Traffic Engineering Assessment

17 Regina Street, Stones Corner

DA Reference A006130292

Document control:

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Approved by:

Anthony McKay
RPEQ #34738

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1 Purpose

This report provides an assessment of relevant traffic matters for the proposed residential development at **17 Regina Street, Stones Corner** for consideration as part of Development Application reference **A006130292**.

This report has been prepared in response to Brisbane City Council's (Council) request for further advice in their letter dated 13 February 2024. A full response is included in section 9.

2 Background

Council approved application reference **A004123514** for a Material Change of Use (multiple dwellings – 7 units) over the subject site in October 2015 and subsequently approved extensions under applications **A005277445** and **A005856309**.

The applicant now seeks to change the existing approval in accordance with the proposed plans prepared by Flourish Architects (Refer to Appendix A). A reduction in dwellings is proposed as shown below in table 2.1.

Table 2.1: Change in number and type of dwellings

Dwellings	Approved	Proposed	Change
4 bedroom	-	-	-
3 bedroom	5	6	+1
2 bedroom	1	-	-1
1 bedroom	1	-	-1
TOTAL	**7**	**6**	**-1**

A summary of the key elements raised in the request for advice is shown below in Table 2.2.

Table 2.2: Change in key elements of TAPS PSP

Item	Type	Approved	Proposed	Comment
Onsite car parking	Resident	7	12	Increase from 1/unit to 2/unit
	Visitor	1	2	Increase from 1/7 units to 1/3 units
Cyclist facilities	Resident	7	6	Maintained at 1/unit
	Visitor	2	2	Increase from 1/3.5 units to 1/3 units
Servicing	RCV	Off-site	Off-site	No change

3 Car Parking Supply

A review of the proposed car parking supply against the requirements of the TAPS PSP is summarised in Table 5.1 below.

Table 3.1: Supply of car parking

Land Use	Quantity (dwellings)	TAPS PSP		Proposed spaces	Comment
		Parking Standard	Required spaces		
Multi dwelling (3 bedroom)	6	2	12	12	Compliant
Multi dwelling (Visitor parking)	6	0.25	1.50	2	Compliant
Total			**13.50**	**14**	

Sufficient car parking spaces are provided in accordance with the TAPS PSP.

4 Cycle Parking Supply

A review of the proposed cycle parking supply against the requirements of the TAPS PSP is summarised in Table 4.1 below.

Table 4.1: Supply of cycle parking

Land Use	Quantity (dwellings)	TAPS PSP		Proposed spaces	Comment
		Parking Standard	Required spaces		
Multi dwelling (3 bedroom)	6	1	6	6	Compliant
Multi dwelling (Visitor parking)	6	0.25	1.5	2	Compliant
Total			**7.5**	**8**	

Sufficient cycle parking spaces are provided in accordance with the TAPS PSP.

5 Car Parking Layout

A review of the proposed car parking layout against the requirements of the TAPS PSP is summarised in Table 5.1.

Table 5.1: Car Parking Layout

Applicable Design Element	TAPS PSP Requirement	Proposed	TAPS PSP Compliance
Parking space - Visitor	2.6m x 5.4m	Primary: - 2.4m x 5.4m Secondary: - 3.0m x 5.2m	Performance Solution
Mechanical parking	N/A	8 modules: - 3.0m x 5.6m - 2.8m doorway - 6.1m aisle 5 modules: - 3.0m x 5.4m - 2.8m doorway - 6.1m aisle	Performance Solution
Height clearance (bays)	2.3m	2.1m	Performance Solution
Adjacent obstruction	+0.3m clearance	+0.3m clearance	Compliant
Gradient (bays)	1:20 (across) 1:14 (other)	Flat	Compliant
Gradient (ramps)	1:6	1:7	Compliant
Parking aisle width	6.2m with 0.4m reduction for each 0.1m increase in bay width.	6.1m (3.0m bay width) (2.8m doorway width)	Compliant
Circulating aisle/ramp width	6.0m (low turnover)	6.0m	Compliant
Terminated aisle treatment	2m aisle extension or 8m aisle behind last car park	8m aisle behind last car park	Compliant

The proposed car park layout is generally compliant with the TAPS PSP requirements however where this cannot be provided, suitable performance outcomes are achieved based on the following:

- **Parking space - visitor**
  - Parking spaces are provided both behind and forward of the security line to increase the overall attractiveness of on-site parking for a range of visitors.
  - Primary visitor car park space:
    - Conveniently located forward of the security line.
    - Achieves an appropriate level of service with the dimension of 2.4m x 5.4m (+300mm clearance to adjacent wall) which meets AS2890.1 for user Class 1A residential parking.
  - Secondary visitor car park space:
    - Located securely behind the security line and accessed through mobile contact with resident.
    - Achieves an appropriate level of service for a space with the clear dimensions of 3.0m x 5.2m, noting constrained internal length is 5.2m but still suitable for a medium (B85) vehicle. See parking comments below.

- **Mechanical Parking**
  - It is necessary to utilise a mechanical garage (car stackers) due to site flooding and the irregularity, isolation, and small size of the lot, which negates the possibility for ramping and a traditional basement.
  - The parking modules provide adequate space for the parking of a medium car (B85), together with provision of access to such a space in accordance with TAPS PSP Section 6(b) and 8.1.1.
    - The dimensions of the modules are:
      - WOHR Combilift 543:
        - Internal bay dimensions: 3.0m x 5.6m (includes 0.1m for door)
        - Clear width: 3.0m x 5.2m (incudes 0.1m wide kerb on each side of platform)
        - Doorway width: 2.8m
      - WOHR Combilift 552:
        - Internal Bay dimension 3.0m x 5.4m (includes 0.1m for door)
        - Clear width: 3.0m x 5.2m (incudes 0.1m wide kerb on each side of platform)
        - Doorway width: 2.8m
    - The length of the modules are designed for the safe parking of a 5.0m vehicle with 0.2m clearance. Refer manufacturers data sheets at Appendix C.
    - 5.2m is sufficient for a medium (B85) vehicle defined as 4.91m in length, noting under Section B4.2 of AS2890.1, "*the angle space length of 5.4m is derived by adding a 0.2m positioning tolerance to the length of a B99 vehicle*".
    - The proposed width of aisle (6.1m) and doorways (2.8m) provide suitable access to the spaces in accordance with AS2890.1, clause 5.4(b)(ii) and figure 5.4, noting that a 2.8m doorway width is interpolated as requiring a minimum 6.1m aisle width.
    - Swept path analysis confirms accessibility at the key end of aisle space. Refer Appendix B.

- **Height Clearance (bays)**
  - The proposed 2.1m height clearance for all bays in the mechanical garage provides adequate space for the parking of a medium car (B85) in accordance with TAPS PSP Section 6(b) and 8.1.1, and to permit access for most vehicles in accordance with the intent of TAPS PSP Section 7.7.1(1) noting:
    - 2.2m is the general headroom requirement under clause 5.3.1 of AS2890.1, however this is specified to enable the provision of parking for larger B99 vehicles at time of publication, with examples being the Toyota 78 Series Land Cruiser and Ford Transit Van (refer A5 and B6, AS2890.1). The adoption of a lesser height clearance is therefore considered appropriate for a medium car (B85).
    - 2.1m is deemed appropriate considering it is sufficient for all current major manufacturers' greatest height passenger vehicles, such as:
      - Audi Q8: 1.705m
      - BMW X7: 1.835m
      - Mazda CX90: 1.745m
      - Mercedes Benz G Class: 1.969m

- Ford Everest: 1.842m
- GWM Tank 500: 1.905m
- Honda CR-V: 1.691m
- Hyundai Santa Fe: 1.77m
- Jeep Wrangler: 1.901m
- Kia Sorento: 1.700m
- Land Rover Discovery: 1.888m
- Mitsubishi Pajero Sport: 1.835m
- Nissan Patrol: 1.955m
- Skoda Kodiaq: 1.681m
- Subaru Forester: 1.730m
- Toyota Landcruiser 300: 1.950m
- Volkswagen Touareg: 1.757m
- Volvo XC90: 1.776m

o 2.1m headroom also sufficient to cater for the height of converted mobility vehicles such as:

- Hyundai Staria: 1.990m
- Kia Carnival: 1.775m
- Mercedes-Benz Vito: 1.914m
- Mercedes-Benz V Class: 1.880m
- Volkswagen Multivan: 1.970m
- Volkswagen Caddy: 1.836m

o The car park is private and the proposed height clearances will be known and accepted by the residents.

o Height clearances shall be clearly signed.

6 Cyclist Facilities

Cyclist facilities are provided in accordance with the TAPS PSP with sufficient spaces provided for residents and visitors. Refer section 5.2 Cycle parking supply. The resident cycle spaces will be undercover on the ground level and provided in accordance with AS2890.3. The proposed parking will be a two-tier rack system such as Cora's system (refer Appendix D) or similar. The visitor spaces are co-located with the external visitor car park and are provided a suitable parking rail.

7 Refuse Collection

The proposed development does not comply with the TAPS PSP requirements for site access for a RCV however a suitable performance outcome is achieved based on the following:

- The RCV cannot be accommodated on site due to the need for relatively steep ramps as a result of the small lot size, irregular lot shape and flooding overlay.
- Section 4 of the Refuse PSP requires the development to use kerbside collection as the development can accommodate external kerbside collection and comprises of less than 10 dwellings.
- Similar servicing arrangements occur for small developments of 6 units throughout Stones Corner and the city on minor roads without major traffic issues.
- This arrangement was previously approved and no change is proposed.

8 Traffic Assessment

8.1 Traffic Generation

Predicted trip volume calculations are shown in table 9.1 using trip generation rates from the *Guide to Traffic Generating Developments – Updated Traffic Surveys*, RMS (2013), using relevant vehicle trips per unit for high density residential flat dwellings.

Table 9.1: Predicted trip volumes

Peak	Range	Adopted Rate	Direction	Residential Units	Volume (rounded)
AM	0.07-0.32	0.32	In: 30%	6	1
			Out: 70%		2
PM	0.06-0.41	0.41	In: 70%	6	2
			Out:30%		1

8.2 Assessment

The proposed development is predicted to generate 3 vehicle movements per hour in both the AM and PM peak, equating to an average of one vehicle movement every twenty minutes in the peak hours. This volume is not expected to cause significant impact to the surrounding road network or result in any issues for access or queuing with the proposed use of a mechanical garage.

9 Response to BCC Letter

9.1 Car Parking

a) There are media rooms proposed for each unit which have been included as 'bedrooms' for the purpose of calculating the car parking rate. The proposed development provides 13 car parking spaces, where 17 (15 resident and 2 visitor spaces) are required, resulting in a shortfall of 4 on site car parking spaces.

i. Provide revised plans reducing the number of units, or alternatively, removing the media rooms in the proposed development to achieve a compliant car parking rate or amend the plans to provide an additional 4 car parking spaces;

Refer Section 3 Car Parking Supply. A compliant car parking rate has been achieved.

ii. Provide amended plans relocating the visitor parking forward of any security barrier; and

Refer Section 5 Car Parking Layout. A visitor carpark is provided forward of the security barrier.

iii. Provide amended plans showing 2 visitor parking spaces for the site. A shortfall of visitor parking will not be supported with 2 spaces required to be provided based on the current number of units.

Refer Section 3 Car Parking Supply. 2 visitor spaces are provided.

9.2 Car Stacker

b) The use of mechanical car storage solutions where minimum car parking rates apply are not supported due to the ongoing operation and maintenance of these systems as they increase the risk that the minimum car parking rate will not be maintained for the life of the development, particularly where there are no existing on street parking restrictions. If a mechanical car storage system continues to be proposed for this development, the following information will be required for Council to consider the car stackers in more detail:

i. Specific details and the make, model and specification sheet of the car stacker units;

The proposed parking systems are:

- Wohr Combilift 543 - 3(w)x3(h) – 1up/1down (Lower/Entry/Upper level)
- Wohr Combilift 552 - 3(w)x2(h) – 1up (Entry/Upper level)

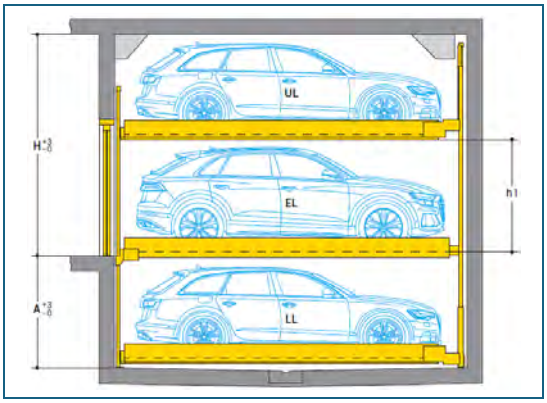


Figure 12.1: Wohr Combilift 543

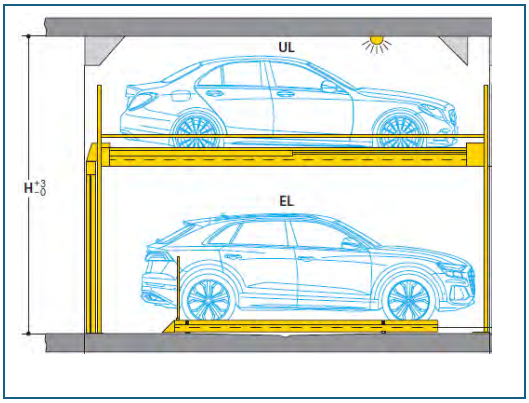
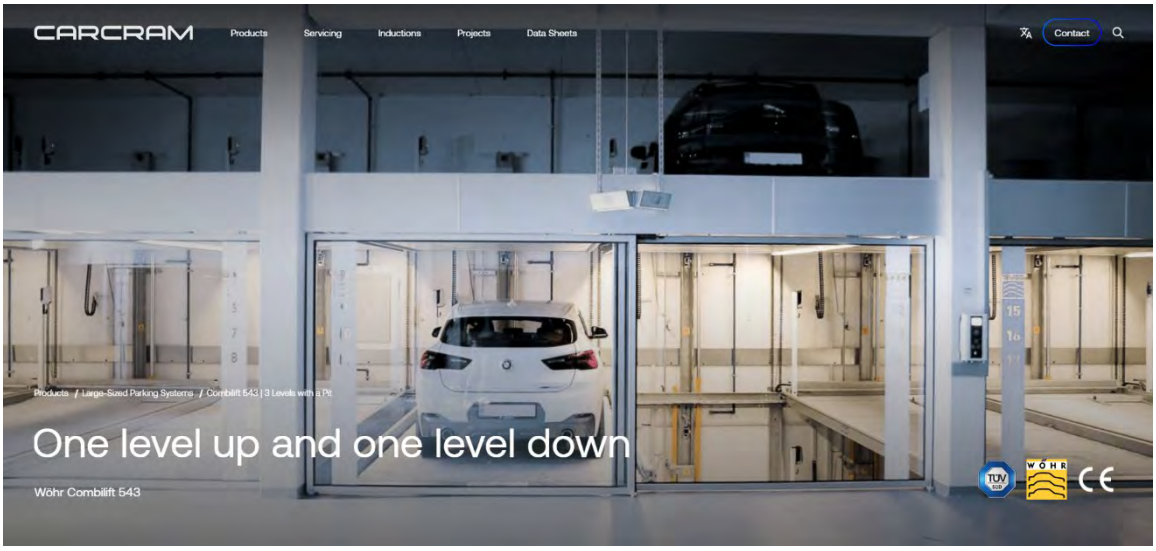


Figure 12.2: Wohr Combilift 552

Refer Appendix C for specification sheet.

Further information can be found here:

- https://carcram.com/products/large-sized-parking-systems/combilift-543-3-levels-with-a-pit/
  - https://youtu.be/wJ0MZUljins



- https://carcram.com/products/mid-sized-parking-systems/combilift-552-lift-and-slide/

ii. *Information on the vertical clearance within the car stackers, noting that 2.3 metres minimum clearance is required where users are entering or leaving a vehicle;*

Refer Section 6.1 Car Parking Layout. A vertical clearance of 2.1m will be provided at each level within the car stacker system which is sufficient for the dimensions of the required B85 vehicle, also noting Council approval of stacker systems of similar height at 248 Wellington Road, East Brisbane (A005592968) and 299 Bowen Terrace, New Farm (A005900020).

iii. *Information on how hazards including crushing risk and edge protection will be provided;*

The manufacturer has advised the parking system and its installation will comply to AS5124:2017, Safety of Machinery – Equipment for power driven parking of motor vehicles – Safety and EMC requirements for design, manufacturing, erection and commissioning stages (EN14010:2003, MOD).

The objective of this standard is to provide requirements for the safe design, installation, and servicing of car storage devices. Section 4 of the standard identifies all significant hazards for this type of equipment, for which action is required to eliminate or reduce the risk. Crushing and falling is addressed in this standard.

Design of the system will appropriately occur following approval and include consideration of other risks such as flooding and location of electrical services.

iv. *Demonstrate the mechanical storage system does not result in an intrusion into the parking space envelope as detailed in AS2890.1;*

Refer Section 5 Car Parking Layout. The stacker modules provide adequate space for the parking of a medium car (B85), together with provision of access to such a space in accordance with TAPS PSP Section 6(b) and 8.1.1.

v. *Information on how the car stackers will be operated (i.e. panel or button given to residents) and the location of any panels of other fixtures associated with the car stackers;*

There are several operating options:

- RFID operating Device for customer-performed operation (standard equipment)
- Remote control – to be able to operate the park from the car
- Smart Parking App – able to operate from the car from the convenience of your own phone. You can choose your own car park from the app

No option will present a significant impact to parking efficiency considering the small number of units and low parking rate.

The design of the system will comply with AS5124:2017 and be completed following approval.

vi. *Information on cycle times for the car stackers and detail on provision for vehicle waiting to access the car stackers. It is likely the proposed model of car stacker would require a bottom vehicle to wait in the aisle while the top vehicle is accessed, which causes additional delays. It is also noted the current aisle width is not in accordance with the TAPS Policy and therefore limits access for other vehicles while a car is waiting in the aisle to enter/exit a car stacker space;*

The operation time between call and garage door opening will depend on the location of the called platform. If the selected parking space is at entry level, the doors will open immediately. If the selected parking space is above/below, the manufacturer has advised it will take less than 1 minute to slide a platform on the entry level to one side and raise/lower the selected parking space. A graphical representation of the operation is shown below. This delay is not expected to be a significant issue considering the low parking rate and short operation time.

The aisle width is in accordance with TAPS PSP and AS2890.1. Refer Section 5 Car Parking Layout.

vii. Information on the length and width of the spaces and whether this is sufficient to allow for residents to enter and exit the vehicle in a safe manner; and

Refer Section 5 Car Parking Layout. The stacker modules provide adequate space for the parking of a medium car (B85), together with provision of access to such a space in accordance with TAPS PSP Section 6(b) and 8.1.1.

viii. Information on how the car stackers will not impact on queuing of vehicles entering or existing the site.

The estimated peak hour demand is expected to be 3 vehicles per hour. The probability of multiple residents wishing to access the system at the same time is very low. Nonetheless, the system is designed to operate with minimal delay (refer above).

9.3 Servicing

c) Provide amended plans which demonstrate a refuse solution of sufficient size to store and allow convenient access to bins.

Refer Section 7 Refuse Collection. The RCV cannot be accommodated on site due to the need for relatively steep ramps as a result of the small lot size, irregular lot shape and the flooding overlay. Sufficient road frontage is available on the low volume minor road to accommodate kerbside refuse collection with negligible impact on the transport network. This arrangement was previously approved.

9.4 Bicycle Parking

d) Amend the plans to include bicycle parking for resident and visitors in accordance with the Transport, Access, Parking & Servicing Planning Scheme Policy.

Refer Section 4 Cycle Parking Supply. The amended plans include bicycle parking in accordance with the TAPS PSP.

10 Conclusion

The key changes for car and cycle parking are considered to generally comply with the TAPS PSP requirements or provide suitable alternative solutions which achieve the necessary performance outcomes of the TAPS code.

The change application represents an improvement to the provisions of the current approval with significant increase in resident car spaces (from 7 to 12) and visitor car spaces (from 1 to 2).

In order to achieve the increased parking rate, it is necessary to utilise a mechanical garage (car stackers) due to flooding and the irregularity, isolation, and small size of the lot, which negates the possibility for ramping and a traditional basement.

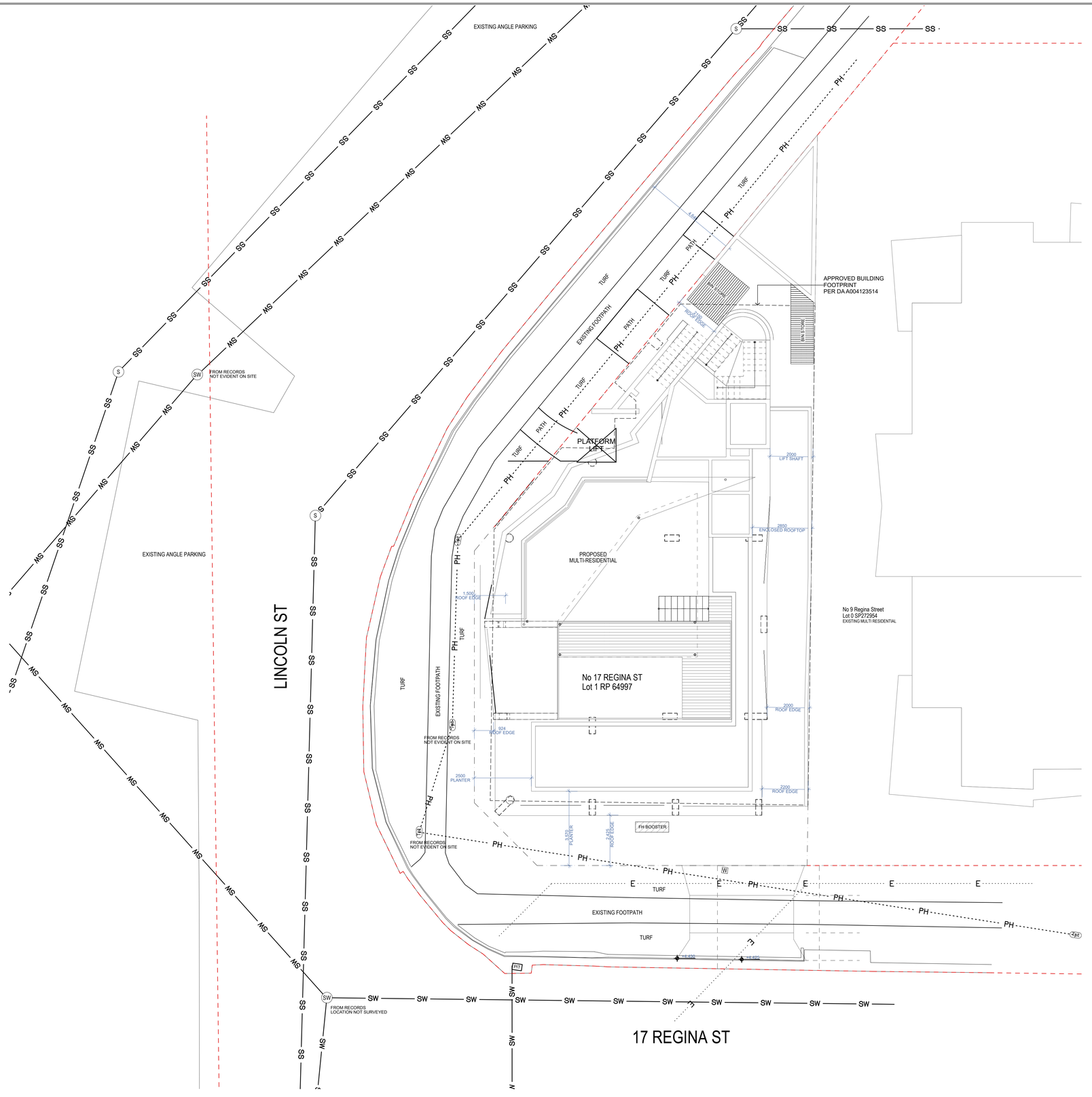
The use of car stackers is appropriate for this six-dwelling development considering the low parking turnover rate of three movements per hour, which allows the parking system to function efficiently without any queuing issue.

The stackers have been designed to accommodate a medium size vehicle and operate safely in accordance with the relevant code AS5124:2017 and provide suitable performance outcomes in relation to resident and visitor parking.

No change to the current approval is proposed in relation to the provision for refuse collection, being kerbside collection in accordance with the Refuse PSP.

Appendix A:

Proposed development plans



SITE NOTES

All construction is to be in accordance with the Building Code of Australia (BCA) and with the Building Act 1991.
Where boundary survey pegs do not exist the owner shall provide a check survey at their expense prior to the commencement of construction.
Earthworks batters are to be 1in1.5 maximum for cut and 1in2 maximum for fill or as directed by the local authority.
Unless noted otherwise all excess soil is to be stockpiled on site.
Cut/fill indicated on the site plan and/or elevations may vary at the construction stage and the building shall confirm with designer and adjust as required.
Any variation to the earthworks at the construction stage is to be in accordance with the local authorities requirements.
Position of retaining walls and batters may vary at the construction stage. The builder shall confirm any variations prior to construction with the designer.
The stormwater si to be dischared as directed by the local authority. Sewerage and septic to be in accordance with local authorities requirements.
All dimensions and levles on plans are to be confirmed on site prior to construction. The owner accepts responsibility for all landscaping, drainage and retaining after completion of construction if necessary.

