

Appendix E



KITCHENER
WOODBRIDGE
LONDON
KINGSTON
BARRIE
BURLINGTON

February 6, 2019

Paul Barrette
Planning Department
Town of Oakville
Planning Services Department
1225 Trafalgar Road, 2nd Floor
Oakville, ON. L6H 0H3

Dear Mr. Barrette:

**RE: RESPONSE TO ADDITIONAL INFORMATION ON AUTOMATED PARKING STACKERS
ZONING BY-LAW AMENDMENT AND DRAFT PLAN OF SUBDIVISION
NORTHEAST CORNER OF DUNDAS STREET WEST AND THIRD LINE
OAKVILLE GREEN DEVELOPMENT INCORPORATED
OUR FILE: 1572B**

On behalf of our client, Oakville Green Development Incorporated (hereafter referred to as the "Owner"), we are pleased to provide a response to information on automated parking stackers.

The proposal as submitted contemplates an automated parking stacker system managing over 3,000 parking spaces within a sub-grade space of approximately 9.5m in height. The 3,000+ parking spaces exceed the required parking of 2252 spaces. Town staff requested that we expand on the functionality and operation of this system to assist with the formulation of the necessary by-law and to provide a level of comfort around potential impacts. Areas in question included:

- Queuing and avoiding this on public roads
- Accommodation of large vehicles such as pick-up trucks or cargo vans, does this work, or are there separate spaces for this?
- Safety – what if the power shuts off, will there be generators?
- Accommodation of high vehicle turnover (i.e. how fast will people be able to get their vehicles during rush hour)
- A video showing how it works
- Where people drop off and pick up the vehicle internally

We have discussed the above points with the German manufacturer of the automated parking stacker system and they require a custom assessment of the proposal and subject lands. Unfortunately due to the size of the system, and the necessary coordination of data and information with our consulting team, this assessment will take months to analyze and report back. This timeframe is problematic to our planning act approval process and prescribed timeframes as well as the Owner's timeframes.

As a result, we are proposing a short term alternative that will provide for additional time to further analyse the automated system and its potential integration in this development and/or future build. The alternative is 2.5 levels of traditional underground parking in the same location as the automated parking stacker system. Based on a calculation that accounts for the size of typical parking spaces, drive aisle, columns, ramps, storage areas and elevator lobbies (17% inefficiency), we are able to confirm a minimum of 2,265 parking spaces. Should additional parking be deemed necessary through this approval process, the 3rd level of underground parking can be expanded to provide for additional parking if deemed necessary.

The attached analysis outlines the conceptual layout of the underground parking and its operation. In summary:

- Queuing backing up on the public road will be avoided through 4 access points off of the private road system, a long ramp leading to the underground and a series of parking entrance terminals at the bottom of the ramp. These are all measures that assist with dispersing traffic flow across the blocks and buildings to avoid queuing at one location.
- The underground parking would use parking technology such as overhead lights and on-demand digital directional signage to direct drivers to where spaces are available, again helping to reduce queuing externally.
- Large vehicles and pick-up trucks can be accommodated within a traditional underground parking system.
- We would also leave opportunities for 2-car manual parking stackers in key locations and have attached a manufacturer's specifications sheet illustrating how these stackers can fit within the Town's parking standards. These would be operated by a concierge system operated by the buildings.

We believe that the above and attached provides sufficient detail to allow for the crafting of the necessary zoning by-law, with the expectation that the full details of underground parking will be finessed at the Site Plan Application stage.

We ask that you consider this modification on parking, and provide for two considerations in the implementing zoning by-law for the site:

- Permit vertical tandem parking or parking stackers as a permitted parking space, accounting for 2 required parking spaces.
- To provide a provision that would allow for an automated stacked parking system by way of minor variance, subject to review and acceptance by way of a clearance letter by Town and Regional staff.

Both these provision allow for a system of stacked parking now, and in the future, and requires that the system be to the satisfaction of Town and Regional staff. This language will assist us in moving forward with the application under the prescribed timeframe and provides time and flexibility to consider the automated parking options. We are happy to work with you on the necessary language.

Please let me know if you have any questions or require anything further.

Yours truly,

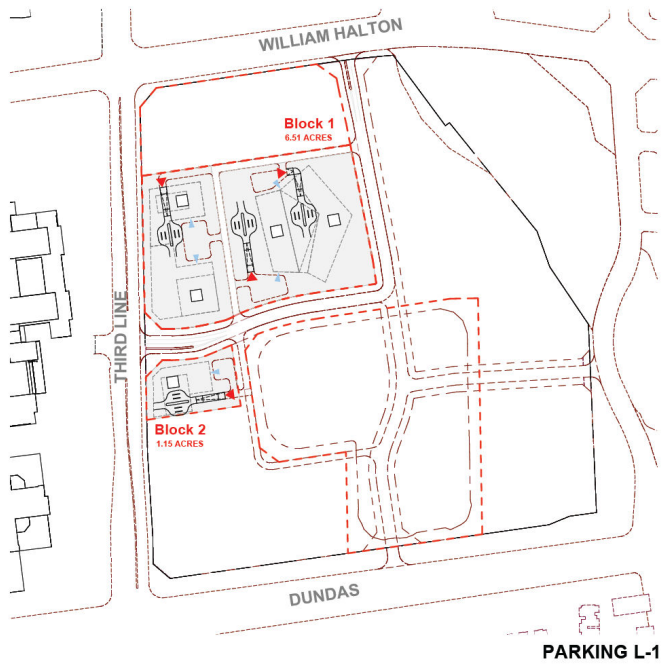
MHBC

A handwritten signature in black ink, appearing to read 'Eldon Theodore', with a large, stylized initial 'E'.

