

TECHNOLOGIES FOR PARKING INFRASTRUCTURE

By

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ABOUT SUVIDHA PARKLIFT?

- > **One of the Leading solution providers for Automatic Mulilevel Parking Systems in India in technical collaboration with leading European and Japanese companies**
- > **Part of the Poddar Group; involved in Manufacturing and Marketing of environment friendly products**
- > **Manufactures & Markets Car Parking Systems – Fully Automatic, Puzzle Parking & Stack Parking Systems**



Demand for Parking Infrastructure

- Presently demand for cars going up at the rate of 15% per annum
- Presently 15 lacs being sold every year
- Making roads more expensive than parking infrastructure
- Cars being parked on roads causing traffic congestion and pollution

Study- Pollution in ramp based parking structures

Emission Analysis for a 924 space Ramp type conventional Parking Garage (Taking into consideration the number of cars and lot size for a conventional garage on a proposed site)

- 924 car garage
- Footprint = 150' x 270'
- 8 levels
- Use of express ramps
- Assuming one turn per day per stall
- Average Vehicle Miles Traveled (VMT) (assuming travel to mid point at 4th level) per car per day to park and to exit = 5280': ([2x 240'+ 2x 90'] x 4 levels) x 2 for entry & exit
- Assuming 275 days /year

Conservatively speaking:

THE TOTAL AVERAGE NUMBER OF VEHICLE

MILES TRAVELED (VMT)/YR. = 254,100 miles/year

Study – contd.

Conversion To Pollutants Emitted Per Year:

- **Hydrocarbons:** 3.3 grams / mile = 838,530 grams = **1,847 lbs. of HC / Y**
- **Carbon Monoxide:** 25.5 grams / mile = 6,479,550 grams = 14,272,137 lbs. = **7,136 tons of CO / Y**
- **Nitrogen Oxides:** 1.7 grams / mile = 431,970 grams = **951 lbs. of NOx / Y**
- **Carbon Dioxide:** 1 pound / mile = 254,100 lbs. or **127 tons of CO₂ / Y**
- **Gasoline:** .05 gallon/ mile = **12,705 gallons gasoline / Y**

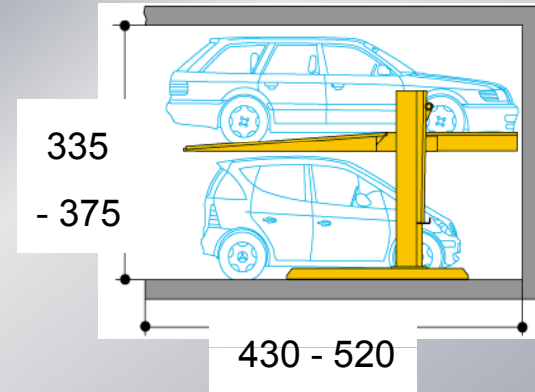
Fully Automatic Multilevel Parking Systems help create a cleaner environment

Types of Automatic Parking Systems

- > Dependent 2-level Parking Systems - Hydraulic systems using cylinders, power packs OR Electro-Mechanical systems using chains and geared motors (Semi Automatic)
- > Puzzle Parking Systems (2 to 6 levels) - Electro-Mechanical systems using chains, geared motors and PLC
- > Automatic Multilevel / Tower Parking Systems (N levels) – Fully automatic state-of-the-art software controlled systems using high speed elevators, shuttles and car depositing / retrieval mechanisms

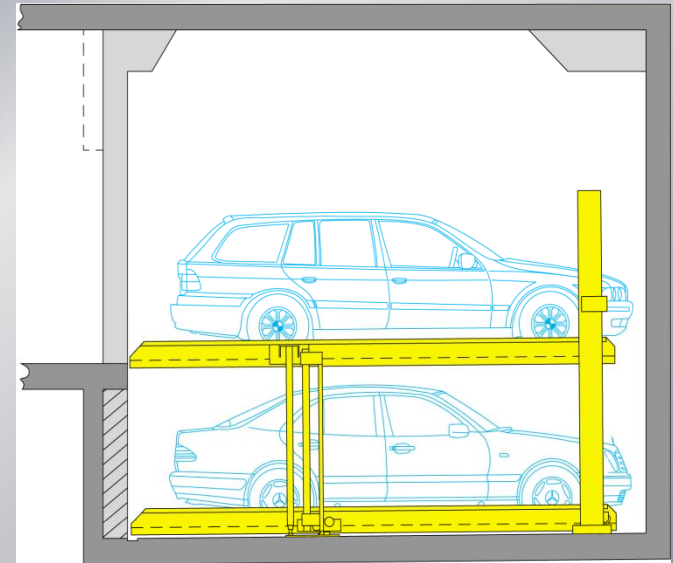
Dependent 2 Level System – SP 2-H / SP 2-D