Area Schedule Site Cover

Story	Name	Measured Area
Ground, Covered		
	Site Podium	318.56
		318.56 m²
Ground, Open		
	Site Open	82.89
		82.89 m²
Second, Covered		
	Site Tower	231.66
		231.66 m²
Second, Open		
	Site Open	76.00
	Site Podium	93.73
		169.73 m²

R.P.D.:	Lot 1 RP 64997
Local Authority:	Brisbane City Council
Area:	401m²
Zoning/ Overlays:	HDR1 TBCO: NO Pre-1911: NO Small Lot: YES Waterway: NO
Flood Level:	BR5 / CW2 6.0m MIN HABITABLE 5.5m CARPARK
Transport Corridor:	Category 0
Climate Zone:	2

flourish ARCHITECTURE

3/191 WARDELL ST, ENOGGERA 4051

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Email: info@flourisharchitecture.com.au
BOAQ No.: 4079
ABN: 15218382685

Drawn | Designed	... | MS
Plot Date:	4/06/2025
Project NO.	22013
Project Status	Prelim DA
Client	Anthony Mckay
Climate Zone	2
Wind Region	N2/W33N
Site:	17 REGINA ST GREENSLOPES

DRAWING TITLE :
PRELIMINARY DESIGN
Site Plan

PROJECT NAME :
REGINA ST

REVISION NO.
09

DRAWING NO.
SC002

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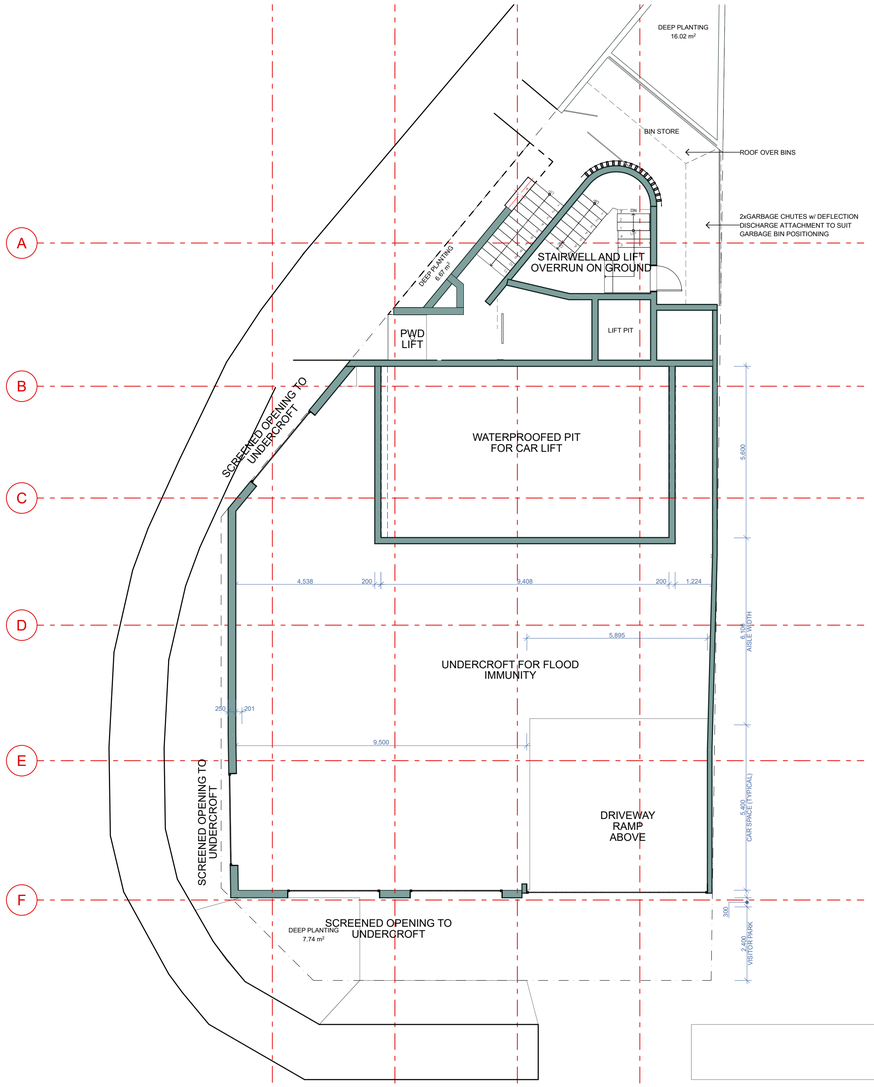
Undercroft



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Climate Zone	2
Wind Region	N2/W33N
Site:	17 REGINA ST GREENSLOPES

DRAWING TITLE :

Preliminary Plans

Undercroft Plan

PROJECT NAME :

REGINA ST

REVISION NO.

09

DRAWING NO.

SC100

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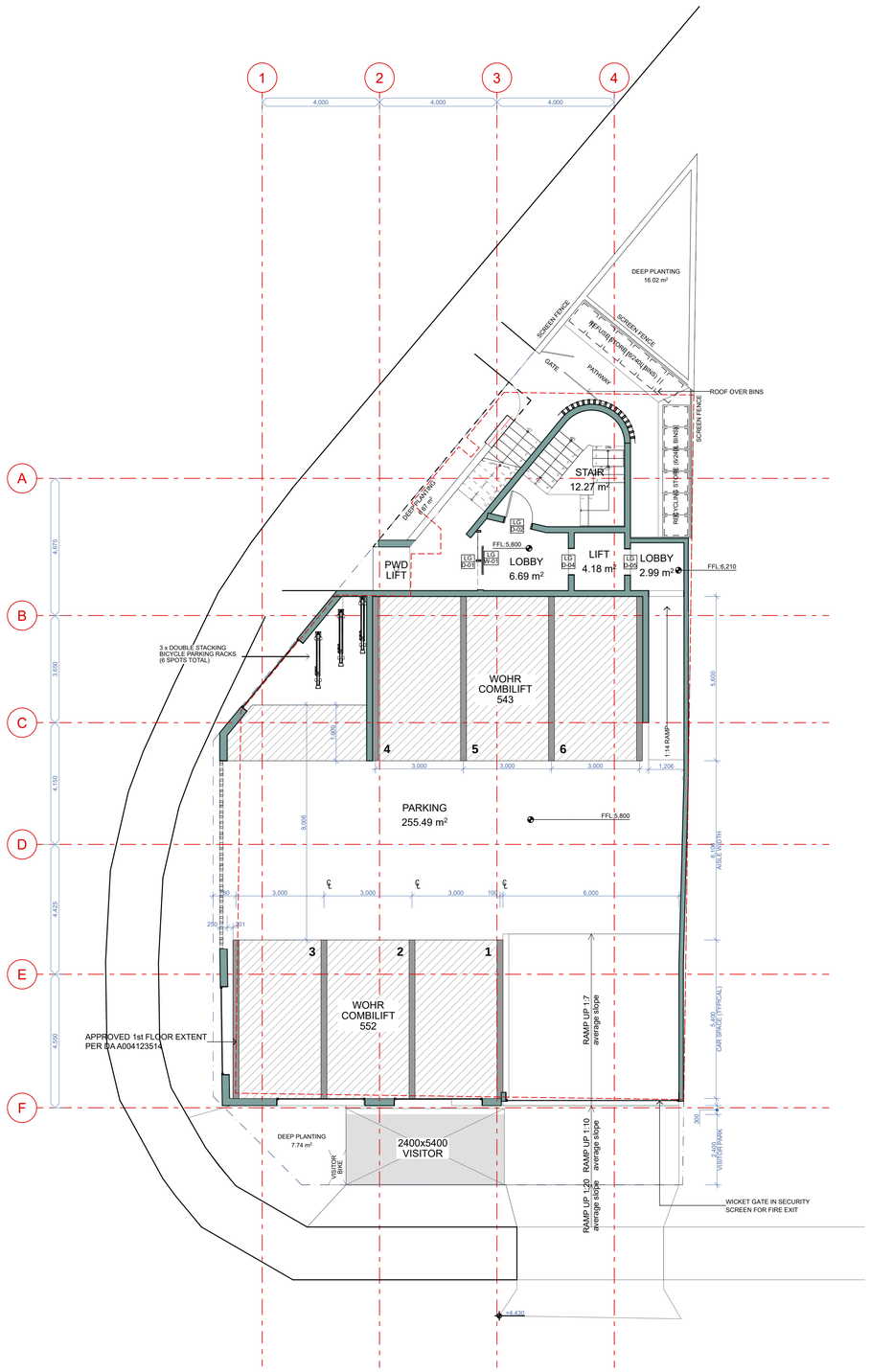
ELEVATION KEY



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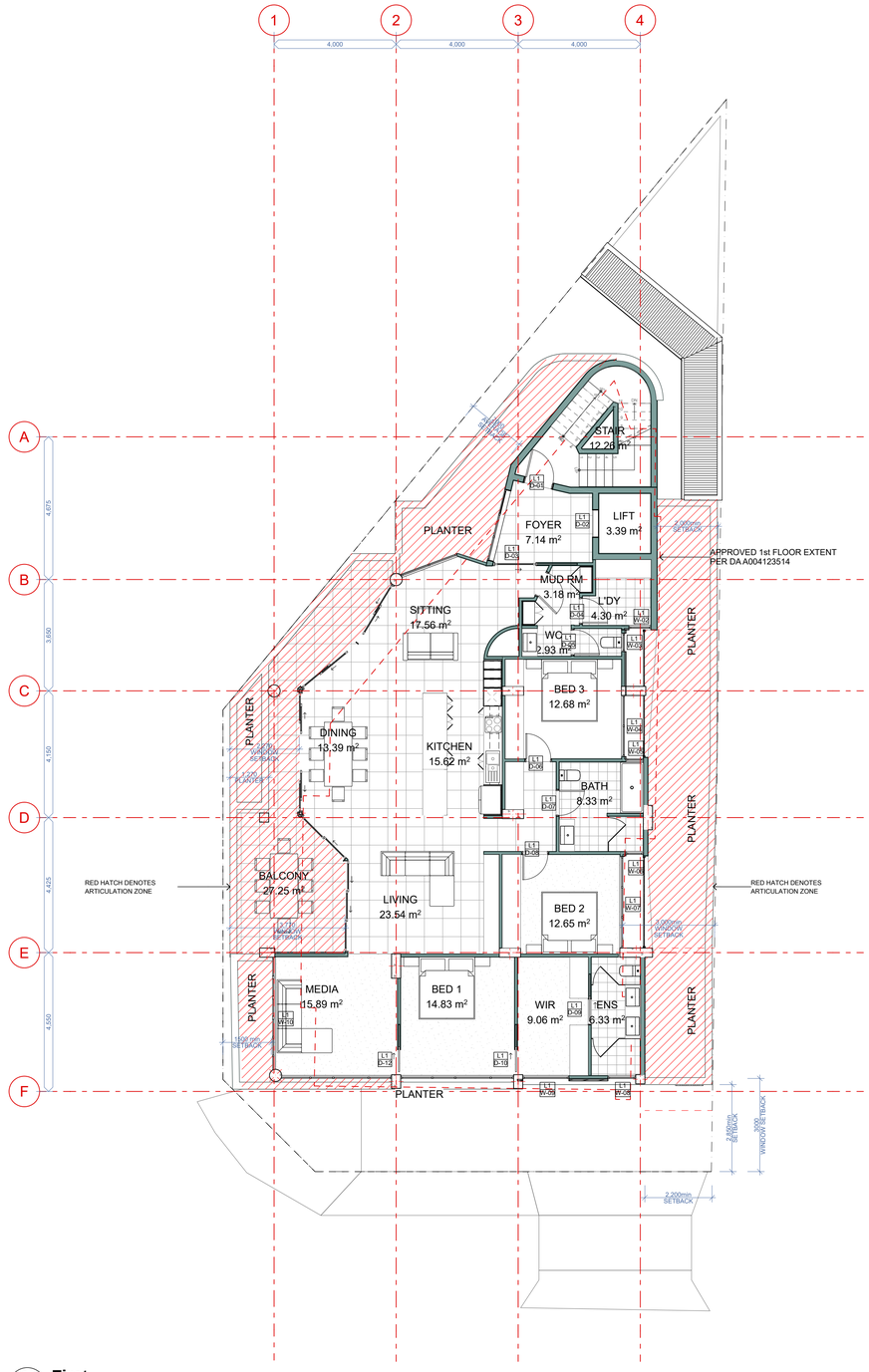

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Scale 1:100

GENERAL NOTES
All construction is to be in accordance with the Building Code of Australia (BCA 2014) Housing provision only.
Concrete construction is to comply with AS3600.
Masonry construction is to comply with AS3700 and clause F1.4 of the BCA.
Steel construction is to comply with AS4100.
Timber construction is to comply with AS1720.1, AS1604, AS1684.
Stairs and landings are to comply with clauses D2.13 and D2.14 of the BCA.
Balustrades/Handrails are to comply with clauses D2.16 and D2.17 of the BCA.
All wet areas are to have floor waste with local fall to floor wastes.
Damp and weatherproofing is to be in accordance with part F1 of the BCA.
WC doors are to comply with clause F2.5 (d) of the BCA.
Lighting to all areas is to comply with clause F4.1 to F4.4 of the BCA.
Ventilation is to comply with clauses F4.5 to F4.10 of the BCA.
All dimensions and levels on plans are to be confirmed on site prior to commencing construction.
Where possible all new construction is to match existing when extending and or renovating.
All dimensions are in millimetres unless noted otherwise.

TERMITE NOTES
Provide termite protections in accordance with AS3660.1 and the Building Code of Australia (BCA).
The builder and owner shall:
1. Negotiate an option for termite control within the code. The builder shall make available to the owner information written for the consumer relating to termite protection options.
2. Record in writing the selected option and each retain a copy signed by both parties.
3. A copy of the option selected is to be provided to the local authority with the building application.
The home owner and subsequent owners shall be responsible for arranging inspections by trained person at maximum intervals of twelve months.
Should the current owner wish to sell the residence, it shall be their responsibility to provide the new owner with a copy of the signed termite protection option adopted.

Area Schedule

Level	Type	Area
Ground		
	CARPARK	255.42
	LOBBY / STAIR / LIFT	34.44
	PORCH	6.78
		296.64 m²
First		
	LIFT / STAIR	19.23
	LIVING (UNIT GFA)	185.06
	PRIVATE OPEN SPACE	28.76
		233.05 m²
Second		
	LIFT / STAIR	18.79
	LIVING (UNIT GFA)	185.28
	PRIVATE OPEN SPACE	24.39
		228.46 m²
Third		
	LIFT / STAIR	18.79
	LIVING (UNIT GFA)	185.28
	PRIVATE OPEN SPACE	24.39
		228.46 m²
Fourth		
	LIFT / STAIR	18.79
	LIVING (UNIT GFA)	185.28
	PRIVATE OPEN SPACE	24.39
		228.46 m²
Fifth		
	LIFT / STAIR	18.79
	LIVING (UNIT GFA)	185.28
	PRIVATE OPEN SPACE	24.39
		228.46 m²
Sixth		
	LIFT / STAIR	18.79
	LIVING (UNIT GFA)	185.28
	PRIVATE OPEN SPACE	24.39
		228.46 m²
Roof Terrace		
	ROOFED ENCLOSED	19.91
	ROOFED UNENCLOSED (COMMUNAL OPEN SPACE)	67.89
	STAIR / LIFT	17.45
	UNROOFED (COMMUNAL OPEN SPACE)	33.01
		138.26 m²
		1,810.25 m²

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Climate Zone	2
Wind Region	N2/W33N
Site:	17 REGINA ST GREENSLOPES

DRAWING TITLE :
Preliminary Plans
Floor Plans

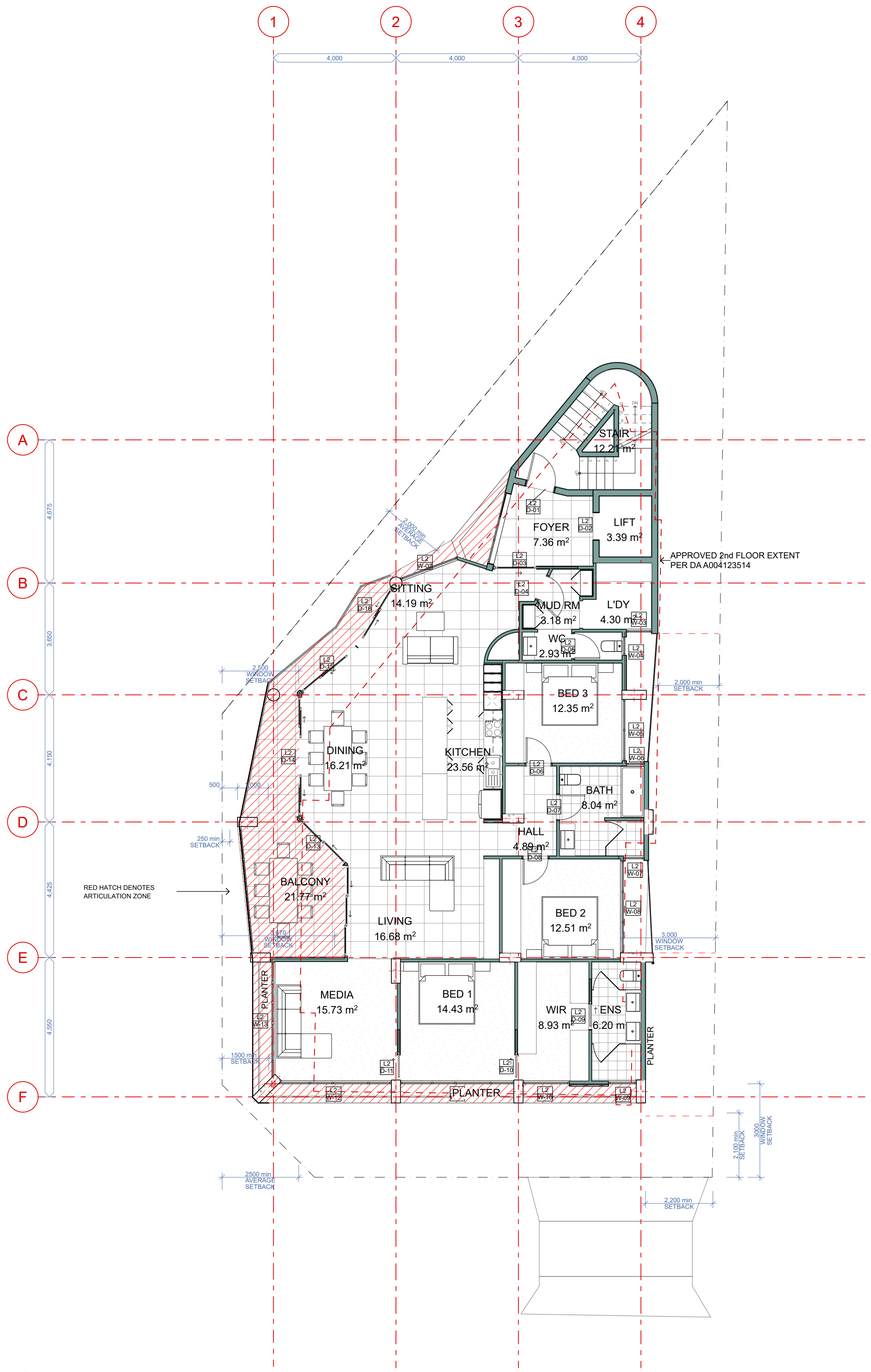
PROJECT NAME :
REGINA ST

REVISION NO.
09

DRAWING NO.
SC101

1:100 @ A1
0 1 2m

ELEVATION KEY



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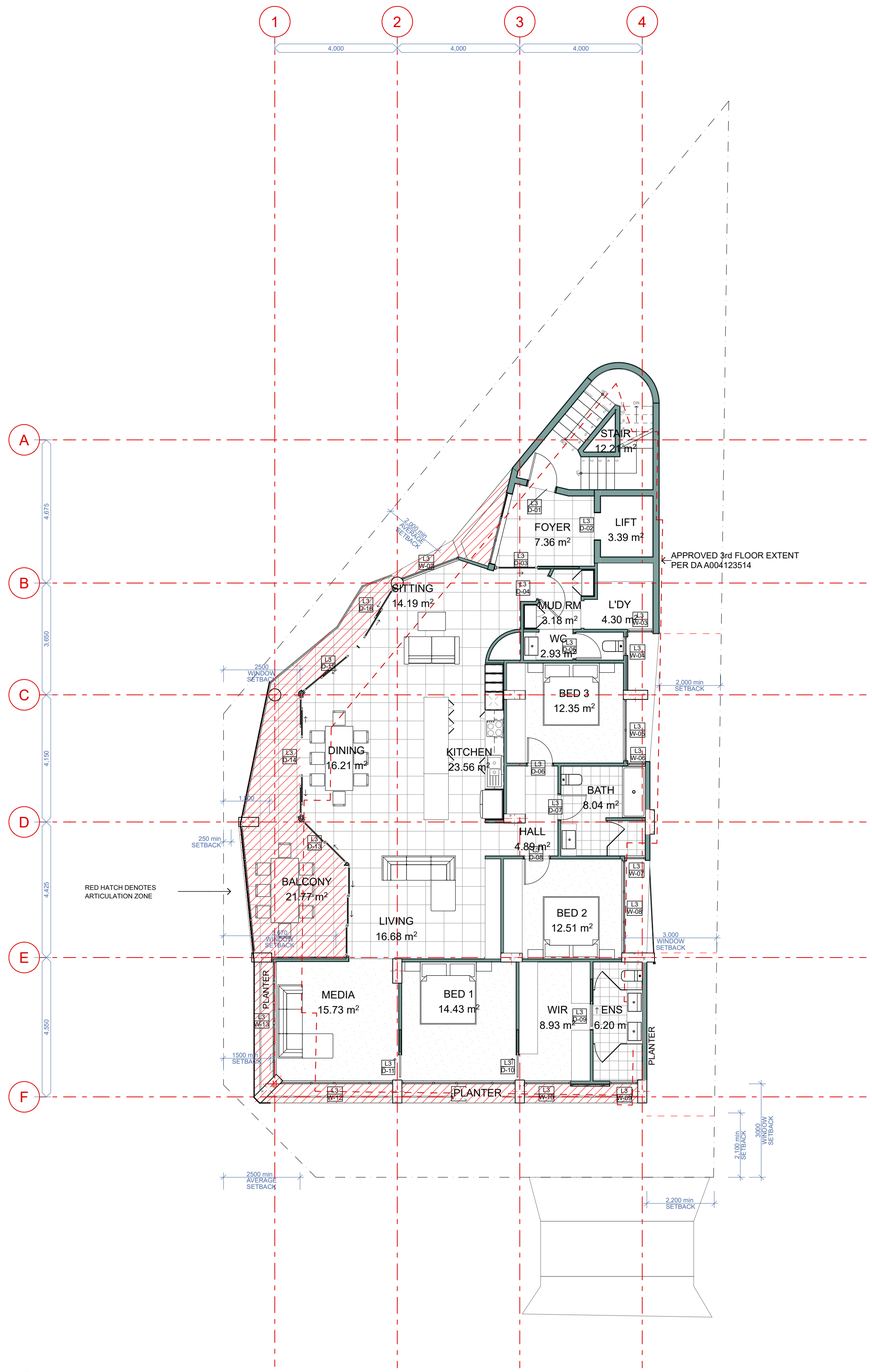
Scale 1:100



3. Third
Scale 1:100

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Area Schedule		
Level	**Type**	**Area**
Ground		
	CARPARK	255.42
	LOBBY / STAIR / LIFT	34.44
	PORCH	6.78
		296.64 m²
First		
	LIFT / STAIR	19.23
	LIVING (UNIT GFA)	185.06
	PRIVATE OPEN SPACE	28.76
		233.05 m²
Second		
	LIFT / STAIR	18.79
	LIVING (UNIT GFA)	185.28
	PRIVATE OPEN SPACE	24.39
		228.46 m²
Third		
	LIFT / STAIR	18.79
	LIVING (UNIT GFA)	185.28
	PRIVATE OPEN SPACE	24.39
		228.46 m²
Fourth		
	LIFT / STAIR	18.79
	LIVING (UNIT GFA)	185.28
	PRIVATE OPEN SPACE	24.39
		228.46 m²
Fifth		
	LIFT / STAIR	18.79
	LIVING (UNIT GFA)	185.28
	PRIVATE OPEN SPACE	24.39
		228.46 m²
Sixth		
	LIFT / STAIR	18.79
	LIVING (UNIT GFA)	185.28
	PRIVATE OPEN SPACE	24.39
		228.46 m²
Roof Terrace		
	ROOFED ENCLOSED	19.91
	ROOFED UNENCLOSED (COMMUNAL OPEN SPACE)	67.89
	STAIR / LIFT	17.45
	UNROOFED (COMMUNAL OPEN SPACE)	33.01
		138.26 m²
		1,810.25 m²

flourish ARCHITECTURE
3/191 WARDELL ST,
ENOGGERA 4051
Phone: (07) 3311 1133
Email: info@flourisharchitecture.com.au
BOAQ No.: 4079
ABN: 15218382685

Drawn | Designed ... | MS
Plot Date: 4/06/2025
Project NO. 22013
Project Status Prelim DA

Client Anthony Mckay
Climate Zone 2
Wind Region N2/W33N
Site: 17 REGINA ST GREENSLOPES

DRAWING TITLE :
Preliminary Plans
Floor Plans

PROJECT NAME :
REGINA ST

REVISION NO.
09

DRAWING NO.
SC102

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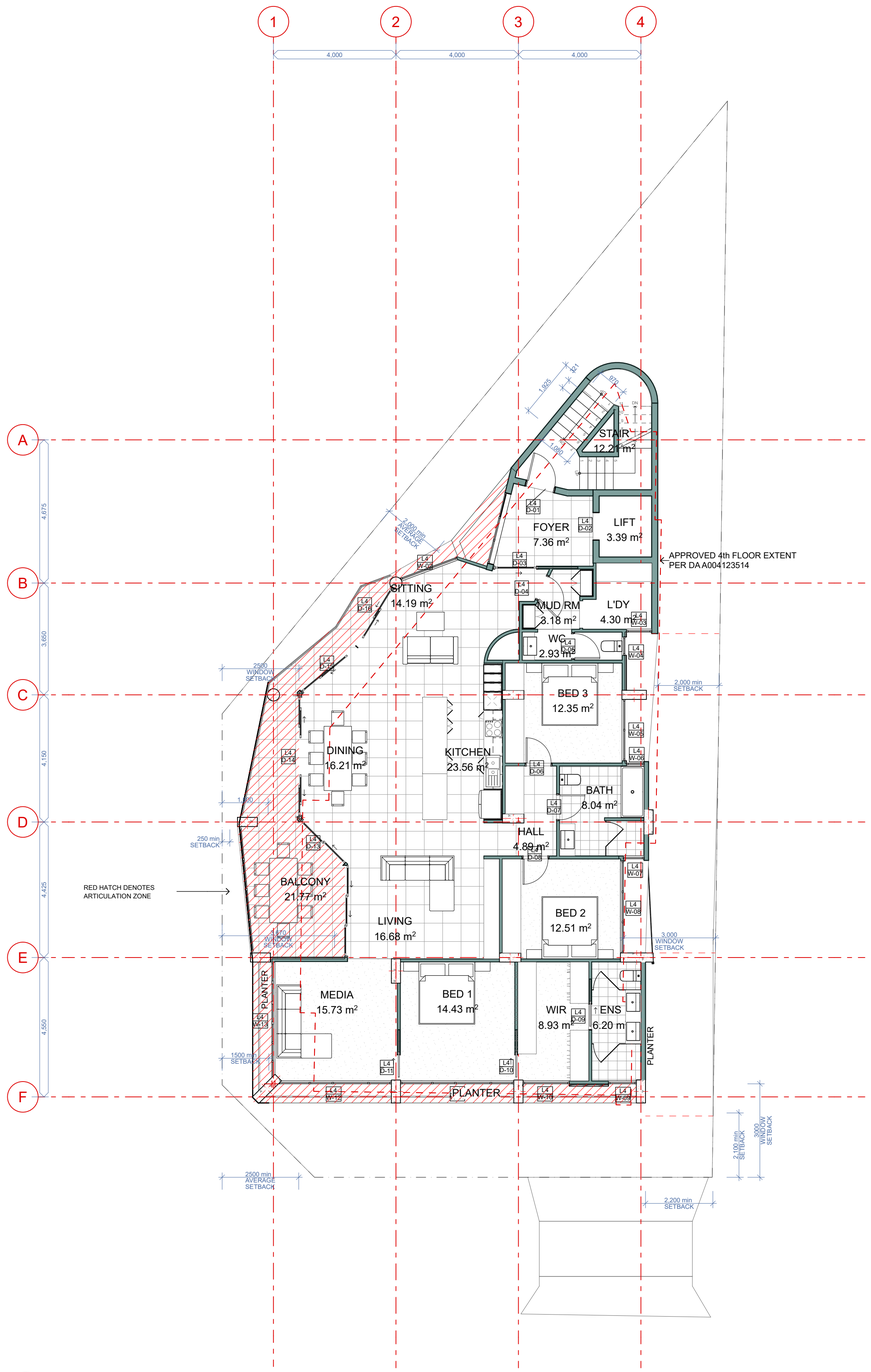
ELEVATION KEY



