

Design Tip: Wide Bay Sizes

Widen or supersize garage bays to achieve multiple advantages.

Bay size selection in cast-in-place concrete garages is often uncertain, but wider bays are always better than narrow. Ceco Concrete recommends widening bay widths to at least 25 feet to achieve multiple advantages:

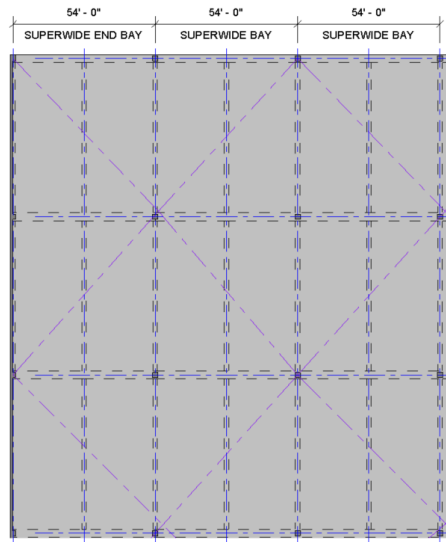
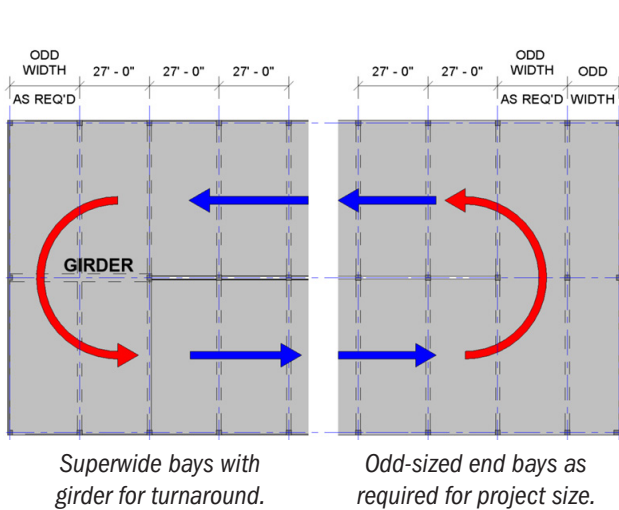
- Wider bays enhance sightlines, natural lighting, signage visibility and surveillance quality—all of which increases a sense of security for users.
- Speed of construction, driver confusion and the number of lighting fixtures needed are all reduced with wider bays.
- In valet or rental car parking facilities, supersized bays (at least 54 feet wide) will maximize vehicle-flow versatility and parking efficiency.

HOW TO DO IT

- A 27-foot-wide bay can be accomplished with efficiency by placing a 6- to 7-inch post-tensioned (PT) slab spanning between 18-inch x 33- to 36-inch beams.
- Bay widths can be widened to 30 feet with an 8-inch PT slab.
- At 54 feet wide, supersize bays can be achieved with a 7-inch PT slab and the use of column line girders that eliminate the columns at the mid-bay beam ends.
- Size the beams and girders for the largest load condition. Keep the sizes consistent and reduce reinforcing in all other locations.
- Any dimensional width adjustments needed for the project site size should be made in the two end (odd) bays with an outside upturned PT spandrel (where cars are parked into the spandrel).

CONSTRUCTION ADVANTAGES

- Wider bays and slightly thicker slabs provide for thickened top bar coverage. This is a durability advantage.
- Wider bays eliminate the need for girders in the turning bays.
- Reduction of the long-span beam formwork lowers costs and improves constructability.
- Column line girders for supersized bays may be designed a few inches deeper. Floor-to-floor heights will increase. This results in the garage appearing more spacious.
- If foundations require drilled piers, fewer piers are needed for wider bays. While the piers must be larger, the reduced quantity makes them cost-efficient.



At left: Superwide bays with girders at all transverse column lines are often used for consolidated rental car center (CONRAC) parking garages.

