

THE CAR PARK CONUNDRUM:

SAVING SPACE IN HIGH END RESIDENTIAL PROJECTS



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INTRODUCTION

The strong Australian property market, held steady by high demand for residential real estate, has seen home sizes shrink to all time lows. Studies show that the average home size dropped to 189.8m² in 2016/17, a 2.7% drop from the previous year.¹ In fact, current statistics indicate that the average home size has fallen to 20-year lows.² Driven by the growth of medium to high density housing, growing populations and changing lifestyle preferences, more Australians are choosing to live in smaller spaces.³

In a sector where usable space comes at a premium, designers and specifiers are seeking design solutions that can maximise compact residential footprints and create as much usable space as possible. This means identifying ways to make efficient use of floor space and reduce the space required by utilities, such as car parking spaces and vehicle storage facilities.

Car parking and vehicle storage are key elements in medium to large-scale residential projects. A 2017 article in The Australian reported motor vehicle census statistics indicating that the number of registered passenger vehicles across Australia had risen by 43% since 2000.⁴ The growth of car space renting platforms highlights the high developer and buyer demand for parking spaces. Mindful designers and spacers will be careful not to underestimate the space required by access solutions such as ramps, and the requirement for ample clearance space to prevent damage to the car and surrounding walls can make a significant dent in usable living space if efficient design solutions are not implemented.

In this whitepaper, we examine how car lifts provide the ideal design solution for maximising space usage in high-end residential projects.



CAR SPACE ACCESS: UNDERSTANDING THE CURRENT OPTIONS

For most residential apartment projects, conventional parking solutions are utilised. Ramps are featured in most cases to allow tenants to access car parking spaces across multiple levels. While ramps appear to be a straightforward solution that meets the requirements of tenant access, they can present a number of challenges for designers and specifiers as discussed below.

Space consumption

It is critical for designers and specifiers to assess the amount of space required by conventional car ramp solutions. Car ramps can take up a large amount of additional floor area on top of what is already consumed by the car itself. Note that councils will also impose minimum parking space requirements for residential buildings.⁵ Ramps that are angled too flat will take up additional space, while ramps that are angled too steep will pose a safety risk for end users.⁶ Inevitably, opting for car access ramps will result in a large portion of usable space in a residential project being devoted entirely to parking and vehicular storage.

Major works

Car ramps also have practical advantages during construction. Installing a ramp for a residential project is a major endeavour that requires significant construction work. For basement environments, major excavation work is also required. Access ramps are considered major renovations, and council approval is required to install a ramp in certain scenarios.⁷ Considering all these factors, choosing a car ramp solution can result in a prolonged and complicated installation process, adding major costs and time to high end residential projects.

Labour and resource intensiveness

Beyond being complex, installing car ramps is labour and resource intensive. Designers and specifiers should take into account the cost of labour, materials and equipment, as well as the need to comply with strict Australian standards and regulations.

CAR LIFTS: A DESIGN SOLUTION

Recent technological advancements have allowed more space-efficient car park solutions to emerge. One such advanced parking solution is car lifts, which are moving platforms designed to smoothly transport vehicles to elevated parking spaces without requiring an access ramp. A full car lift system is comprised of a lifting mechanism, reinforced platform and supporting machinery.

Car lifts are an ideal solution for maximising space in compact areas while addressing functionality challenges and council requirements for residential parking spaces. Well-designed and high quality car lifts can fit into an area of less than 20m², a space amounting to only slightly more than the footprint of the average car.



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ASSESSING CAR LIFT SOLUTIONS: WHAT TO LOOK FOR

With respect to saving usable space, car lifts can deliver a significant improvement over access ramps. However, given the variety of car lifts on the market, designers and specifiers need to take into account a number of factors when assessing which solution is best suited to their project. These factors are discussed below.

Sizing of lifting mechanism

Most car lifts use hydraulic lifting systems that can vary in size. When assessing a car lift solution, the dimensions of the lifting mechanism should be carefully considered. Some lifting systems can have wide shaft requirements that require a significant amount of space. Designers and specifiers should take care when specifying such systems as wide shaft requirements will essentially defeat the space savings gained by eliminating a car access ramp.