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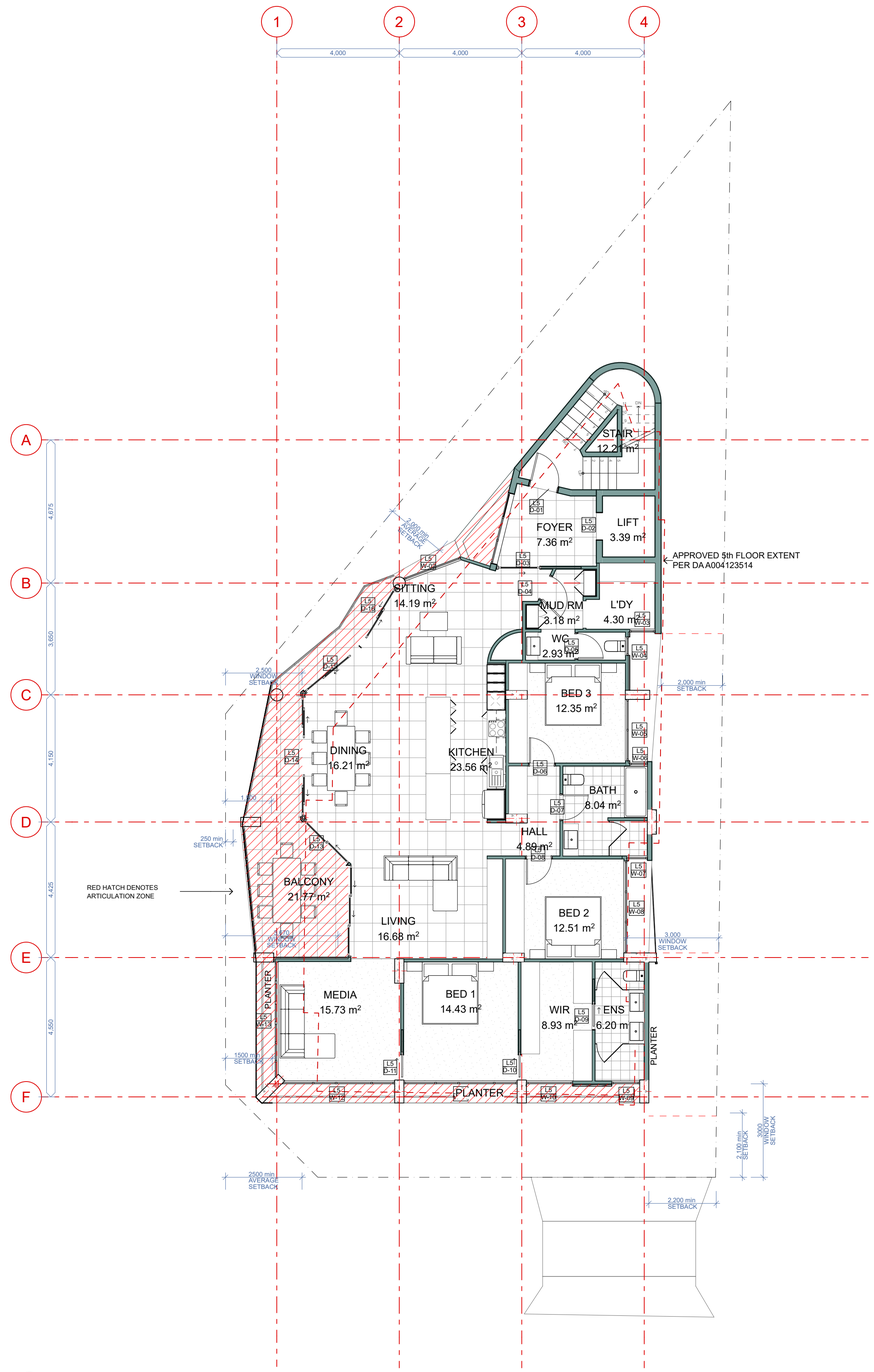

5. Fifth
Scale 1:100

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Level	**Type**	**Area**
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	PORCH	6.78
		296.64 m²
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	PRIVATE OPEN SPACE	28.76
		233.05 m²
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	LIVING (UNIT GFA)	185.28
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		228.46 m²
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	ROOFED UNENCLOSED (COMMUNAL OPEN SPACE)	67.89
	STAIR / LIFT	17.45
	UNROOFED (COMMUNAL OPEN SPACE)	33.01
		138.26 m²
		1,810.25 m²

flourish ARCHITECTURE
3/191 WARDELL ST,
ENOGGERA 4051
Phone: (07) 3311 1133
Email: info@flourisharchitecture.com.au
BOAQ No.: 4079
ABN: 15218382685

Drawn | Designed ... | MS
Plot Date: 4/06/2025
Project NO. 22013
Project Status Prelim DA

Client Anthony Mckay
Climate Zone 2
Wind Region N2/W33N
Site: 17 REGINA ST GREENSLOPES

DRAWING TITLE :
Preliminary Plans
Floor Plans

PROJECT NAME :
REGINA ST

REVISION NO.
09

DRAWING NO.
SC103

1:100 @ A1
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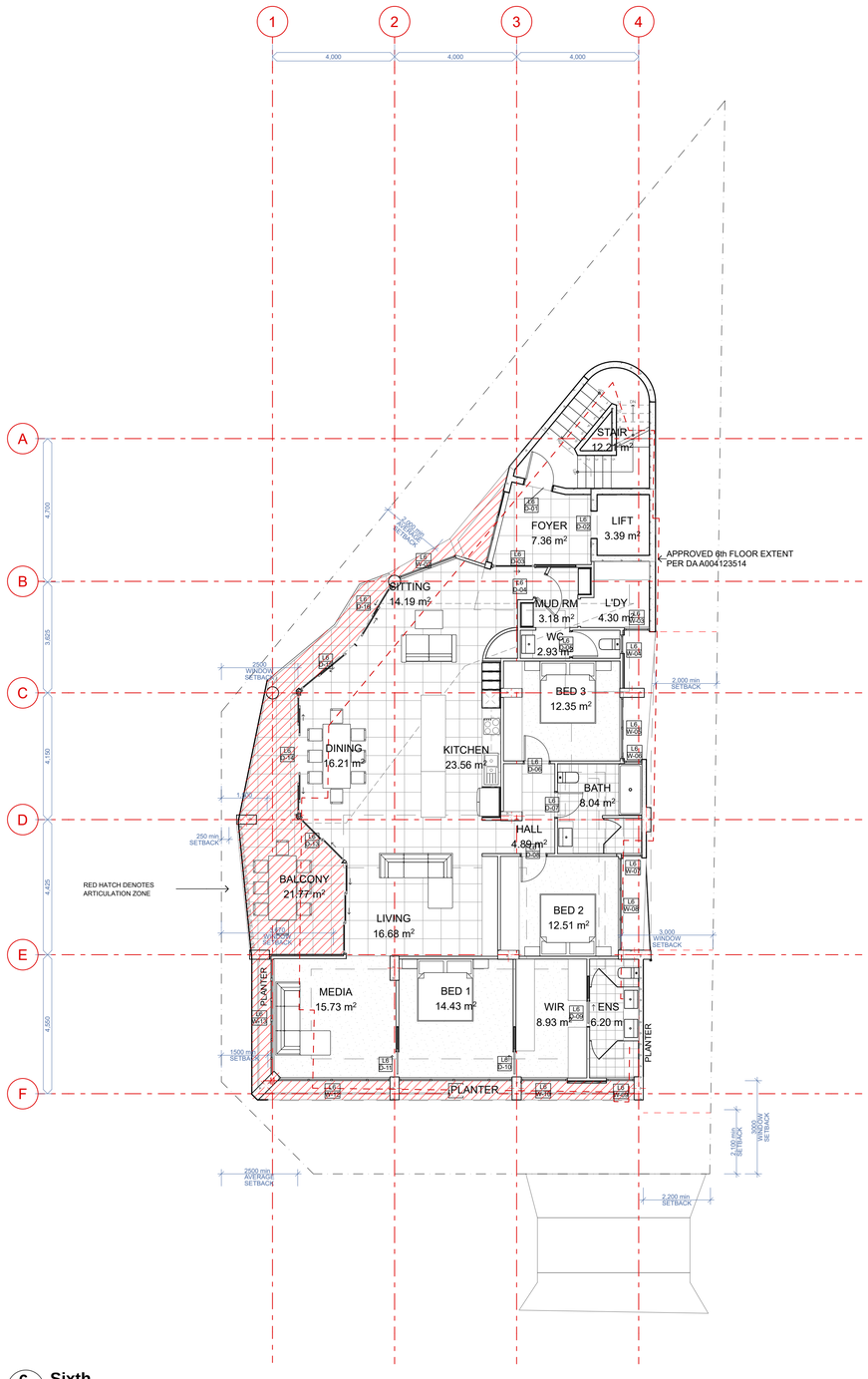
ELEVATION KEY



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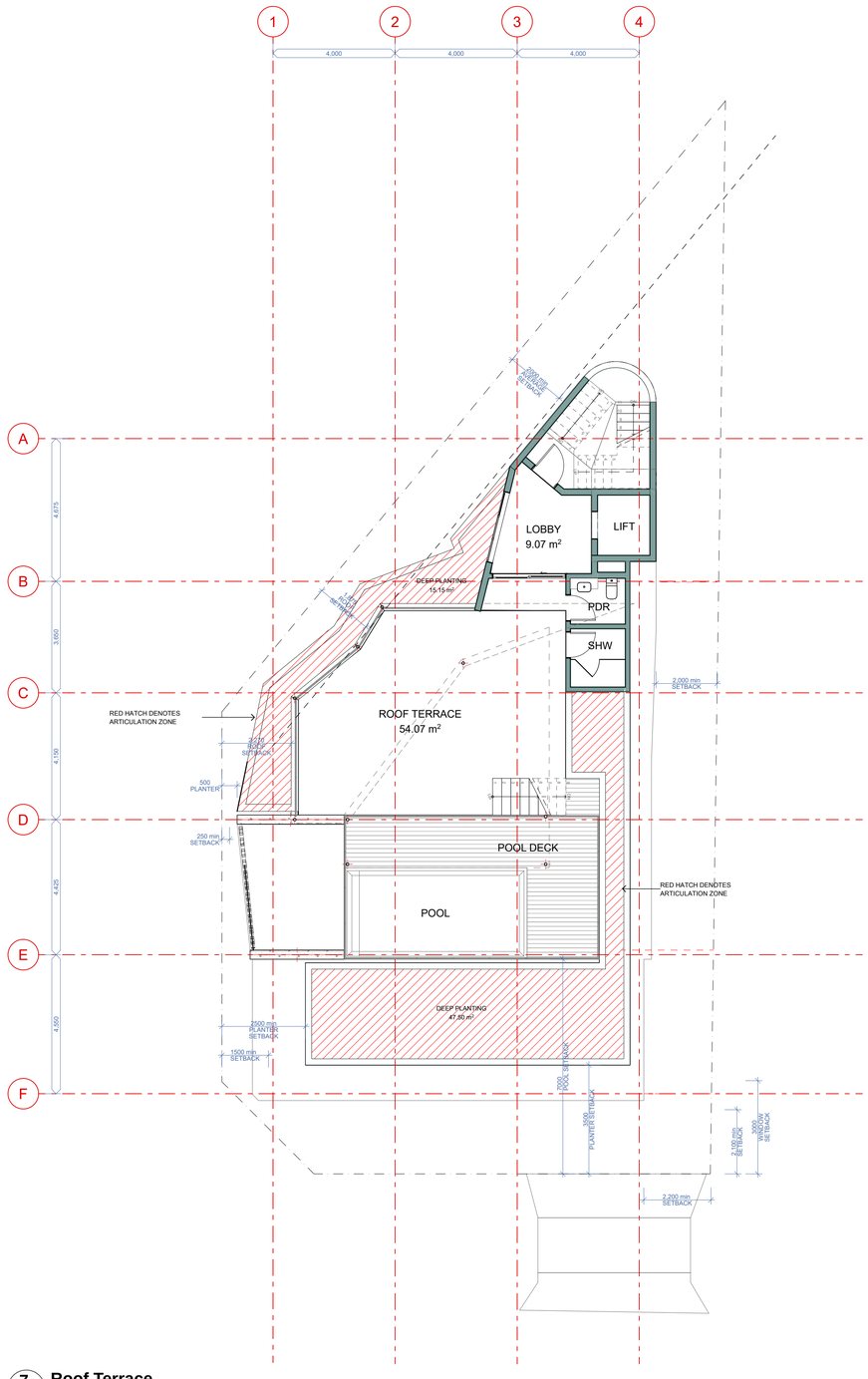

7. Roof Terrace
Scale 1:100

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TOTAL ROOF AREA	261.5 m²
Soft Landscaping	58.5 m²
(Soft Landscaping)	22.4 %
Roofed Enclosed Area	21.1m²
(Roofed Enclosed Area)	8.0 %
Total Roofed Area	72.4m²
(Total Roofed Area)	27.7 %

Area Schedule

Level	Type	Area
Ground		
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	PORCH	6.78
		296.64 m²
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	PRIVATE OPEN SPACE	24.39
		228.46 m²
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	LIFT / STAIR	18.79
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		1,810.25 m²

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ABN: 15218382685

Drawn | Designed ... | MS
Plot Date: 4/06/2025
Project NO. 22013
Project Status Prelim DA

Client Anthony Mckay
Climate Zone 2
Wind Region N2/W33N
Site: 17 REGINA ST GREENSLOPES

DRAWING TITLE :
Preliminary Plans
Floor Plans

PROJECT NAME :
REGINA ST

REVISION NO.
09

DRAWING NO.
SC104

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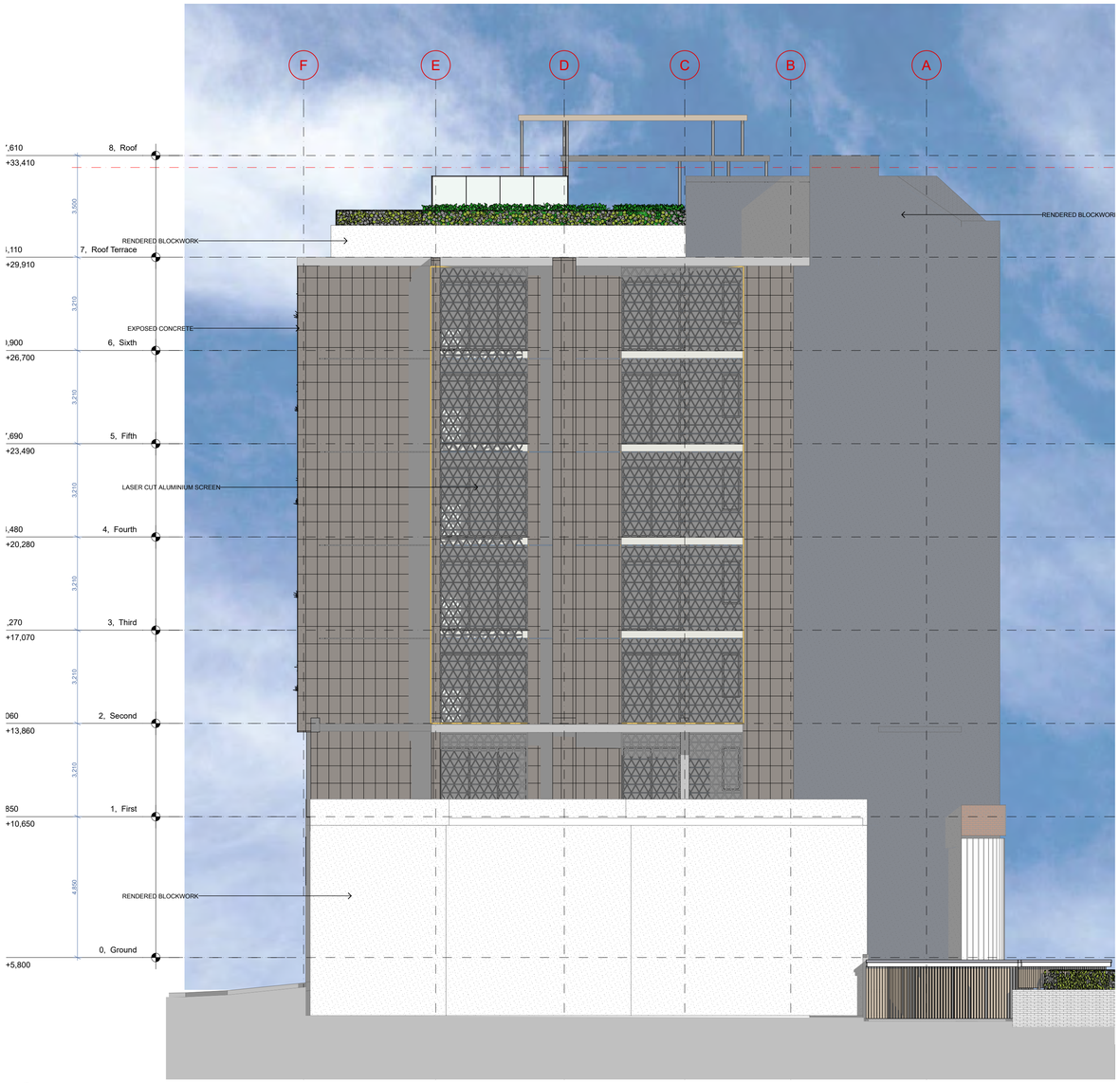

E-02 — **East Elevation**
Scale 1:100

E-01 — **West Elevation**
Scale 1:100

flourish ARCHITECTURE

3/191 WARDELL ST,
ENOGGERA 4051

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BOAQ No.: 4079
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Drawn | Designed	... | MS
Plot Date:	4/06/2025
Project NO.	22013
Project Status	Prelim DA
Client	Anthony Mckay
Climate Zone	2
Wind Region	N2/W33N
Site:	17 REGINA ST GREENSLOPES

DRAWING TITLE :
Preliminary Elevations
Elevations 1 of 2

PROJECT NAME :
REGINA ST

REVISION NO.
09

DRAWING NO.
SC301

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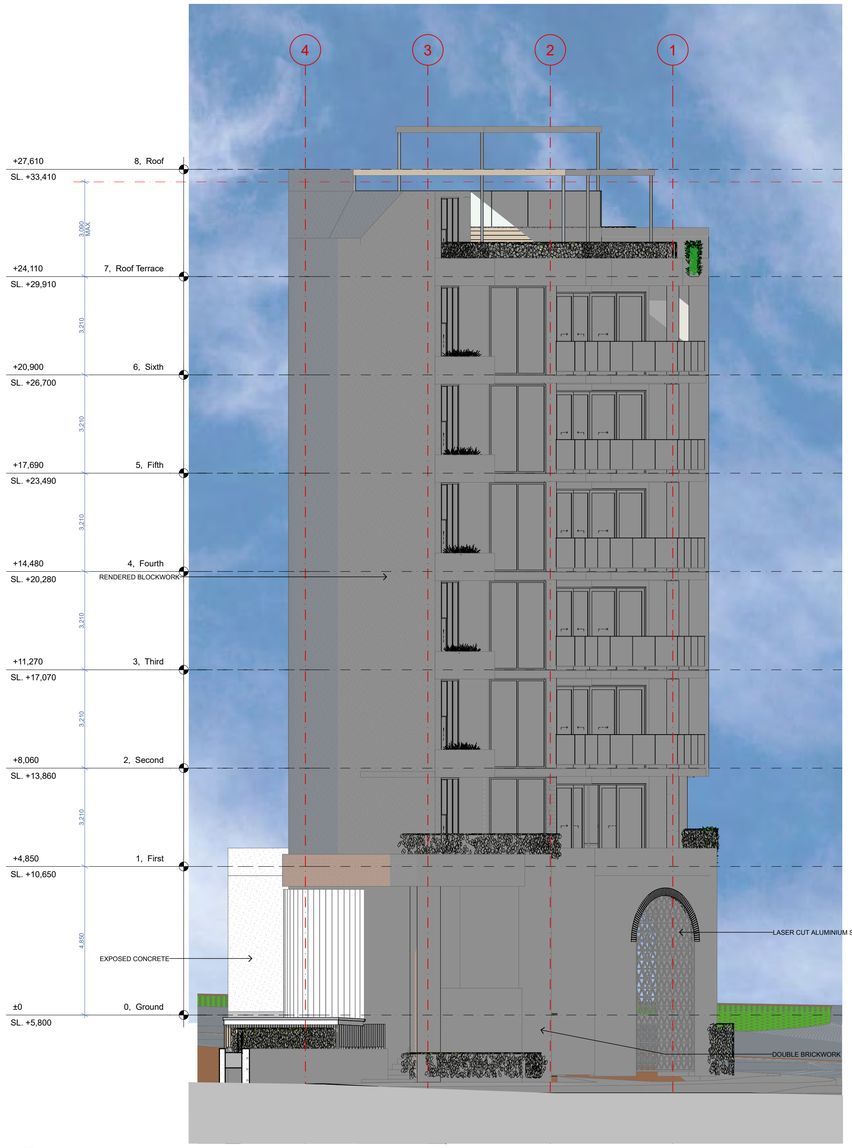
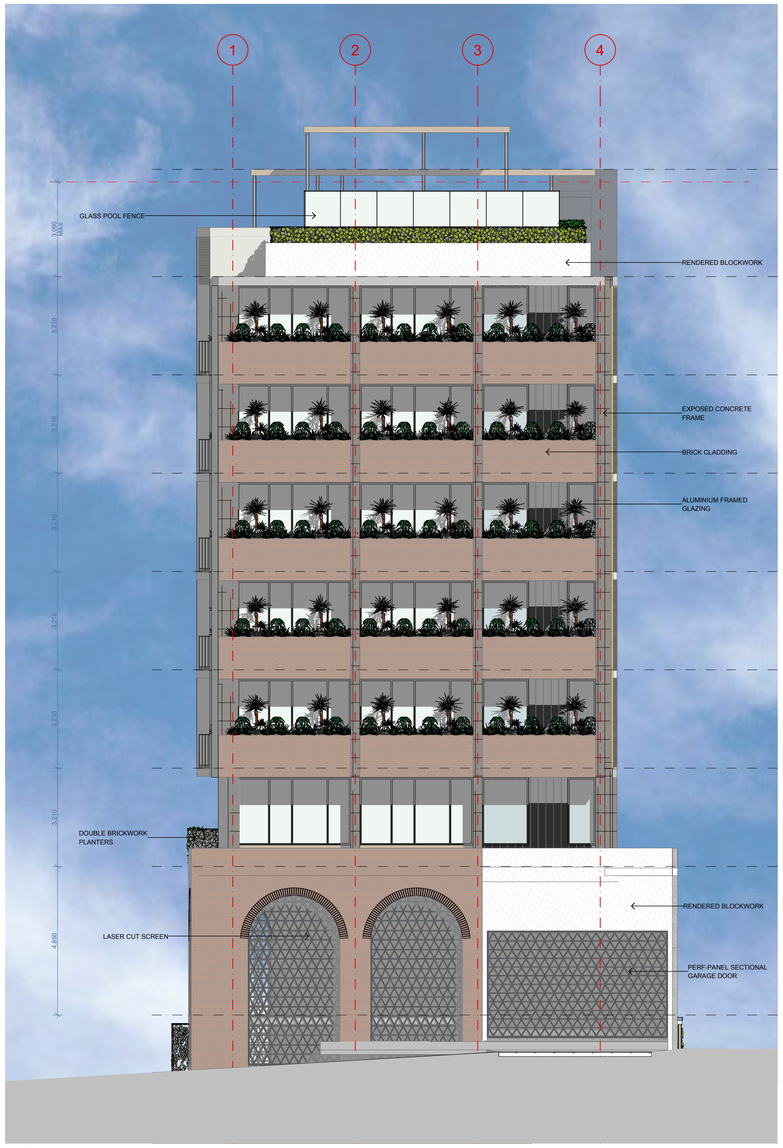


E-04 — **North Elevation**

Scale 1:100



E-03 — **South Elevation**

Scale 1:100

flourish ARCHITECTURE

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Phone: (07) 3311 1133

Email: info@flourisharchitecture.com.au

BOAQ No.: 4079

ABN: 15218382685

Drawn | Designed	... | MS
Plot Date:	4/06/2025
Project NO.	22013
Project Status	Prelim DA
Client	Anthony Mckay
Climate Zone	2
Wind Region	N2/W33N
Site:	17 REGINA ST GREENSLOPES

DRAWING TITLE :

Preliminary Elevations

Elevations 2 of 2

PROJECT NAME :

REGINA ST

REVISION NO.

09

DRAWING NO.

