

# ICC TRI-CHAPTER UNIFORM CODE COMMITTEE (TUCC)



**AMENDMENT NUMBER:** Structural 2

**APPROVAL DATE:** September 8, 2016

**SUBJECT:** Proposed amendment to plain concrete

---

*This amendment is developed by the Tri-chapter Uniform Code Committee and is intended to enhance regional consistency in application and enforcement of the Building Code. Please verify acceptance of this amendment with your local building department prior to its application.*

---

## CODE REFERENCE(S):

2016 CBC Section 1905.1.7, ACI 318 Section 14.1.4

## ISSUE(S):

Revise section 1905.1.7. ACI 318 Section 14.1.4 that allows the use of plain concrete in residential structures assigned to Seismic Design Category C, D, E or F.

**1905.1.7 ACI 318, Section 14.1.4.** Delete ACI 318, Section 14.1.4, and replace with the following:

14.1.4 - Plain concrete in structures assigned to Seismic Design Category C, D, E or F.

14.1.4.1- Structures assigned to Seismic Design Category C, D, E or F shall not have elements of structural plain concrete, except as follows:

~~(a) Structural plain concrete basement, foundation or other walls below the base as defined in ASCE 7 are permitted in detached one and two family dwellings three stories or less in height constructed with stud bearing walls. In dwellings assigned to Seismic Design Category D or E, the height of the wall shall not exceed 8 feet (2438 mm), the thickness shall not be less than 7<sup>1</sup>/<sub>2</sub> inches (190 mm), and the wall shall retain no more than 4 feet (1219 mm) of unbalanced fill. Walls shall have reinforcement in accordance with 14.6.1.~~

**(a)** Isolated footings of plain concrete supporting pedestals or columns are permitted, provided the projection of the footing beyond the face of the supported member does not exceed the footing thickness.

Exception: In detached one- and two-family dwellings three stories or less in height, the projection of the footing beyond the face of the supported member is permitted to exceed the footing thickness.

**(b)** Plain concrete footing supporting walls are permitted, provided the footings have at least two continuous longitudinal reinforcing bars. Bars shall not be smaller than No. 4 and shall have a total area of not less than 0.002 times the gross cross-sectional area of the footing. ~~For footings that exceed 8" inches (203 mm) in thickness, A~~ minimum of one bar shall be provided at the top and bottom of the footing. Continuity of reinforcement shall be provided at corners and intersections.

Exception:

- ~~1. In seismic design categories A, B and C, In detached one- and two-family dwellings three stories or less in height and constructed with stud bearing walls, are permitted to have plain concrete footings without longitudinal reinforcement. with at least two continuous longitudinal reinforcing bars not smaller than No. 4 are permitted to have a total area of less than 0.002 times the gross cross-sectional area of the footing.~~
- ~~2. For foundation systems consisting of a plain concrete footing and a plain concrete stem wall, a minimum of one bar shall be provided at the top of the stem wall and at the bottom of the footing.~~
- ~~3. Where a slab on ground is cast monolithically with the footing, one no. 5 bar is permitted to be located at either the top of the slab or bottom of the footing.~~

#### **RATIONALE:**

The proposed amendment addresses the problem of poor performance of plain or under-reinforced concrete footings during a seismic event. This amendment reflects the recommendations by the Structural Engineers Association of Southern California (SEAOSC) and the Los Angeles City Joint Task Force that investigated the poor performance of plain and under-reinforced concrete footings observed in 1994 Northridge earthquake.