Eldon Theodore, BES, MUDS, MCIP, RPP, LEED AP
Partner and Urban Designer

cc: *Joseph Dableh*
 Arnold Ortiz
 Jeff King
 Brett Sears

OGDI
PARKING ANALYSIS

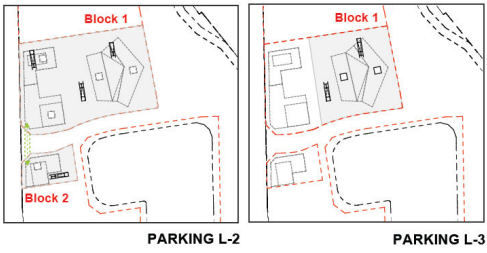


	PLOT AREAS		NET AREA EXCLUDING BUILDING CORE	ASSIGNRD AREA PER PARKING *	ESTIMATED ACHIVABLE PARKING	NUMBER OF FLOORS	ON- GRADE PARKING	TOTAL
	ACRE	SF	SF	SF				
Block 1	6.51	283,576	279,295	350	798	2.5	25	2,020
Block 2	1.15	50,094	42,095	350	120	2	5	245
								2,265

Assumption For Calculation:
Parking level built to property line.
* Assigned area for 1 parking space: 350 SF
(figure includes 17% inefficiency)

REQUIRED PARKING = 2252

- NET PARKING AREA
- PROPERTY LINE
- P-2 CONNECTING TUNNEL
- PARKING ENTRANCE
- DROP-OFF / BUILDING ENTRANCE





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PRODUCT DATA



singlevario 2061

2000 kg ¹ / 2600 kg ²

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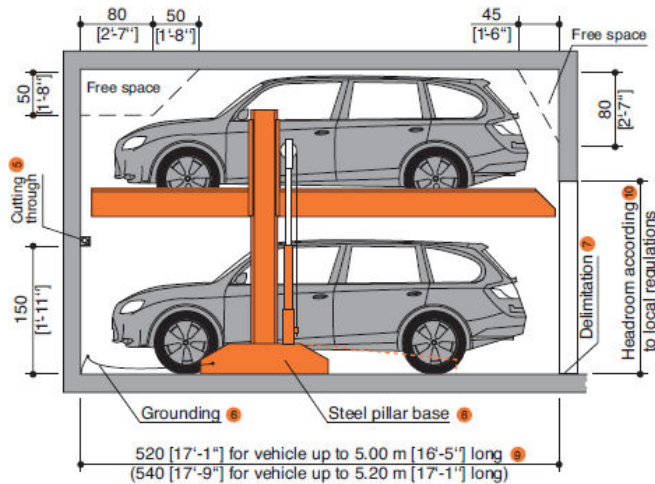
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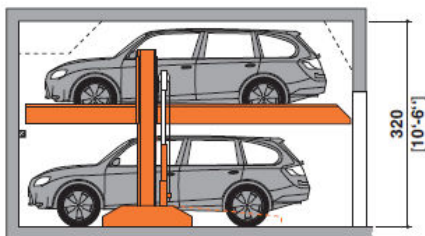
Garage without door (basement garage)



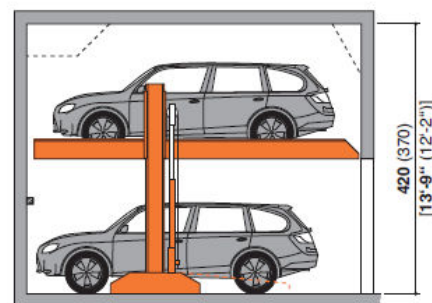
! Before lowering the platform, the vehicle parked on the lower parking space must be driven off!

Height dimensions

See page 2 for all height dimensions.



Smallest type



Biggest type

Loadable up to 2600 kg [5730 lbs] A system for all height! Subsequently adjustable!

Dimensions

All space requirements are minimum finished dimensions.

Tolerances for space requirements $+3 \begin{bmatrix} +1 \\ 0 \end{bmatrix}$ ³

EB (single platform) = 2 vehicles

Dimensions: cm [ft] (1 cm = 0,393 in)

Weights: kg [lbs] (1 kg = 2.2 lbs)

Forces: kN [lbf] (1 kN = 224.8 lbf)

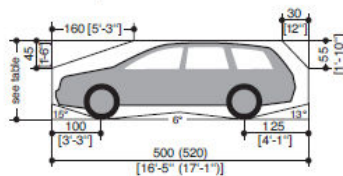
Temperature: °C [°F] (0° C = 32° F)

Suitable for

Standard passenger cars:
Limousine, Station Wagon, SUV, Van
according to clearance and maximum surface load.

	Standard	Special ²
Width	190 cm [6'-3"] ⁴	190 cm [6'-3"] ⁴
Weight	max. 2000 kg [max. 4400 lbs]	max. 2600 kg [max. 5730 lbs]
Wheel load	max. 500 kg [max. 1100 lbs]	max. 650 kg [max. 1430 lbs]

Clearance profile



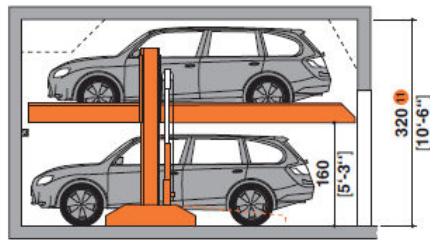
- ¹ Standard type
- ² Special system: maximum load for extra charge.
- ³ To follow the minimum finished dimensions, make sure to consider the tolerances according to VOB, part C (DIN 18330 and 18331) and the DIN 18202.
- ⁴ Car width for platform width 230 cm [7'-7"]. If wider platforms are used it is also possible to park wider cars.
- ⁵ For dividing walls: cutting through 10 x 10 cm [4" x 4"].
- ⁶ Potential equalization from foundation grounding connection to system (provided by the customer).

