

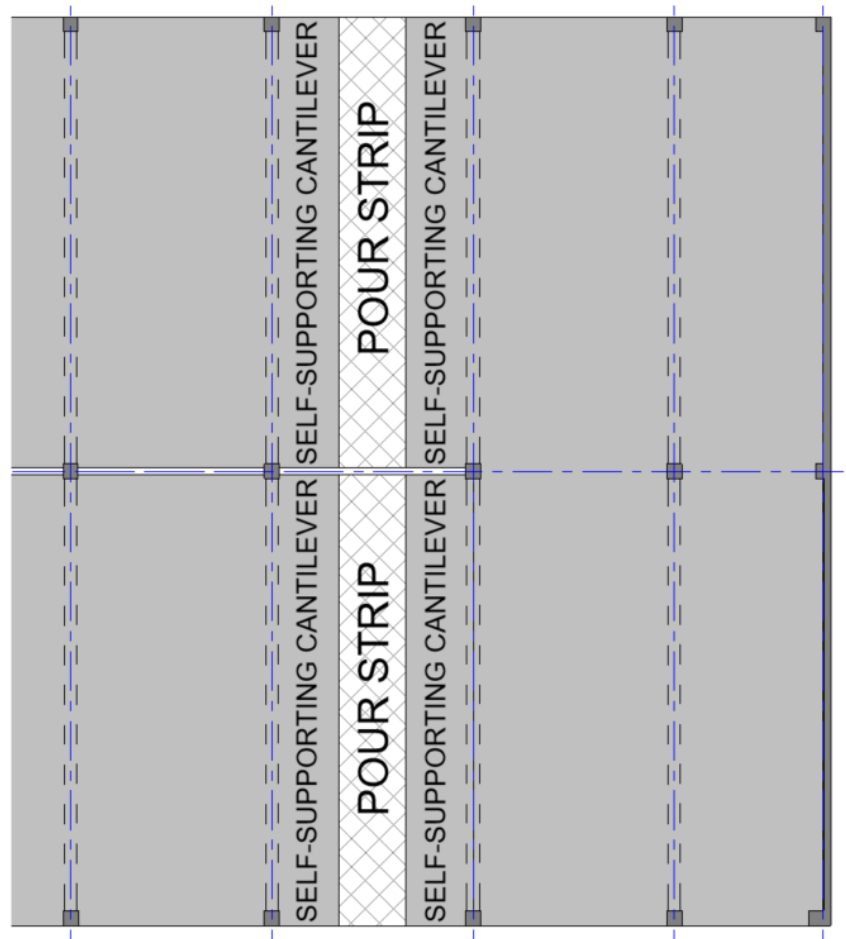
# Design Tip: Joints, Pour Strips, Delay Strips

*Strategically placed pour strips and delay strips are key to constructability for long-span parking structures with larger floor sizes or ramps.*

When designing and locating construction joints, pour strips and delay strips for long-span parking structures and garage structures with ramps, the goals are simple. Do not delay subsequent pours. Do not impair the reuse and relocation of formwork equipment. Minimize reshoring and stacking of reshore loads that may delay finish trades.

To achieve these goals, consider the following recommendations.

- Construction joints should be located to break pour sizes into 10,000-15,000 square feet of finishing area. Depending on project location and weather, larger pours may be possible but not necessary.
- Locate the “pour/tension/delay” strip bay within the last bay or two of ramps where there are fewer continuous post-tensioned (PT) tendons.
- Whenever possible, the pour/tension/delay strip bay should be designed to allow adjoining slabs to be cantilevered from the supporting and adjacent beams to the slab bay without being continuously supported by shoring. If necessary, widen the strip to achieve the self-supporting slab cantilever.
- Eliminate long-term delay strips needed for shrinkage through such solutions as modifying concrete mixes to reduce shrinkage and decoupling the elevator, stairs or shear walls from PT slabs. Use rebar couplers like PS=Ø® to shorten the standard delay strip time period to that of a stressing strip.
- If possible, avoid using PT continuous strand couplers. They are labor-intensive and often add time to the pour sequence and overall schedule. The preferred method is to use intermediate anchors and one-way tensioning away from the construction joint.
- If a beam or girder must be included in a pour/tension/delay strip bay, follow the same suggested design considerations for slabs. Minimizing the repouring period is more critical than the slab components since the reshoring loads are likely larger.
- To maximize constructability, deck pour breaks should avoid crossing beams or girders.
- If a pour/tension/delay strip is necessary to tension PT cables for adjacent pours, ensure the pour strip is a minimum of 30 inches wide to accommodate use of PT tensioning jacks.



*This graphic illustrates a pour/tension/delay strip with self-supporting cantilevered slabs on each side.*