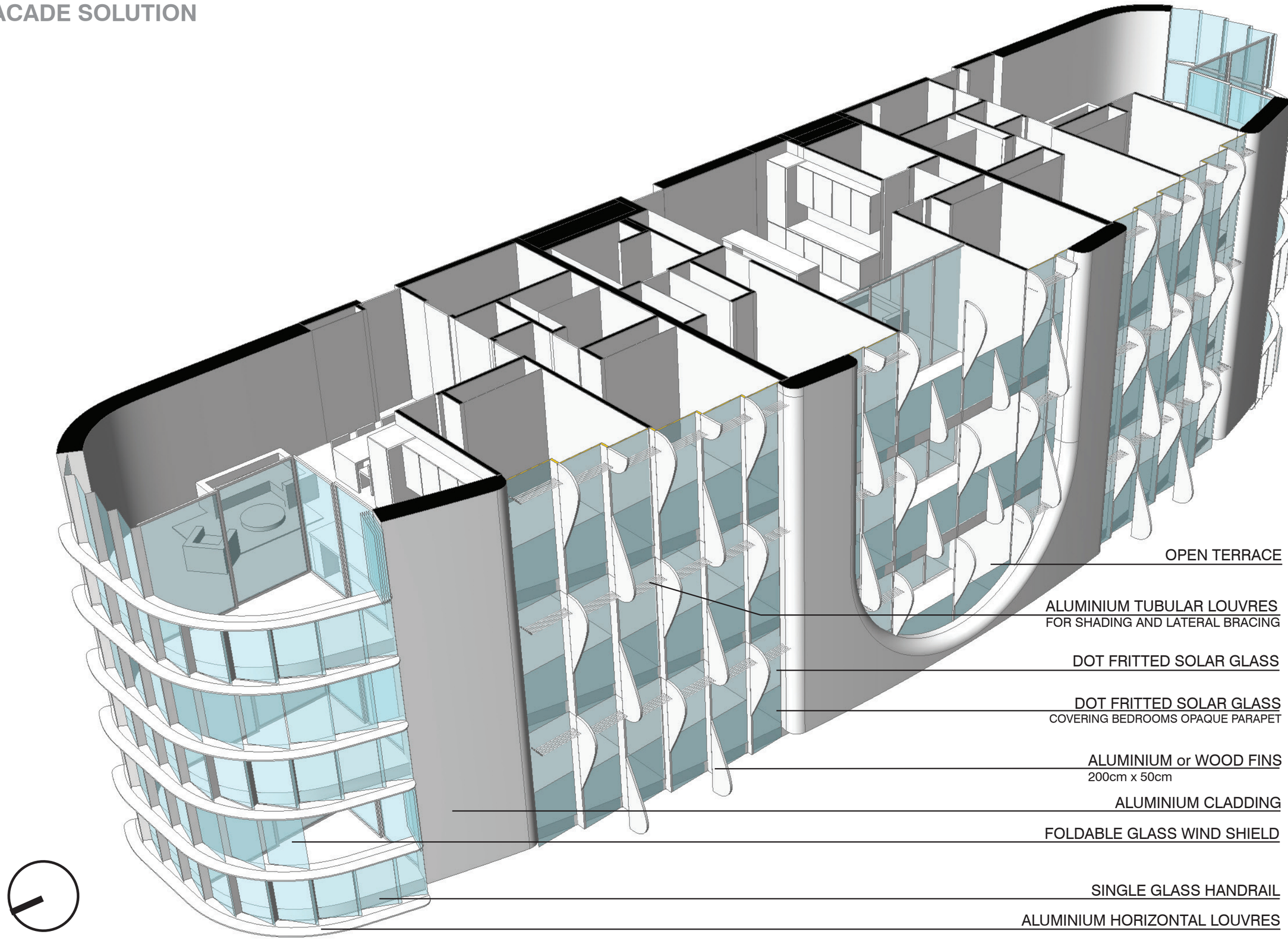


17:00am

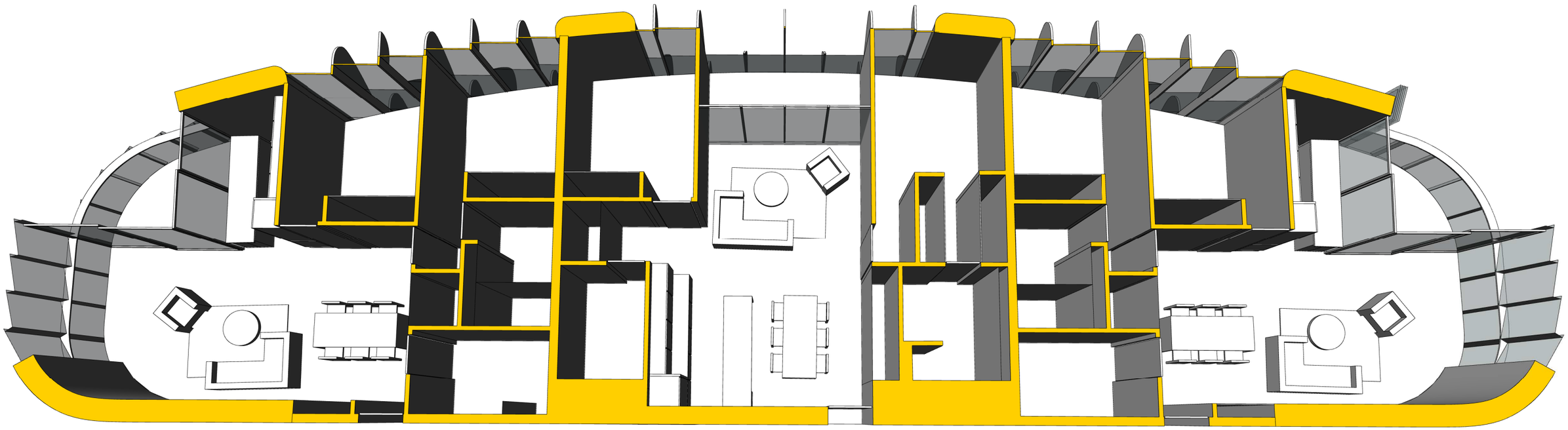


18:00am

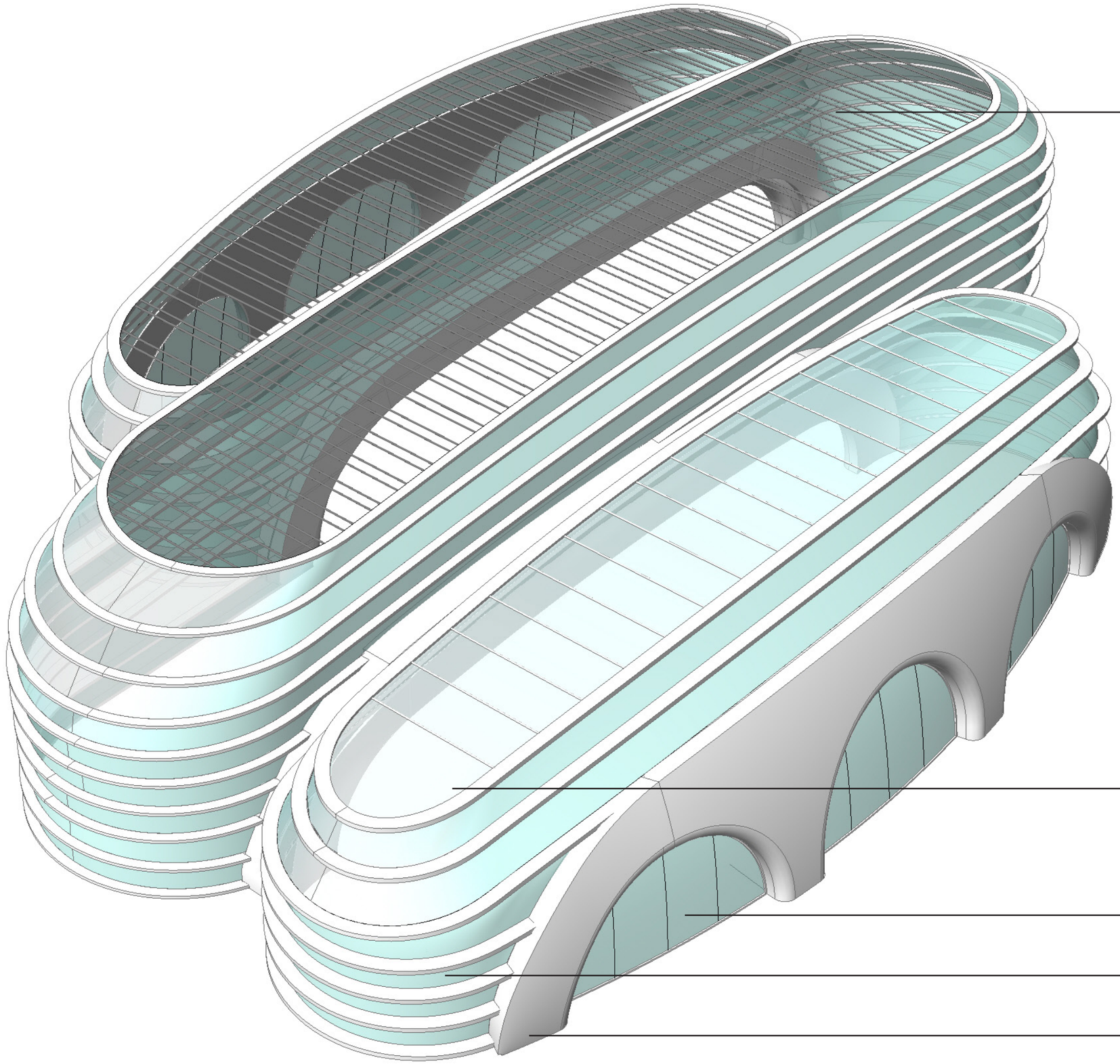
WEST WING
FACADE SOLUTION



EAST&WEST WING
STAGGERED FACADE SOLUTION IN PLAN



ROOF TREATMENT AND MATERIALITY



HORIZONTAL LOUVRES
COVERING MEP AREAS

STRAIGHT GLASS SKYLIGHT
IN COMMUNAL AREAS
NATURAL VENTILATION OPENINGS

TRANSPARENT GLASS
IN COMMUNAL AREAS
VERTICAL ALUMINIUMS LOUVRES IN MEP AREAS

CURVED GLASS CORNERS

ALUMINIUM CLADDING

SCHEDULE OF AREAS

SUMMARY COMPARISION

SUMMARY COMPARISON OF THE THREE PROPOSALS FOR CHURCH STREET_GROUPGSA_RAFAEL DE LA HOZ											
Use	Total Gross Building Area	GFA	NSA/GLA	Efficiency	FSR	Number of residential units				Number of other units	Parking spaces
						One bedroom	Two bedroom	Three bedroom	Penthouses		
ORIGINAL PROPOSAL TOTALS	111,728	74,258	65,846		17.24	582					381 provided
BASEMENT (4 storeys)	20,760										
RETAIL (ground floor)	508*	775	775	1.00	0.18						26 required
