



## INTRODUCTION TO AUTOMATED CAR PARKING



## CONTENTS

WHAT IS AUTOMATED CAR PARKING?

WHY HAVE AUTOMATED CAR PARKING?

HISTORY OF AUTOMATED CAR PARKING

## WHAT IS AUTOMATED CAR PARKING?

Automated car parking is a method of automatically parking and retrieving cars that typically uses a system of pallets, lifts and carriers.

By parking cars in this way, the floor area and volume of the garage can be used much more efficiently. The intention is to compact more cars in the same space; reduce the space needed to park the same number of cars: or allow car parking where previously there would have been no room. Automated car parks can be sited above or below ground, or a combination of both, and designed to accommodate any number of cars.

Automated parking will make a huge difference in urban planning and in designing developments of the future.

## HOW IS THE CAR PARKED?

The process of parking is simple for the driver. The car is parked in a module at the entrance to the car park. It is then automatically moved through the garage and stored in a parking space. Depending on the type of automated system, this is done by a computerized system of pallets, lifts, carriers, and, in the case of the Skyparks Robotic Parking System, robots.

The car is returned to the driver in the same way, using a signalling device in private parking, or a ticket and payment system in a public car park. Retrieval time for a vehicle is rapid – an average of 2.5 minutes depending on the type of automated car park and its size.

## WHY CHOOSE AUTOMATED CAR PARKING?

Increasing pressure on building development within our cities through lack of space, coupled with stringent environmental impact considerations raises an important question for commercial and government developers alike: where to put the cars?

In many cities, limited space means that construction of a conventional multi-storey underground car park, or dedication of a sufficiently large amount of space above ground for parking is simply out of the question. Added to this are the expenses involved in building such structures, providing lighting, security, appropriate emission control and suitable ventilation, and ever-increasing concerns over parking cars in crowded spaces.

At the same time, buildings are difficult to sell or lease with limited or no car parking; many new developments demand transport planning and car parking must be key consideration. Automated car parking tackles many of these problems, offering a space efficient, cost effective and environmentally sound solution. The key benefits are:

- Increased rentable areas
- Minimal structural changes to existing buildings
- Lower construction costs
- Driver friendly parking
- Low maintenance operation
- Reduced environmental impact

## INCREASED RENTABLE AREAS

One of the major outcomes of automated car parking is the ability to provide parking with a rented/saleable property.

Firstly, the use of the automated car parking system frees up room so that it is possible to add additional rooms, units or offices into the building development.

Secondly there is added retail advantage to being able to rent or sell the property with its own car parking. This in turn maximises the owner's return on their investment.

## MINIMAL STRUCTURAL CHANGE TO EXISTING BUILDINGS

A significant benefit resulting from the installation of automated car parking is that by utilising one of the many systems available, little or no structural changes need to be made to existing buildings.

Automated parking systems also integrate well with historically classified buildings without major changes to the façade. Many older buildings with high ceilings and/or basements are inaccessible to cars, but by using some of the varieties of automated parking systems, parking spaces can be created and/or increased.

Automated car parking also allows for flexible use of land space, requiring in many cases only one third of the building footprint required by conventional parking stations. This flexibility allows for more creative solutions to car parking, such as submerged garaging in water adjacent to a development site or the conversion of old historic sites into parking facilities.

## LOWER CONSTRUCTION COSTS

Automated car parking solutions are cost-effective in terms of construction costs. Automated car parking is delivered to site as prefabricated components, which are assembled on site. Cladding can be specifically selected to match the environment into which it is being placed.

Excavation costs are kept to a minimum, as are material costs. There is little waste space, there is less lighting and power required and less noise nuisance to insulate against.

Vehicle emissions are also restricted so there are fewer requirements for emission control structures to be built into the building design.

## DRIVER FRIENDLY PARKING

The ability to make the drive/park process an easier and less stressful one must also be considered a significant benefit for automated car parking. Automated car parks reduce:

1. Travelling time and therefore car exhaust emissions.
2. Driver frustration – they no longer have to remember where the car was parked, do not have to drive through the entire station looking for a place to park or the exit point and there is no difficulty parking in a tight corner.
3. Points of possible attack for the driver, as they go directly to a vehicle pick-up point rather than having to travel through the entire car park.
4. The public's access to the car park as the public are not permitted inside the system.
5. Threats of theft because the vehicle and its contents are secure inside the car park. Access is only available to correctly identified card holders.
6. No dents to cars from opening doors in restricted space or broken lights caused by other drivers

**Automated car parking solutions are also ideal for drivers with mobility problems or special needs: every space is suitable for anyone to park in.**



## LOW MAINTENANCE OPERATION

Operating costs are low since automated car parking requires less energy to run. There is no need for energy intensive ventilating systems as the cars are not being driven inside the facility. The relatively simple yet highly reliable technology is manufactured to high tolerances and has few moving parts so that maintenance costs are low. Equipment depreciation rates are however much higher.

## REDUCED ENVIRONMENTAL IMPACT

Environmentally, automated car parking has much to offer in any city.

One of its greatest benefits relative to conventional underground or open space parking, is the saving of ground space, which makes way for the greening of the inner city.

## VISUAL APPEAL

Very simply, we don't have to look at all the cars parked outside.

Drivers do not have to be present to have their car parked and attendants are not required to do so either.

Outdoor space, saved by automated car parking, can then be put to good use with gardens and landscaping or additional buildings, if required.

## EMISSIONS

Automated car parks significantly reduce noise, oil and other pollutants. Emissions from vehicles can be trapped and siphoned off for treatment rather than being distributed around larger areas.

Noise is kept to a minimum because cars are not moving up and down ramps, slamming on brakes and squealing tyres on slippery surfaces.

Because there is no pedestrian access to car stackers, there is also less resultant 'people noise'.

With no car movement inside the automated car park, there is also no need to plan for expensive ventilation systems.

## HISTORY OF AUTOMATED CAR PARKING

Mechanical car parking was first introduced in Europe and parts of Asia during the mid-1950s as a solution to building in overcrowded cities with limited parking space. They were found to be suitable in both new developments and in re-developments of historical buildings where space, noise and environmental considerations posed major concerns. Automated parking solutions were soon adopted by Japan and the USA and spread to Australia, Southeast Asia, China, the Philippines and Singapore in the early 80's.

Several hundred automated garages were built worldwide between the early seventies and the late 1980s.