SC302

1:100 @ A1

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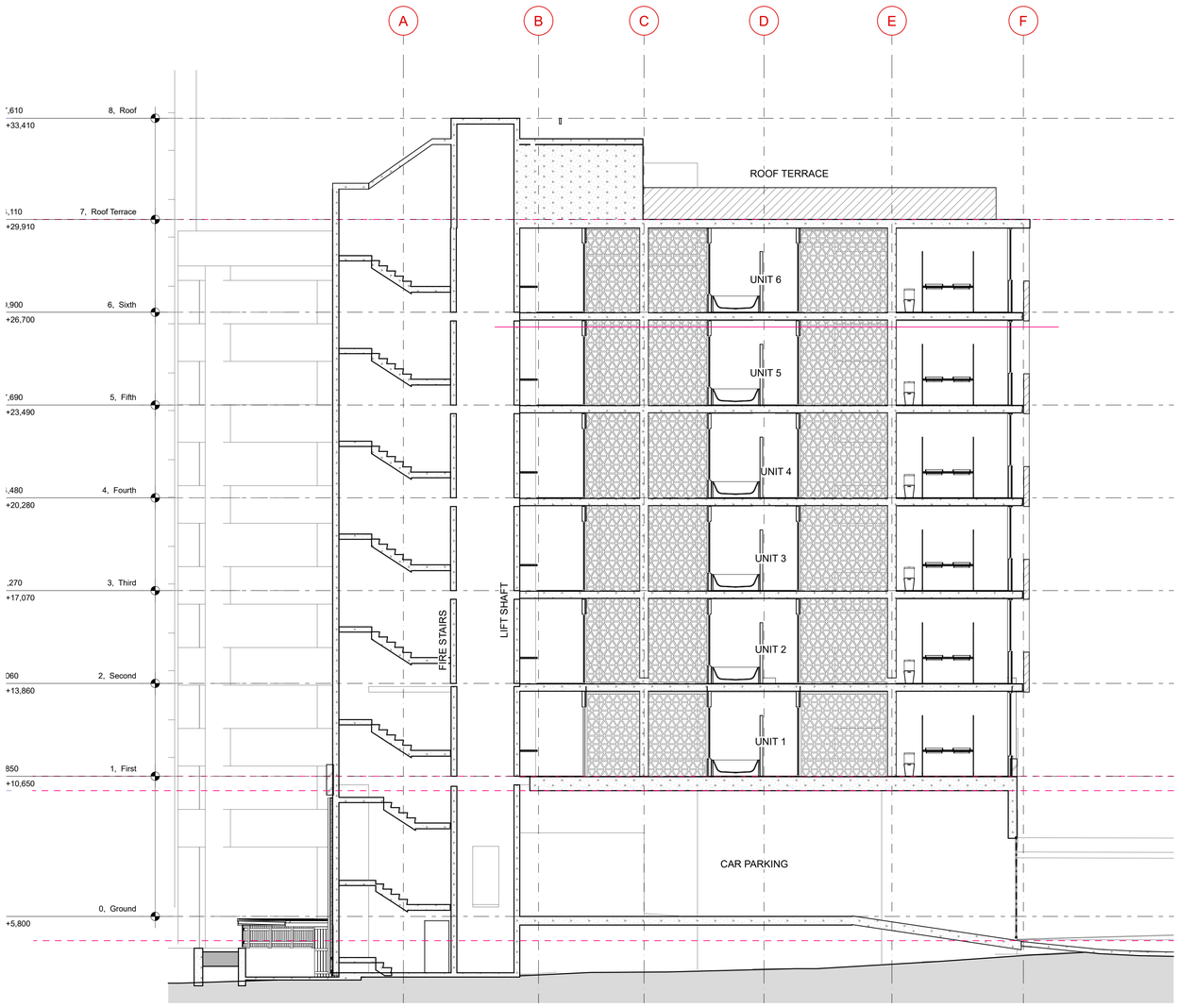
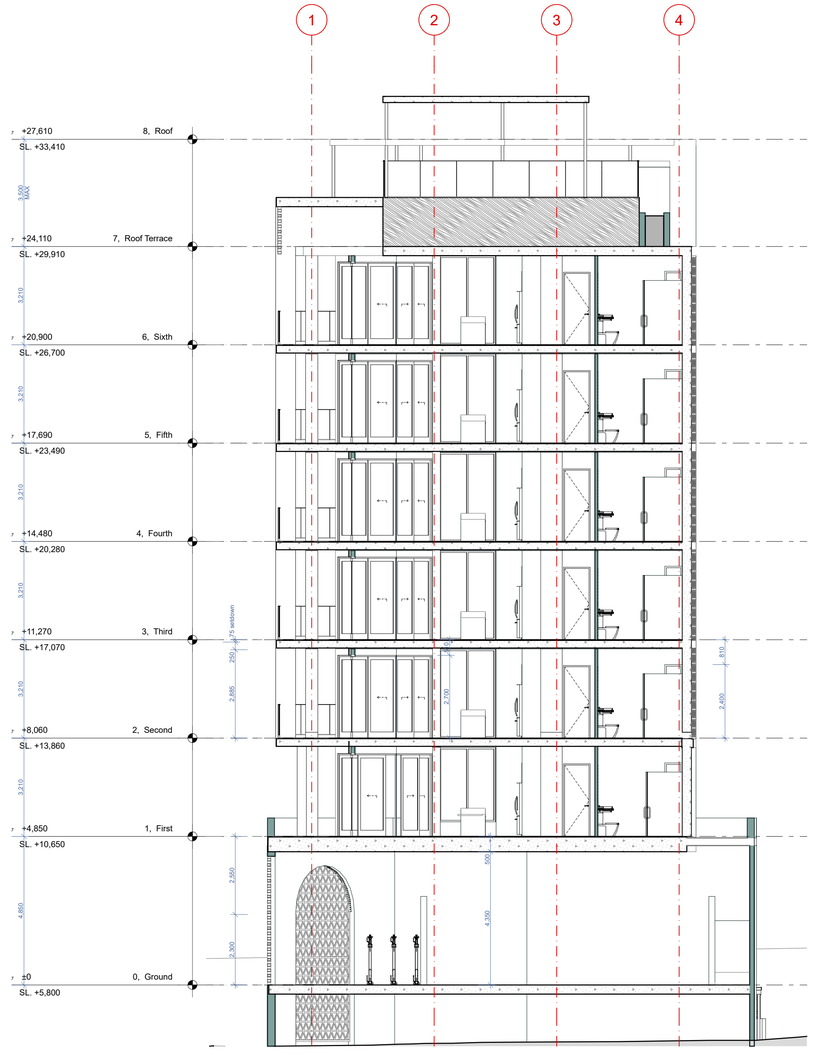


S-01 Section
Scale 1:100



S-02 Section
Scale 1:100

flourish ARCHITECTURE

3/191 WARDELL ST,
ENOGGERA 4051

Phone: (07) 3311 1133
Email: info@flourisharchitecture.com.au
BOAQ No.: 4079
ABN: 15218382685

Drawn | Designed	... | MS
Plot Date:	4/06/2025
Project NO.	22013
Project Status	Prelim DA
Client	Anthony Mckay
Climate Zone	2
Wind Region	N2/W33N
Site:	17 REGINA ST GREENSLOPES

DRAWING TITLE :
Preliminary Elevations
Sections

PROJECT NAME :
REGINA ST

REVISION NO.
09

DRAWING NO.
SC401

1:100 @ A1
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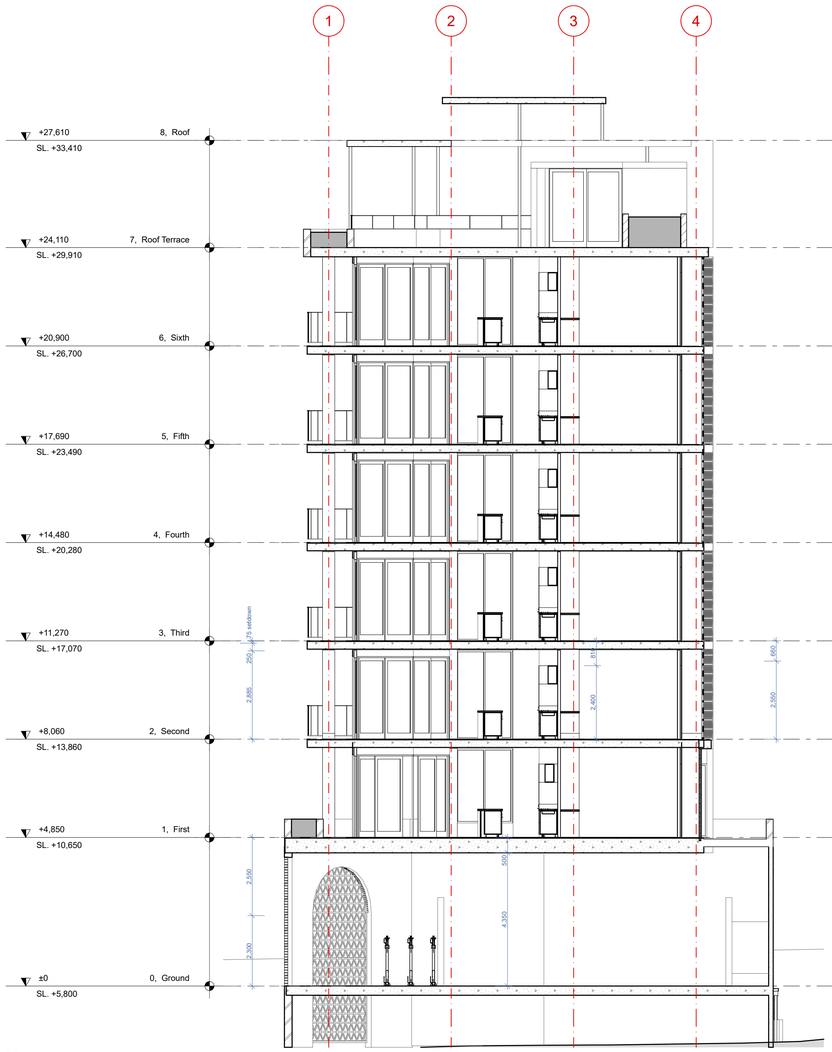

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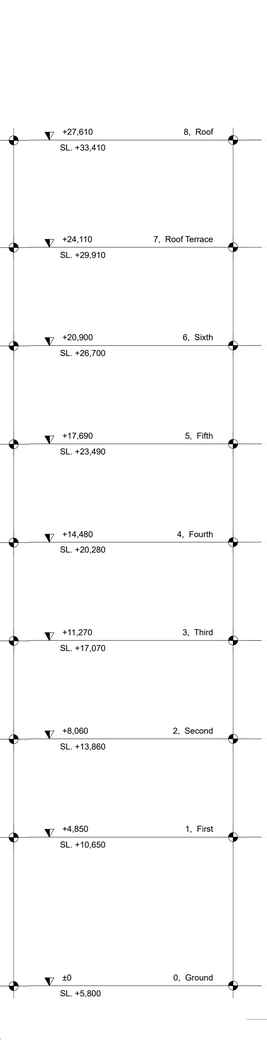
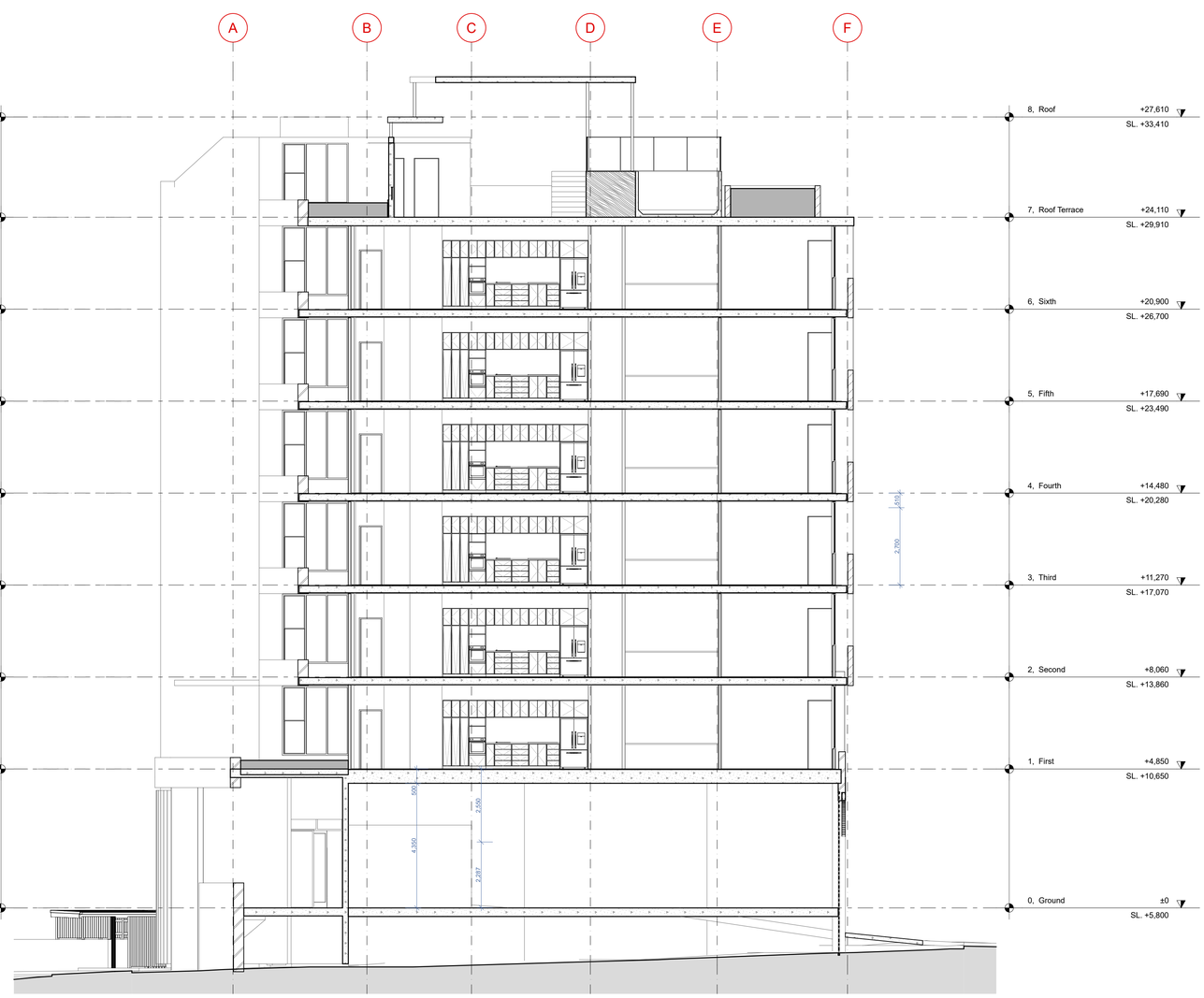


S-09 Section
Scale 1:100



flourish ARCHITECTURE

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Phone: (07) 3311 1133
Email: info@flourisharchitecture.com.au
BOAQ No.: 4079
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Drawn | Designed	... | MS
Plot Date:	4/06/2025
Project NO.	220113
Project Status	Prelim DA
Client	Anthony Mckay
Climate Zone	2
Wind Region	N2/W33N
Site:	17 REGINA ST GREENSLOPES

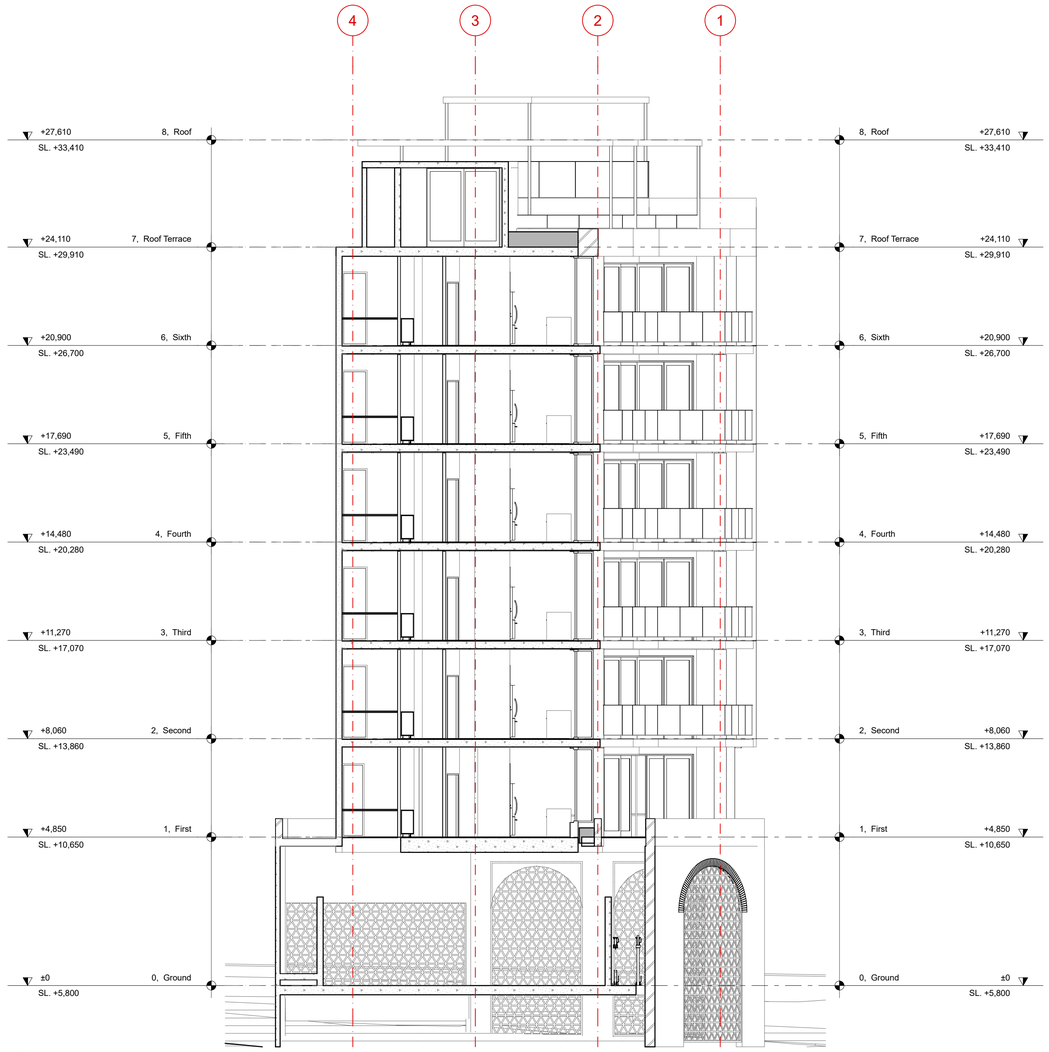
DRAWING TITLE :
Preliminary Elevations
Sections

PROJECT NAME :
REGINA ST

REVISION NO.
09

DRAWING NO.
SC402

1:100 @ A1
0 1 2m



S-10 Section
-
Scale 1:100

flourish ARCHITECTURE

3/191 WARDELL ST,
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Phone: (07) 3311 1133
Email: info@flourisharchitecture.com.au
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Drawn | Designed	... | MS
Plot Date:	4/06/2025
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Project Status	Prelim DA
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Climate Zone	2
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Site:	17 REGINA ST GREENSLOPES

DRAWING TITLE :
Preliminary Elevations
Sections

PROJECT NAME :
REGINA ST

REVISION NO.
09

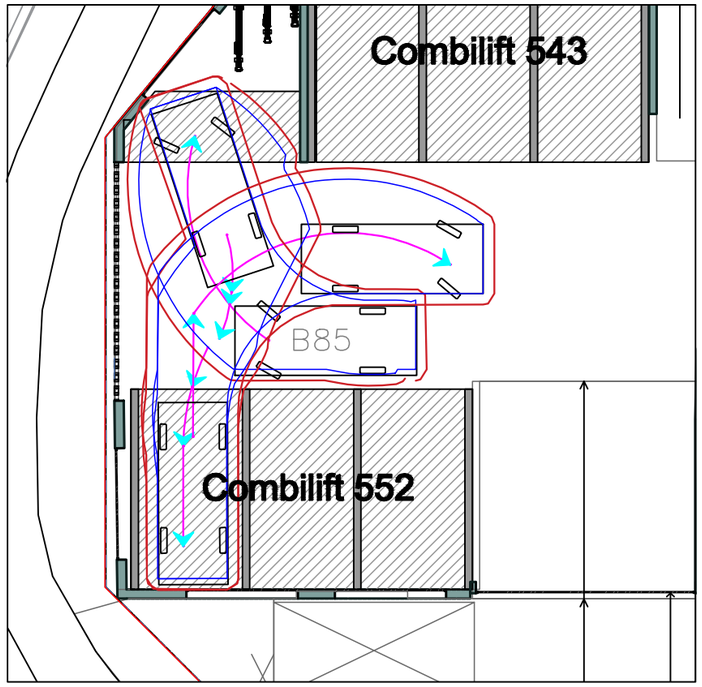
DRAWING NO.
SC403

1:100 @ A1
0 1 2m

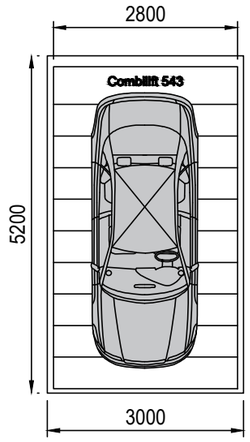
Appendix B:

Swept Path Analysis

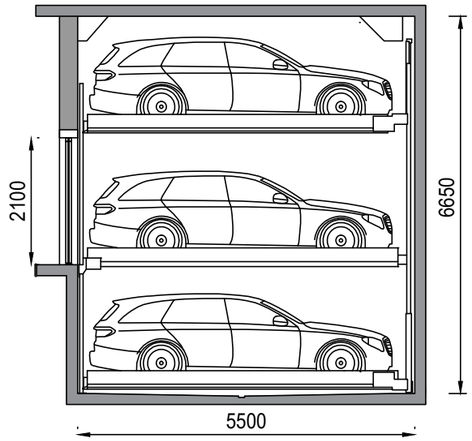
DATE PLOTTED: 3/06/2025 BY: John McKay



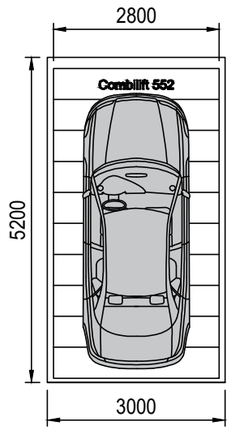
CAR STACKER 3 - B85 - REVERSE IN / FORWARD OUT



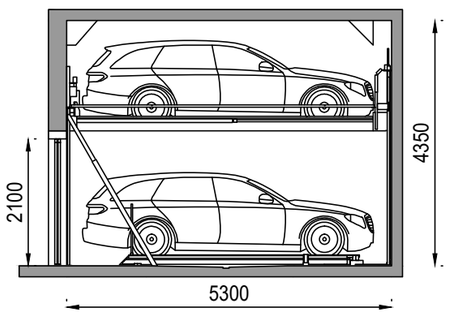
COMBILIFT 543
CAR PARK DIMENSIONS



COMBILIFT 543
SYSTEM DIMENSIONS



COMBILIFT 552
CAR PARK DIMENSIONS



COMBILIFT 552
SYSTEM DIMENSIONS

Rev.	Date	Description	Des.	Verif.	Appd.
1.0	30/05/2025	Issue			AM
0.2	16/05/2025	Updated draft for review			AM
0.1	24/01/2025	Draft for review			AM

2 1 0 2 4 6m
SCALE 1:200 - A3

Drawn Date
Checked Date
Prepared By Anthony McKay RPEQ #34738
Verified Date

Client REGINA STREET PTY LTD
Project 17 REGINA STREET
STONES CORNER
QLD, 4120
Title SWEPT PATH ANALYSIS AND
STACKER DETAILS

Status FOR INFORMATION ONLY
NOT TO BE USED FOR CONSTRUCTION PURPOSES
SHEET 1 of 1
Scale
Size
Drawing Number 25017-SKT-01
Revision 2

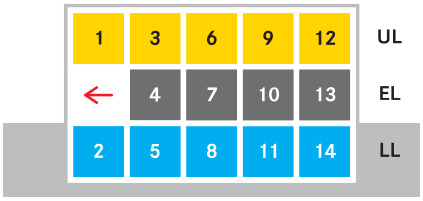
Appendix C:

Manufacturers Data Sheets

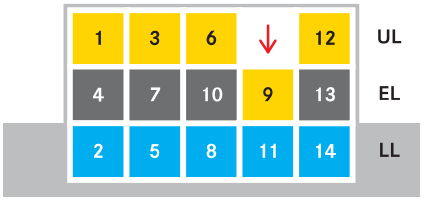
- WOHR Combilift 543
- WOHR Combilift 552

Data Sheet
WÖHR COMBILIFT 543

- **Platform load options:**
  - max. 2000 kg, load per wheel 500 kg
  - max. 2600 kg, load per wheel 650 kg (1)
- **Platform load can be increased later (also individual parking places)**
- **Platforms are in horizontal position to drive on**
- **Grid arrangement:**
  - minimum 2 grids for 5 vehicles
  - maximum 10 grids

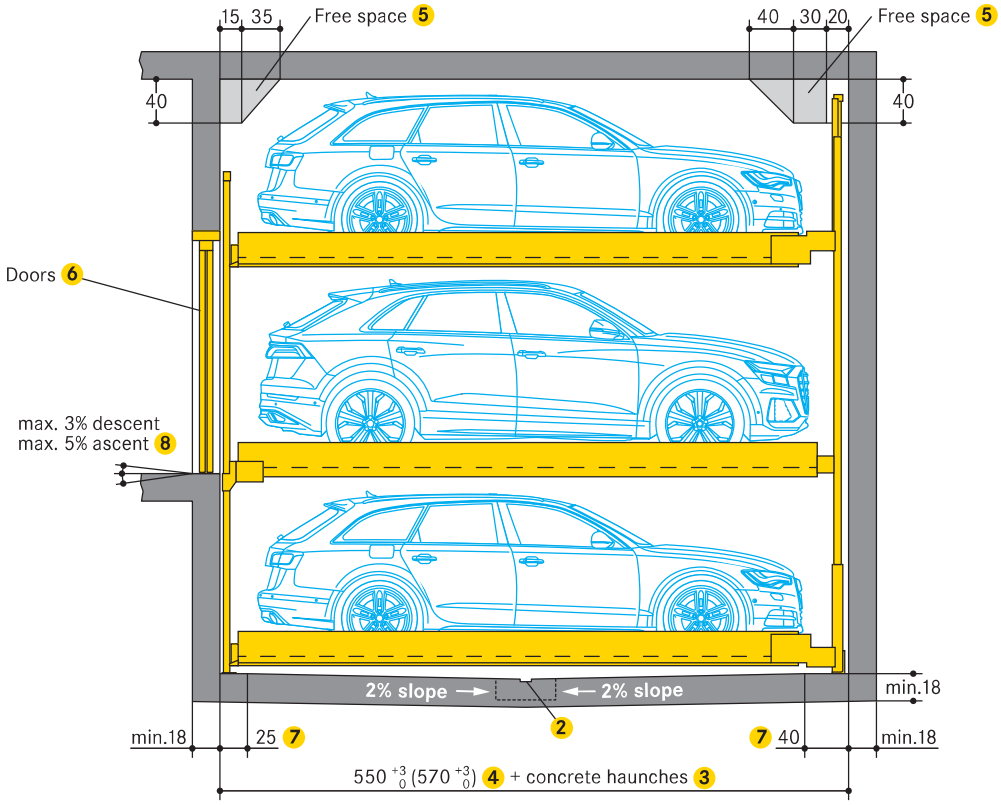


The vehicle on parking place 9 is requested. The parking places 4, 7 and 10 are shifted to the left.



Parking place 9 is lowered down to the entrance level (EL), the vehicle is now ready for exit.

Length dimensions underground car park (height dimensions see page 2)



1. Increasing of platform load at extra cost
2. Drainage channels (performed by the customer):
   - 10 x 2 cm, with a 50 x 50 x 20 cm drainage pit
   - in case of installation of a sump pump, it is necessary to comply with the drainage pit dimensions specified by the pump manufacturer
3. Channels or undercuts/concrete haunches (performed by the customer):
   - not allowed along the pit floor-to-wall joints
   - should channels or undercuts be necessary, the system width needs to be reduced or the pit needs to be wider
4. 500 cm vehicle length = 550 cm pit length
   520 cm vehicle length = 570 cm pit length
   Due to the increasing length of vehicles, we recommend a pit length of 570 cm in order to be able to park mid-range models in the future.
5. Free spaces:
   - please ask WÖHR for the dimension sheets
6. Doors (see page 5)
7. In this area, 0% of downward/upward slope in longitudinal and cross direction
8. For above ground garages with a slope, a drainage channel in the driveway is recommended

Dimensions

- all dimensions specified are the minimum, finished dimensions
- tolerances must be taken into consideration
- all dimensions are given in cm

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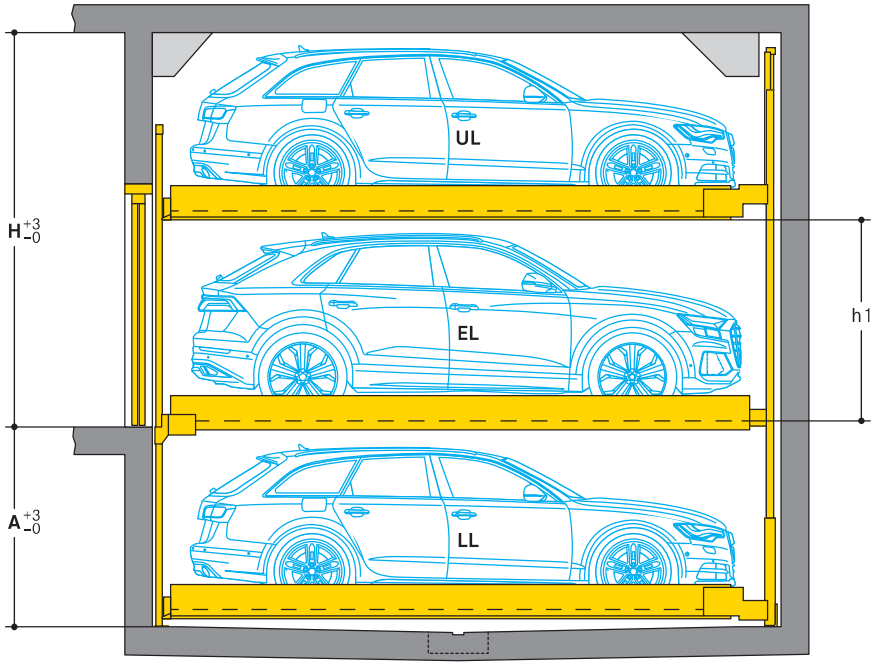
Height dimensions

Note: The vehicle height on the lower level must be equal or lower than the vehicle height on the entrance level!



