SAN LUIS OBISPO COUNTY DEPARTMENT OF PLANNING AND BUILDING
976 OSOS STREET • ROOM 200 • SAN LUIS OBISPO • CALIFORNIA 93408 • (805) 781-5600

Promoting the Wise Use of Land • Helping to Build Great Communities

Changes to the 2010 CBC & Reference Standards – Chapter 23

The following is a list of all the changes made to the 2010 CBC & Reference Standards based on the observed changes in the 2009 IBC and 2008 AF&PA Special Design Provisions for Wind and Seismic (SDPWS). Additionally, the list illustrates any amendments made by the Department of Housing and Community Development (HCD). Please note that per the *Express Terms for Proposed Building Standards of the Office of the State Fire Marshal (SFM)*, there are no listed amendments to Chapter 23 for the 2010 CBC.

2010 CBC Changes

Section 2301.2 Item 4 – General Design Requirements - (No Amendments by HCD): Addition of standard for design and construction of log structures

Section 2302.1 – Definitions - (No Amendments by HCD):

Expansion of definition for Termite resistant wood. Added additional species of wood

Removal of 2007 CBC Section 2305.3.4 for Perforated Shear Wall Segment. The document now refers to Section 4.3.4 of AF&PA SDPWS.

Expansion of definition for Treaded Wood: added Fire-retardant-treated wood and preservative-treated wood.

Section 2303 – Minimum Standards and Quality

Section 2303.1.6 – Hardboard - (No Amendments by HCD): Changed reference standard from AHA A135.5 to CPA/ANSI A135.5.

Section 2303.2 – Fire-Retardant-Treated Wood - (No Amendments by HCD):

Addition of optional UL723 standard

Addition of Pressure Process requirements

Addition of Other Means of manufacture

Addition of Testing requirements for other means of manufacture

Section 2303.4 – Trusses – (No Amendments by HCD):

2303.4.1.1 Truss Design Drawings: Additional requirements for evidence submitted to building official for the design of each truss member (e.g., number of plies, etc.)

2303.4.1.2 Permanent Individual Truss Member Restraint: Relocation of this section, previously shown in 2303.4.1.5.

2303.4.1.3 Trusses spanning 60 Feet or Greater: New requirements for temporary and permanent means of bracing

2303.4.2 Truss Placement Diagram: Clarification for requirements of Seal and Signature of truss designer

2303.4.1.5 Alterations to Trusses: Additional clarifications of such work.

2303.4.6 TPI 1 Specifications: Additional requirements for the metal plate connected trusses

2303.4.7 Truss Quality Assurance: Additional requirements.

Section 2304 – General Construction Requirements

Section 2304.2 – Size of Structural Members – (AMENDED BY HCD): HCD has removed its previous amendment to this section from 2007 CBC for limited-density owner-built rural dwellings.

Section 2304.5 – Framing Around Flues and Chimneys – (AMENDED BY HCD): This is the same requirement they had in the 2007 CBC, changing the reference standard from the International Mechanical Code to the California Mechanical Code

Section 2304.6.1 – Wood Structural Panel Sheathing – (No Amendments by HCD): Additional requirements for resisting wind. Additionally, Table 2304.6.1 with permissible maximum wind speeds has been added.

Section Table 2304.7 (3) – Allowable Spans and Loads for Wood Panel Sheathing – (No Amendments by HCD): 12/0 Span rating has been removed, and 5/16 inch panel thicknesses have been removed for 16/0 and 20/0 Span ratings.

Section 2304.8 – Lumber Decking – (No Amendments by HCD): Clerical changes and reorganization of information in subsections, but no change in content.

Section 2304.8.3 – Mechanically Laminated Decking – (No Amendments by HCD): Clerical changes and reorganization of information in subsections, but no change in content.

Section 2304.8.4.1 – General Regarding Two-inch Sawn Tongue-and-Groove Decking – (No Amendments by HCD): Clerical changes to this section. No change in content.

Section 2304.8.5 – Three- and 4-inch Sawn Tongue-and-Groove Decking – (No Amendments by HCD): Clerical changes and reorganization of information in subsections, but no change in content.

