

PRACTICAL PARKING:

CHOOSING THE RIGHT PARKING SYSTEM
AND ENSURING COMPLIANCE AT EVERY STAGE



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INTRODUCTION

Across Australia, parking space is at a premium. In fact, industry sources estimate the value a parking space can add to a property at around the \$300,000 mark.¹ Parking spaces have become so valuable that property owners are even selling them for huge profit, with spaces in Sydney fetching prices of over \$200,000.² The combination of higher value parking spaces in tandem with a wider trend towards smaller property sizes³ across Australia means that the need for efficient creation and utilisation of parking space in the residential context is more important now than ever before.

The story is much the same in the commercial sphere. The 2016 census revealed that 69% of the Australian workforce (more than 6.5 million people) drive to work each day, making it the most common transport option for employees.⁴ With some of Sydney's most prominent parking operators charging in excess of \$20/hour depending on location,⁵ having viable and efficient parking in close proximity to the workplace is essential to facilitate employee needs. On the other end of the commercial spectrum, car parks have also proved

to be a prudent business venture in and of themselves - A 315-bay carpark in Melbourne's CBD recently sold for more than \$31 million.⁶

With statistics like these it is easy to see why the efficient use of space in car parking solutions is a key concern to modern designers and specifiers. Whereas the carpark was previously an open or multi-level area, limited by how much floorspace was available, these days a combination of design innovation and technology enables greater parking space yield in both residential and commercial applications. But with these new solutions come additional regulatory guidelines and standards that must be observed and met. Selecting a non-compliant product or a product that is unsuitable for the specified application can lead to financial and timeline blowouts, proving costly for the design and construction teams as well as the client.

This whitepaper will take an in-depth look at some of the innovative parking solutions available on the market today, along with relevant guidelines and standards and how they apply.



UNDERSTANDING THE OPTIONS

Stackers

Car stackers take advantage of vertical space rather than just floorspace, and are becoming increasingly popular in new construction in Australia as a convenient way of maximising the number of available car spots.⁷ They offer a safe, low-maintenance option that not only decreases construction costs by removing the need for deeper excavation but increases returns by maximising useable real estate. Stackers fall into two categories: dependent and independent.

- **Dependent** stackers are so called because they do not utilise a pit and are therefore dependent on the lower car moving in order to access the top car. They are an incredibly cost-effective and easy-to-install solution because they can double or triple car space and can be installed in most spaces while not requiring excavation work.

- **Independent** stackers do not require the moving of one car in order to access another. This makes them ideal for residential and low-density multi-residential applications where users require separate access to vehicles.

Semi or fully automatic parking systems

Automated parking systems utilise horizontal movement of ground platforms in order to deliver upper or lower platforms (and vehicles) to the ground, which allows an additional row of vehicles to be stored in the same height - creating 50% greater efficiency than a stacker system. They are ideal solutions for higher-density multi-residential or commercial applications. Semi-automatic systems involve some input from an attendant or driver in order to operate the mechanical system whereas fully automatic systems operate more like a valet: the car is driven onto the platform, the driver receives a ticket, and the mechanical system does the rest.

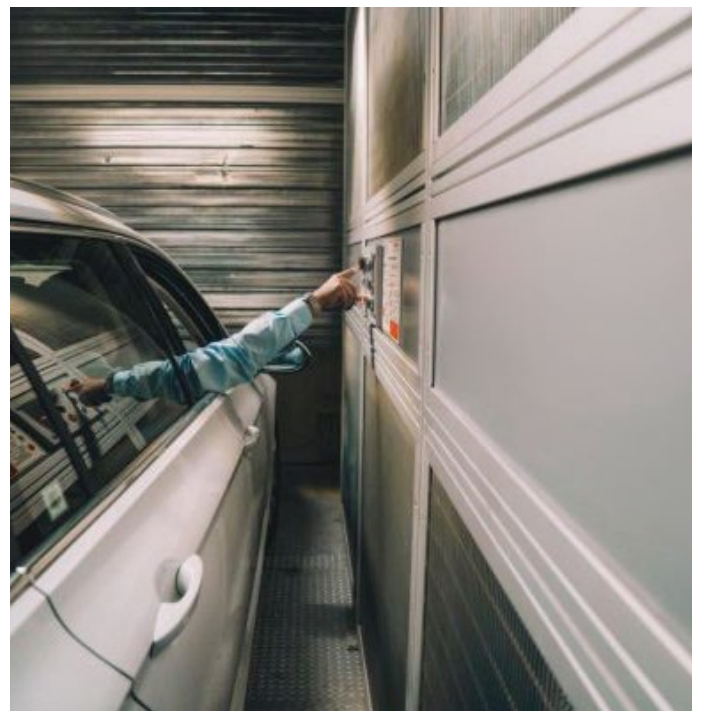
Automated systems can house large numbers of vehicles but require only a small amount of the excavation that would be required for a standard basement parking area. They may also improve safety outcomes: research has shown that most Australians have either seen or been involved in a collision in a parking area, and that these are just accepted as part of life.⁸ By reducing the need to drive around looking for an available space, automated parking systems lower the number of minor accidents, while the platform-based storage makes vehicle theft next to impossible.