Type	Height	Pit depth	Vehicle height			Platform distance
	H	A	UL (upper level)	EL (entrance level)	LL (lower level)	h1
543-200	375	200	175	175	175	180
543-200	405	200	175	205	175	210
543-230	435	230	205	205	205	210
543-175	345	175	150	170	150	175
543-175	405	175	175	205	150	210
543-200	350	200	150	175	175	180
543-200	380	200	180	175	175	180
543-200	410	200	180	205	175	210
543-210	405	210	175	205	185	210

Passenger car registrations in Germany

Orientation aid for height dimensions: With a system type from the table above, which for example covers cars up to 175 cm in height, 92.81 % of all cars registered in Germany can be parked.

Height	Examples of models	Passenger car registrations
143,5	Opel Corsa	33,27 % — up to 150 cm*
144,1	VW Passat	
147,3	Audi A8	
161,5	VW ID.5	91,25 % — up to 170 cm*
166,8	BMW iX3	
168,1	Skoda Kodiaq	
171,2	Audi Q7	92,81 % — up to 175 cm*
171,8	Mercedes Benz EQS SUV	
172,7	Volvo XC90	
177,8	Ford Explorer	93,76 % — up to 180 cm*
179,7	Mercedes Benz GLE	
179,7	VW Caddy Kombi	
188,0	VW Amarok	99,27 % — up to 205 cm*
191,4	Land Rover Defender	
193,8	VW ID.Buzz	

* Due to different equipment, vehicles of the same design may have different heights. The maximum heights have been taken into account.
Source: German Federal Motor Transport Authority, 2022 (evaluation for motor vehicles registered in Germany for passenger transport with up to 9 seats).

Decision support for the vehicle height

Choosing the right vehicle height for your project is essentially based on any building regulations, user expectations and building specifications. Criteria can include:

Residential buildings:
Different parking space heights are conceivable and can affect the sales price. For example, lower parking spaces could be provided for higher vehicles. This results in more convenient access to the vehicle. Less high vehicles in the upper parking spaces and thus reduced building height and less enclosed space. The ramp to the underground car park will be less steep or less long. To make it easier to sell parking spaces, we recommend that the vehicle heights be the same.

Office buildings:
For this parking concept, we recommend the same vehicle height for all parking spaces. If permanently assigned parking spaces are preferred for parking permittees, different parking space heights could be provided.

Hotels:
Whether city hotel, vacation hotel or vacation apartments: With changing occupancy, all parking spaces should have the same vehicle height. Maximum parking space heights should be selected to allow parking for vehicles with roof-mounted structures, if necessary.

Example residential buildings

Vehicle height UL	175 cm
Vehicle height EL	205 cm
Vehicle height LL	175 cm

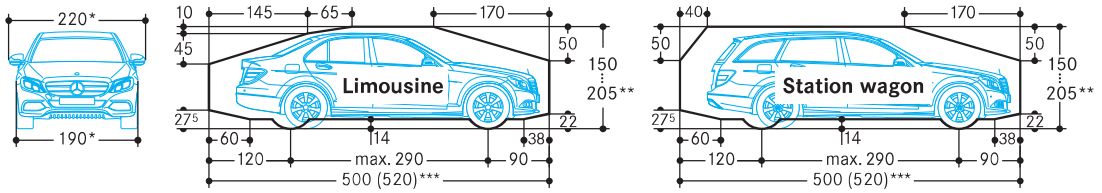
Type	Height	Pit depth	Vehicle height			Platform distance
	H	A	UL (upper level)	EL (entrance level)	LL (lower level)	h1
543-200	405	200	175	205	175	210

Example office building and hotels

Vehicle height UL	205 cm
Vehicle height EL	205 cm
Vehicle height LL	205 cm

Type	Height	Pit depth	Vehicle height			Platform distance
	H	A	UL (upper level)	EL (entrance level)	LL (lower level)	h1
543-230	435	230	205	205	205	210

Clearance profile (for standard vehicles)



* for a 250 cm platform width

** The overall vehicle height including roof luggage rails an antenna mounts must not exceed the max. vehicle height dimensions specified

*** see page 1

Width dimensions

Platform widths:

250 cm:
– for 190 cm vehicle width (without outside mirror)

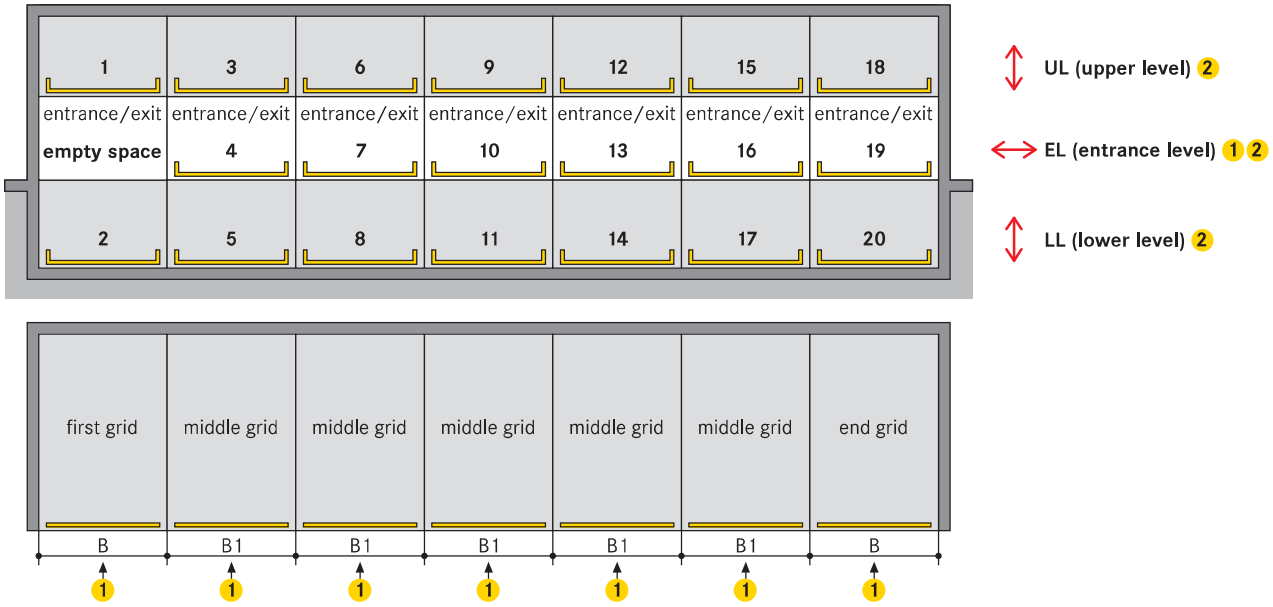
260–300 cm:
– for vehicles wider than 190 cm (without outside mirror)

270–300 cm:
– for units at the end of the driving aisle

For comfortable parking, entry and exit conditions platform widths upon 270 cm are recommended.
Reduced platform width means reduced parking comfort depending on the vehicle width, vehicle type, individual driving style, access situation of the (underground) garage.

With a 90° arrangement of the parking places, we recommend widening the driving aisle to at least 700 cm or a wall recess (see below).

Width dimensions (underground car park)



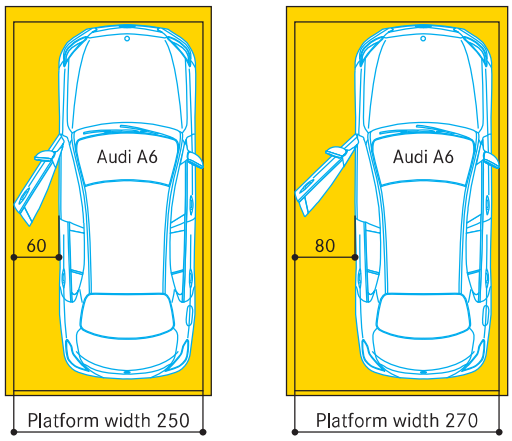
Space requirements B	Space requirements B1	clear platform width
280	270	250
290	280	260
300	**290**	**270**
310	**300**	**280**
320	**310**	**290**
330	**320**	**300**

1 One entry/exit is required on entrance level (EL) for each grid

2 For a comfortable parking process and comfortable conditions for getting in and out of the car, we recommend platform widths of at least 270 cm. Smaller platform widths are possible but not recommended (please contact WÖHR).

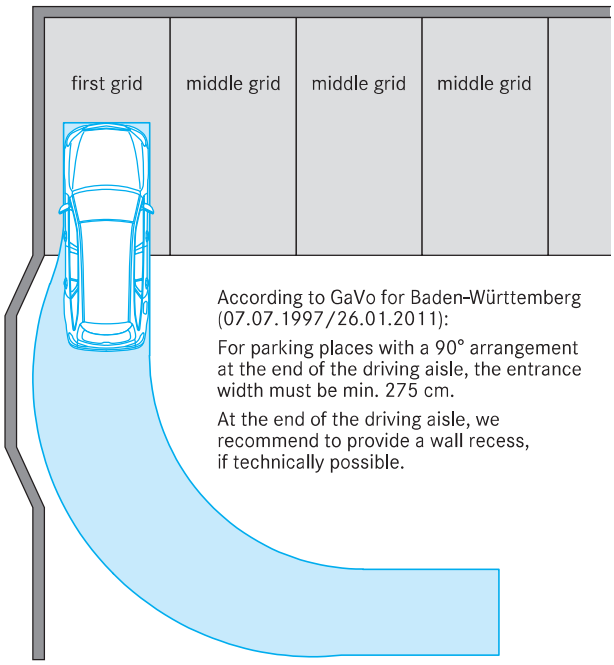
3 It is not possible to combine different platform widths

Door opening dimensions



Depending on the vehicle model and the parking position of the vehicle on the platform, the space for opening the door varies. For comfortable conditions for getting in and out of the car, we recommend platform widths of at least 270 cm.

Wall recess



According to GaVo for Baden-Württemberg (07.07.1997/26.01.2011):

For parking places with a 90° arrangement at the end of the driving aisle, the entrance width must be min. 275 cm.

At the end of the driving aisle, we recommend to provide a wall recess, if technically possible.

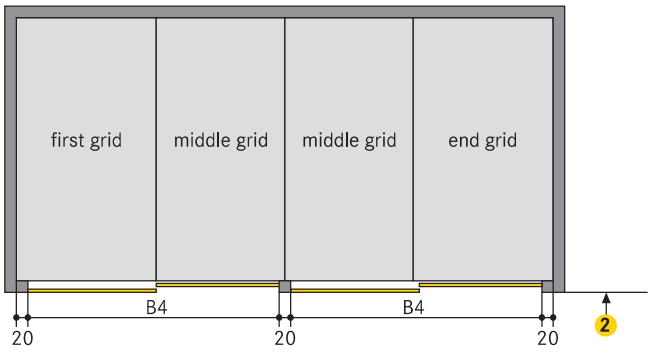
Doors

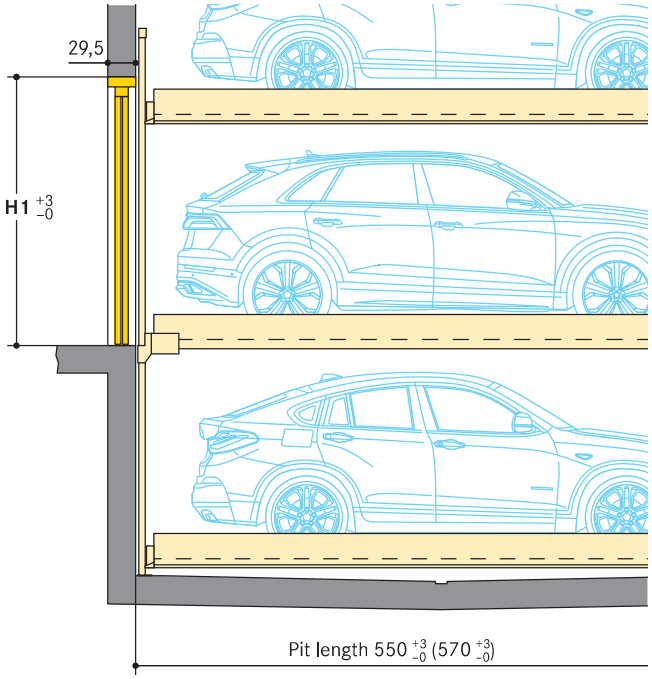
According to DIN EN 14010 doors are required.

Automatic sliding doors:
- electrical drive
- controls are integrated in the overall system
- electro-mechanically interlocked
- can only be opened when the selected parking place has reached the entry/exit position
- any crash openings are closed in the entrance area

Local requirements for electrical doors regarding the technology, maintenance and revision are not subject of our delivery. These matters have to be observed and carried out by the customer, according to the local regulations.

Sliding doors below the lintel between the building pillars 1





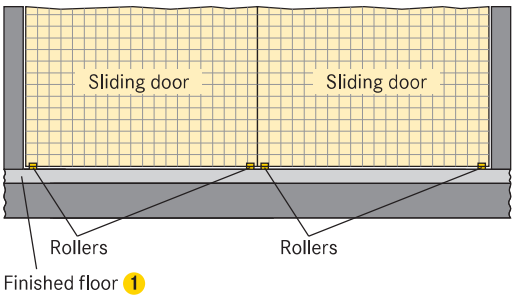
Space requirements B4	clear platform width
520	250
540	260
560	**270**
580	**280**
600	**290**
620	**300**

	Vehicle height EL (entrance level)		
	170	**175**	**205**
H1	220	220	220

1 Doors that are directly attached to the steel structure are possible (please contact WÖHR)

2 The driving aisle width must comply with local regulations

Sliding door floor guides



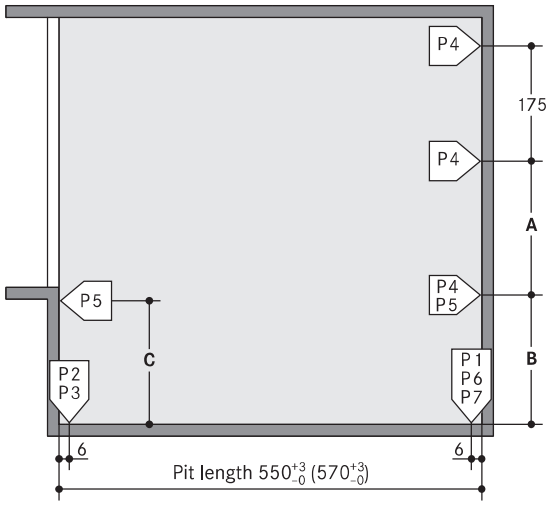
1 Finished floor:
- compliant to DIN 18353,
- floor evenness compliant to DIN 18202, table 3, line 3

2 Floor guide section:
- base plate with plastic rollers
- fixed on the floor with adhesive anchor (M8 internal screw thread)
- borehole depth approx. 9 cm
- in the event that floor filling needs to be laid into the door section to the purpose of reaching the required floor evenness, the borehole depth needs to be increased by the thickness of the floor fill (max. 4 cm)

3 If the driving aisle is made of concrete blocks, asphalt etc., the concrete slab of the pit edge in the door area must be min. 29,5 cm wide

Static calculations and construction works requirement

Section



Type	A	B	C
543-175	141	168	135
543-200	166	193	160
543-210	166	203	170
543-230	196	223	190

543 (2000 kg)	
P1	+ 70,0 kN*
P2	+ 49,0 kN
P3	+ 25,0 kN
P4	± 5,0 kN
P5	± 2,5 kN
P6	± 30,0 kN
P7	± 15,0 kN

543 (2600 kg)	
P1	+ 80,0 kN*
P2	+ 70,0 kN
P3	+ 35,0 kN
P4	± 5,0 kN
P5	± 2,5 kN
P6	± 30,0 kN
P7	± 15,0 kN

*specified load bearing data includes the vehicle weight

Fixing of the system frames to the floor slab:
- using base plates (approx. 350 cm²)
- using adhesive anchor bolts
- hole depth to 12–14 cm
- bottom plate in concrete
- thickness of bottom plate min. 18 cm

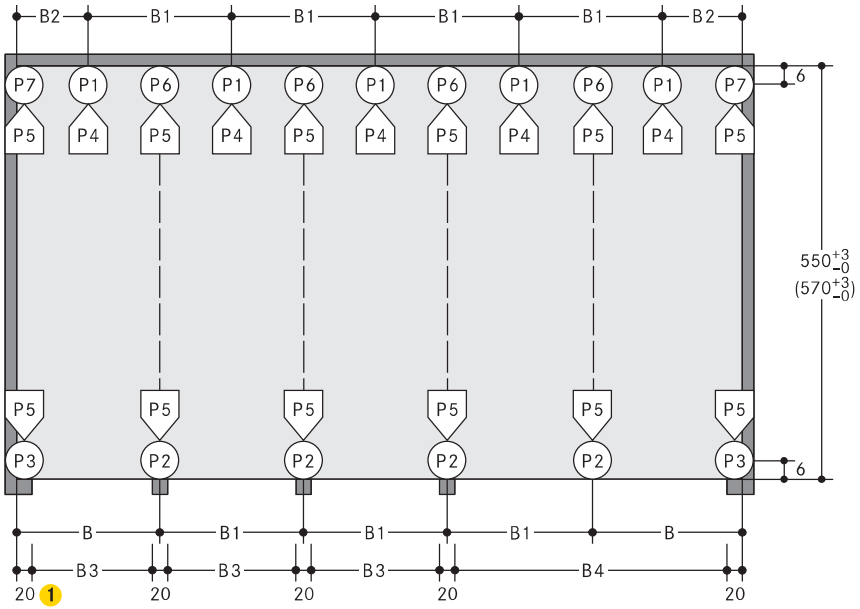
Fixing of the system frames to the walls:
- with walls plates (approx. 30 cm²)
- using adhesive anchor bolts
- hole depth to 12–14 cm
- front drive-in wall and rear wall in concrete
- perfectly flat wall surfaces
- without protruding sections such as border edgings, pipes and tubes, etc.
- thickness of walls min. 18 cm

Concrete quality grade:
- compliant to the static requirements of the construction
- min. C20/25 grade (for dowel fastening)

Frame bearing points:
- the specified lengths are expressed as mean value
- for the exact data, specific TÜV-tested data sheets are available

Door widths/widths of columns:
- please contact WÖHR
- grid width (270/280/290/300/310/320) must be observed

Ground plan

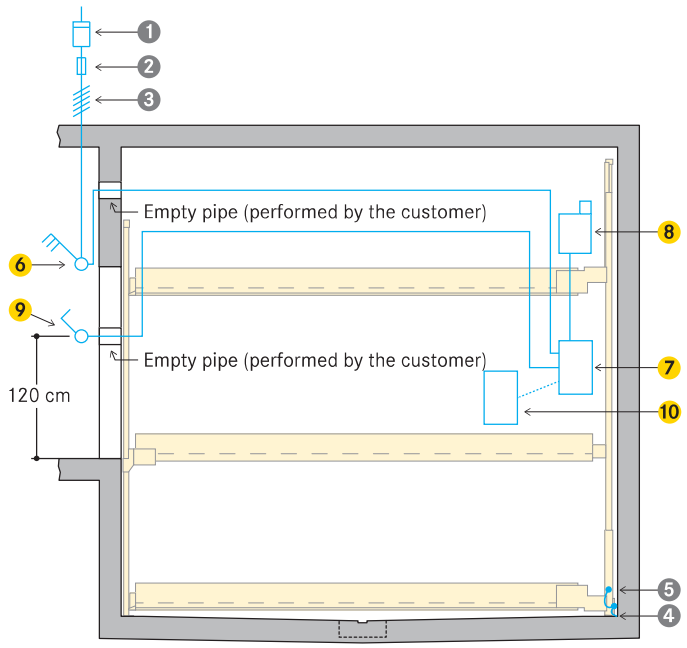


Space requirements B	B1	B2	B3	B4	clear platform width
280	270	145	250	520	250
290	280	150	260	540	260
300	**290**	**155**	**270**	**560**	**270**
310	**300**	**160**	**280**	**580**	**280**
320	**310**	**165**	**290**	**600**	**290**
330	**320**	**170**	**300**	**620**	**300**

1 If the width of the pillars is more than 20 cm, than the width of the drive through will be reduced accordingly to the above mentioned width dimensions (B and B1). In order to avoid this, we recommend to extend the measures between the pillars (B3 and B4) accordingly. Please contact WÖHR.

Electrical specifications

Installation diagram



Cabling preparation to be performed by the customer:

- up to the main switch to be in place prior to starting the installation operations
- connection to the main switch during installation
- system functional check testing can be performed by WÖHR together with the electrician provided by the customer
- if requested at a later date, functional check testing can be performed by WÖHR at extra-cost

Grounding and potential equalisation (to be performed by the customer):

- compliant to DIN EN 60204
- connections required every 10 metres

To be performed by the customer

Item	Quantity	Description	Position	Recurrence
1	1 piece	Power meter	In the feed cable	
2	1 piece	Fuse protection or automatic circuit breaker:*	In the feed cable	1 x per system
3	Based on site conditions	Compliant to local power supply regulations 3 phases + N + PE* 230/400 V, 50 Hz	Feed cables to main switch including connection	1 x per system
4	Every 10 m	Grounding and potential equalisation lead-out connection	Along pit floor edges/rear wall	
5	1 piece	Grounding and potential equalisation compliant to DIN EN 60204	From lead-out connection to system	1 x per system

Motor	Starting current	Fuse protection	Platform load
3,0 kW	24 A	3 x 16 A (11 kW)	2000 kg/2600 kg

* Compliant to DIN VDE 0100 sections 410 and 430 (no permanent load) 3 phases + N+ PE (three phase current)

Scope of delivery by WÖHR (unless otherwise specified in the order)

Item	Description
6	Lockable main switch
7	Main switch cabinet for grid 1–4
8	Hydraulic power pack 3.0 kW with three-phase motor. Ready-wired switching cabinet with motor safety contactor
9	Operating device
10	Extra switch cabinet for grid 5–8

Notes and directions

Scope of application

- suitable for residential buildings, office buildings and business premises, hotels
- only for long-term users that have been instructed on how to use the system
- for frequently changing users (e.g. for office, hotel and business premises or similar):
  - performance of technical system adjustments is necessary
  - please consult with WÖHR

Function

- one empty space per unit on entrance level
- platforms on entrance level are moved sideways
- platforms on the upper and lower levels are lifted or lowered to the empty space on the entrance level

Numbering of the parking places

- empty space on the entrance level on the left
- numbering:

- the numbering for each unit starts with 1
- different numbering of parking places is possible at extra cost (software changes are necessary)

Hydraulic power pack

Arrangement of the hydraulic power pack:
- within the unit

Noise protection

Basis is the German DIN 4109 “Noise protection in buildings”.

With the following conditions required 30 dB (A) in rooms can be provided:

- noise protection package from our accessory
- insulation figure of the construction of min. $R'_W = 57$ dB
- walls which are bordering the parking systems must be done as single wall and deflection resistant with min. $m' = 300$ kg/m²
- solid ceiling above the parking systems with min. $m' = 400$ kg/m²

At differing constructional conditions additional sound absorbing measures are to be provided by the customer.

The best results are reached by separated sole plates from the construction.

Increased sound insulation (separate agreement):

It is based on VDI 4100 „Sound insulation in building construction“ Assessment and proposals for increased sound insulation.

Under the following conditions, 25 dB (A) can be complied with in living spaces and bedrooms:

- sound insulation package according to offer/order
- Sound insulation value of the building structure of min. $R'_W = 62$ dB (to be performed by the customer)

Note:
User noises are not subject to the requirements (see VDI 4100, Scope - Notes). User noises are basically noises that can be individually influenced by the user of the parking systems (e.g. driving on the platform, closing of vehicle doors, engine and brake noises).

Drainage

Water leaks into the pit:
- in the winter, up to 40 litres of snow water can possibly come with the wheel housings in just one parking process

Drainage channels:
- along the middle section of the pit
- connecting to a floor drain or drainage pit (50 x 50 x 20 cm)
- with manual emptying out of the drainage pit
- alternatively installation of a pump or drainage channel into the sewerage system, to be performed by the customer

Sideways slope drainage:
- only into a gutter
- not possible in the remaining pit section

Lengthways slope drainage:
- provided according to specified construction dimensions

Environmental safety:
- coating of the pit flooring is recommended
- installation of an oil and/or petrol separator unit between the drainage connection and the main sewerage system is recommended

Conformity examination (TÜV)

- voluntary conformity assessment by the TÜV SÜD

The parking systems are compliant to:
- EC Machinery Directive 2006/42/EC
- DIN EN 14010
- Specification VDMA 15423

Switch cabinet

Arrangement of the switch cabinet:
- within the unit

Temperature

- system operating range: +5° bis +40° C (with unloaded platforms and low temperatures, a reduced lowering speed is to be expected)
- humidity: 50 % at +40° C
- if use in deviating temperature ranges is planned, constructive adjustments may be necessary (please consult with WÖHR)

Lighting

- sufficient lighting of the driving aisle and of the parking places must be performed by the customer

Fire safety

- all fire safety requirements and all mandatory equipment (fire extinguisher and fire alarm systems, etc.) must be performed by the customer
- WÖHR will provide documents on attachment points and clearances for sprinklers on request

Railings

If walkways are arranged directly to the side or behind the systems, railings have to be provided by the customer acc. to local requirements, height min. 200 cm – this is applicable during the construction phase too.

Maintenance

- WÖHR and all the WÖHR partners abroad provide an installation and customer service network
- regular, annual maintenance is provided subject to the stipulation of a maintenance agreement
- local requirements for electrical doors regarding the technology, maintenance and revision are not subject of our delivery. These matters have to be observed and carried out by the customer, according to the local regulations.

Prevention of corrosion damage

- all operations listed in the WÖHR Cleaning and Maintenance Instructions are to be performed regularly (independently of maintenance operations)
- zinc-plated parts, components and platforms are to be kept clean of dirt, road-salt and any other debris (due to corrosion hazards)
- always keep the garage well ventilated and deaerated

Surface protection

- please consider the information on surface protection!

Tender specification

- please consider the specifications!

Parking Place-Profile

- please consider the product information Parking Place-Profile!