- > Upto 100% more parking space
- > Conforms to all International safety standards
- > User friendly, requires minimal maintenance
- > Platform lowering / raising in 30-35 seconds



Independent 2 / 3 Level System – SP 2-I / SP 3-I

- > Upto 200 % more parking space
- > 1 driving level – 2 / 3 parking levels with underground pits
- > Low parking and retrieval times – average of 40 - 60 seconds per car
- > Low Power Consumption
- > Independent parking for commercial / residential buildings, shopping malls, etc
- > Users: Public & Private





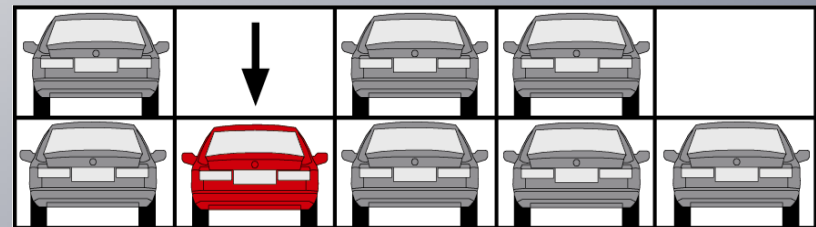
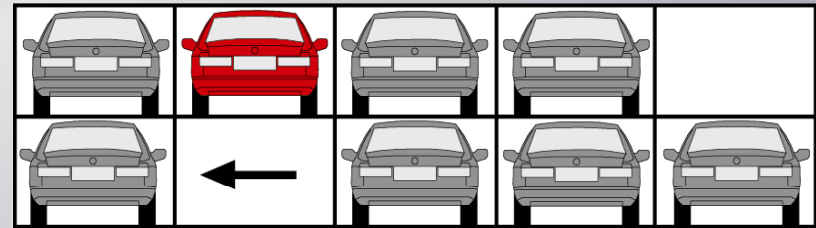
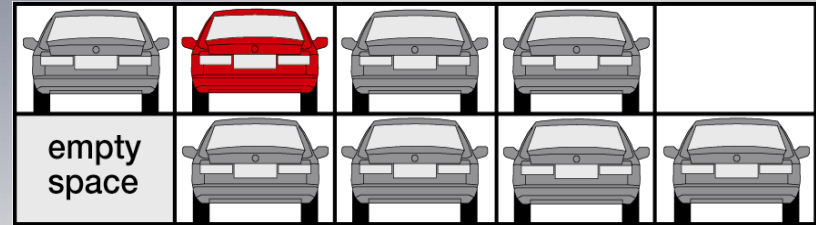
Peninsula Corporate Park, Mumbai



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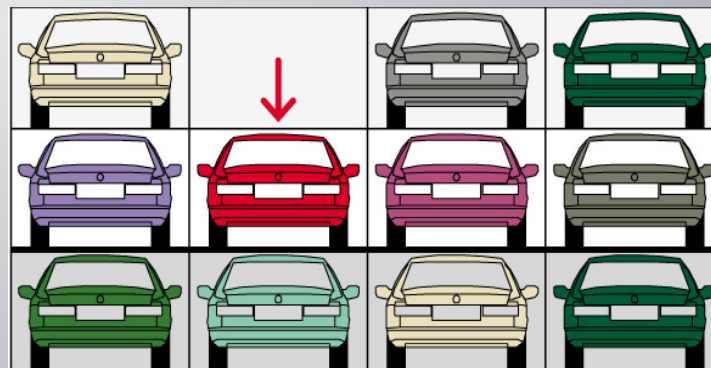
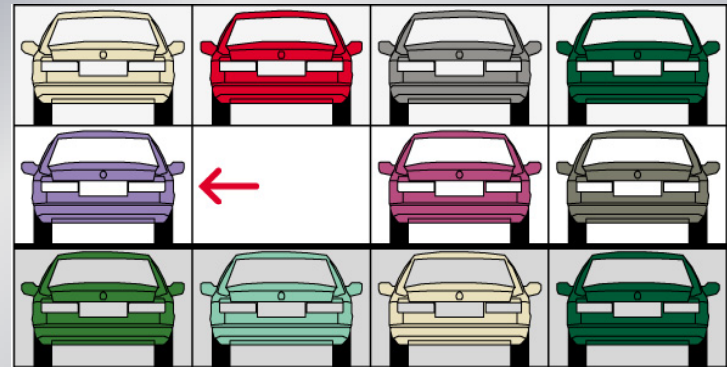
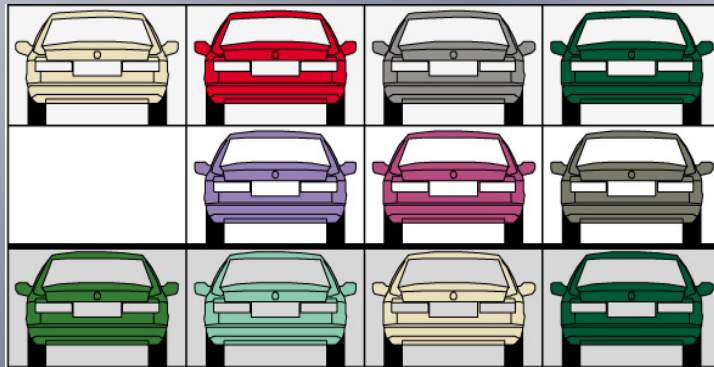
Puzzle Parking Systems – SP 20 / 30 / 40 / 21 / 31 / 42