OFFICES (In Marsden street)	9,406	8,179	7,544	0.92	1.90						82 required
HOTEL (Lev 0 to 8 main tower)	7,652	6,636	5,724	0.86	1.54					90 keys	15 required
RESIDENTIAL (Lev 9 to 81 main tower)	73,910	58,668	51,803	0.88	13.62	118	400	64	0		258 provided
NEW PROPOSAL OFFICES IN MARSDEN ST TOTALS	134,486	74,274	64,483		17.24	646					891 provided
BASEMENT (9 storeys)	37,368										
RETAIL/COMMERCIAL (ground, first and second floors)	4,308	3,575	3,028	0.85	0.83						60 required
OFFICES (In Marsden street in 21 storeys -GF to level 20- Lev 1 is of retail/commercial use)	12,159	10,399	9,940	0.96	2.41						104 required
RESIDENTIAL (Lev 3 to 82 main tower)	80,651	60,300	51,515	0.85	14.00	136	440	66	4		716 required
NEW PROPOSAL SERVICED APARTMENTS IN MARSDEN ST	130,620	74,300	64,461		17.25	646					794 provided
BASEMENT (8 storeys)	33,216										
RETAIL/COMMERCIAL (ground, first and second floors)	4,308	3,575	3,028	0.85	0.83						60 required