Electromobility

- please consider the product information power supply!
- depending on the position of the charging point on the electric vehicle, collision points with protruding plugs and charging cables can occur

Sliding doors and Operating concepts

- please consider the product information Sliding doors and Operating concepts!

Construction formalities

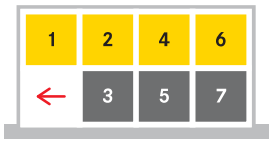
- the documentation necessary for construction permit applications is provided by WÖHR on demand

Construction alterations and/or modifications

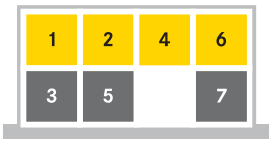
- the right to construction or model modifications and/or variations is hereby reserved
- the right to any subsequent part modification and/or variation and amendments in procedures and standards due to technical and engineering progresses or due to environmental regulation changes is also hereby reserved

Data Sheet
WÖHR COMBILIFT 552/552_MR

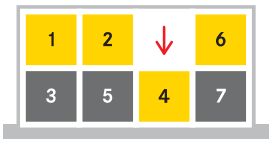
- **For driving through to reach a rear parking in combination with:**
  – Combilift 552, 542, 543
- **Platform load options:**
  – max. 2000 kg, load per wheel 500 kg
  – max. 2600 kg, load per wheel 650 kg (1)
  – max. 3000 kg, load per wheel 750 kg (1)
- **Platform load can be increased later (also individual parking places)**
- **Platforms are in horizontal position to drive on**



The parking places 3 and 5 are shifted to the left.

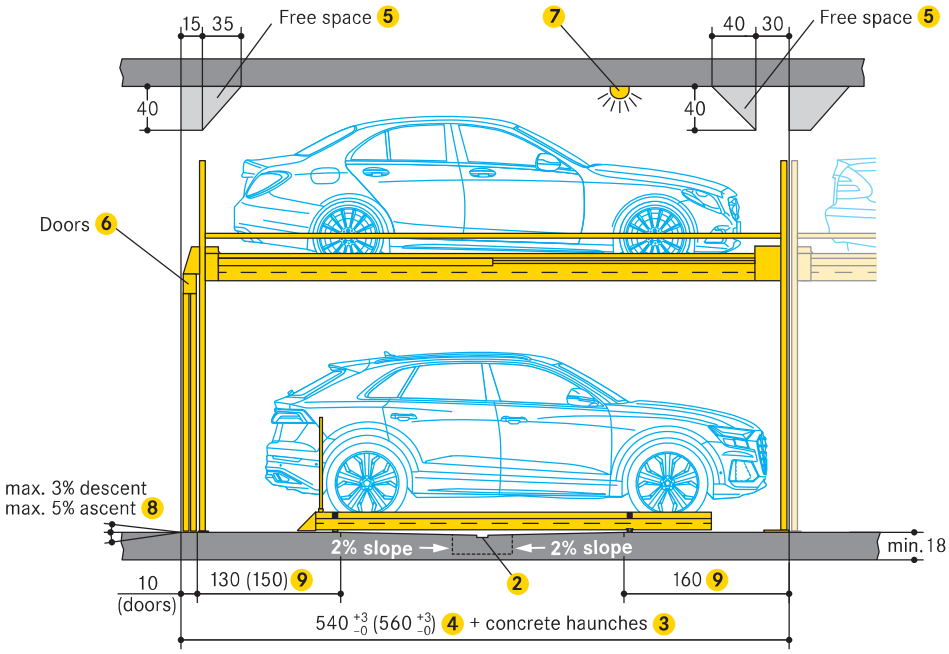


You can drive into the rear system via the empty place that has now become free



or an UL parking place can be lowered.

Length dimensions underground car park (height dimensions see page 2)



1. Increasing of platform load at extra cost
2. Drainage channels (performed by the customer)
3. Channels or undercuts/concrete haunches (performed by the customer):
   – not allowed along the floor-to-wall joints
   – should channels or undercuts be necessary, the system width needs to be reduced or the pit needs to be wider
4. 500 cm vehicle length = 540 cm installation length (including doors)
   520 cm vehicle length = 560 cm installation length (including doors)
   Due to the increasing length of vehicles, we recommend an installation length of 560 cm in order to be able to park mid-range models in the future.
5. Free spaces:
   – please ask WÖHR for the dimension sheets
6. Doors (see page 7/8)
7. Flashing light
8. For above ground garages with a slope, a drainage channel in the driveway is recommended
9. In this area, 0% of downward/upward slope in longitudinal and cross direction

Dimensions

– all dimensions specified are the minimum, finished dimensions
– tolerances must be taken into consideration
– all dimensions are given in cm

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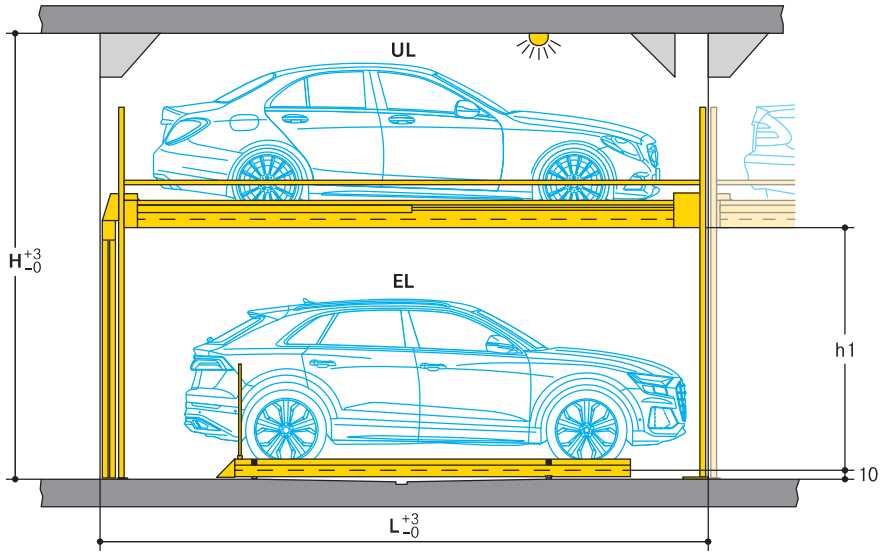
Height dimensions



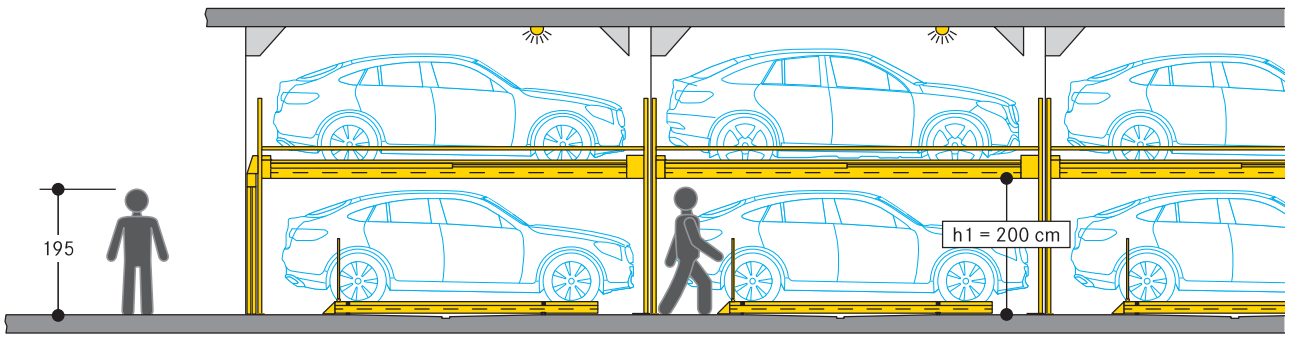
Type	Height h1	Vehicle height EL (entrance level)	Installation length L (1)	Vehicle height UL (upper level)														
				150	155	160	165	170	175	180	185	190	195	200	205	210	215	220
				Height H														
552-180	180	**175**	**540 (560)**	350	355	360	365	370	375	380	385	390	395	400	405	410	415	420
552-185	185	**180**	**540 (560)**	355	360	365	370	375	380	385	390	395	400	405	410	415	420	425
552-190	190	**185**	**540 (560)**	360	365	370	375	380	385	390	395	400	405	410	415	420	425	430
552-195	195	**190**	**540 (560)**	365	370	375	380	385	390	395	400	405	410	415	420	425	430	435
552-200	200	**195**	**540 (560)**	370	375	380	385	390	395	400	405	410	415	420	425	430	435	440
552-205	205	**200**	**540 (560)**	375	380	385	390	395	400	405	410	415	420	425	430	435	440	445
552-210	210	**205**	**540 (560)**	380	385	390	395	400	405	410	415	420	425	430	435	440	445	450
552-215	215	**210**	**540 (560)**	385	390	395	400	405	410	415	420	425	430	435	440	445	450	455
552-220	220	**215**	**540 (560)**	390	395	400	405	410	415	420	425	430	435	440	445	450	455	460
552-225	225	**220**	**560**	395	400	405	410	415	420	425	430	435	440	445	450	455	460	465

(1) Installation length L 540 cm = vehicle length 500 cm. Installation length L 560 cm = vehicle length 520 cm.

Lower heights are possible but not recommended (please contact WÖHR).

Please see the table above:
For Combilift 552_MR: Different vehicle heights can be planned in the first row on the upper level and the entrance level. In the second, third and fourth row, the same vehicle heights must be planned for the upper level and the entrance level.

Example for passage height



With a single system, we recommend a clear height h1 of at least 180 cm.
With two or more systems in a row, we recommend a clear height h1 of at least 200 cm.

Passenger car registrations in Germany

Orientation aid for height dimensions: With a system type from the table above, which for example covers cars up to 175 cm in height, 92.81 % of all cars registered in Germany can be parked.

Height	Examples of models	Passenger car registrations
143,5	Opel Corsa	33,27 % — up to 150 cm*
144,1	VW Passat	
147,3	Audi A8	
161,5	VW ID.5	91,25 % — up to 170 cm*
166,8	BMW iX3	
168,1	Skoda Kodiaq	
171,2	Audi Q7	92,81 % — up to 175 cm*
171,8	Mercedes Benz EQS SUV	
172,7	Volvo XC90	
177,8	Ford Explorer	93,76 % — up to 180 cm*
179,7	Mercedes Benz GLE	
179,7	VW Caddy Kombi	
188,0	VW Amarok	99,27 % — up to 205 cm*
191,4	Land Rover Defender	
193,8	VW ID.Buzz	

* Due to different equipment, vehicles of the same design may have different heights. The maximum heights have been taken into account.
Source: German Federal Motor Transport Authority, 2022 (evaluation for motor vehicles registered in Germany for passenger transport with up to 9 seats).

Decision support for the vehicle height

Choosing the right vehicle height for your project is essentially based on any building regulations, user expectations and building specifications. Criteria can include:

Residential buildings:
Different parking space heights are conceivable and can affect the sales price. For example, lower parking spaces could be provided for higher vehicles. This results in more convenient access to the vehicle. Less high vehicles in the upper parking spaces and thus reduced building height and less enclosed space. The ramp to the underground car park will be less steep or less long. To make it easier to sell parking spaces, we recommend that the vehicle heights be the same.

Office buildings:
For this parking concept, we recommend the same vehicle height for all parking spaces. If permanently assigned parking spaces are preferred for parking permittees, different parking space heights could be provided.

Hotels:
Whether city hotel, vacation hotel or vacation apartments: With changing occupancy, all parking spaces should have the same vehicle height. Maximum parking space heights should be selected to allow parking for vehicles with roof-mounted structures, if necessary.

Configuration example residential buildings

1	Vehicle height UL	160 cm	3	Type	552-185
2	Vehicle height EL	180 cm	4	Height H	365 cm

Type	Height h1	Vehicle height EL (entrance level)	Vehicle height UL (upper level)														
			150	155	160	165	170	175	180	185	190	195	200	205	210	215	220
			Height H														
552-180	180	175	350	355	360	365	370	375	380	385	390	395	400	405	410	415	420
552-185	185	180	355	360	365	370	375	380	385	390	395	400	405	410	415	420	425
552-190	190	185	360	365	370	375	380	385	390	395	400	405	410	415	420	425	430

Configuration example office building and hotels

1	Vehicle height UL	205 cm	3	Type	552-210
2	Vehicle height EL	205 cm	4	Height H	435 cm

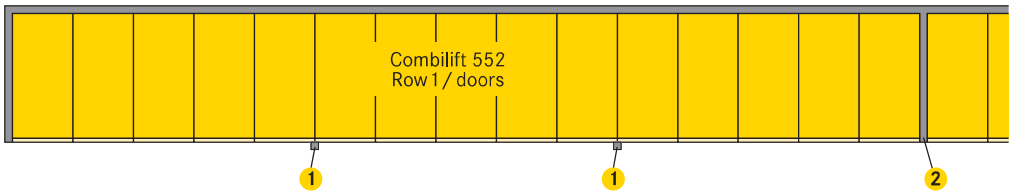
Type	Height h1	Vehicle height EL (entrance level)	Vehicle height UL (upper level)														
			150	155	160	165	170	175	180	185	190	195	200	205	210	215	220
			Height H														
552-205	205	200	375	380	385	390	395	400	405	410	415	420	425	430	435	440	445
552-210	210	205	380	385	390	395	400	405	410	415	420	425	430	435	440	445	450
552-215	215	210	385	390	395	400	405	410	415	420	425	430	435	440	445	450	455

Grid arrangement

To guarantee visibility and for safety reasons, please consider the following maximum grid arrangements.
WÖHR recommends: From 2 rows, platform width at least 280 cm.

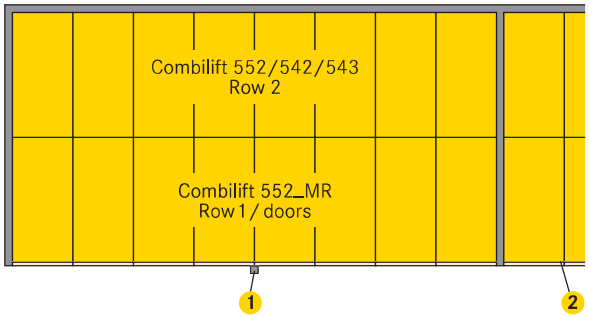
1 row

Max. 15 grids



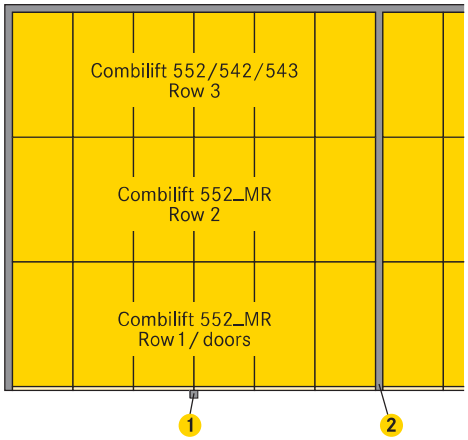
2 rows one behind the other

Max. 8 grids



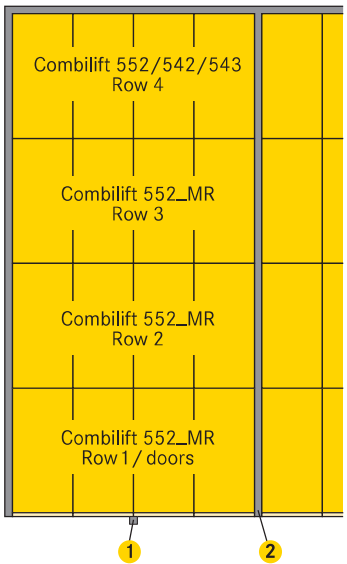
3 rows one behind the other

Max. 6 grids



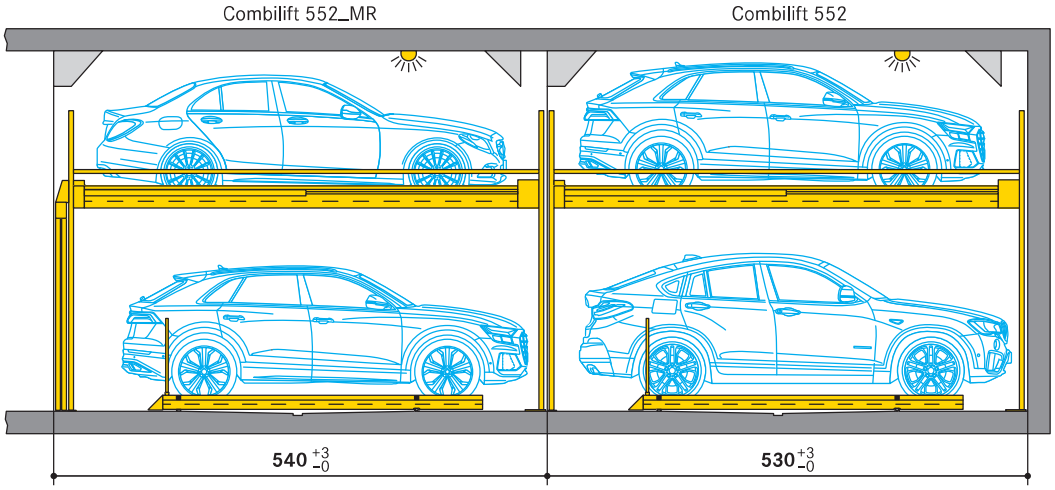
4 rows one behind the other

Max. 4 grids

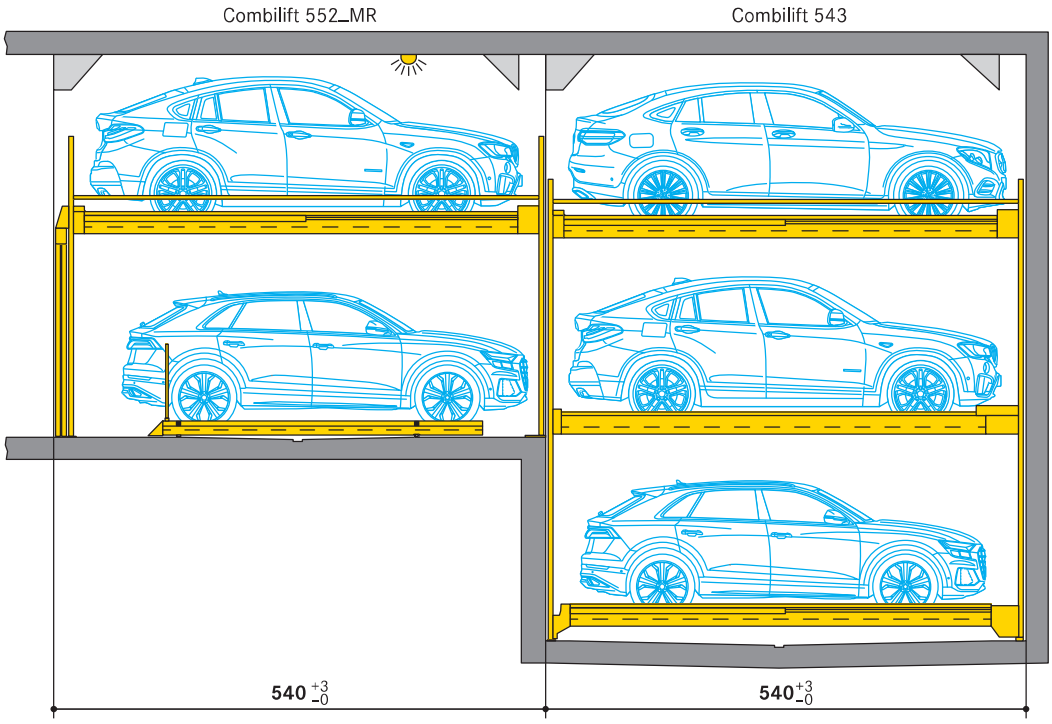


1 Operating device
2 Fixed walls or safety fences acc. to EN ISO 13857 or local requirement

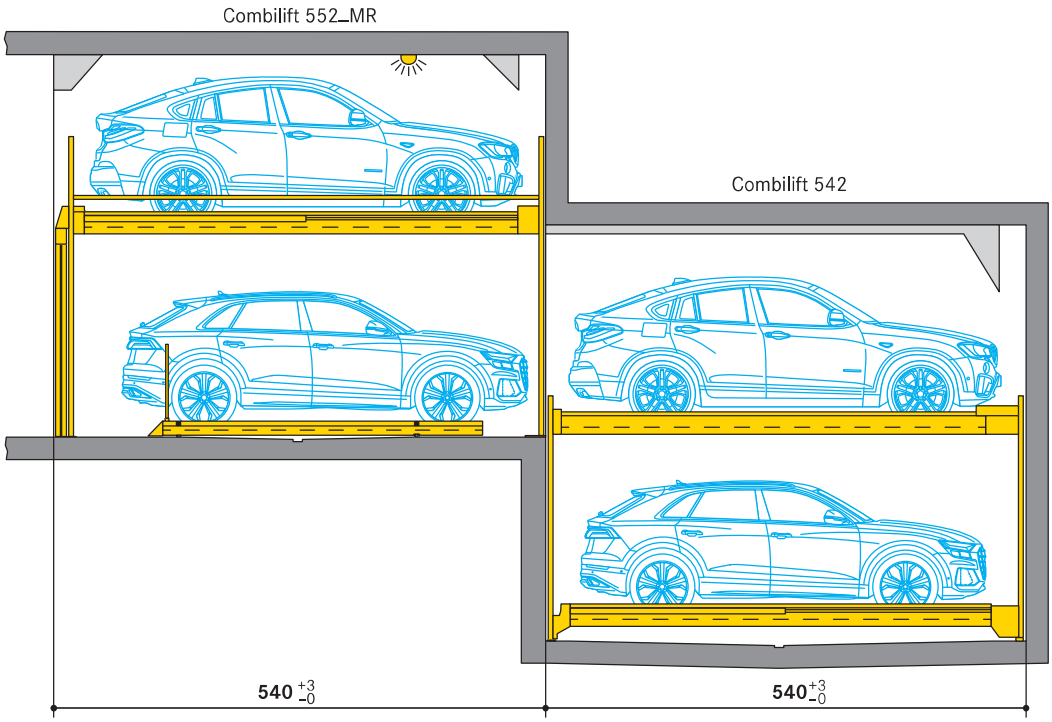
Planning example: Combilift 552_MR/Combilift 552 one behind the other (vehicle length 500 cm)



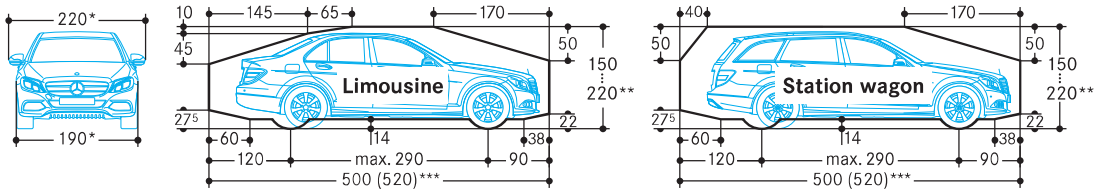
Planning example: Combilift 552_MR/Combilift 543 one behind the other (vehicle length 500 cm)



Planning example: Combilift 552_MR/Combilift 542 one behind the other (vehicle length 500 cm)



Clearance profile (for standard vehicles)



* for a 250 cm platform width

** The overall vehicle height including roof luggage rails an antenna mounts must not exceed the max. vehicle height dimensions specified

*** see page 1

Width dimensions

Platform widths:

250 cm:
– for 190 cm vehicle width (without outside mirror)

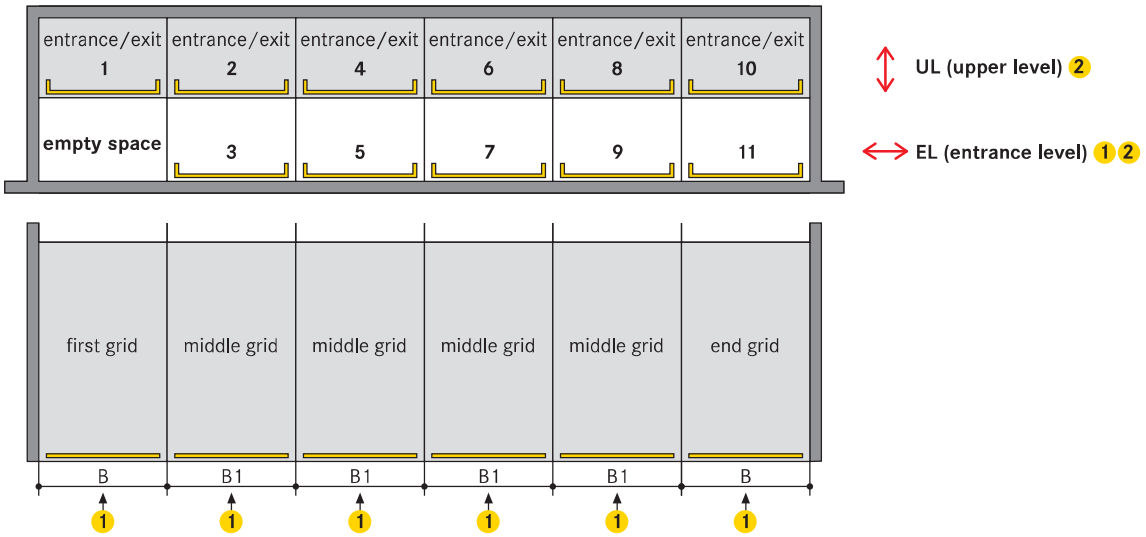
260–300 cm:
– for vehicles wider than 190 cm (without outside mirror)

270–300 cm:
– for units at the end of the driving aisle

For comfortable parking, entry and exit conditions platform widths upon 270 cm are recommended.
Reduced platform width means reduced parking comfort depending on the vehicle width, vehicle type, individual driving style, access situation of the (underground) garage.

With a 90° arrangement of the parking places, we recommend widening the driving aisle to at least 700 cm or a wall recess (see below).

Width dimensions (underground car park)



Space requirements		clear platform width upper level		clear platform width entrance level
B	B1	552	552_MR	552 | 552_MR
280	270	250	250	237
290	280	260	260	247
300	**290**	**270**	**270**	**257**
310	**300**	**280** 3	**280** 3	**257**
320	**310**	**290** 3	**290** 3	**257**
330	**320**	**300** 3	**300** 3	**257**

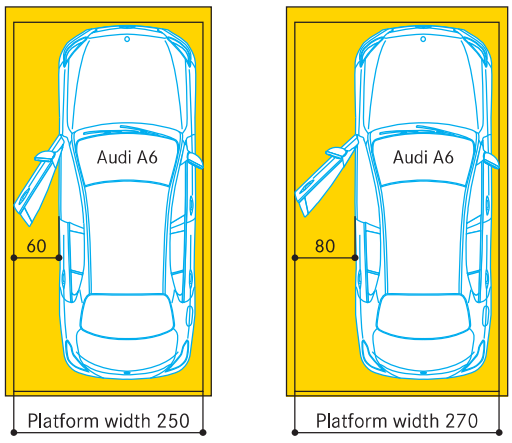
1 One entry/exit is required on entrance level (EL) for each grid

2 For a comfortable parking process and comfortable conditions for getting in and out of the car, we recommend platform widths of at least 270 cm. Smaller platform widths are possible but not recommended (please contact WÖHR).