- ⁷ In compliance with DIN EN 14010, 10 cm [4"] wide yellow-black markings compliant to ISO 3864 must be applied by the customer to the edge of the platform in the access area to mark the danger zone in front of the supporting surface of the upper platform edge (see „Load Plan“ Page 7)
- ⁸ Variable steel pillar bases in two sizes (see „Load Plan“ Page 7).
- ⁹ For convenient use of your parking space and due to the fact that the cars keep becoming longer we recommend a length of 540 cm [17'-9"].
- ¹⁰ Must be at least as high as the greatest car height + 5 cm [+ 2"].

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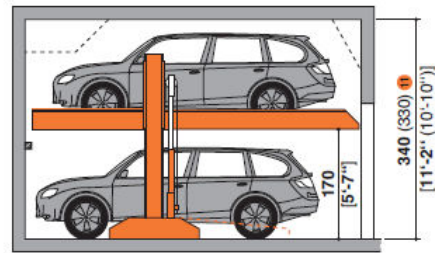
Height dimensions for garage without door (basement garage)

2061-160 [5'-3"]



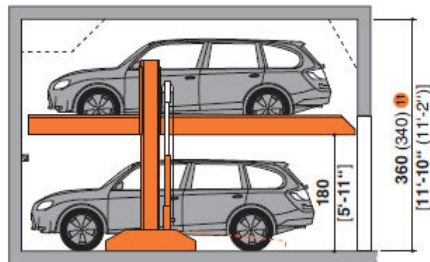
Height	Car height upper level	Car height lower level
320 [10'-6"]	150 [4'-11"]	150 [4'-11"]

2061-170 [5'-7"]



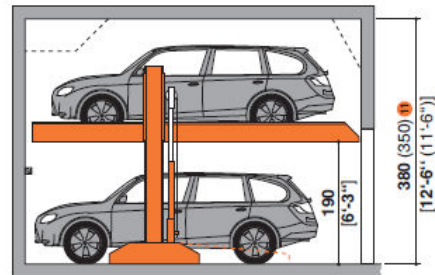
Height	Car height upper level	Car height lower level
340 [11'-2"]	160 [5'-3"]	160 [5'-3"]
(330) [10'-10"]	150 [4'-11"]	160 [5'-3"]

2061-180 [5'-11"]



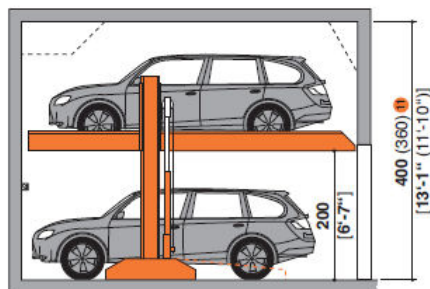
Height	Car height upper level	Car height lower level
360 [11'-10"]	170 [5'-7"]	170 [5'-7"]
(340) [11'-2"]	150 [4'-11"]	170 [5'-7"]

2061-190 [6'-3"]



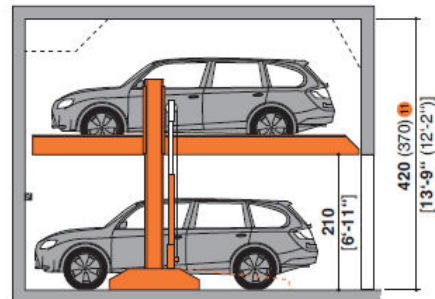
Height	Car height upper level	Car height lower level
380 [12'-6"]	180 [5'-11"]	180 [5'-11"]
(350) [11'-6"]	150 [4'-11"]	180 [5'-11"]

2061-200 [6'-7"]



Height	Car height upper level	Car height lower level
400 [13'-1"]	190 [6'-3"]	190 [6'-3"]
(360) [11'-10"]	150 [4'-11"]	190 [6'-3"]

2061-210 [6'-11"]



Height	Car height upper level	Car height lower level
420 [13'-9"]	200 [6'-7"]	200 [6'-7"]
(370) [12'-2"]	150 [4'-11"]	200 [6'-7"]

1 If a higher ceiling height is available higher cars can be parked.

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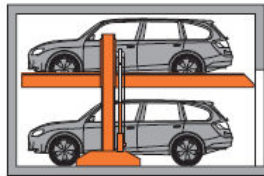
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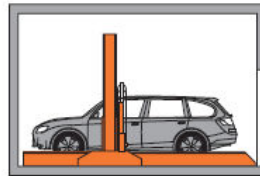
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Function

System lifted



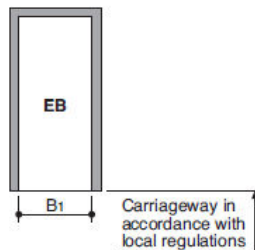
System lowered



Width dimensions for garage without door (basement garage)

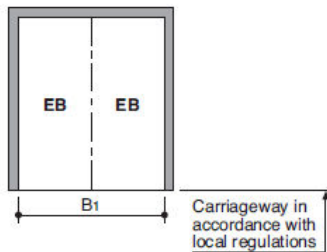
Dividing walls

Single Platform (EB)



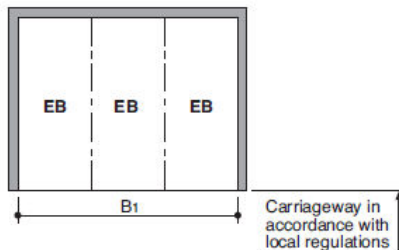
Usable platform width	B1
230 [7'-7"]	260 [8'-6"]
240 [7'-10"]	270 [8'-10"]
250 [8'-2"]	280 [9'-2"]
260 [8'-6"]	290 [9'-6"]
270 [8'-10"]	300 [9'-10"]

Double arrangement (2 x EB)



Usable platform width	B1
230 [7'-7"]	520 [17'-1"]
240 [7'-10"]	540 [17'-9"]
250 [8'-2"]	560 [18'-4"]
260 [8'-6"]	580 [19'-0"]
270 [8'-10"]	600 [19'-8"]

Tripple arrangement (3 x EB)



Usable platform width	B1
230 [7'-7"]	780 [25'-7"]
240 [7'-10"]	810 [26'-7"]
250 [8'-2"]	840 [27'-7"]
260 [8'-6"]	870 [28'-7"]
270 [8'-10"]	900 [28'-6"]

! For parking boxes on the edges and boxes with intermediate walls we recommend our maximum platform width of 270 cm [8'-10"]. Problems may occur if smaller platform widths are used (depending on car type, access and individual driving behaviour and capability).