SERVICED APARTMENTS (In Marsden street in 24 storeys - GF level to 23-Lev 1 is commercial)	12,445	10,425	9,918	0.95	2.42					162keys	42 required
RESIDENTIAL (Lev 3 to 82 main tower)	80,651	60,300	51,515	0.85	14.00	136	440	66	4		716 required

*Note: Some retail GBA included as part of Residential and hotel GBA

RESIDENTIAL APARTMENT TYPES AND AREAS

ORIGINAL PROPOSAL_RESIDENTIAL TYPES AND SALEABLE AREAS																									
	ONE BEDROOM APARTMENT (118 units)									TWO BEDROOM APARTMENT (400 units)													THREE BEDROOM APARTMENT (64 units)		
	No 1A	Unit 1A Saleable A		No 1B	Unit 1B Saleable A		No 1C	Unit 1B Saleable Area		No 2A	Unit 2A Saleable A		No 2B	Unit 2B Saleable A		No 2C	Unit 2C Saleable Area		No 2D	Unit 2D Saleable Area		No 3A	Unit 3A Saleable Area	
FLOOR TYPE								Apt. area	Winter gar								Apt. area	Winter gar		Apt. area	Winter gar			
TYPE 1	2	53.3		2	55.8		2	55	7.9	2	86		2	89										
TYPE 2										3	85		2	89		2	80	7.9	1	80.5	5.5			
TYPE 3				2	55.8					1	86		2	89					1	80.5	5.5	2	111.5	

