CODE CHANGE PROPOSAL FORM
(See instructions on page 2)

Code: IRC–12/13
Sections R403.1.3…….

Proponent: Charles S. Bajnai, Chesterfield County, VA, ICC Building Code Action Committee

Revise as follows:

R403.1.3 ~~Seismic reinforcing~~ Footing and stem wall reinforcing in Seismic Design Categories D0, D1 and D2 . Concrete footings located in Seismic Design Categories D0, D1 and D2, as established in Table R301.2(1), shall have minimum reinforcement in accordance with this section. ~~Bottom r~~Reinforcement shall be ~~located~~ installed in accordance with Section R403.1.3.5. ~~a minimum of 3 inches (76 mm) clear from the bottom of the footing.~~

R403.1.3.1 Concrete stem walls with concrete footings. In Seismic Design Categories D0, D1 and D2 where a construction joint is created between a concrete footing and a concrete stem wall, a minimum of one No. 4 vertical bar shall be installed at not more than 4 feet (1219 mm) on center. The vertical bar shall extend to ~~3 inches (76 mm) clear of~~ the bottom of the footing and shall have a standard hook and extend a minimum of 14 inches (357 mm) into the stem wall. Standard hooks shall comply with Section R611.5.4.5. A minimum of one No. 4 horizontal bar shall be installed within 12 inches (305 mm) of the top of the stem wall and one No. 4 horizontal bar shall be located three to four inches from the bottom of the footing.

R403.1.3.2 Masonry stem walls with concrete footings. In Seismic Design Categories D0, D1 and D2 where a ~~grouted~~ masonry stem wall is supported on a concrete footing ~~and stem wall~~, a minimum of one No. 4 vertical bar shall be installed at not more than 4 feet (1219 mm) on center. The vertical bar shall extend to ~~3 inches (76 mm) clear of~~ the bottom of the footing and have a standard hook~~.~~ and extend a minimum of 14 inches (357 mm) into the stem wall. Standard hooks shall comply with Section R611.5.4.5. A minimum of one No. 4 horizontal bar shall be installed within 12 inches (305 mm) of the top of the wall and one No. 4 horizontal bar shall be located three to four inches from the bottom of the footing. Masonry stem walls shall be solid grouted. ~~In Seismic Design Categories D0, D1 and D2 masonry stem walls without solid grout and vertical reinforcing are not permitted.~~

Delete exception as follows (moved to new section R403.1.3.4):

~~**Exception:** In detached one- and two-family *dwellings* which are three stories or less in height and constructed with stud bearing walls, isolated plain concrete footings, supporting columns or pedestals are permitted.~~

Delete section as follows (move to sections R403.1.3.1 and R403.1.3.2):

~~**R403.1.3.1 Foundations with stemwalls.** Foundations with stem walls shall have installed a minimum of one No. 4 bar within 12 inches (305 mm) of the top of the wall and one No. 4 bar located 3 inches (76 mm) to 4 inches (102 mm) from the bottom of the footing.~~

R403.1.3.2~~3~~3 Slabs-on-ground with turned-down footings. In Seismic Design Categories D0, D1 and D2, ~~s~~Slabs on ground cast monolithically with turned down footings shall have a minimum of one No. 4 bar at the top and the bottom of the footing or one No. 5 bar or two No. 4 bars in the middle third of the footing depth..

~~**Exception:** For slabs-on-ground cast monolithically with the footing, locating one No. 5 bar or two No. 4 bars in the middle third of the footing depth shall be permitted as an alternative to placement at the footing top and bottom.~~

Where the slab is not cast monolithically with the footing~~,~~ one No. 3 or larger vertical dowels with standard hooks on each end shall be ~~provided~~ installed at not more than 4 feet (1219 mm) on center in accordance with Figure R403.1.3.2 . Standard hooks shall comply with Section R611.5.4.5.

R403.~~1.4.2~~ 3.4 ~~Seismic conditions~~ Interior bearing and braced wall panel footings in Seismic Design Categories D_0, D_1 and D_2. In Seismic Design Categories D0, D1 and D2, interior footings supporting bearing walls or *braced wall panels,* ~~bracing walls~~ and cast monolithically with a slab on *grade*, shall extend to a depth of not less than 12 inches (305 mm) below the top of the slab.