For larger limousines and SUV wider driveways are necessary (in particular on the boxes on the sides due to the missing manoeuvring radius).

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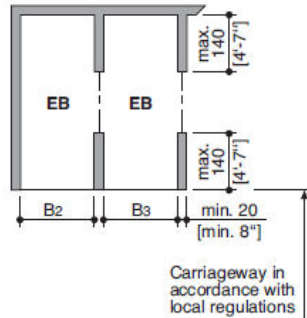
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Width dimensions for garage without door (basement garage)

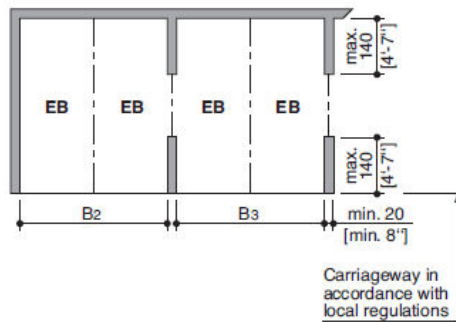
Columns in system zone

Single Platform (EB)



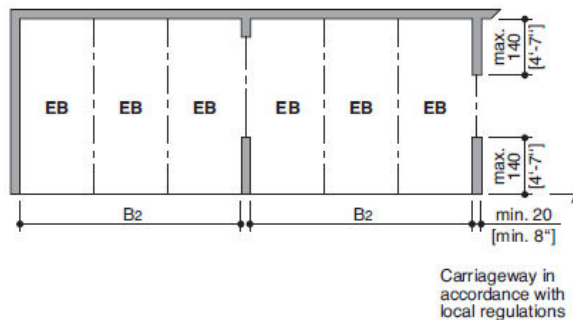
Usable platform width	B2	B3
230 [7'-7"]	255 [8'-4"]	245 [8'-0"]
240 [7'-10"]	265 [8'-8"]	255 [8'-4"]
250 [8'-2"]	275 [9'-0"]	265 [8'-8"]
260 [8'-6"]	285 [9'-4"]	275 [9'-0"]
270 [8'-10"]	295 [9'-8"]	285 [9'-4"]

Double arrangement (2 x EB)



Usable platform width	B2	B3
230 [7'-7"]	515 [16'-11"]	510 [16'-9"]
240 [7'-10"]	535 [17'-7"]	530 [17'-5"]
250 [8'-2"]	555 [18'-3"]	550 [18'-1"]
260 [8'-6"]	575 [18'-10"]	570 [18'-8"]
270 [8'-10"]	595 [19'-6"]	590 [19'-4"]

Tripple arrangement (3 x EB)



Usable platform width	B2	B3
230 [7'-7"]	775 [25'-5"]	770 [25'-3"]
240 [7'-10"]	805 [26'-5"]	800 [26'-3"]
250 [8'-2"]	835 [27'-5"]	830 [27'-3"]
260 [8'-6"]	865 [28'-5"]	860 [28'-3"]
270 [8'-10"]	895 [29'-4"]	890 [29'-2"]

! For parking boxes on the edges and boxes with intermediate walls we recommend our maximum platform width of 270 cm [8'-10"]. Problems may occur if smaller platform widths are used (depending on car type, access and individual driving behaviour and capability).

For larger limousines and SUV wider driveways are necessary (in particular on the boxes on the sides due to the missing manoeuvring radius).

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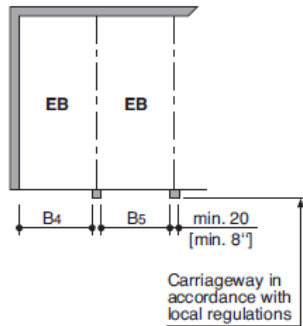
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Width dimensions for garage without door (basement garage)

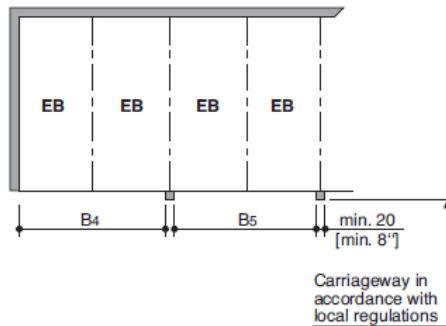
Columns outside of system zone

Single Platform (EB)



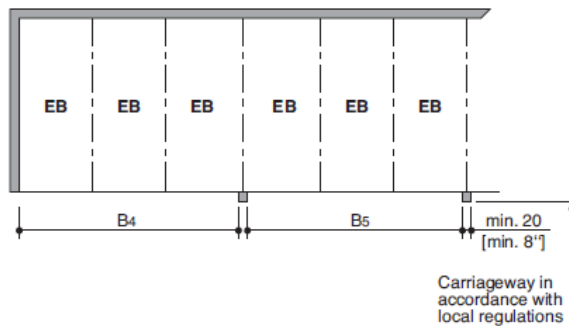
Usable platform width	B4	B5
230 [7'-7"]	250 [8'-2"]	240 [7'-10"]
240 [7'-10"]	260 [8'-6"]	250 [8'-2"]
250 [8'-2"]	270 [8'-10"]	260 [8'-6"]
260 [8'-6"]	280 [9'-2"]	270 [8'-10"]
270 [8'-10"]	290 [9'-6"]	280 [9'-2"]

Double arrangement (2 x EB)