NEW PROPOSAL_RESIDENTIAL TYPES AND SALEABLE AREAS																								
	ONE BEDROOM APARTMENT (130 units)									TWO BEDROOM APARTMENT (436 units)													THREE BEDROOM APARTMENT (64 units)		
	No 1A	Unit 1A Saleable area		No 1B	Unit 1B Saleable area		No 1C	Unit 1C Saleable area		No 2A	Unit 2A Saleable Area		No 2B	Unit 2B Saleable Area		No 2C	Unit 2C Saleable Area		No 2D	Unit 2D Saleable Area		No 3A	Unit 3A Saleable Area	
FLOOR TYPE		Apartm area	Balcony area		Apartm area	Balcony area		Apartm area	Balcony area		Apartm area	Balcony area		Apartm area	Balcony area		Apartm area	Balcony area		Apartm area	Balcony area		Apartm area	Balcony area
TYPE 1	2	51.8	8.1	2	50	8.5	2	50	8.1	1	80.8	9	2	78	9				1	74.6	11.8			
TYPE 2										3	80.8	9	2	78	9	2	80.7	9.7	1	74.6	11.8			
TYPE 3				2	51	8.5				1	80.8	9	2	78	9				1	74.6	11.8	2	109	12

SOLAR HEAT GAIN AND FIN CONSTRUCTION

MOTT MACDONALD

RAFAEL DE LA-HOZ
ARQUITECTOS

GROUP GSA

MOTT MACDONALD

Group GSA
Level 7
80 William Street
East Sydney 2011

383 Kent Street
Sydney NSW 2000

T +61 (0)2 9098 6800

mottmac.com

For the attention of: Raquel Casas Huelin

197 Church Street, Parramatta

3 June 2016

Dear Raquel

Approach to solar heat gain reduction and thermal occupant comfort.

For the highly glazed facades of this building, a combination of measures has been employed to reduce internal cooling loads and increase the thermal comfort of the building occupants.

- External solar shading fins to act as the primary shading device
- High performance solar control low-e coatings to the glass
- Ceramic fritting to the glass to act as secondary shading

External solar shading fins:

External shading devices are the most effective way of controlling solar gain in buildings with highly glazed facades. Their size dictates their level of effectiveness, however, this has to be balanced with levels of practicality in terms of their design, installation and maintenance.

To achieve this balance, a vertical fin depth of 500mm has selected; deeper fins are possible but have further implications to other aspects of the design.

Horizontal louvres are also incorporated to reduce solar gain when the sun position is high.

The eventual design and configuration of the shading fins could be driven by parametric software, allowing for the fin shape and size be optimised (within specified visual parameters) to suit the sun position.

High performance solar control coatings:

To reduce solar heat gain, a glass with a low Solar Heat Gain Coefficient (SHGC) is required. This reduces the transmitted short-wave infrared radiation which causes the heat gain. All glass falls into a range between 0 and 1 for SHGC. An untreated 4mm thick piece of plain glass has a SHGC of 0.87.

MOTT MACDONALD

The ideal when selecting solar control glasses is to reduce the transmitted short-wave infrared without significantly reducing the transmitted visible light (useful to daylighting and reducing lighting loads). How well a glass achieves this is a measure of its 'selectivity'.

This building will utilise a highly selective glass with a triple silver low-e coating. This will keep the SHGC below 0.3 (range 0-1) and the Visible Light Transmission (VLT) around 50 - 60% (range 0 – 100%). The use of triple silver coating technology allows the glass to remain relatively neutral in appearance and eliminates the necessity for a very dark or highly reflective solar control glasses of old.

Ceramic fritting to the glass:

Silkscreen applied ceramic frit if fired onto a glass layer to create a permanent coating. Fritting can be combined with high performance solar control coating to reduce solar gain.

The silkscreen process offers complete design flexibility and allows for a graduating pattern if desired. Frit density can increase towards the top and bottom of the full height glass leaving the vision areas clear for unhindered views. A simplistic and inexpensive method for further reduction of solar heat gain.

Glare control

Solar glare control is aided by a reduction in VLT; however, this has to be balanced against the positive impacts of penetrative visible light. Keeping VLT levels under 60% is recommended. Internal blinds will also greatly reduce any glare that occurs at certain times and can be effectively controlled by the occupant.

Please contact me if you require any further information.