Platform Lifts and Hoists

Parking lifts and hoists are a cost and space-effective means of providing fast vehicle access between multiple storeys of parking, making them great choices for multi-residential and commercial applications. Car lifts can operate at heights of up to 16 metres, are capable of transporting people as well as vehicles, and can also be used as good lifts, making them multi-functional in multi-storey applications. Simple mechanical controls are designed for easy operation by the public with no training and lifts also come with numerous intuitive safety features to ensure user safety. Options like fire-rated doors add to the overall fire protection systems of buildings, and can potentially save cost and time blowouts related to non-compliance.

Elevators or cabin lifts

Car elevators and cabin lifts provide a bespoke option that can be fabricated to fit the varied specifics of any given project. They can be made using hydraulic systems for heights of up to 25 metres, or using electric systems for virtually any height. They can be made to accommodate vehicles that are longer, wider or higher than standard dimensions, or much heavier. This versatility provides an easy solution and peace of mind for architects and specifiers working on projects with highly specific requirements. Opting for a lift cabin also opens up a broad range of design possibilities that can be specified in line with the overall aesthetic of the wider project.



UNDERSTANDING RELEVANT STANDARDS AND GUIDELINES

There are a number of Australian Standards that deal not only with off-street parking, but with the mechanical aspects of the lifting systems that are employed in these parking solutions. Compliance with these standards is absolutely essential and specifiers must be wary of cheaper products or suppliers that are unable to provide proof of compliance. This list does not cover every applicable standard but provides a detailed overview of the regulatory environment. There may also be relevant local council guidelines that will not be covered in this whitepaper. Designers and specifiers are advised to talk to a reputable parking system supplier for further information on all relevant standards.

AS/NZS 2890.1:2004

The AS2890 suite covers parking facilities, both on-street and off-street, along with bicycle, commercial and disabled-access parking. Part 1, AS/NZS 2890.1:2004 - Parking facilities Off-street car parking,⁹ is comprehensive and pertains to both residential and private parking developments. The Standard provides requirements for compliant parking design, including:

- Manoeuvre space requirements in residential projects
- Width requirements for parking aisles in high-traffic applications
- Access and egress requirements including ramp grades
- Headroom, lighting, landscaping and general visibility requirements.

AS5124:2017

AS 5124:2017 Safety of Machinery - Equipment for Power driven parking of motor vehicles - Safety and EMC requirements for Design, manufacturing, erection and commissioning stages¹⁰ is an adaptation of the European equivalent, EN 14010 and outlines minimum safety requirements for fully and semi-automated parking systems. The standard works in tandem with AS/NZS 2890.1:2004 in that any automated systems must still meet the minimum off-street parking design requirements. The standard covers parking systems for

vehicles with a maximum size envelope of 5.30m long x 2.30m wide x 2.20m high and a mass of less than 2500kg. It also details safety measures for hydraulic and electric systems, lifting and transmission elements, equipment types and testing and the design of vehicle transfer areas. This is widely regarded as the dominant standard for these systems, and evidence of full compliance should be sought by specifiers prior to selection.

AS1418.8-2008

The AS1418 series covers Cranes, Hoists and Winches. AS 1418.8-2008 Cranes, hoists and winches - Special purpose appliances¹¹ is relevant to car platform lift and hoist systems. The Standard covers the general design, components, testing and instructions of relevant machinery along with the load ratings, load combinations, construction, inspection and maintenance of platform lifts and hoists. Specifiers seeking to include car lift or hoist systems in their designs should ensure that any product is tested and certified in accordance with this standard.

AS1735.2-2001 and AS1735.3-2002

The AS1735 series pertains to Lifts, Escalators and Moving Walks. The relevant sections are AS1735.2-2001 Passenger and goods lifts - Electric¹² and AS1735.3-2002 Passenger and goods lifts - Electrohydraulic.¹³ Specifiers should also be aware of AS1735.1 which contains the general requirements. Amongst other things, the standards set out the requirements for:

- Machinery locations, protection, ventilation and access
- Machinery types, load ratings, and component parts
- Door types and operation
- Electrical and wiring performance

This Standard has particular relevance to elevator and cabin lifts and should be observed by specifiers seeking to use these systems in their multi-storey designs.



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HLS Equipment

HLS Equipment is a leading leading designer, manufacturer and supplier of high performance parking solutions for the Australian market, offering a wealth of expertise in consulting and solving specific parking problems for designers and specifiers. All HLS Equipment products are fully compliant to Australian Standards, providing high-performance, efficient and durable systems for any project.

HLS Equipment is also the Australian distributor for leading overseas manufacturers including OMER Parking Systems, Swiss Park, ParkPiu, Borel, and more, meaning they are equipped to handle the full spectrum of parking lift requirements in Australia.

By utilising a nationwide network of warehouses and offices, HLS Equipment is able to provide timely and high-quality servicing and

maintenance for all products. HLS Equipment technicians are fully trained to complete all maintenance works and ensure ongoing compliance with Australian standards and regulations.

Three to five-year servicing packages are available for all products and can be tailored to the specific requirements of the project. All products that are serviced and maintained with a service package are subject to extended warranties.

HLS Equipment staff are knowledgeable in the latest parking trends, developments and technologies and pride themselves on working closely with Australian designers and specifiers to find a solution that best meets the requirements of the job.



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All information provided correct as of May 2020