not include initial deflection due to the self weight of the slab. This is a loophole in the ACI 318 requirements because designers aren’t responsible for self-weight deflections and neither are contractors that meet the project specifications.

To counter claims of responsibility for excessive deflections observed after shoring has been removed, some contractors take elevation readings on the slabs while the shoring is still in place. If elevations are measured after shoring removal, they then have data showing that the slab elevations were within tolerance after concrete placement and finishing. Even then, there are sometimes disputes about application of the ± 3/4-inch elevation tolerance envelope. The envelope is centered on the design elevation, so the surface of an undeflected slab could still be 3/4 inch lower than the design elevation. Deflection measurements must be related to the as-built initial slab elevation — not to the design elevation. If no measurements of the initial slab elevation were made, elevation readings of the slab surface at the columns should be taken as the baseline for additional slab surface measurements.

**Stucco finish tolerances don’t match concrete frame tolerances**

When a building consists of a concrete frame with concrete block infill walls and stucco exterior finish, the plastering contractors expect the columns, edges of floors, and block walls to be within 1/4 inch of the same plane. They base this on Section 5.2 of the American Society for Testing and Materials’ Standard Specification for Application of Portland Cement Plaster (ASTM C 926), which requires the concrete surface to be “straight and true to within 1/4 inch.”

This is a case of dueling specifications because ACI 117-06 sets less restrictive tolerances for the concrete frame. Section 4.1.1 allows a surface deviation from plumb of 0.3 percent of the height above the foundation. For a 10-foot-high wall or column, this is roughly 3/8 inch in 10 feet. Section 4.2.1 of ACI 117-06 allows the edge of a floor to deviate from the plan location by ± 1 inch as compared with the 1/4 inch allowed by ASTM C 926. If the outer side of the infill masonry wall is built flush with the edge of the floor, this would partially solve the problem, but the difference in plan location of outer edges of floors and columns can still miss “straight and true” by much more than 1/4 inch.

In post-tensioned concrete frames, movement of perimeter slab edges and exterior columns can exacerbate the problem. Some shortening of the slab occurs after the tendons are initially stressed, but time-dependent drying shrinkage, creep, and possibly contraction due to cooler temperatures can result in a final shortening of 3/4 inch or more. Thus, if there is already a difference in edge location of the columns and slabs (within tolerance), it can be accentuated, primarily by the combined effects of tendon tensioning plus concrete shrinkage and creep.

Thin-set stucco applications have increased the stucco contractors’ demand for tighter tolerances. ASTM C 926 indicates the nominal plaster thicknesses for two-coat and three-coat work on concrete are to be 3/8 inch and 5/8 inch, respectively. For three-coat work with a metal plaster base the nominal thickness is 7/8 inch, which still doesn’t match the concrete tolerances. However, Section 5.2.2 of ASTM C 926 states that if the concrete substrate is smooth or nonabsorbent it shall be prepared to receive Portland cement plaster methods that include application of a dash-bond coat applied forcefully against the surface, left untroweled, undisturbed, and moist cured for at least 24 hours (Section 5.2.22). Section 5.2.3 then states that where bond cannot be obtained over the entire surface to receive plaster by the dash coat or other alternatives, or where total plaster thickness will