Yours Sincerely,

Ben Daykin
Senior Facade Engineer
T +61 (0) 29 098 6793
ben.daykin@mottmac.com

MOTT MACDONALD

Group GSA
Level 7
80 William Street
East Sydney 2011

383 Kent Street
Sydney NSW 2000

T +61 (0)2 9098 6800

mottmac.com

For the attention of: Raquel Casas Huelin

197 Church Street, Parramatta

3 June 2016

Dear Raquel

Shading fin construction

The detailed design of the shading fins shall develop through the design progress, however, the basis for the construction is as follows:

Fixing:

The curtain wall glazing will be of a 'unitised' construction. That is, factory assembled and delivered to site as a unit 1500mm wide x storey height (3150mm). The fins will be mounted to stainless steel brackets that bolt to the inside face of the vertical curtain wall mullions. This is a typical method of installation for solar shading fins and results in discrete, weathertight connections.

It is far more economical to deliver the fins separately and bolt them in on site before the final unit is lowered into place. All curtain wall façade installation will be undertaken from the inside of the structure; no external access is required for fin installation.

Material considerations:

The internal fin construction will be a lightweight steel or aluminium framework with the cladding element securely fastened to this framework. This will be a factory assembly. The final material selection will be primarily governed by durability, its aesthetic properties and its procurement cost. The intent is that each fin is maintenance free for its service life, however, the design will enable individual fins to be removed for maintenance or glass replacement reasons.

Wind loads:

The structural design of the fins is greatly influenced by the project wind loads. True wind cladding pressures for tall, irregular shaped buildings can only be fully determined through iterative wind tunnel testing. These wind loads could be determined via building code and calculation, however, they will result in conservative results and lead to a significant increase in costs to the building structure and the façade package.

MOTT MACDONALD

The results of the wind tunnel test will inform the structural design of the fins, their fixing brackets and the curtain wall mullion extrusions to achieve an elegant, durable and economic design.

The horizontal shading louvres add significant lateral restraint to the fins. Bracket design and the lateral restraint method can be refined to suit the wind pressure loads. Again, there is great potential to optimise the design with parametric software to ensure the correct balance between structural design, shading effectiveness and economy is achieved.

Please contact me if you require any further information.

Yours Sincerely,

Ben Daykin
Senior Facade Engineer
T +61 (0) 29 098 6793
ben.daykin@mottmac.com

NATURAL VENTILATION

MOTT MACDONALD ENDORSEMENT OF DESIGN FOR ACHIVIEMENT OF NATURAL VENTILATION ABOVE LEVEL 10 IN THE RESIDENTIAL TOWER.

MOTT MACDONALD

Group GSA
Level 7
80 William Street
East Sydney 2011

383 Kent Street
Sydney NSW 2000

T +61 (0)2 9098 6800

mottmac.com

For the attention of: Raquel Casas Huelin

197 Church Street, Parramatta

3 June 2016

Dear Raquel

Natural Ventilation Compliance Certificate.

We have reviewed and check the typical apartment layout on 197 Church Street and confirm the ventilation openings and requirements for the apartments are in accordance with BCA Section F4.6 Natural Ventilation and BCA F 4.7 Ventilation Borrowed from Adjoining Rooms.

