

**CALIFORNIA BUILDING STANDARDS COMMISSION  
ADMINISTRATIVE, BUILDING, ELECTRICAL, MECHANICAL &  
PLUMBING WORKSHOP  
September 25, 2013 - Agenda Item 3b**

- **Statement of specific purpose, problem, rationale and benefits:**

The proposed code changes for Part 2 is to provide a pointer from the *California Building Code* to the related CALGreen provisions and to adopt amended 1905.1.9 ACI 318 standards to align with other state agencies.

- **Proposed code language for the 2013 Intervening Adoption Cycle**

<p>LEGEND FOR PROPOSED LANGUAGE</p> <ol style="list-style-type: none"><li>1. Proposed California language and modified language is <u>underlined</u> and in <i>italics</i>.</li><li>2. Repealed text: All such language appears in <del>strikeout</del>.</li><li>3. <i>[Information for the reader is bracketed and in red italics]</i></li></ol>
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**THE 2013 CALIFORNIA BUILDING CODES  
PART 2**

1804.3.1[HCD] Construction Plans. Construction Plans...

**1804.3.2 [ADD]: Note: See nonresidential CALGreen Code Section 5.106.10 for additional grading and paving requirements.**

**Rationale and Benefit for change: (for Grading and Paving)**

BSC proposes to include a reference to the CALGreen code for Grading and Paving requirements that are more restrictive in CALGreen. This will alert the code user that there is a more restrictive code section in another part of Title 24.

**1905.1.9 ACI 318, Section D.3.3. Modify ACI 318, Sections D.3.3.4.2, D.3.3.4.3 (d) and D.3.3.5.2 to read as follows:**

**D.3.3.4.2 - Where the tensile component of the strength-level earthquake force applied to anchors exceeds 20 percent of the total factored anchor tensile force associated with the same load combination, anchors and their attachments shall be designed in accordance with Section D.3.3.4.3. The anchor design tensile strength shall be determined in accordance with Section D.3.3.4.4.**

**Exception: Anchors designed to resist wall out-of-plane forces with design strengths equal to or greater than the force determined in accordance with ASCE 7 Equation 12.11-1 or 12.14-10 and Section 1604A.8.2 of this code shall be deemed to satisfy Section D.3.3.4.3 (d).**

**D.3.3.4.3 (d) - The anchor or group of anchors shall be designed for the maximum tension obtained from design load combinations that include E, with E increased by  $\Omega_v$ . The anchor design tensile strength shall be calculated from Section D.3.3.4.4**

**D.3.3.5.2 – Where the shear component of the strength-level earthquake force applied to anchors exceeds 20 percent of the total factored anchor shear force associated with the same load combination, anchors and their attachments shall be designed in accordance with Section D.3.3.5.3. The anchor design shear strength for resisting earthquake forces shall be determined in accordance with Section D.6.**

**Exceptions:**

1. For the calculation of the in-plane shear strength of anchor bolts attaching wood sill plates of bearing or non-bearing walls of light-frame wood structures to foundations or foundation stem walls, the in-plane design shear strength in accordance with Sections D.6.2 and D.6.3 need not be computed and Section D.3.3.5.3 shall be deemed to be satisfied provided all of the following are met:

1.1. The allowable in-plane shear strength of the anchor is determined in accordance with AF&PA NDS Table 11E for lateral design values parallel to grain.

1.2. The maximum anchor nominal diameter is  $\frac{5}{8}$  inches (16 mm).

1.3. Anchor bolts are embedded into concrete a minimum of 7 inches (178 mm).

1.4. Anchor bolts are located a minimum of  $1\frac{3}{4}$  inches (45 mm) from the edge of the concrete parallel to the length of the wood sill plate.

1.5. Anchor bolts are located a minimum of 15 anchor diameters from the edge of the concrete perpendicular to the length of the wood sill plate.

1.6. The sill plate is 2-inch or 3-inch nominal thickness.

2. For the calculation of the in-plane shear strength of anchor bolts attaching cold-formed steel track of bearing or non-bearing walls of anchor bolts attaching cold-formed steel track of bearing or non-bearing walls of light-frame construction to foundations or foundation stem walls the in-plane design shear strength in accordance with Sections D.6.2 and D.6.3 need not be computed and Section D.3.3.5.3 shall be deemed to be satisfied provided all of the following are met:

2.1. The maximum anchor nominal diameter is  $\frac{5}{8}$  inches (16 mm).

2.2. Anchors are embedded into concrete a minimum of 7 inches (178 mm).

2.3. Anchors are located a minimum of  $1\frac{3}{4}$  inches (45 mm) from the edge of the concrete parallel to the length of the track.

2.4. Anchors are located a minimum of 15 anchor diameters from the edge of the concrete perpendicular to the length of the track.

2.5. The track is 33 to 68 mil designation thickness.

Allowable in-plane shear strength of exempt anchors, parallel to the edge of concrete shall be permitted to be determined in accordance with AISI S100 Section E3.3.1.

3. In light-frame construction, bearing or nonbearing walls, shear strength of concrete anchors less than or equal to 5/8 inch [16mm] in diameter of sill plate or track to foundation or foundation stem wall need not satisfy Section D.3.3.5.3 (a) through (c) when the design strength of the anchors is determined in accordance with Section D.6.2.1(c).

**Rationale for change:**

BSC proposes to adopt Section 1905.1.9 as amended by HCD and OSHPD for consistency and uniformity. The amendment, which was developed by DSA-CC and OSHPD, was co-adopted by HCD in response to a request from the Structural Design/Lateral Forces Code Advisory Committee to provide consistency with ACI 318-11. Although Chapter 35 of the 2012 IBC references ACI 318-11, the text in Chapter 19 of the 2012 IBC erroneously reflects modifications to ACI 318-08. The proposed amendment is necessary to keep the 2013 CBC consistent with ACI 318-11.