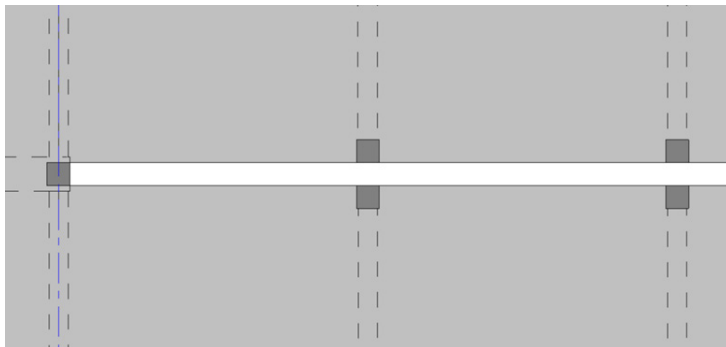


Design Tip: Overall Concepts

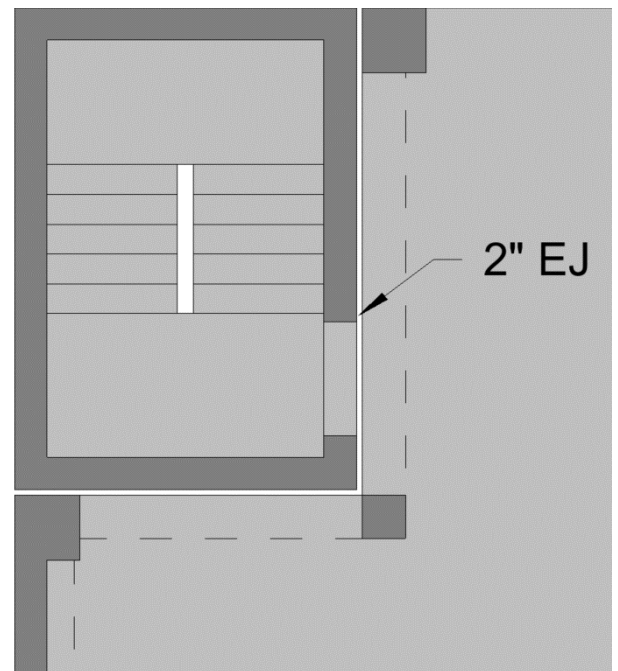
When planning for a cast-in-place concrete garage, consider these overall design concepts.

Because cast-in-place (CIP) garages are built with local materials and labor forces, the garage construction process becomes an economic stimulus for the local community. A well-designed and executed project may enhance the owner's image. Below are a few general concepts and tips to enhance your CIP garage design.

- Use moment frames for lateral loads when possible. Shear wall designs will narrow sight lines, require more lighting, reduce users' sense of security and block line of sight for security cameras. Shear walls may also resist thermal and post-tensioned (PT) cable forces and result in unintended cracking.
- Isolate elevator and stair areas from the main garage with expansion joints that will allow the garage to expand or contract from thermal and PT cable forces. When safe pedestrian access is a concern, create protected passageways to elevators and stairwells.
- Widen bays to improve constructability and user comfort, allow for evenly distributed lighting with fewer fixtures and enable open visibility to signage. The same can be said for the use of moment frames as compared to a shear wall lateral load design.
- If site space is available, widen the project footprint by separating internal ramp bays. The separation is intended to eliminate the "shared" column, resulting in improved constructability and quality. Instead, add a column and space them apart to achieve the desired separation. Consider the access required for tensioning equipment in the final design. The opening can also provide space for vertical utilities that will be protected from potential auto damage.
- For long-term CIP garage value, make it a goal to reduce saltwater and de-icer penetration. Seek to minimize joints and cracking forces and use PT compressive forces to keep concrete in compression. In locations susceptible to saltwater penetration, consider a top-of-slab sealer to further minimize long-term maintenance and operating costs. Use low-VOC sealers.



Separation between interior ramp bays eliminate shared columns.



Isolate stairs and elevators from the main structure with expansion joints.