Ease of operation

Ease of operation is a key aspect of car lift design and is dependent on the specific requirements of a project. Designers and specifiers should consider whether remote or panel-based control is most appropriate, and ensure that whichever control option selected is user friendly and placed in an easy-to-access location. Design flexibility can also contribute to ease of operation. Specifiers should consider

the size of the platform as it will directly impact the size of vehicles that can safely use the car lift, the turning circle required, and accessibility on upper and lower levels. Car lift systems that allow designers and specifiers to customise platform size are preferable for this reason.

Safety

Specifiers should pay special attention to the safety features of the car lift system. The platform on which the vehicle sits in a car lift system must be sturdy and maintain stability throughout the lifting movement. Any torsion or bending poses a safety risk and is an indicator of a poorly designed car lift system. Car lift systems may also offer additional safety features, such as:

- Mechanical Locking pins to ensure utmost safety when lift locates at each floor level
- safety barriers that stop a car from rolling off the platform and into surrounding walls; and
- mechanical elements encased in a secure, protective casing.

Car lifts must comply with the relevant Australian Standards for operational speed as they have an impact on traffic flow at ground level. It is advisable to seek expert advice, especially in relation to technical support information and the applicable Australian Standards for car lift operation.





HLS Equipment

Meeting the high demand for vehicle lifts from the commercial and residential sectors, HLS Equipment is Australia's market leader in specialist parking solutions for almost any environment. An innovative designer, manufacturer and distributor, HLS Equipment offers a wide range of products including independent and dependent car stackers, vehicle lifts and turntables. Their extensive catalogue also includes solutions from international suppliers like OMER Parking Systems, a leading European vehicle lift manufacturer.

In addition to their advanced parking solutions, HLS Equipment are committed to delivering consistently high quality customer service and support, including responsive servicing and maintenance for all car stackers and vehicle lifts.

With highly trained in-house vehicle parking experts located in every Australian state and territory, HLS Equipment can deliver sound, reliable advice on the ideal parking solution for any project or brief. By providing bespoke design solutions and consulting services, HLS Equipment can help customers solve virtually any parking problem.

HLS Equipment Total Rex

Total Rex allows drivers to remain on board the vehicle while the lift is in operation. Perfect for heights up to 4200mm and designed with a focus on safety and reliability, Total Rex utilises a heavy duty yet compact and space-saving hydraulic lifting mechanism that keeps the platform level stable and parallel to the ground throughout the entire lifting movement, eliminating any torsion or bending. Wheel stops and a perfectly balanced platform ensure both the driver and vehicle are secure during transport. The platform itself is fabricated from lightweight galvanised panels, resulting in a sturdy and durable end product.

Offering maximum ease of use and design flexibility, Total Rex features on-board operating panels that can be placed and customised in the ideal position depending on the specific installation context. Allowing lift operation by the driver, these operating panels feature full lift control, as well as emergency buttons and communication functionality. Multiple panels can be specified if the project brief calls for dual entry and exit points.

Compatible with manually, electrically or remotely controlled sectional doors – which can be specified with up to 60 minutes fire rating – Total Rex is the ideal solution for residential projects that demand safety and performance within strict space constraints. Total Rex Platinum is HLS Equipment's answer where heavy vehicles or those with long vehicle bases need lifting. Designed to enable a higher lifting. Specifiers can specify different platform sizes depending on the installation context. When the lift is in the down position, Total Rex can offer an additional safe, trafficable surface area if fitted with a flat roof.

Total Rex delivers maximum performance while occupying minimal space. Total Rex requires a pit of only 516mm depth. Utilises a pantograph lifting system (scissor lift) that can lift a capacity of up to 4 tonnes capacity.

Totalmove Car Lift

Where a travel distance of greater than 4200mm is needed, Totalmove delivers performance and functionality as a car parking lift (or a goods lift). This heavy duty car lift solution, which also incorporates many of the benefits found across the HLS Equipment range, is capable of carrying 3 tonnes of weight up to 16000mm high. Its unique safety features and columns mounted on one side only allows Totalmove to carry passengers boarded on the vehicle securely and safely.

Custom designed car elevators

Designers and specifiers can consult directly with HLS Equipment to create bespoke solutions for even the most challenging of parking briefs. Whether you need to transport unusually large or heavy vehicles, to work within particularly restrictive spaces, or to comply with strict regulations and standards, HLS Equipment can create a custom vehicle elevator to meet almost any need. Some of the custom lift options include varying platform sizes, specific range of travel, electric or hydraulic mechanisms and custom finishes. Beyond this, HLS Equipment's custom solutions have a rapid ascension speed of up to 1 metre per second, to meet and exceed the AS1735 code.

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