- > A combination of stacking and moving cars closer together
- > Compact parking on 2-6 levels with just one driving lane
- > Various Permutation and Combinations of levels in an underground pit and above the ground possible
- > Variable arrangement of 2 to 10 grids beside one another
- > Low parking and retrieval times – average of 60 - 90 seconds per car depending upon configuration



SP 21 (2 levels above ground; 1 level in pit)

Operation (To take out RED Car):







Fully Automatic Multilevel Parking Systems

- > A series of coordinated vertical and horizontal movement of cars controlled by intelligent software systems inside a RCC structure
- > Whole structure can be customized as per customer's requirements and limitations. Each level inside the parking system can be varied as per the dimensions of various cars – SUV's, compact cars, etc
- > Reduced noise and air pollution levels in such systems; minimal chances of fire; no risk to human lives
- > Low parking and retrieval times – average of 90 - 150 seconds per car depending upon configuration

Automatic Multilevel Parking Systems

- > Systems are recommended when the number of car spaces cannot be accommodated conventionally
- > Or if the future demand for car parking spaces is estimated and provided for, right at the inception of the project / planned to be added in stages
- > Or if the site conditions are such where it is not economically feasible / advisable to make additional conventional levels and ramps
- > To enable faster parking and retrieval times





DISINSERIRE MARCIA
E FRENO A MANO

ISTRUZIONI PER IL RISPETTO

1. Mantenga l'auto ferma, in attesa dell'ispettore e con il motore spento.
2. In caso di dubbi, chiedete all'ispettore, con gentilezza, le sue istruzioni e non tentate mai di forzare il controllo di sicurezza.
3. Quando il tecnico vi indica di alzare il capo, alzate il capo.
4. Quando il tecnico vi indica di abbassare il capo, abbassate il capo.
5. Quando il tecnico vi indica di alzare il capo, alzate il capo.
6. Quando il tecnico vi indica di abbassare il capo, abbassate il capo.
7. Quando il tecnico vi indica di alzare il capo, alzate il capo.
8. Quando il tecnico vi indica di abbassare il capo, abbassate il capo.

OPERATIVE INSTRUCTIONS

1. Keep the car stationary and wait for the inspector's instructions.
2. In case of doubts, ask the inspector, politely, for his instructions and do not try to force the safety check.
3. When the inspector tells you to raise your head, raise your head.
4. When the inspector tells you to lower your head, lower your head.
5. When the inspector tells you to raise your head, raise your head.
6. When the inspector tells you to lower your head, lower your head.
7. When the inspector tells you to raise your head, raise your head.
8. When the inspector tells you to lower your head, lower your head.























