

# Parking Structure Design

Paulus, Sokolowski and Sartor has designed a wide variety of parking structures for various clients over our 50+ year history. PS&S designed the 7,000 car parking structure at Orlando International Airport, underground garages for office buildings at Giralda Farms in Madison, New Jersey, the 1275 car mixed use parking garage in New Brunswick, a 700 car garage adjacent to the Bergen County New Agency Building and 10-story parking structures for Hospitality clients in Atlantic City. Many of our parking structure designs contain other feature such as a central mechanical plant for the Taj Mahal Casino in Atlantic City, a bus station at the Bally's Transportation Center and to accommodate office buildings and hotels above the garage. PS&S has designed parking structures in precast concrete, cast-in-place concrete, post-tensioned concrete and combined systems of steel and precast concrete. The selection of the appropriate systems is based on location, use and economics.



## Parking Structure Maintenance

One of the major factors influencing the service life of a parking structure is the maintenance program implemented by the owner and operator. PS&S can help to develop a periodic maintenance program for our client's facility, including:

- 1 Annual inspections to monitor the condition of the parking structure and to identify areas that need remedial repairs.
- 2 Periodic wash downs to remove chlorides from the decks to ward off corrosion and deterioration of the structure.
- 3 Application of sealers and wearing surfaces to prolong the life of the structure.
- 4 Cleaning and maintenance of drainage systems.
- 5 Removal of spalled or loose materials to prevent damage to vehicles or patrons.

## Parking Structure Repairs

PS&S is often called upon to review and recommend repairs to parking structures that have serious deterioration due to lack of maintenance or ongoing corrosion. Services we offer include the following:

- Field inspections
- Documentation of observed deterioration
- Chloride penetration testing
- Strength testing of concrete
- Section loss measurement of steel components
- Report preparation
- Design of repair procedures
- Specification of repair materials
- Full deck replacement if needed
- Recommendation of appropriate repair contractors
- Monitoring and observation of construction activities
- Punch list and final sign off



For more information on Parking Structures, please contact

**Gordon Griffin, AIA at [ggriffin@psands.com](mailto:ggriffin@psands.com) or 732.584-0313.**

[www.psands.com](http://www.psands.com)

# Why Use PS&S on Your Next Parking Structure Project?

**Initial Planning** to determine number of parking spaces needed for a development based on local ordinance and Owner preference. PS&S will use this basic parameter to develop a plan to accommodate the number of parking spaces needed. Solutions may include under-building parking, underground parking, surface parking, parking decks or multi-story parking structures.

**Preliminary Design** options can be developed by PS&S meeting the requirements developed in the initial planning. Options can then be analyzed to determine what solution best meets the needs of the client.

**Full Integrated Design** is unique to PS&S. PS&S has all design disciplines in-house, including parking layouts and traffic flow analysis, environmental permitting, sound studies, local site plan approval, landscape design, architecture, structural, mechanical, electrical, plumbing, sanitary, fire protection, signage and traffic controls. In short, everything needed to design a modern parking structure.

**Construction Administration Services** are especially important during the construction of a parking facility. PS&S is diligent in monitoring during the construction phase to be sure that specified materials are used by the contractor as required by the construction documents, especially those materials that are directly affected by corrosion or deterioration.

**Maintenance** of a parking facility is the primary driver to prolong the useful life of a parking facility. PS&S specifies materials and design features that are inherently "low maintenance" for every parking facility. PS&S will also instruct the owner on what scheduled maintenance should be performed over the expected life of a facility. In addition, PS&S can perform periodic inspections of facilities to identify and correct issues affecting the performance of the facility early enough to avoid expensive and disruptive repairs.

**Repair** of parking facilities is a service that PS&S can provide when an existing parking structure is exhibiting corrosion or other deterioration. PS&S can identify the causes of deterioration and determine remedial measure to be taken to repair the problem and to extend the useful life of the facility. Repairs can be as simple as cleaning out drainage systems or as extensive as full depth deck replacement. PS&S can specify the whole range of repairs that may be needed.

## Parking Structure Aesthetics

Not all parking structures are hidden in the back behind the buildings they serve. Often, the parking structure is designed integral with an overall facility, be it a hospital, hotel, housing or other facility. PS&S has designed parking below, on the side of, and even above related buildings. These design decisions are informed by site size and logistics, function and adjacencies and other decision drivers.

The function and aesthetics of the façade of a parking structure often has to fit in with the community where it is built. These facilities require a balance between the look of the façade and the cost of construction for this element of the building.

Aesthetics are not only for the exterior of the building. The type and layout of lighting can provide a pleasant and a "safe" feeling to the interior of the facility. The type of structural framing and clear heights within the building can be designed to provide a pleasant interior environment.

The feeling of comfort and safety can also be promoted by careful design of elevators and stair elements.



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