Usable platform width	B4	B5
230 [7'-7"]	510 [16'-9"]	500 [16'-5"]
240 [7'-10"]	530 [17'-5"]	520 [17'-1"]
250 [8'-2"]	550 [18'-1"]	540 [17'-9"]
260 [8'-6"]	570 [18'-8"]	560 [18'-4"]
270 [8'-10"]	590 [19'-4"]	580 [19'-0"]

Tripple arrangement (3 x EB)



Usable platform width	B4	B5
230 [7'-7"]	770 [25'-3"]	760 [24'-11"]
240 [7'-10"]	800 [26'-3"]	790 [25'-11"]
250 [8'-2"]	830 [27'-3"]	820 [26'-11"]
260 [8'-6"]	860 [28'-3"]	850 [27'-11"]
270 [8'-10"]	890 [29'-2"]	880 [28'-10"]

! For parking boxes on the edges and boxes with intermediate walls we recommend our maximum platform width of 270 cm [8'-10"]. Problems may occur if smaller platform widths are used (depending on car type, access and individual driving behaviour and capability).

For larger limousines and SUV wider driveways are necessary (in particular on the boxes on the sides due to the missing manoeuvring radius).

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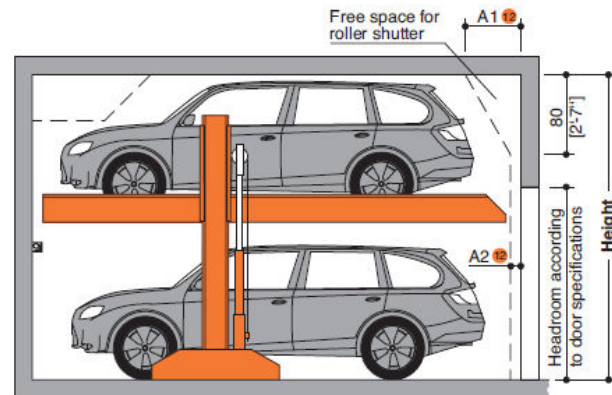
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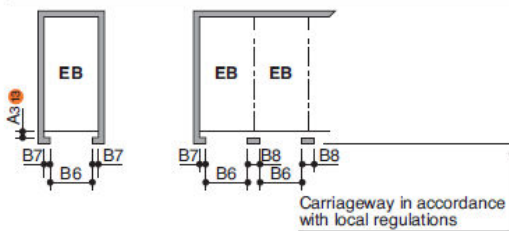
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Garage with door



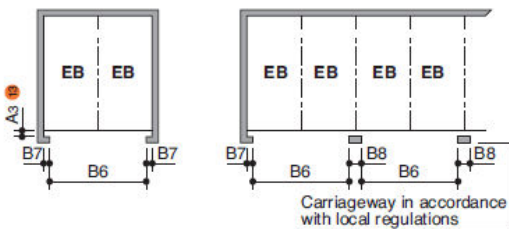
Width dimensions for garage with door

Single platform (EB)



Usable platform width	Door entrance width B6	B7	B8
230 [7'-7"]	230 [7'-7"]	15 [6"]	30 [12"]
240 [7'-10"]	240 [7'-10"]	15 [6"]	30 [12"]
250 [8'-2"]	250 [8'-2"]	15 [6"]	30 [12"]
260 [8'-6"]	260 [8'-6"]	15 [6"]	30 [12"]
270 [8'-10"]	270 [8'-10"]	15 [6"]	30 [12"]

Double arrangement (2 x EB)



Usable platform width	Door entrance width B6	B7	B8
230 [7'-7"]	490 [16'-1"]	15 [6"]	30 [12"]
240 [7'-10"]	510 [16'-9"]	15 [6"]	30 [12"]
250 [8'-2"]	530 [17'-5"]	15 [6"]	30 [12"]
260 [8'-6"]	550 [18'-1"]	15 [6"]	30 [12"]
270 [8'-10"]	570 [18'-8"]	15 [6"]	30 [12"]

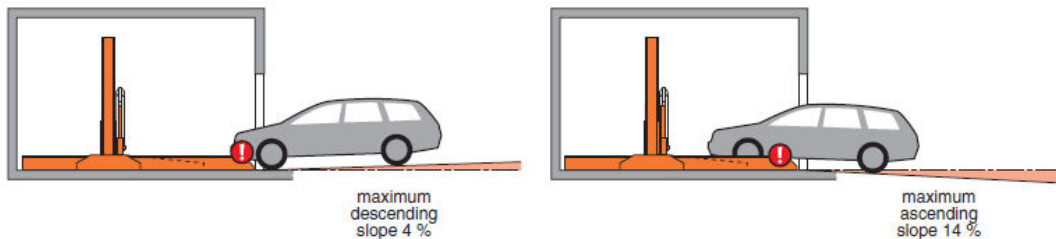
! For parking boxes on the edges and boxes with intermediate walls we recommend our maximum platform width of 270 cm [8'-10"]. Problems may occur if smaller platform widths are used (depending on car type, access and individual driving behaviour and capability).

For larger limousines and SUV wider driveways are necessary (in particular on the boxes on the sides due to the missing manoeuvring radius).

! Dimensions A1, A2 and A3 must be coordinated with the door supplier (provided by the customer).

! Seat-engaging surface (dimensions require coordination with door supplier.) Allround door dimensions require coordination between door supplier and local agency of KLAUS Multiparking.

Approach



! The illustrated maximum approach angles must not be exceeded. Incorrect approach angles will cause serious manoeuvring & positioning problems on the parking system for which the local agency of KLAUS Multiparking accepts no responsibility.