3 Platform load max. 2600 kg

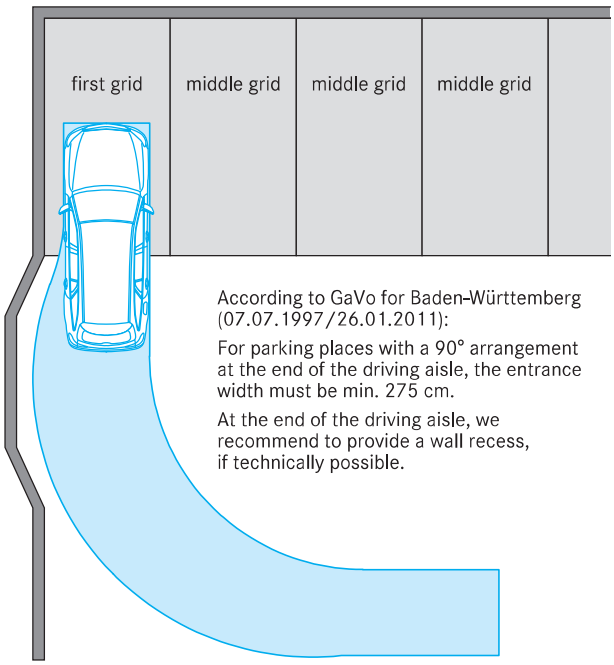
4 It is not possible to combine different platform widths

Door opening dimensions



Depending on the vehicle model and the parking position of the vehicle on the platform, the space for opening the door varies. For comfortable conditions for getting in and out of the car, we recommend platform widths of at least 270 cm.

Wall recess



According to GaVo for Baden-Württemberg (07.07.1997/26.01.2011):

For parking places with a 90° arrangement at the end of the driving aisle, the entrance width must be min. 275 cm.

At the end of the driving aisle, we recommend to provide a wall recess, if technically possible.

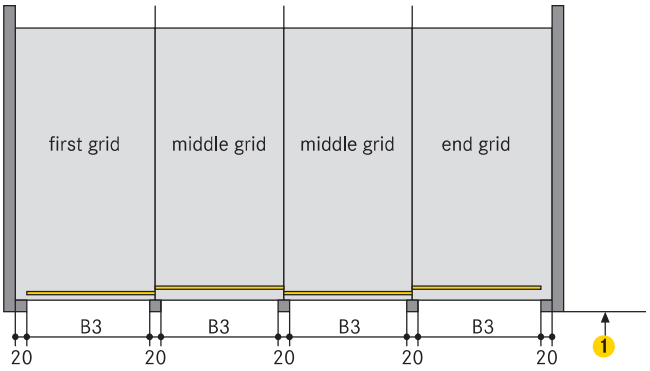
Doors

According to DIN EN 14010 doors are required.

Automatic sliding doors:
- electrical drive
- controls are integrated in the overall system
- electro-mechanically interlocked
- can only be opened when the selected parking place has reached the entry/exit position
- any crash openings are closed in the entrance area

Local requirements for electrical doors regarding the technology, maintenance and revision are not subject of our delivery. These matters have to be observed and carried out by the customer, according to the local regulations.

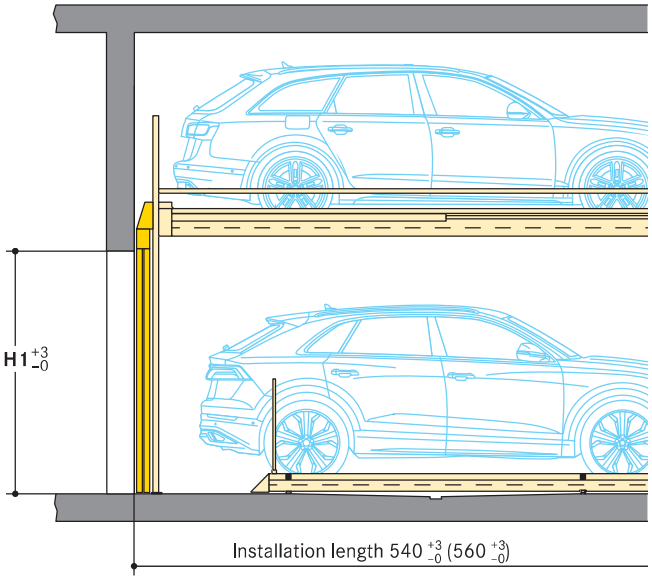
Sliding doors behind the building pillars with door offset



Space requirements B3	clear platform width
250	250
260	260
270	**270**
280	**280** (2)
290	**290** (2)
300	**300** (2)

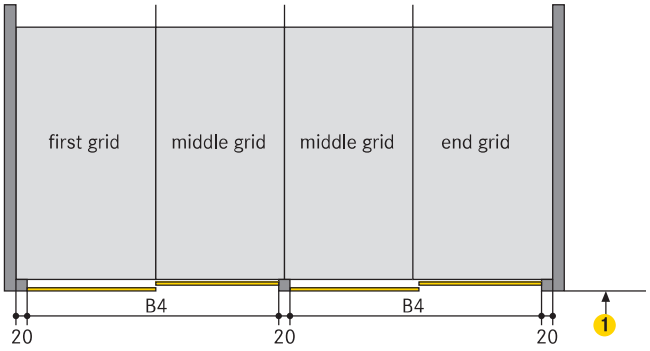
(1) The driving aisle width must comply with local regulations

(2) Platform load max. 2600 kg



	Vehicle height UL (upper level) | EL (entrance level)									
	175	**180**	**185**	**190**	**195**	**200**	**205**	**210**	**215**	**220**
H1	220	220	220	220	220	220	225	230	235	240

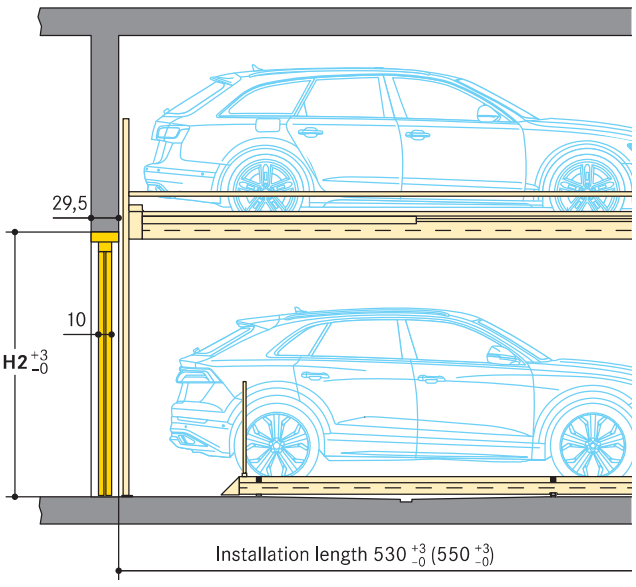
Sliding doors below the lintel between the building pillars



Space requirements B4	clear platform width
520	250
540	260
560	**270**
580	**280** (2)
600	**290** (2)
620	**300** (2)

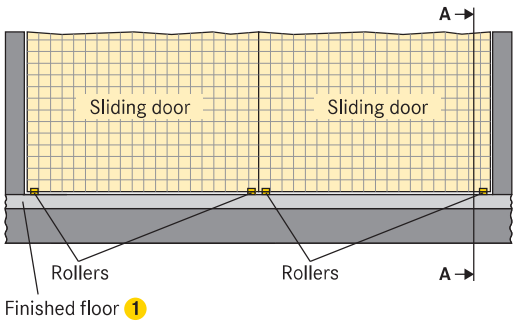
(1) The driving aisle width must comply with local regulations

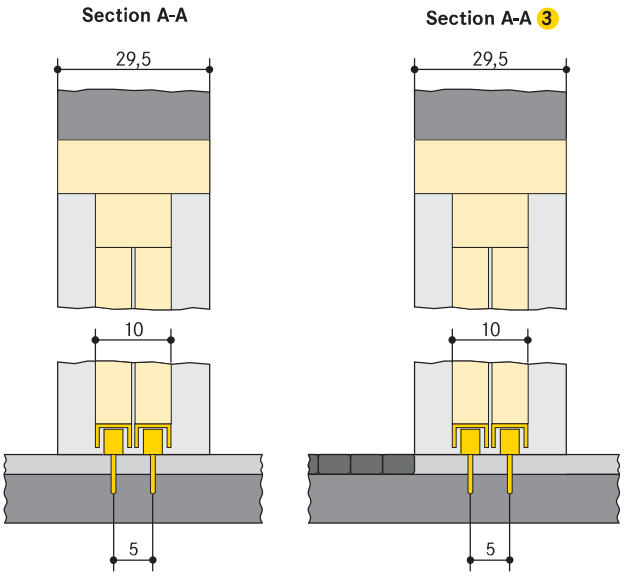
(2) Platform load max. 2600 kg



	Vehicle height UL (upper level) | EL (entrance level)									
	175	**180**	**185**	**190**	**195**	**200**	**205**	**210**	**215**	**220**
H2	220	220	220	220	220	220	225	230	235	240

Sliding door floor guides





1 Finished floor:
- compliant to DIN 18353,
- floor evenness compliant to DIN 18202, table 3, line 3

2 Floor guide section:
- base plate with plastic rollers
- fixed on the floor with adhesive anchor (M8 internal screw thread)
- borehole depth approx. 9 cm
- in the event that floor filling needs to be laid into the door section to the purpose of reaching the required floor evenness, the borehole depth needs to be increased by the thickness of the floor fill (max. 4 cm)

3 If the driving aisle is made of concrete blocks, asphalt etc., the concrete slab in the door area must be min. 29,5 cm wide

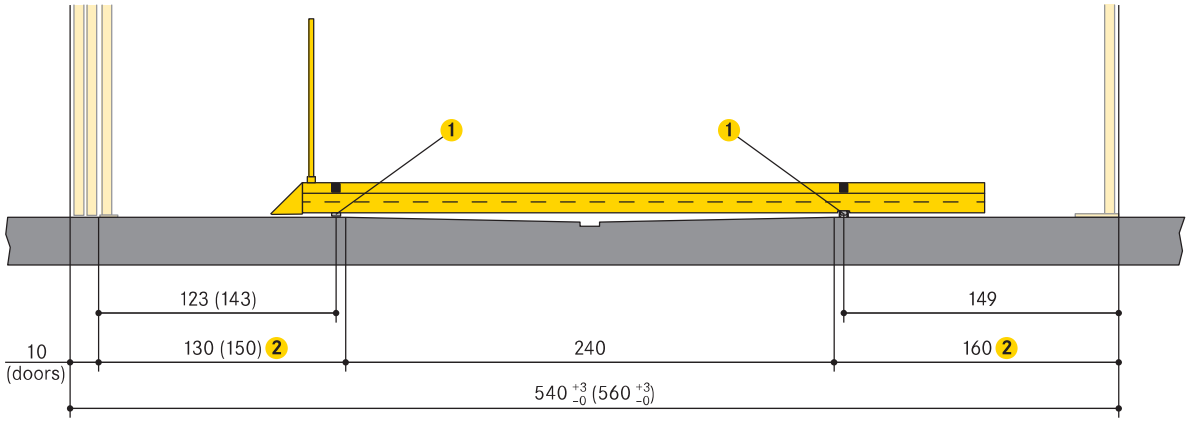
Evenness and tolerances

In order to comply with the requirement and to obtain the necessary floor level, the tolerances of the evenness of the finished floor cannot be exceeded according to DIN 18202, table 3, line 3. Therefore, exact levelling of the floor by the customer is necessary.

Track and floor details

Installation of the running rails:
- meter markers are to be permanently attached by the customer
- do not use cast asphalt!
- after bringing in the screed, the track rails are secured with adhesive anchors
- level as per DIN 18202, table 3, line 3
- no expansion gaps or building separation gaps are permitted in the area of the track system

For any subsequent installation of the parking platforms, in the parking area, an additional screed is to be taken into account by the customer, depending on the floor evenness.

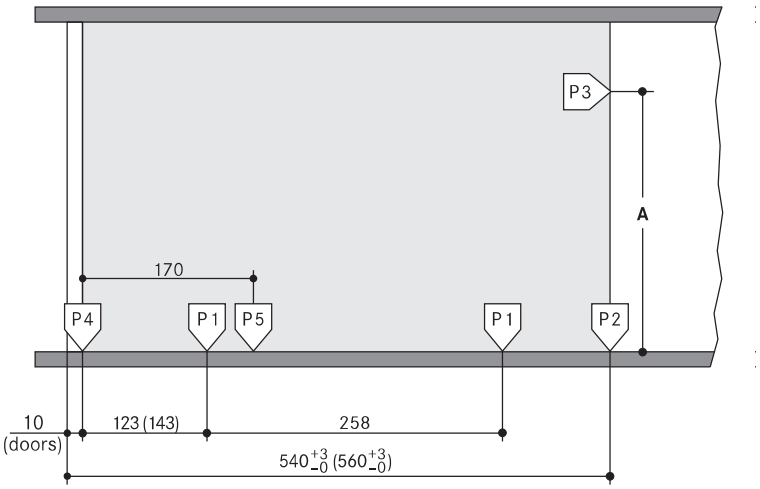


1 Running rail

2 In this area, 0% of downward/upward slope in longitudinal and cross direction

Static calculations and construction works requirement

Section



Type	A
552-180	288
552-185	293
552-190	298
552-195	303
552-200	308
552-205	313
552-210	318
552-215	323
552-220	328
552-225	333

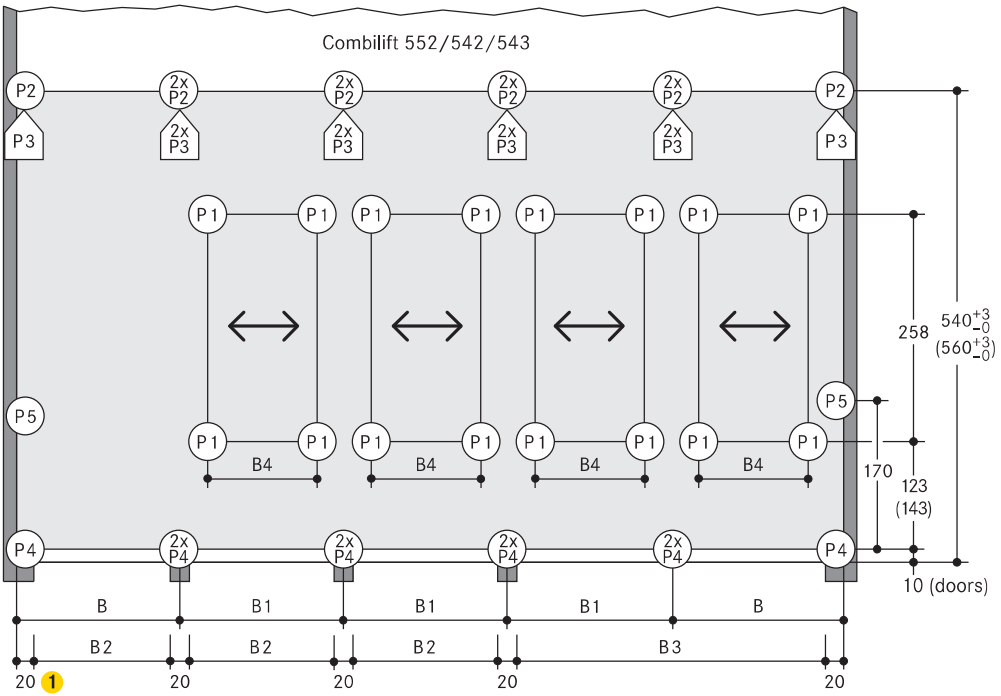
552 | 552_MR (2000 kg)	
P1	+ 12,0 kN*
P2	+ 10,0 kN
P3	± 1,5 kN
P4	+ 9,0 kN
P5	± 1,5 kN

552 | 552_MR (2600 kg)	
P1	+ 14,0 kN*
P2	+ 12,0 kN
P3	± 1,8 kN
P4	+ 11,0 kN
P5	± 1,8 kN

552 | 552_MR (3000 kg)	
P1	+ 16,0 kN*
P2	+ 14,0 kN
P3	± 2,0 kN
P4	+ 13,0 kN
P5	± 2,0 kN

*specified load bearing data includes the vehicle weight

Ground plan



Space requirements B	B1	B2	B3	clear platform width entrance level B4	clear platform width upper level
280	270	250	520	237	250
290	280	260	540	247	260
300	**290**	**270**	**560**	**257**	**270**
310	**300**	**280**	**580**	**257**	**280** 2
320	**310**	**290**	**600**	**257**	**290** 2
330	**320**	**300**	**620**	**257**	**300** 2

1 If the width of the pillars is more than 20 cm, than the width of the drive through will be reduced accordingly to the above mentioned width dimensions (B and B1). In order to avoid this, we recommend to extend the measures between the pillars (B2 and B3) accordingly. Please contact WÖHR.

2 Platform load max. 2600 kg

Fixing of the system frames to the floor slab:
- using base plates (approx. 350 cm²)
- using adhesive anchor bolts
- hole depth to 12–14 cm
- bottom plate in concrete
- thickness of bottom plate min. 18 cm

Fixing of the system frames to the walls:
- with walls plates (approx. 30 cm²)
- using adhesive anchor bolts
- hole depth to 12–14 cm
- front drive-in wall and rear wall in concrete
- perfectly flat wall surfaces
- without protruding sections such as border edgings, pipes and tubes, etc.
- thickness of walls min. 18 cm

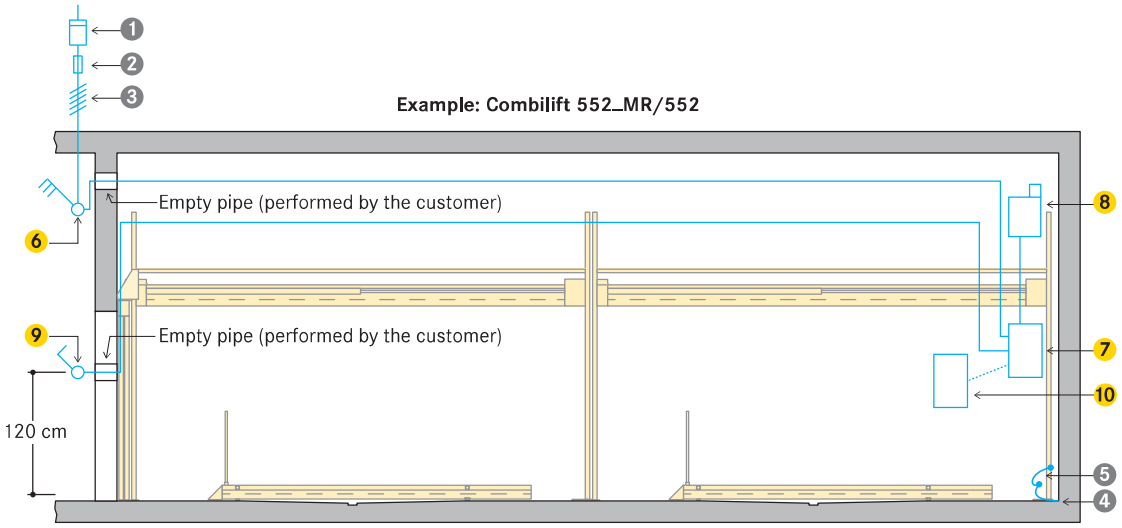
Concrete quality grade:
- compliant to the static requirements of the construction
- min. C20/25 grade (for dowel fastening)

Frame bearing points:
- the specified lengths are expressed as mean value
- for the exact data, specific TÜV-tested data sheets are available

Door widths/widths of columns:
- please contact WÖHR
- grid width (270/280/290/300/310/ 320) must be observed

Electrical specifications

Installation diagram



Cabling preparation to be performed by the customer:

- up to the main switch to be in place prior to starting the installation operations
- connection to the main switch during installation
- system functional check testing can be performed by WÖHR together with the electrician provided by the customer
- if requested at a later date, functional check testing can be performed by WÖHR at extra-cost

Grounding and potential equalisation (to be performed by the customer):

- compliant to DIN EN 60204
- connections required every 10 metres

To be performed by the customer

Item	Quantity	Description	Position	Recurrence
1	1 piece	Power meter	In the feed cable	
2	1 piece	Fuse protection or automatic circuit breaker:*	In the feed cable	1 x per system
3	Based on site conditions	Compliant to local power supply regulations 3 phases + N + PE* 230/400 V, 50 Hz	Feed cables to main switch including connection	1 x per system
4	Every 10 m	Grounding and potential equalisation lead-out connection	Along floor edges/rear wall	
5	1 piece	Grounding and potential equalisation compliant to DIN EN 60204	From lead-out connection to system	1 x per system

Fuse protection or automatic circuit breaker:*

Rows	Motor	Starting current	Fuse protection	Platform load
1	3,0 kW	24 A	3 x 16 A (11 kW)	2000 kg/2600 kg
2	3,0 kW	48 A	3 x 32 A (22 kW)	2000 kg/2600 kg
3	3,0 kW	72 A	3 x 40 A (28 kW)	2000 kg/2600 kg
4	3,0 kW	96 A	3 x 63 A (44 kW)	2000 kg/2600 kg
1	5,5 kW	57 A	3 x 32 A (22 kW)	3000 kg
2	5,5 kW	114 A	3 x 63 A (44 kW)	3000 kg
3	5,5 kW	171 A	3 x 100 A (69 kW)	3000 kg
4	5,5 kW	228 A	3 x 125 A (86 kW)	3000 kg

* Compliant to DIN VDE 0100 sections 410 and 430 (no permanent load) 3 phases + N+ PE (three phase current)

Scope of delivery by WÖHR (unless otherwise specified in the order)

Item	Description
6	Lockable main switch
7	Main switch cabinet for grid 1–4
8	Hydraulic power pack 3.0 kW (5.5 kW for platform load 3000 kg) with three-phase motor. Ready-wired switching cabinet with motor safety contactor
9	Operating device
10	Extra switch cabinet for grid 5–8

Notes and directions

Scope of application

- suitable for residential buildings, office buildings and business premises, hotels
- only for long-term users that have been instructed on how to use the system
- for frequently changing users (e.g. for office, hotel and business premises or similar):
  - performance of technical system adjustments is necessary
  - please consult with WÖHR

Function

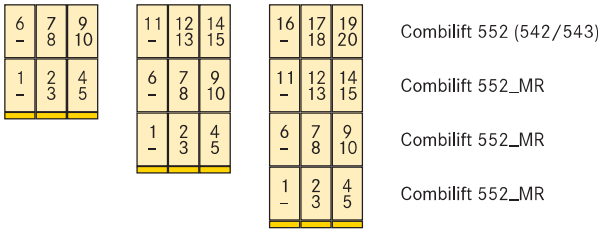
- one empty space per unit on entrance level
- platforms on entrance level are moved sideways
- platforms on the upper level are lowered to the empty space on the entrance level

Numbering of the parking places

- empty space on the entrance level on the left
- numbering single system:

Combilift 552

- numbering installation for driving through:



Combilift 552 (542/543)

Combilift 552_MR

Combilift 552_MR

Combilift 552_MR

- the numbering for each unit starts with 1
- different numbering of parking places is possible at extra cost (software changes are necessary)

Hydraulic power pack

Arrangement of the hydraulic power pack:
– within the unit

Noise protection

Basis is the German DIN 4109 “Noise protection in buildings”.

With the following conditions required 30 dB (A) in rooms can be provided:

- noise protection package from our accessory
- insulation figure of the construction of min. $R'_W = 57$ dB
- walls which are bordering the parking systems must be done as single wall and deflection resistant with min. m’= 300 kg/m²
- solid ceiling above the parking systems with min. m’= 400 kg/m²

At differing constructional conditions additional sound absorbing measures are to be provided by the customer.

The best results are reached by separated sole plates from the construction.

Increased sound insulation (separate agreement):

It is based on VDI 4100 „Sound insulation in building construction“ Assessment and proposals for increased sound insulation.

Under the following conditions, 25 dB (A) can be complied with in living spaces and bedrooms:

- sound insulation package according to offer/order
- Sound insulation value of the building structure of min. $R'_W = 62$ dB (to be performed by the customer)

Note:
User noises are not subject to the requirements (see VDI 4100, Scope - Notes). User noises are basically noises that can be individually influenced by the user of the parking systems (e.g. driving on the platform, closing of vehicle doors, engine and brake noises).

Temperature

- system operating range: +5° bis +40°C (with unloaded platforms and low temperatures, a reduced lowering speed is to be expected)
- humidity: 50 % at +40° C
- if use in deviating temperature ranges is planned, constructive adjustments may be necessary (please consult with WÖHR)

Conformity examination (TÜV)

- voluntary conformity assessment by the TÜV SÜD

The parking systems are compliant to:
- EC Machinery Directive 2006/42/EC
- DIN EN 14010
- Specification VDMA 15423

Switch cabinet

Arrangement of the switch cabinet:
– within the unit

Lighting

- sufficient lighting of the driving aisle and of the parking places must be performed by the customer

Fire safety

- all fire safety requirements and all mandatory equipment (fire extinguisher and fire alarm systems, etc.) must be performed by the customer
- WÖHR will provide documents on attachment points and clearances for sprinklers on request

Railings

If walkways are arranged directly to the side or behind the systems, railings have to be provided by the customer acc. to local requirements, height min. 200 cm – this is applicable during the construction phase too.

Maintenance

- WÖHR and all the WÖHR partners abroad provide an installation and customer service network
- regular, annual maintenance is provided subject to the stipulation of a maintenance agreement
- local requirements for electrical doors regarding the technology, maintenance and revision are not subject of our delivery. These matters have to be observed and carried out by the customer, according to the local regulations.

Prevention of corrosion damage

- all operations listed in the WÖHR Cleaning and Maintenance Instructions are to be performed regularly (independently of maintenance operations)
- zinc-plated parts, components and platforms are to be kept clean of dirt, road-salt and any other debris (due to corrosion hazards)
- always keep the garage well ventilated and deaerated

Surface protection

- please consider the information on surface protection!

Tender specification

- please consider the specifications!

Parking Place-Profile

- please consider the product information Parking Place-Profile!

Electromobility

- please consider the product information power supply!
- depending on the position of the charging point on the electric vehicle, collision points with protruding plugs and charging cables can occur

Sliding doors and Operating concepts

- please consider the product information Sliding doors and Operating concepts!