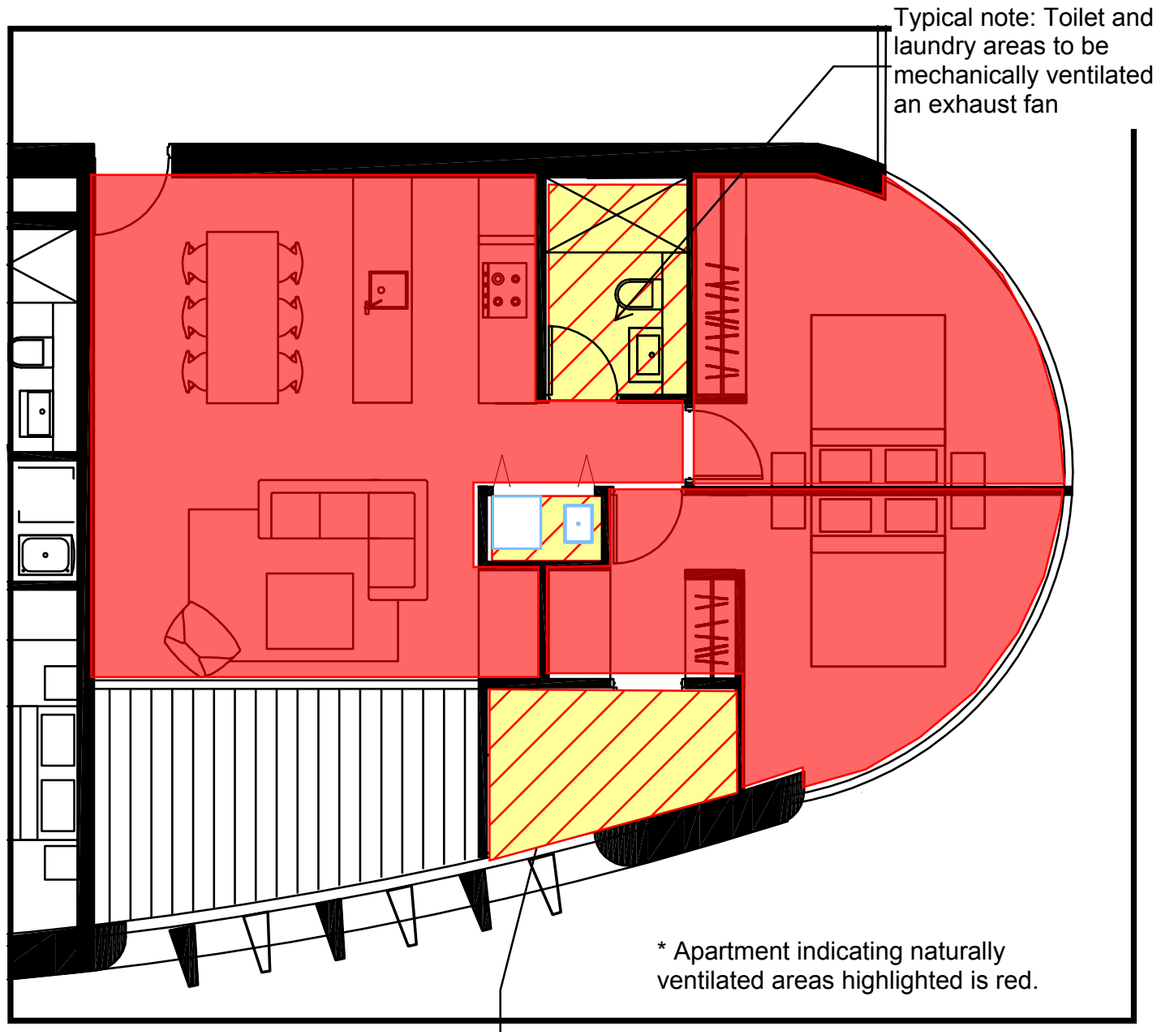
Please refer to Appendix A for Natural Ventilation and Ventilation Borrowed from adjoining room's detailed calculations for your reference. These calculations are based on Building Code of Australia 2015.

Please contact undersigned if you require any further information.

Yours Sincerely,

Teja Kshatri
Mechanical / ESD Engineer
T +61 (0) 29 098 6750
teja.kshatri@mottmac.com

Appendix - A



Mott MacDonald
383 Kent Street
Sydney NSW 2000
PO Box Q1678, QVB Sydney, NSW 1230
Australia

MOTT MACDONALD

197 Church Street Parramatta

WE have based our assumptions on compliance with the following definitions of natural ventilation.

BCA F4.5 VENTILATION OF ROOMS

BCA F4.6 Natural Ventilation requirements

A habitable room, bathroom, shower room, laundry and any other room occupied by a person for any purpose must have an aggregate opening or openable size not less than 5% of the floor area of the room to be ventilated. The opening should be open to a suitably sized court or space open to the sky or verandah.

Refer to the below table for BCA natural ventilation calculations

BAC NATURAL VENTILATION CALCULATIONS OF ROOM

ROOM	ROOM AREA	BCA Requirments for Natural Ventilation - 5% of the Floor Area
LIVING/KITCHEN	34.8	1.74
MASTER BEDROOM	13.8	0.69
BEDROOM 2	13.8	0.69

The above table indicates the amount of window openings required in each room to comply with BCA F4.6 requirements.

BCA F4.7 Ventilation Borrowed from Adjoining room requirements

Natural ventilation to a room may come through a window, opening, ventilating door or other device from an adjoining room (including an enclosed verandah) if both rooms are within the same sole-occupancy unit and the room to be ventilated is not a sanitary compartment and the window, opening, door or other device has a ventilating area of not less than 5% of the floor area of the room to be ventilated and the adjoining room has a window, opening, door or other device with a ventilating area of not less than 5% of the combined floor areas of both rooms.

Refer to the table below for BCA ventilation borrowed from adjoining room calculation

BCA VENTILATION BORROWED FROM ADJOINING ROOMS CACULATIONS

ROOM	ROOM AREA	Required Area of Door Openings in Between Ventilated Rooms and Borrowed Rooms - 5% of the floor area	Window opening Required in the Living/Kitchen Room to Comply With Borrow Ventilation - 5% of Combined Floor Areas
MASTER BEDROOM	13.8	0.69 *	-
BEDROOM 2	13.8	0.69 *	-
LIVING/KITCHEN	34.8	-	3.12 **

* Indicates the amount of door opening required in between the ventilated room and the borrowed room.