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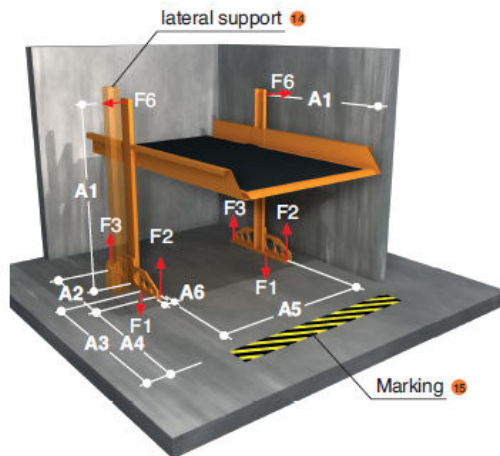
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Load plan Option 1: short steel pillar base



Dimensions

A1	300	[9'-10"]
A2	115	[3'-9"]
A3	290	[9'-6"]
A4	245	[8'-0"]
A5	LP+10	[LP+4"]
A6	12	[0'-5"]

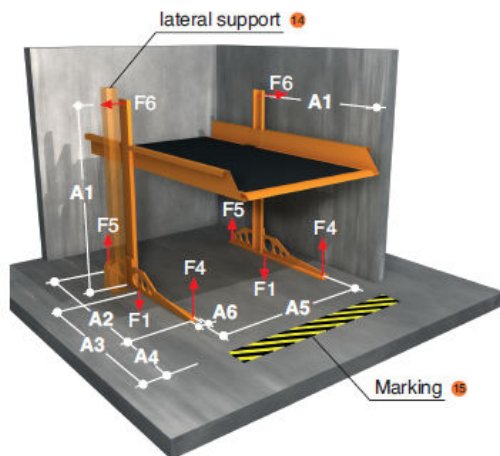
Platform load in kg

Platform load	F1	F2	F3	F6
2000 kg	+30	+1,1	+7,4	±1
2600 kg	+36	+1,4	+9,3	±1

Platform load in lbs

Platform load	F1	F2	F3	F6
4400 lbs	+6,744	+247	+1,664	±225
5730 lbs	+8,093	+315	+2,091	±225

Load plan Option 2: long steel pillar base



Dimensions

A1	300	[9'-10"]
A2	245	[8'-0"]
A3	290	[9'-6"]
A4	115	[3'-9"]
A5	LP+10	[LP+4"]
A6	12	[0'-5"]

Platform load in kg

Platform load	F1	F4	F5	F6
2000 kg	+30	+0,5	+7,7	±1
2600 kg	+36	+0,7	+9,8	±1

Platform load in lbs

Platform load	F1	F4	F5	F6
4400 lbs	+6,744	+112	+1,731	±225
5730 lbs	+8,093	+157	+2,203	±225

! The steel pillar base can be selected optionally (short or long). Please make sure to note the corresponding forces that apply!

Units are dowelled to the floor. Drilling depth: approx. 15 cm [6"].

Floor and walls are to be made of concrete (quality minimum C20/25)!

The dimensions for the points of support are rounded values. If the exact position is required, please contact KLAUS Multiparking.

14 The system must be laterally supported on both sides. If there are no walls on the sides, an additional stand must be attached. For this stand, a base area of 40 x 25 cm [1'-4" x 10"] is required (quality minimum C20/25).

15 Marking compliant to ISO 3864 (colors used in this illustration are not ISO 3864 compliant)

16 All forces in kN

17 All forces in lbf

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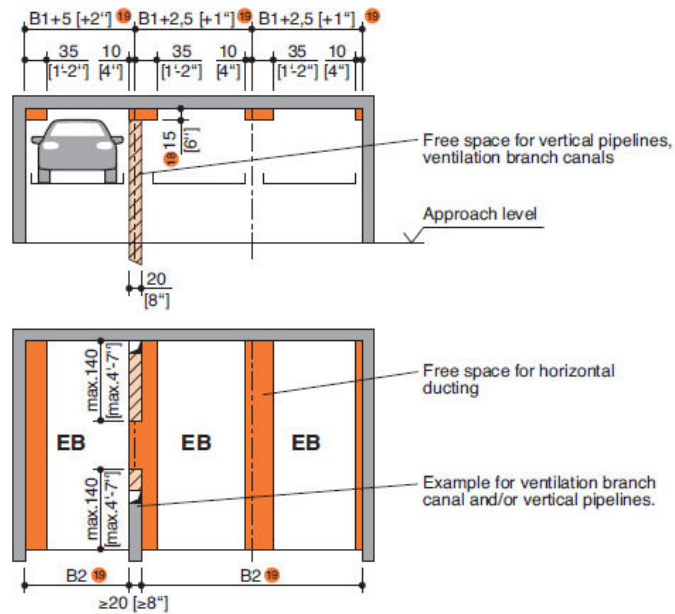
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Installation data – Free space for longitudinal and vertical ducts (e.g. ventilation)



! Free space only applicable if vehicle is parked forwards = FRONT FIRST and driver's door on the left side.

15 Size 15 cm [6"] is reduced to 5 cm [2"] for type 2061-160.

19 Dimensions B1, B2 and B3 see page 3 and 4.

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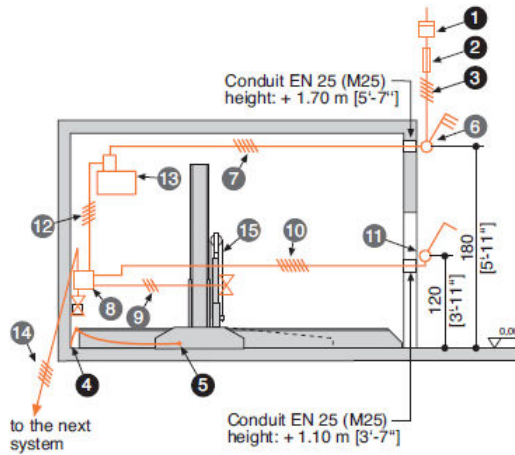
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Electrical installation

Installation diagram



Electrical data (to be performed by the customer)