Construction formalities

- the documentation necessary for construction permit applications is provided by WÖHR on demand

Construction alterations and/or modifications

- the right to construction or model modifications and/or variations is hereby reserved
- the right to any subsequent part modification and/or variation and amendments in procedures and standards due to technical and engineering progresses or due to environmental regulation changes is also hereby reserved

Appendix D:

Manufacturers Specification Sheet

- Cora Bike Rack

CORA BIKE RACK

PRODUCT SPECIFICATION SHEET

SKY TIER - DYNAMIC UPPER TIERS

- The **ST-L** (low) and **ST-H** (high) are dynamic upper tier bike racks
- Gas strut assist lift mechanism makes access a breeze
- Strategically positioned lock points
- Ideal for bike rooms and EOT areas where maximum capacity is critical
- Suitable for indoor installations with no weather exposure

AUSTRALIA'S MOST **VERSATILE** DOUBLE TIER SYSTEM

ST-L

ST-H
(+300mm higher)

DESIGNED FOR BIKES WITH

- A WHEEL DIAMETER OF = 20-29"
- A MAXIMUM TYRE WIDTH OF = 60mm / 2.35"
- KG — A MAXIMUM WEIGHT OF = 25KG
- FENDERS / MUDGUARDS = YES

SPECIFICATIONS

Capacity	Finish	Fixings	Assembly	Construction	Compliance
1 bike per rack	Main frame - Cora ceramic powder coat Handle and lock bar - Cora powder coat	Post: 4 x M12 x 80mm anchor bolts Rack: 4 x M10 bolts	Fix post to concrete surface Fix rack to top of post	Mild steel	AS2890.3 (2015) compliant

CORA BIKE RACK

PRODUCT SPECIFICATION SHEET

GROUND PIVOT - DYNAMIC LOWER TIERS

- The **GP-F** (front-in) and **GP-B** (back-in) are dynamic lower tier bike racks
- Dynamic pivot motion allows ease of use with reduced spacing requirements
- Strategically positioned lock points
- Ideal for bike rooms and EOT areas where maximum capacity is critical
- Suitable for indoor installations with no weather exposure

ALTERNATING HEAD TO TAIL MODELS FOR **MAXIMUM** CAPACITY

GP-F

GP-B

DESIGNED FOR BIKES WITH

A WHEEL DIAMETER OF = 20-29”

A MAXIMUM TYRE WIDTH OF = 60mm / 2.35”

KG

A MAXIMUM WEIGHT OF = 25KG

FENDERS / MUDGUARDS = YES

SPECIFICATIONS

Capacity	Finish	Fixings	Assembly	Construction	Compliance
1 bike per rack	Main frame – Cora ceramic powder coat Handle and lock bar – Cora powder coat	4 x M10 x 60mm anchor bolts	Fix rack to concrete surface	Mild steel	AS2890.3 (2015) compliant

CORA BIKE RACK

PRODUCT SPECIFICATION SHEET

STATIC LOWER TIER OPTIONS

- The **CBR1B** and **SG-E** are static bicycle parking rails
- Easy lean and lock system for 1 or 2 bicycles
- Great choice for bike rooms where high capacity and budget are important
- Suitable for indoor installations with no weather exposure

COST EFFECTIVE BIKE RAILS OR E-BIKE CHARGING RACKS

CBR1B

SG-E
(e-bike charging rack)

**see product specification sheet for additional product details*

DESIGNED FOR BIKES WITH

ANY WHEEL DIAMETER

ANY TYRE WIDTH

KG ANY WEIGHT

FENDERS / MUDGUARDS = YES

SPECIFICATIONS

Capacity	Finish	Fixings	Assembly	Construction	Compliance
2 bikes per rack	Cora ceramic or powder coat colours	4 x M12 x 80mm anchor bolts with tamper resistant fasteners	Fix rack to concrete surface	Mild steel	AS2890.3 (2015) compliant

CORA BIKE RACK

PRODUCT SPECIFICATION SHEET

STAGGERED HEIGHT
LAYOUT GUIDE
DYNAMIC UPPER TIERS / DYNAMIC LOWER TIERS

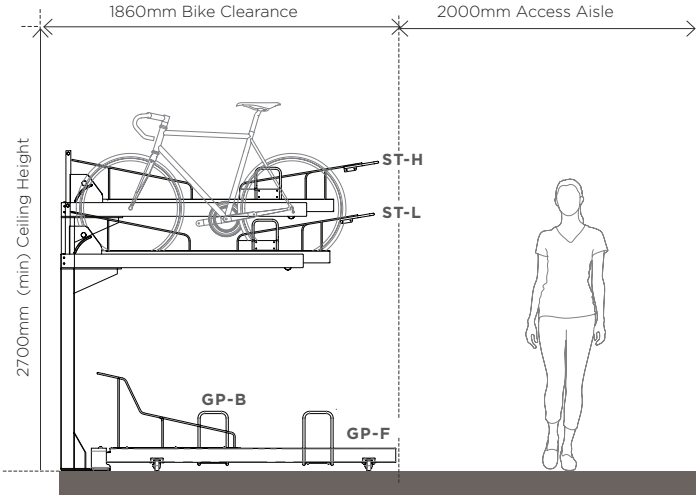
There are numerous configuration possibilities for double tier systems. **Options shown are compliant with AS2890.3 (2015)**

PERSPECTIVE VIEW WITH GP LOWER TIERS

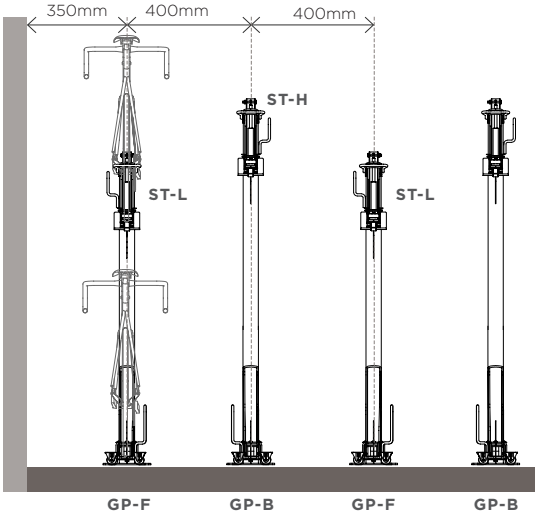
DYNAMIC UPPER/ DYNAMIC LOWER

To comply with AS2890.3 (2015), minimum spacing between rack centres is:

- ST Upper Tiers: 400mm if adjacent racks are offset in height by 300mm;
- GP Lower Tiers: 400mm if adjacent racks provide head to tail parking



SIDE VIEW WITH GP LOWER TIERS



FRONT VIEW WITH GP LOWER TIERS

Refer to Installation Instructions sheet for specific installation and assembly guidelines. Racks should NOT be installed based on this sheet alone.

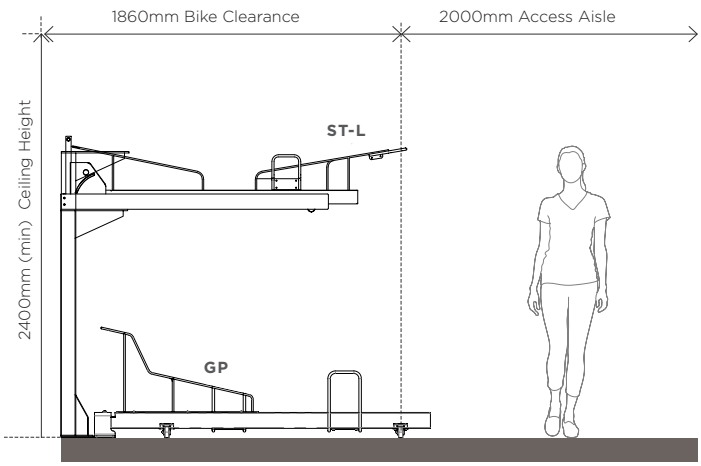
CORA BIKE RACK

PRODUCT SPECIFICATION SHEET

SINGLE HEIGHT
LAYOUT GUIDE
DYNAMIC UPPER TIERS / DYNAMIC LOWER TIERS

There are numerous configuration possibilities for double tier systems. **Options shown are compliant with AS2890.3 (2015)**

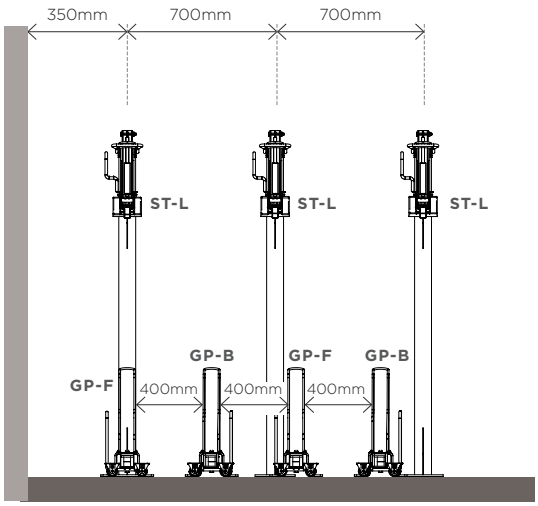
PERSPECTIVE VIEW WITH GP LOWER TIERS



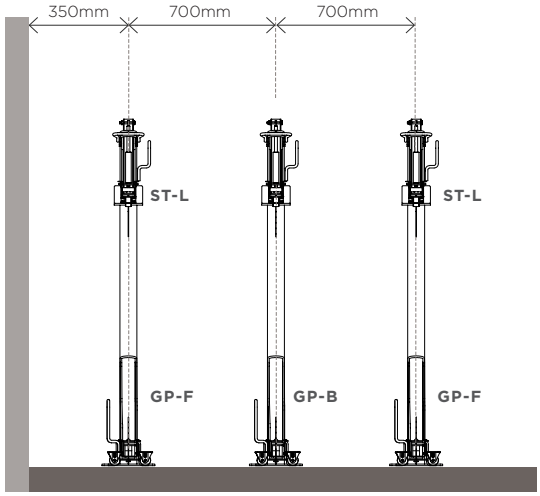
SIDE VIEW WITH GP LOWER TIERS

To comply with AS2890.3 (2015), minimum spacing between rack centres is:

- Where adjacent upper tier racks cannot be offset in height due to low ceiling clearance, single level racks can be used if spaced a minimum of 700mm apart
- GP Lower Tiers: - 400mm for maximum density; or 700mm for a symmetrical appearance



FRONT VIEW MAXIMUM DENSITY



FRONT VIEW SYMMETRICAL APPEARANCE

Refer to Installation Instructions sheet for specific installation and assembly guidelines. Racks should NOT be installed based on this sheet alone.

CORA BIKE RACK

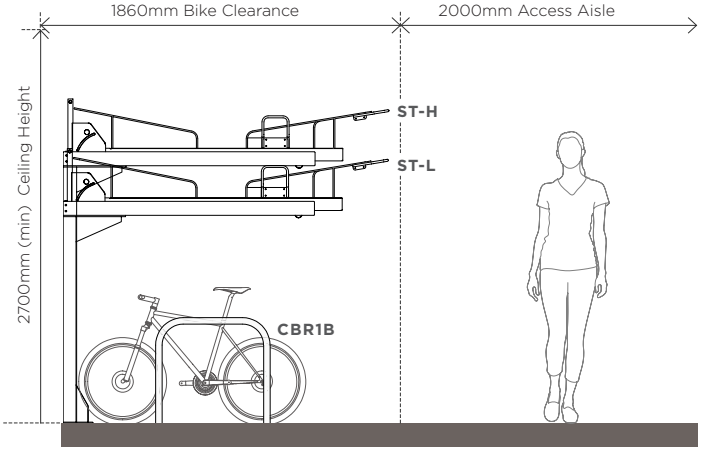
PRODUCT SPECIFICATION SHEET

STAGGERED HEIGHT
LAYOUT GUIDE

DYNAMIC UPPER TIERS / STATIC LOWER TIER

There are numerous configuration possibilities for double tier systems. **Options shown are compliant with AS2890.3 (2015)**

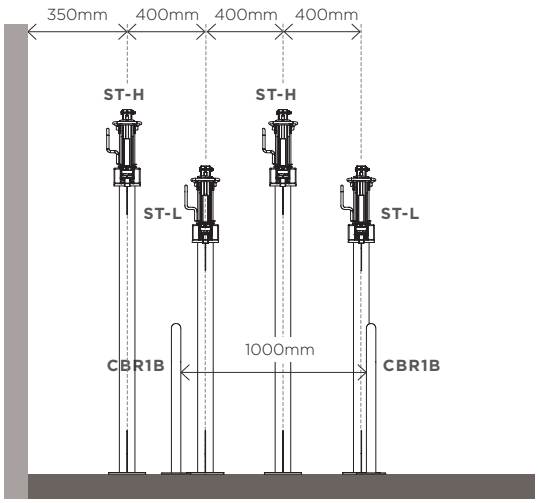
PERSPECTIVE VIEW WITH CBR1B LOWER TIERS



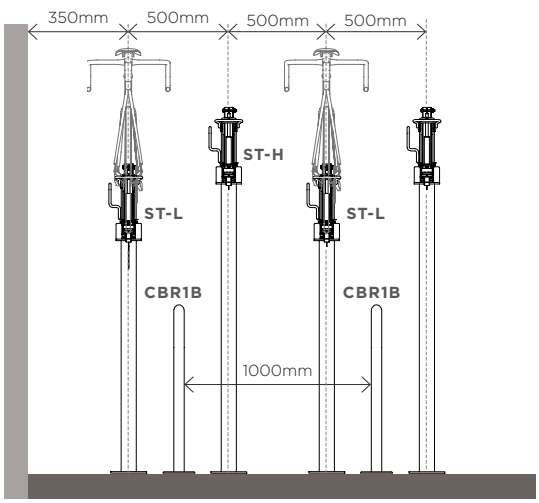
SIDE VIEW WITH CBR1B LOWER TIERS

To comply with AS2890.3 (2015), minimum spacing between rack centres is:

- ST Upper Tiers: 400mm for maximum density; or 500mm for a symmetrical appearance
- CBR1B or lower bike rails: 1000mm (500mm per bike space)



FRONT VIEW MAXIMUM DENSITY



FRONT VIEW SYMMETRICAL APPEARANCE

Refer to Installation Instructions sheet for specific installation and assembly guidelines. Racks should NOT be installed based on this sheet alone.

CORA BIKE RACK

PRODUCT SPECIFICATION SHEET

SINGLE HEIGHT
LAYOUT GUIDE

DYNAMIC UPPER TIERS / STATIC LOWER TIER OPTIONS

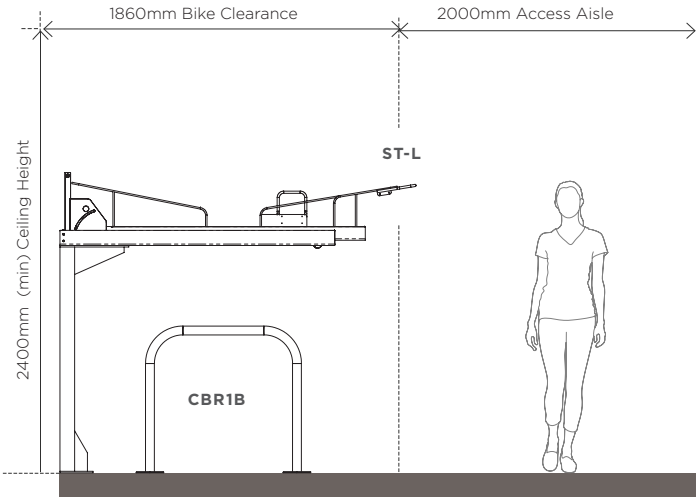
There are numerous configuration possibilities for double tier systems. **Options shown are compliant with AS2890.3 (2015)**

PERSPECTIVE VIEW WITH CBR1B LOWER TIERS

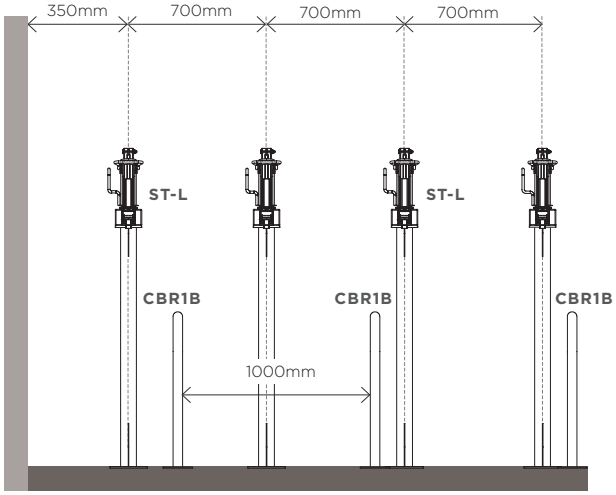
SINGLE HEIGHT DYNAMIC UPPER/ STATIC LOWER TIERS

To comply with AS2890.3 (2015), minimum spacing between rack centres is:

- Where adjacent upper tier racks cannot be offset in height due to low ceiling clearance, single level racks can be used if spaced a minimum of 700mm apart
- CBR1B or lower bike rails: 1000mm



SIDE VIEW WITH GP LOWER TIERS



FRONT VIEW WITH CBR1B LOWER TIERS

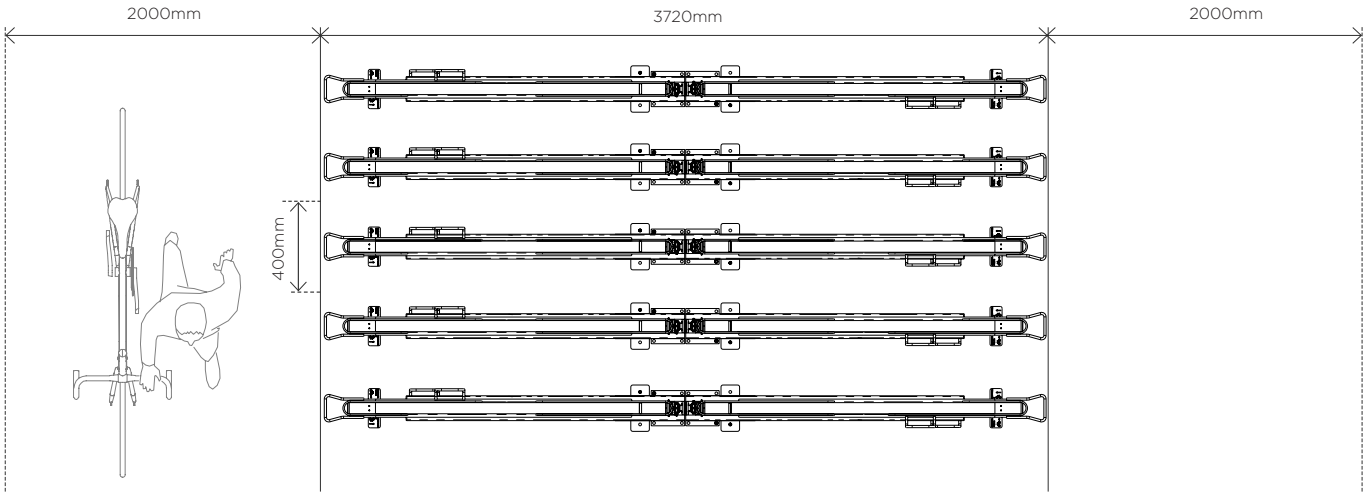
Refer to Installation Instructions sheet for specific installation and assembly guidelines. Racks should NOT be installed based on this sheet alone.

CORA BIKE RACK

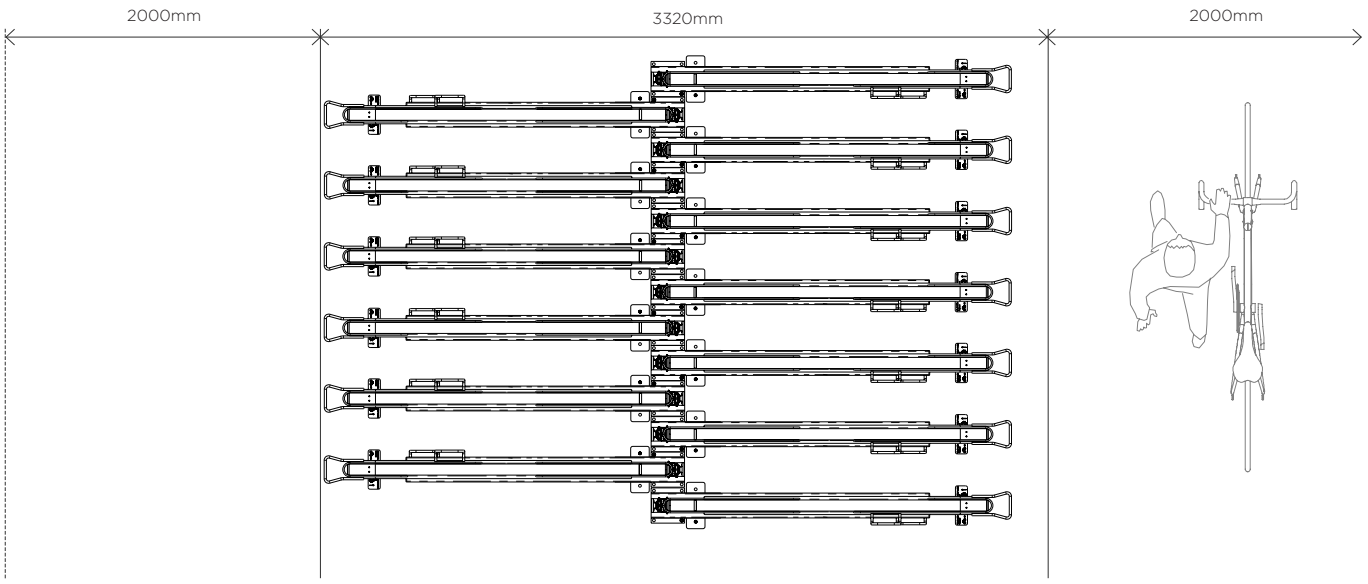
PRODUCT SPECIFICATION SHEET

BACK TO BACK & NESTED LAYOUTS

BACK TO BACK LAYOUT



NESTED LAYOUT



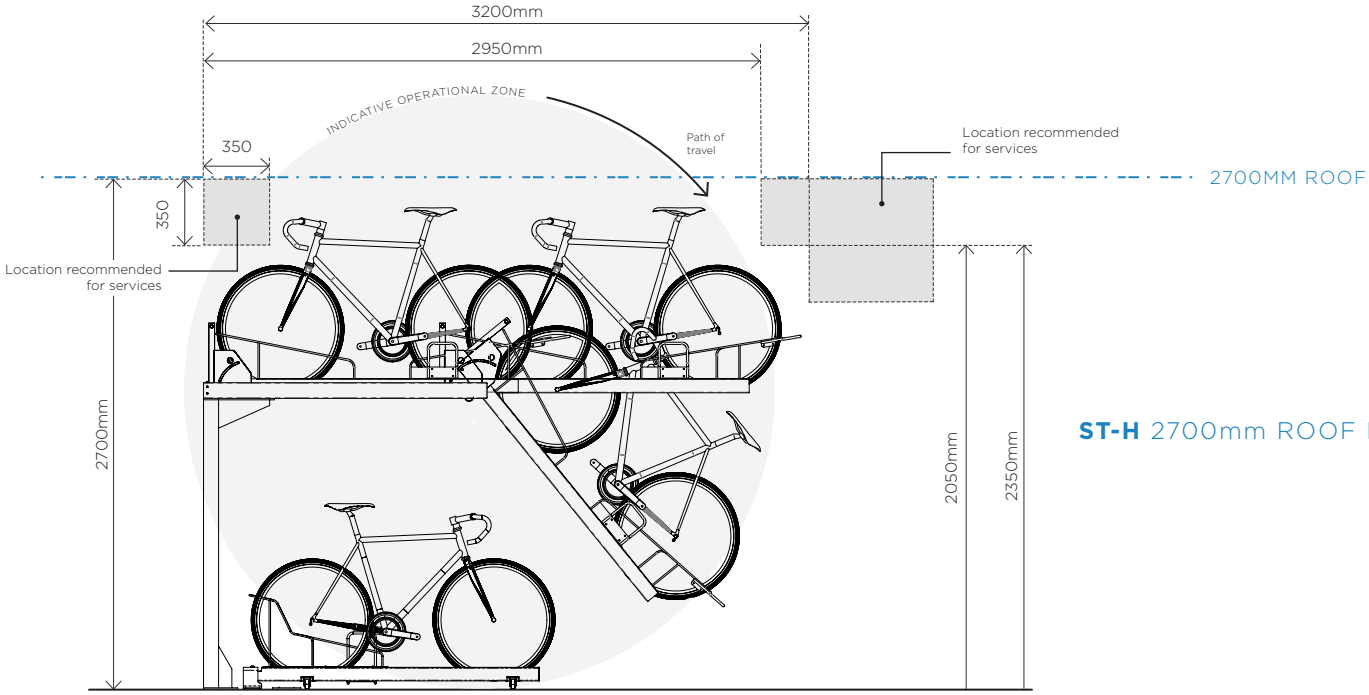
Refer to Installation Instructions sheet for specific installation and assembly guidelines. Racks should NOT be installed based on this sheet alone.

CORA BIKE RACK

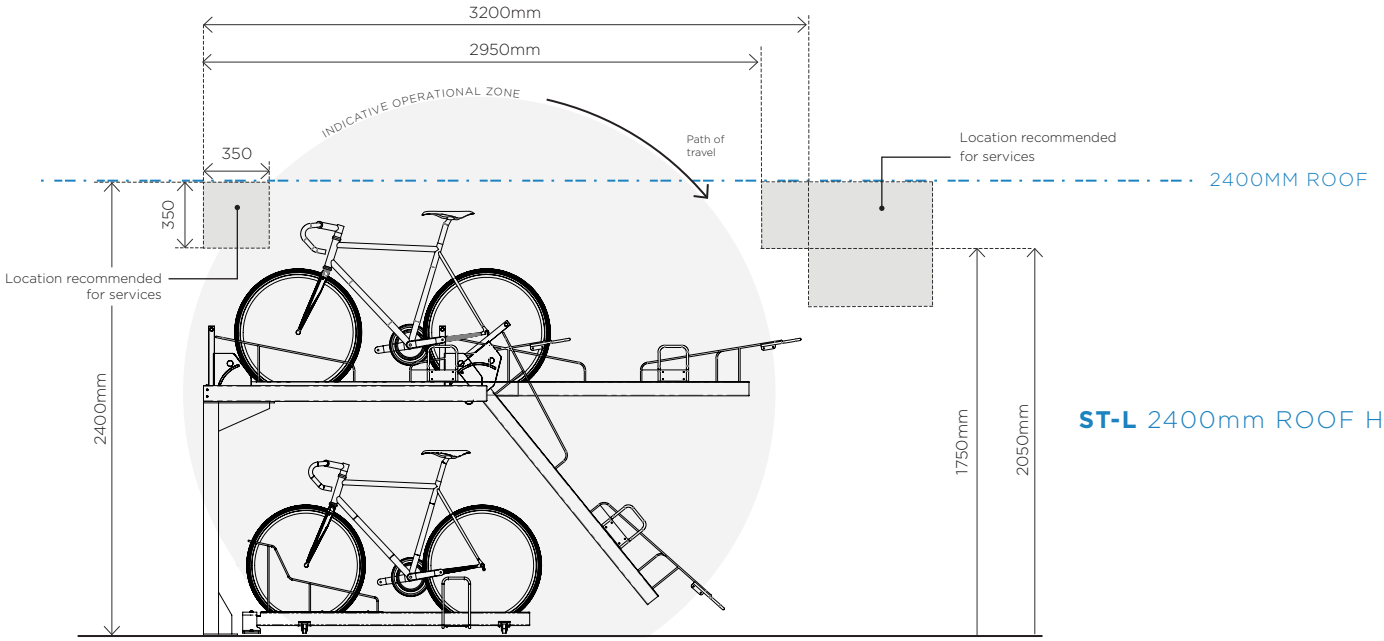
PRODUCT SPECIFICATION SHEET

ST-L & ST-H

ACCESS CLEARANCE



ST-H 2700mm ROOF HEIGHT



ST-L 2400mm ROOF HEIGHT

Refer to Installation Instructions sheet for specific installation and assembly guidelines. Racks should NOT be installed based on this sheet alone.

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