



**M**ixed-use projects with parking facilities are becoming more common. As land becomes scarcer, building a freestanding garage may be a missed opportunity. Often, parking authorities and other parking entities are involved in mixed-use projects that include multiple owners, both public and private. Let's examine issues associated with such mixed-use projects from the perspective of the parking garage owner. Typically, the garage owner would enter into a development agreement with the developer, who engages the design team and construction manager.

### What Does Mixed Use Mean?

A mixed-use parking project is any building that blends a combination of residential, office, retail, cultural, or institutional uses with parking in which those functions are physically and functionally integrated. Mixed-use parking projects can range from the simple to the complex. Examples are garages with ground-floor retail, garages beside connected buildings, garage podiums beneath other uses, and underground garages with buildings above. Generally, costs rise correspondingly as projects increase from the simple to the complex.

### The Cost Benefits of Open Parking Garages

A highly cost-effective way to provide structured parking is with an open parking garage. The International Building Code (IBC) lists the criteria that must be satisfied to gain the benefits of an open parking garage. The requirements pertain to the openness of

the garage, with minimum required lengths and area of openings on the perimeter. If the IBC requirements are satisfied, the open garage does not need to be sprinklered, mechanically ventilated, fire alarmed, or have enclosed stairs. Because garages generally have large floor areas, this translates into significant savings, especially with very large garages.

The cost per parking space of an open parking garage can be used as the baseline when analyzing the construction costs for parking spaces in a mixed-use project. For example, if an open parking garage costs \$18,000 per space and a mixed-use project with parking costs \$24,000 per space, you know there is a \$6,000 per-space premium. Understanding what contributes to this premium is beneficial when negotiating the allocation of costs for the different parts of the project, especially when there are multiple owners involved.



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### **Parking Efficiency (Square Feet per Parking Space)**

Understanding the efficiency of an open, long-span parking garage compared with a garage in a mixed-use project can be another way of understanding cost impacts. Long-span parking structures can range between 300 and 360 square feet per parking space, depending on a number of factors. Long-span structures do not have intermediate columns in the parking module. In other words, there are no columns between adjacent spaces at the back of parking stalls.

The efficiency per stall (square feet per space) is a function of many factors. An optimal, long-span garage can range from 300 to 325 square feet per space. Typical features might include eight-foot, six-inch stall widths, elevator and stair towers outboard, no parking access revenue control lanes, no reservoir spaces inside garage, no speed ramps, end bay parking, and a regular rectangular footprint. For planning purposes, 325 square feet per space is a good rule of thumb for an optimal garage. Less optimal, long-span garages can range from 330 to 360 square feet per space. For planning purposes, 350 square feet per space is a good rule of thumb for less-optimal garages.

Short-span parking structures generally can range between 360 and 400 square feet per parking space.



Short-span structures have intermediate columns in the parking module and are usually part of mixed-use structures. The additional column lines are often a function of the building program above. The poorer efficiency results from these additional structural elements, elevator and stair cores, shafts, and mechanical, electrical, and plumbing (MEP) rooms for the other uses.

## **Top 12 Tips for Mixed-Use**

*Thinking of a new mixed-use project with parking? Here are recommendations to consider before you start.*