No.	Quantity	Description	Position	Frequency
1	1	Electricity meter	in the supply line	
2	1	Main fuse: 3 x fuse 16 A (slow) or circuit breaker 3 x 16 A (trigger characteristic K or C) 2 x fuse 32 A (slow) or circuit breaker 2 x 32 A (trigger characteristic K or C) 3 x fuse 25 A (slow) or circuit breaker 3 x 25 A (trigger characteristic K or C)	in the supply line	1 per 3,0 kW unit 1 per 3,7 kW unit 1 per 4,0 kW unit
3	1	Supply line 5 x 2,5 mm ² (3 PH + N + PE) with marked wire and protective conductor Supply line 4 x AWG 10 (2 PH + PE) with marked wire and protective conductor Supply line 4 x AWG 12 (3 PH + PE) with marked wire and protective conductor	to main switch	1 per 3,0 kW unit 1 per 3,7 kW unit 1 per 4,0 kW unit
4	every 10 m	Foundation earth connector	corner pit floor	
5	1	Equipotential bonding in accordance with DIN EN 60204 from foundation earth connector to the system		1 per system

Electrical data (included in delivery of KLAUS Multiparking)

No.	Description
6	Lockable main switch
7	Supply line 5 x 2,5 mm ² (3 PH + N + PE) with marked wire and protective conductor (for 3,0 kW unit) Supply line 4 x AWG 10 (2 PH + PE) with marked wire and protective conductor (for 3,7 kW unit) Supply line 4 x AWG 12 (3 PH + PE) with marked wire and protective conductor (for 4,0 kW unit)
8	Terminal box
9	Control line 3 x 0,75 mm ² (PH + N + PE)
10	Control line 7 x 1,5 mm ² with marked wire and protective conductor
11	Operating device
12	Control line 5 x 1,5 mm ² with marked wire and protective conductor
13	Hydraulic unit 3,0 kW, three-phase current, 230/400 V / 50 Hz Hydraulic unit 3,7 kW, two-phase current, 240 V / 60 Hz Hydraulic unit 4,0 kW, three-phase current, 120/208 V / 60 Hz
14	Control line 5 x 1,5 mm ² with marked wire and protective conductor
15	Chain control

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Technical data

Field of application

By default, the system can only be used for a fixed number of users.

If different users use the system – only on the lower parking spaces – (e.g. short-time parkers in office buildings or hotels) the Multiparking system needs to be adjusted. If required, would you please contact us.

Units

Low-noise power units mounted to rubber-bonded-to metal mountings are installed. Nevertheless we recommend that parking system's garage be built separately from the dwelling.

Available documents

- wall recess plans
- maintenance offer/contract
- declaration of conformity
- test sheet on airborne and slid-borne sound

Environmental conditions

Environmental conditions for the area of multiparking systems: Temperature range -10 to +40° C [+14 to +104° F]. Relative humidity 50% at a maximum outside temperature of +40° C [+104° F].

If lifting or lowering times are specified, they refer to an environmental temperature of +10° C [+50° F] and with the system set up directly next to the hydraulic unit. At lower temperatures or with longer hydraulic lines, these times increase.

Sound insulation

As per DIN 4109-1 (sound insulation in building construction), Section 9, KLAUS Multiparker are in the range of technical domestic installations (garage systems).

Normal sound insulation:

DIN 4109-1, Section 9, maximum permissible A-rated sound levels in rooms requiring external protection, generated by technical domestic installations and commercial businesses affiliated with the building.

Table 9 shows the values for the maximum permissible A-rated sound levels in rooms requiring external protection, generated by technical domestic installations and business affiliated with the building. As per line 2, the maximum sound level in living rooms and bedrooms must not exceed 30 dB (A). *User noises are not subject to the requirements (DIN 4109-1, Section 9).*

The following measures are required to comply with this value:

- Sound protection package according to offer/order (KLAUS Multiparking GmbH)
- Minimum sound insulation of the building of min. $R'_w = 57$ dB (service/item to be provided by the customer)

Increased sound insulation (special agreement):

VDI 4100 (sound insulation in building construction) Assessment and proposals for enhanced sound insulation.

Agreement: Maximum sound level in living rooms and bedrooms 25 dB (A). *User noises are not subject to the requirements (see VDI 4100, Paragraph 1, Scope of application – Notes).*

The following measures are required to comply with this value:

- Sound protection package according to offer/order (KLAUS Multiparking GmbH)
- Minimum sound insulation of the building of min. $R'_w = 62$ dB (service/item to be provided by the customer)

Note: User noises are basically noises that can be individually influenced by the user of our Multiparking systems. These include, for example, driving on the platform, slamming vehicle doors, engine and brake noises.

Building application documents

According to LBO and GaVo (garage regulations) the Multiparking systems are subject to approval. We will provide the required building application documents.

Care

To avoid damages resulting from corrosion, make sure to follow our cleaning and care instructions and to provide good ventilation of your garage.

Corrosion protection

See separate sheet regarding corrosion protection.

Railings

If there are traffic routes next to or behind the installations, railings compliant to DIN EN ISO 13857 must be installed by the customer. Railings must also be in place during construction.

CE Certification

The systems on offer comply with DIN EN 14010 and EC Machine Directive 2006/42/EC. Furthermore, this system underwent voluntary conformity testing by TÜV SÜD.