** Indicate the window opening required in Living/Kitchen room to comply with borrowed ventilation.

The above table indicates the amount of window openings required in the adjoining room to comply with BCA F4.7 requirements.

WIND ADVISER RECOMMENDATIONS

CPP – WIND ENGINEERING AND AIR QUALITY CONSULTANTS

31 May 2016

Group GSA
Level 7, 80 William Street
East Sydney
NSW 2011

Attn: Ms. Raquel Casas Huelin
Re: 197 Church Street, Parramatta – environmental wind conditions

Dear Ms. Casas Huelin,

Further to our recent correspondence, please find herein some additional wind comments for the proposed development at 197 Church Street, Parramatta.

The proposed balconies on the tower have only one opening, which can be closed. The wind amenity in these areas can therefore be fully governed by the resident. This is considered an excellent design option for such a balcony as any level of ventilation can be achieved. If the operable screens were removed from the design, then the useability of the balcony spaces would drop significantly. However, the balconies are well orientated to protect from the strong prevailing wind from the west, Figure 2. Accurately quantifying the amount of time that the balconies would be useable without conducting wind-tunnel testing is impossible, but would be expected to be suitable for sitting for about 50% of the time over the whole height of the tower.

Figure 1: Building and balcony design options

The wind conditions on the inset balconies on the east and west facades would be significantly better than the corner balconies without the screens. Without screening, the inset balconies would be expected to have an area that was useable for sitting activities for about 80-90% of the time. To increase this amount additional screening would be required.

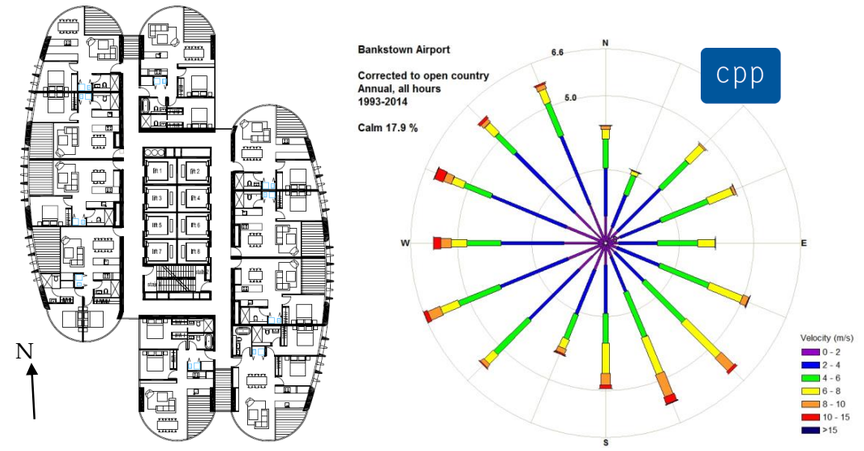


Figure 2: Wind rose for Bankstown Airport

The rooftop terrace space is relatively long and narrow with high walls on either sides. It is unclear as to the desired used of the space. However, this is considered well designed to encourage flow to pass over the roof. Having the roof space open will allow flow recirculation inside the space. Openings in the walls, such as to balconies should be avoided. Again it is impossible to accurately predict the amount of time that the space would be useable. Without quantifying the viability of the space for a commercial enterprise through wind-tunnel testing, it would be recommended to have this space as useable for residents when environmental conditions are suitable for their needs. This would be further addressed during detailed design and the inclusion of façade articulation and alcoves could be incorporated to increase the useable areas.

Figure 3: Commercial tower on Marsden Street

The podium roof level around the main tower would be exposed to significant amounts of downwash and the wind conditions would not be expected to be suitable for outdoor sitting activities, particularly from a commercial perspective that would rely on patrons, Figure 4. This space would be expected to require significant enclosing if this is the desired intent for the space. Having the outdoor space flexible, so that people can find a calm spot would be the recommended use of the space without enclosing the space. The articulated nature of the façade would allow small calm areas to exist regardless of wind direction.

The wind conditions on the podium around the smaller Marsden Street tower would be expected to be significantly better. This would be the recommended space for such use as an outdoor area for a childcare centre. A suitable protected space could be developed during detailed design.