- 1.** Open parking garages are your friends (lower cost, less utilities, etc.). You want to have a very good reason why a design does not incorporate an open parking garage.
- 2.** KISS Principal: Keep It Simple, Stupid. Complex is expensive. You do not want a project to be needlessly complex when a simpler arrangement of the parts is possible.
- 3.** The ideal is clear delineation of ownership. A freestanding garage beside a tower offers easy-to-understand cost division.
- 4.** Engage your own team of advisers (cost estimator, architect, engineer, parking consultant, etc.) to understand how the proposed design affects your interests, i.e., your construction costs. Do not rely on the other owner's design team and construction manager.
- 5.** Make sure your advisers have experience in both parking garages and other building types. If your adviser only designs parking garages, he or she may not have the experience needed for a mixed-use project.
- 6.** Understand the cost allocations between owners and their project parts.
- 7.** Insist on an open book. As an owner, you should see what and where the construction costs are.
- 8.** Shared cost savings. If the project bidding process results in savings lower than the estimates, you want your fair share.
- 9.** Liquidated damages. This prevents your parking garage from becoming neglected. You want your garage up and running as quickly as possible. You do not want to wait until every apartment is finished before you can start parking cars and generating revenue.
- 10.** Timely input. Don't let the project design progress too far without your advisers' input. Ideally, your team of advisers would be on board at the beginning.
- 11.** Carry sufficient contingency.
- 12.** Don't underestimate the value you bring to the project. Many parking entities have eminent domain powers that are instrumental in assembling project sites. They may also have access to favorable lending terms and programs.



An example of a long span, precast garage with no intermediate columns at the ends of the parking stalls.

As an example, if your mixed-use garage project that includes a hotel, office, and retail space has a parking garage efficiency of 540 square feet per space, it should be clear that the layout of the garage was seriously compromised for the benefit of another part of the project.

### Mixed-Use Garage Configurations

The cost of a parking space increases as the complexity increases. Providing a parking stall in a surface parking lot is fairly straightforward, provided you have the land available. A single-use, open parking garage would be the next step in providing parking. A general rule of thumb for an open parking garage is that it will be approximately three to four times the cost of a surface parking lot space.

In more urban environments, it is common for garages to incorporate ground-floor retail space. The additional costs associated with the inclusion of retail include waterproofing, insulation, glazing, interior finishes, and MEP systems. The garage is also likely less efficient. With ground-floor retail in a garage, it is not uncommon to use a speed ramp to get vehicles up to the parking levels as quickly as possible to maximize the area of retail space or create sufficient head room beneath the parking levels. The speed ramp adds additional square footage to the garage but does not allow for additional parking, as it is too steep.

The next mixed-use garage configuration would be a freestanding parking garage adjacent—but connected—to another building. An example would be an office or residential tower adjacent to a multi-story parking garage. The building code has requirements regarding the fire separation and connections between these two occupancies. If done correctly, each building can be treated as a separate building. The benefits to the garage include optimal structural system, optimal efficiency per space, and not having to be sprinklered, mechanically ventilated, fire alarmed, or to have enclosed stairs. In addition, it would be easy to allocate costs between different owners. The shared costs would be limited to the separations and shared foundations where the garage

and building are connected. If code requirements are not satisfied, you may have the added cost to sprinkler the parking garage so the office or residential tower can gain the code-allowed benefits of having a fully sprinklered building.

If there is insufficient land for a parking garage beside another building type, then having a parking garage podium beneath other uses would be the next step. This introduces another level of complexity. Allocation of costs between multiple owners in a complex mixed-use project is a difficult task. Some of the cost impacts for a mixed-use garage podium that need to be allocated are:

- Extensive shared foundations.
- Common utility services; emergency generators if shared.
- Shared common areas (lobbies, MEP rooms, loading dock, etc.).
- Garage roof (amenity for uses above but also no snow removal required for garage interior).
- Additional columns or transfer trusses.
- Shearwalls for the stability of the buildings above (loss of spaces).
- Waterproofing above ground-floor retail spaces.
- Fire separations between the garage and other occupancies.
- Insulation between the garage and other occupancies.
- Garage sprinklers because of occupancies above.
- Loss of parking spaces/loss of efficiency.

Finally, the last mixed-use configuration would be when parking is provided in underground levels of a mixed project. Many of the same issues associated with a garage podium design exist, along with additional costs for excavation, retaining walls, waterproofing, mechanical ventilation, and enclosed stairs and elevator lobbies.

Understanding how a mixed-use project with parking is designed has cost impacts. If you are responsible for the garage costs of the project, then you want to see an open parking garage, preferably beside the other use groups. If that is not possible, then an open parking garage podium is probably preferable to an underground parking garage.



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