

# Column Encroachment in Parking Spaces

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A commonly encountered occurrence in [parking structures](#) is column encroachment in parking spaces. While this is perceived as problematic, or at the very least resulting in a reduced Level-of-Service (LOS), the goal of this narrative is to demonstrate that rarely should this be a concern. Nor is this a topic exclusive to precast, prestressed parking structures, as column encroachment into parking spaces also occurs in cast-in-place and structurally steel framed parking garages.

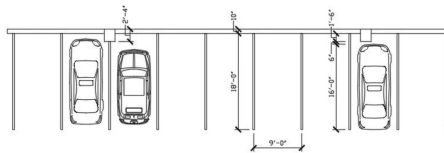
One of the most helpful design aids available for the design of precast, prestressed parking structures is *Parking Structures: Recommended Practice for Design and Construction* (MNL-129-15) as published by the Precast/Prestressed Concrete Institute (PCI). This manual makes the following observations on this topic...

Some designers attempt to space columns along the bumper walls at a multiple of the parking space width so columns projecting into the structure do not interfere with parking... Since car lengths vary greatly and cars park randomly, column projections seldom cause problems. Over time, "small cars" have increased in size while "large cars" have decreased, resulting in a clustering of passenger vehicles around a 16-foot aggregate length. Therefore, the "one-size-fits-all" design approach is preferred over the distinct large and small car stalls.

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Furthermore, Table 2-1 in this manual for parking layout dimensions graphically depicts a 2'-0" maximum column encroachment into the parking spaces.

Typical detailing parameters are illustrated below.



The ratio of small cars vs. large cars is a moving target with each passing year, but that should not deter using a commonsense approach when considering this matter. It is not hard to imagine that 75% of vehicles could be classified as "small", while the remaining 25% could be classified as "large".

For example, it is rather intuitive that when columns are spaced at 36'-0" o.c. and encroach on the parking spaces, only 25% of the parking spaces are affected. Since there are nearly 3 times the number of small cars than the number of encroaching columns there is a greatly reduced chance of large cars needing to park at these locations. If the parking stripes are centered on the columns this becomes a moot point.

Another example to consider is when columns are spaced at 48'-0" o.c. and encroach on the parking spaces. In this case about 33% of the parking spaces are affected. Since there are nearly 2.25 times the number of small cars than the number of encroaching columns there is still a limited chance of large cars needing to park at these locations.

In conclusion, rarely in our experience do we encounter projects in which column encroachment on parking spaces is a consideration. As the Licensed Design Professional in Responsible Charge (LDPIRC) the architect should verify, however, if there are any local building codes or ordinances that prohibit or otherwise limit column encroachment.

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