Add new section as follows (copied from portions of the existing language for foundation and retaining walls in section R404.1.2.3.7):

R403.1.3.5 Reinforcement.

R403.1.3.5.1 Steel reinforcement. Steel reinforcement shall comply with the requirements of ASTM A 615, A 706, or A 996. ASTM A 996 bars produced from rail steel shall be Type R. In buildings assigned to Seismic Design Category A, B or C, the minimum yield strength of reinforcing steel shall be 40,000 psi (Grade 40) (276 MPa). In buildings assigned to Seismic Design Category D0, D1 or D2, reinforcing steel shall comply with the requirements of ASTM A 706 for low-alloy steel with a minimum yield strength of 60,000 psi (Grade 60) (414 MPa).

R403.1.3.5.2 Location of reinforcement in wall. The center of vertical reinforcement in stem walls shall be located at the centerline of the wall. Horizontal and vertical reinforcement shall be located in footings and stem walls to provide the minimum cover required by Section R403.1.3.5.3.

R403.1.3.5.3 Support and cover. Reinforcement shall be secured in the proper location in the forms with tie wire or other bar support system to prevent displacement during the concrete placement operation. Steel reinforcement in concrete cast against the earth shall have a minimum cover of 3 inches (75 mm). Minimum cover for reinforcement in concrete cast in removable forms that will be exposed to the earth or weather shall be 1-1/2 inches (38 mm) for No. 5 bars and smaller, and 2 inches (50 mm) for No. 6 bars and larger. For concrete cast in removable forms that will not be exposed to the earth or weather, and for concrete cast in stay-in-place forms, minimum cover shall be 3/4 inch (19 mm). The minus tolerance for cover shall not exceed the smaller of one-third the required cover or 3/8 inch (10 mm).

R403.1.3.5.4 Lap splices. Vertical and horizontal reinforcement shall be the longest lengths practical. Where splices are necessary in reinforcement, the length of lap splice shall be in accordance with Table R611.5.4.(1) and Figure R611.5.4(1). The maximum gap between noncontact parallel bars at a lap splice shall not exceed the smaller of one-fifth the required lap length and 6 inches (152 mm). See Figure R611.5.4(1).

Add new section as follows (former exception to R403.1.3):

R403.1.3.6 Isolated concrete footings. In detached one- and two-family *dwellings* which are three stories or less in height and constructed with stud bearing walls, isolated plain concrete footings, supporting columns or pedestals are permitted.

Reason: This proposal is submitted by the ICC Building Code Action Committee (BCAC) The BCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance an assigned International Code or portion thereof. This includes both the technical aspects of the codes as well as the code content in terms of scope and application of referenced standards. Since its inception in July, 2011, the BCAC has held 6 open meetings and numerous workgroup calls which included members of the BCAC as well as any interested party to discuss and debate the proposed changes. Related documentation and reports are posted on the BCAC website at: http://www.iccsafe.org/cs/BCAC/Pages/default.aspx.

The International Code Council's Building Code Action Committee identified several items in Chapter 4, "Foundations", that are in conflict with other provisions of the code or lack clarity. This proposal specifically addresses conflicts and confusing language in the current sections of code that address reinforcement required for Seismic Design Categories D0, D1 and D2.

The title and language in section R403.1.3 is changed for clarity. Additionally, a note is added that references a new section, R403.1.3.4, that defines the installation requirements for the reinforcement.

The existing language describing concrete stem walls and masonry stem walls on concrete footings are separated into two sections, "Concrete stem walls" and "Masonry stem walls" respectively.

Section R403.1.3.1 describes the existing requirements for the horizontal reinforcement at the top of the stem wall and the bottom of the footing. This proposal deletes that section and incorporates the language into the two sections describing the requirements for the stem wall, R403.1.3.1 and R403.1.3.2 respectively.

The language in the existing section R403.1.3.2 for slabs on ground is changed to clarify that this section is addressing turned down footings cast monolithically with the slab since there are new provisions in the code to allow turned down footings that are not cast monolithically with the slab. Also, the existing exception for the reinforcement to be installed in the middle third of the footing have been moved into the section instead of being an exception.

Cost Impact: The code change does not change the existing requirements of the code and will not increase the cost of construction.