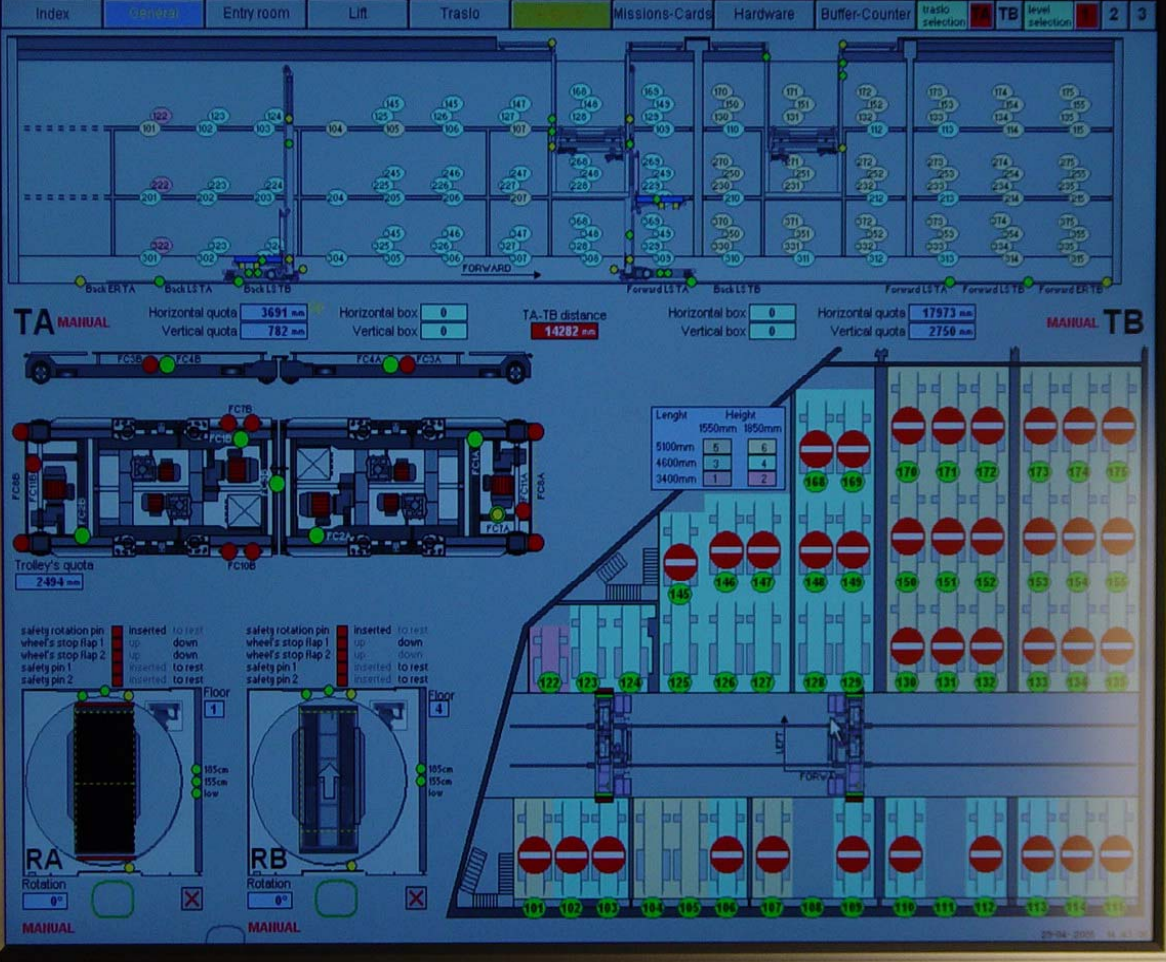














Typical Underground Parking Lot in MILAN, Italy

Inside View of parking lot



Surface View of parking lot:
Garden with fountain



SERVICES OFFERED BY SUVIDHA PARKLIFT

- > Inspection of customers' sites to suggest most suitable parking solutions
- > Free onsite maintenance by trained engineers during warranty period and AMC thereafter
- > Maintain adequate inventory of spare parts
- > Update customers on new developments / parking solutions

ADVANTAGES

- > Suvidha Parklift Solutions incorporate the latest European / Japanese state of the art technologies
- > Savings in land space, construction and recurring operating costs like lighting, fire fighting, security guards by eliminating additional basements
- > Achieve close to 100% Volume efficiency
- > Safety, security and scratch free handling of cars
- > Widest product range – systems available in various options depending on requirements

ADVANTAGES

- > Life of systems more than 25–30 years – high quality of components, galvanizing offers adequate corrosion protection
- > Very low installation and operating costs
- > Conforms to European & Japanese safety standards
- > Very low car parking / retrieval time – 45 seconds to 3 minutes depending on system configuration
- > User friendly, convenient (wider platforms), very low noise levels
- > Warranty – 1 year and AMC thereafter by fully qualified and trained engineers as per contract

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Thank You