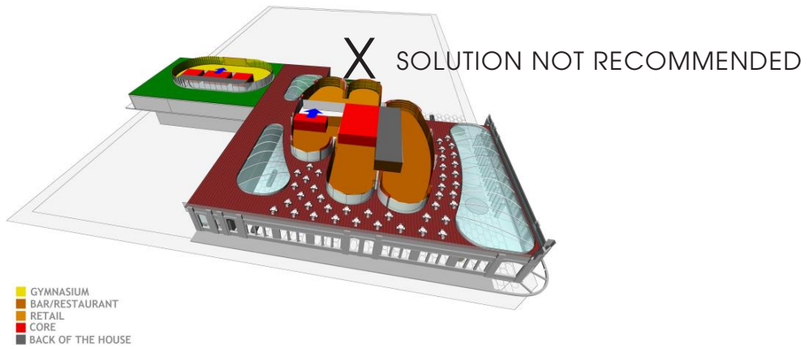


Figure 4: Podium roof plan

I hope this is of assistance, please do not hesitate to contact me if you would like to discuss any aspect of this report.

Graeme Wood

Director
Cermak Peterka Petersen Pty. Ltd.

Unit 2, 500 Princes Hwy. St. Peters, NSW 2044, Australia Tel +61 2 9551 2000 Fax +61 2 9557 9447 info-syd@cppwind.com www.cppwind.com
Cermak Peterka Petersen Pty. Ltd. ABN 30 125 146 072

STRUCTURAL ADVICE – BASEMENT AND PODS INCORPORATION

ENSTRUCT GROUP PTY LTD

enstruct

enstruct group pty ltd
ABN 32 094 570 671
Tel: +61 2 8904 1444
Fax: +61 2 8904 1555
www.enstruct.com.au
Level 4, 2 Glen Street,
Milsons Point,
NSW, 2061,
Australia

30 May 2016

Group GSA
Level 7, 80 William Street
East Sydney 2011

For the attention of : - Raquel Casas Huelin

Dear Raquel,

197 Church Street, Parramatta
Site Geology and Basement Construction

The competition brief does not contain a geotechnical site investigation. As part of the Parramatta CBD there is extensive information available for adjacent sites and a desk study could easily be carried out by geotechnical engineer, which would accurately advise on basement construction and foundation capacity.

In anticipation of this work we have sighted an investigation for an adjacent property, which indicates that the site is underlain by Hawkesbury Sandstone with the potential for an igneous dyke. The top of rock at the south eastern corner of the site (Macquarie and Church corner) is located approximately 20 m below existing ground level and appears to be falling to the north west. The study also indicates significant lenses of sand in the profile. Groundwater is typically found approximately 4 to 5 metres below existing ground level.

The bulk of the excavation of the site to top of rock will be via conventional equipment, ie hydraulic excavators. Excavation of the rock will depend on the material strength and jointing, with the expectation that hydraulic rock hammers, rock saws will be required.

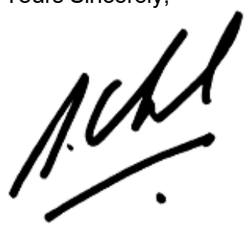
Due to the ground water level and the presence of sands in the profile, it is expected that a perimeter secant pile (600 mm) cutoff wall or a diaphragm wall to rock will be required around the entire perimeter. This wall will be temporarily anchored during construction and propped in the permanent case by the basement floor slabs. Should excavation proceed past the top of rock level then the rock face will be self supporting. It is expected that this perimeter wall will be sufficient to control the inflow of ground water into the basement, appropriate for car parking, with some controlled seepage through the wall and rock faces collected by a drainage network below the lowest slab on grade basement level.

The tower structure will be founded on pad and raft foundations some two metres into rock, with allowable bearing pressures in the order of 6 MPa.

enstruct

Please contact the undersigned should you require any further information.

Yours Sincerely,



for
enstruct group pty ltd

Ross Clarke
Director

enstruct group pty ltd
ABN 32 094 570 671
Tel: +61 2 8904 1444
Fax: +61 2 8904 1555
www.enstruct.com.au
Level 4, 2 Glen Street,
Milsons Point,
NSW, 2061,
Australia

30 May 2016

Group GSA
Level 7, 80 William Street
East Sydney 2011

For the attention of : - Raquel Casas Huelin

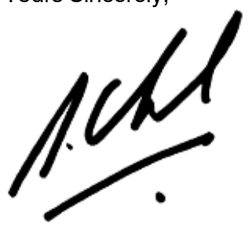
Dear Raquel,

197 Church Street, Parramatta
Floor Slab Set Downs

Further to you enquiry we confirm that the proposed 50 mm set down in the 230 mm post tensioned floor slabs will via a fire engineered solution allow a 90 minute fire rating.

Please contact the undersigned should you require any further information.

Yours Sincerely,



for
enstruct group pty ltd

Ross Clarke
Director