CERTIFICATE OF CONFORMITY	
<p>Certificate concerning the examination of conformity</p>	
Certificate no:	KP 527
Certification body:	TÜV SÜD Industrie Service GmbH Zertifizierungsstelle für Produkte der Fördertechnik Gottlieb-Daimler-Str. 7 70794 Filderstadt - Germany
Applicant / Certification holder:	KLAUS Multiparking GmbH Hermann-Krum-Straße 2 88319 Albstadt - Germany
Date of application:	2016-08-16
Manufacturer:	KLAUS Multiparking GmbH Hermann-Krum-Straße 2 88319 Albstadt - Germany
Product:	Equipment for power driven parking of motor vehicles
Type:	SingleVario 2061 EB 2,000 kg SingleVario 2061 EB 2,600 kg
Test laboratory:	TÜV SÜD Industrie Service GmbH Prüflaboratorium für Produkte der Fördertechnik Prüfbereich Maschinen der Fördertechnik Gottlieb-Daimler-Str. 7 70794 Filderstadt - Germany
Date and number of the test report / mark of conformity:	2017-02-20 KP 527
Test specifications:	- 2006 / 42 / EC, Annex I - DIN EN 14010
Validity:	This Certificate is valid until 2022-02-28
Result:	The equipment fulfils the requirements of the test specifications for the respective scope of application stated in the annex (page 1) of this certificate, keeping the mentioned conditions.
Date of issue:	2017-03-01
<p>Certification body for lifts and cranes</p> <p>Achim Janocha</p> <p>TÜV SÜD Industrie Service GmbH</p> <p>TÜV SÜD</p>	

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Safety fences

Any constraints that may be necessary according to DIN EN ISO 13857 in order to provide protection, for pathways directly in front, next to or behind the unit. This is also valid during construction.

Numbering of parking spaces

Consecutive numbering of parking spaces.

Building services

Any required lighting, ventilation, fire extinguishing and fire alarm systems as well as clarification and compliance with the relevant regulatory requirements.

Marking

In compliance with DIN EN 14010, 10 cm [4"] wide yellow-black markings compliant to ISO 3864 must be applied by the customer to the edge of the platform in the access area to mark the danger zone in front of the supporting surface of the upper platform edge.

Wall cuttings

Any necessary wall cuttings according to page 1.

Electrical supply to the main switch / Foundation earth connector

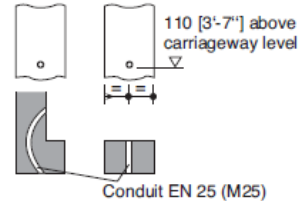
Suitable electrical supply to the main switch must be provided by the customer during installation. The functionality can be monitored on site by our fitters together with the electrician. If this cannot be done during installation for some reason for which the customer is responsible, the customer must commission an electrician at their own expense and risk.

In accordance with DIN EN 60204 (Safety of Machinery. Electrical Equipment), grounding of the steel structure is necessary, provided by the customer (distance between grounding max. 10 m [32'-10"]).

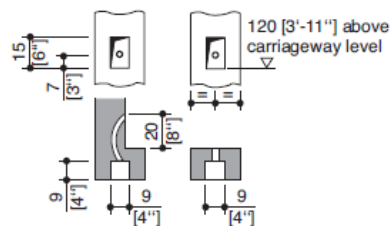
Operating device

Cable conduits and recesses for operating device (for double wing doors: please contact the local agency of KLAUS Multiparking).

Operating device exposed



Operating device concealed / Not available for UL operating device



If the following are not included in the quotation, they will also have to be provided / paid for by the customer:

- Mounting of contactor and terminal box to the wall valve, complete wiring of all elements in accordance with the circuit diagram
- Costs for final technical approval by an authorized body
- Main switch
- Control line from main switch to hydraulic unit

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Description Single platform (EB)

General description

Multiparking system providing dependent parking spaces for 2 cars one on top of the other each. The lower vehicle parks directly on the floor plate. The vehicle parked on the bottom must be driven out before lowering the platform.

The height of the platform can be adjusted flexibly (even subsequently).

Adjustment of maximum load of 2,600 kg can be made subsequently. Dimensions are in accordance with the underlying dimensions of parking pit, height and width

The parking bays are accessed horizontally (installation deviation $\pm 1\%$).

Vehicles are positioned on the upper parking space using wheel stops on the right side (adjust according to operating instructions).

Operation via operating device with hold-to-run-device using master keys.

The operating elements are usually mounted either in front of the column or on the outside of the door frame

Operating instructions are attached to each operator's stand.

For garages with doors at the front of the parking system the special dimensional requirements have to be taken into account.

Multiparking system consisting of:

- 2 steel pillars with bases that are mounted on the floor (short or long steel pillar bases can be selected optionally).
- 2 sliding platforms (mounted to the steel pillars with sliding bearings)
- 1 platform
- 1 mechanic synchronization control system (to ensure synchronous operation of the hydraulic cylinders while lowering and lifting the platform)
- 1 hydraulic cylinder
- 1 automatic hydraulic safety valve (prevents accidental lowering of the platform while accessing the platform)
- Dowels, screws, connecting elements, bolts, etc.
- The platforms and parking spaces are end-to-end accessible for parking!

Platforms consisting of:

- Platform base sections
- Adjustable wheel stops
- Cantilevered access plates
- Side members
- Cross members
- Screws, nuts, washers, distance tubes, etc.

Hydraulic system consisting of:

- Hydraulic cylinder
- Solenoid valve
- Safety valve
- Hydraulic conduits
- Screwed joints
- High-pressure hoses
- Installation material

Electric system consisting of:

- Operating device (Emergency Stop, lock, 1 master key per parking space)
- Terminal box at wall valve
- Electrical locking device
- Chain control

Hydraulic unit consisting of:

- Hydraulic power unit (low-noise, installed onto a console with a rubber-bonded-to-metal mounting)
- Hydraulic oil reservoir
- Oil filling
- Internal geared wheel pump
- Pump holder
- Clutch
- AC-motor
- Contactor (with thermal overcurrent relay and control fuse)
- Test manometer
- Pressure relief valve
- Hydraulic hoses (which reduce noise transmission onto the hydraulic pipe)

We reserve the right to change this specification without further notice

KLAUS Multiparking reserves the right in the course of technical progress to use newer or other technologies, systems, processes, procedures or standards in the fulfillment of their obligations other than those originally offered provided the customer derives no disadvantage from their so doing.