Table 2304.9.1 – Fastening Schedule – (No Amendments by HCD):
Connection 30: Clarification on location of face nails
Additions to footnote i

Section 2304.9.5 – Fasteners and Connectors in Contact with Preservative-Treated and Fire-Retardant-Treated-Wood – (No Amendments by HCD): Major Changes occurred in this section from the 2007 CBC. Previously, under the 2007 CBC, this section required fasteners and connectors in contact with PT and FT wood to be hot-dipped galvanized (HDG) in accordance with ASTM A 153, regardless of treatment process or chemicals. Evidence was submitted to ICC which led to the addition of several subsections. They are summarized below:
2304.9.5.1 Fasteners and connectors for preservative-treated wood: Fasteners and connectors in contact with PT wood shall be HDG, stainless, silicon bronze or copper. Connectors in contact with PT Wood shall be per the wood treaters or connector manufacturer's recommendation. In the absence of such, G185 coating is the minimum. There is an exception to this rule which allows plain carbon steel fasteners to be used when SBX/DOT and zinc borate PT wood is used in interior dry conditions.
2304.9.5.2 Fastenings for wood foundations: As required by AF&PA
2304.9.5.3 Fasteners for fire-retardant-treated wood used in exterior applications or wet or damp locations. Same requirements as 2304.9.5.1 minus the exception.
2304.9.5.4 Fasteners for fire-retardant-treated-wood used in interior applications: As per the manufacturer's recommendations.

Section 2304.11.2.1 – Joists, Girders and Subfloor – (No Amendments by HCD): clerical changes

Section 2304.11.2.6 – Wood Siding – (No Amendments by HCD): Added option to requirement, either 6 inches or less than 2 inches vertical from concrete steps, porch slabs, patio slabs and similar horizontal surfaces exposed to weather.

Section 2305 – General Design Requirements for Lateral-Force-Resisting Systems (No Amendments by HCD for entire section): Design shall be in accordance to AF&PA SDPWS, Section 2305, 2306 and 2307 of CBC. Most of the design requirements previously listed in this section have been removed. Designers must now use their reference standard (AF&PA SDPWS) as their main guide. For recommendations of changes to ICC LA Basin LARUCP, see subsections below:
Section 2305.1.1 of 2007 CBC (Shear Resistance based on principles of mechanics): deleted
Section 2305.1.2 of 2007 CBC (Framing): deleted
Section 2305.1.4 of 2007 CBC (Shear panel connections): Deleted
Section 2305.1.5 of 2007 CBC (Wood members resisting horizontal seismic forces contributed by masonry and concrete walls): deleted
Section 2305.2 of the 2007 CBC (Design of Wood Diaphragms): renamed to Diaphragm Deflection, and many subsections removed or modified:
Section 2305.2.1 General: Deleted
Section 2305.2.2 of 2007 CBC now title of 2305.2 (Diaphragm deflection) and only addresses stapled connections.

Sections 2305.2.3 through 2305.2.5 of the 2007 CBC have all been deleted. Now one must reference AF&PA SDPWS.
Section 2305.3 of 2007 CBC (Design of Wood Shear Walls): renamed to Shear Wall Deflection, and many subsections removed or modified:
Section 2305.3.1 (General): Deleted
Section 2305.3.2 of 2007 CBC (Deflection) now the title of 2305.3 of 2010 CBC, and now only addresses staples.
Sections 2305.3.3 through 2305.3.5.3.11 of 2007 CBC deleted. Now one must reference AF&PA SDPWS.

Section 2306 – Allowable Stress Design – (No Amendments by HCD for entire section): Similar to Section 2305, major changes have been made to this section as well. Designers must now use their reference standard (AF&PA SDPWS) as their main guide.
Addition of AF&PA SDPWS in referenced standards
Section 2306.2 of the 2007 CBC (Wind provisions for walls) has been deleted
Section 2306.3.1 of the 2007 CBC is now Section 2306.2 in the 2010 CBC
Designers must design in accordance with AF&PA SDPWS, but may also use the tables in this section.
Table 2306.3.1 of 2007 CBC is now Table 2306.2.1(1) of 2010 CBC. The following changes were made:
5/16 inch panel thickness information has been removed from the table for Struct 1 grades and Sheathing, Single floor and other grades covered in DOC PS 1 and PS 2
Section 2306.3.2 of 2007 CBC (Shear Capacities modifications) has been deleted
Section 2306.3.4 of 2007 CBC (Single Diagonally sheathed lumber diaphragms) is now Section 2306.2.2 in 2010 CBC, and designers must use AF&PA SDPWS.
Section 2306.3.4.1 of 2007 CBC (End Joints) has been deleted
Section 2306.3.4.2 of 2007 CBC is now part of Section 2306.2.2 of 2010 CBC Section 2306.3.5 of 2007 CBC (Double diagonally sheathed lumber diaphragms) is now Section 2606.2.3 of 2010 CBC and must be designed in accordance with AF&PA SDPWS
Section 2306.4.1 of 2007 CBC (Wood structural panel shear walls) is now section 2306.3 of 2010 CBC. Designers must use AF&PA SDPWS or tables in section:
Table 2306.4.1 of 2007 CBC is now Table 2306.3 of 2010 CBC. 5/16 inch sheathing has been removed from the tables, in addition to modification of footnotes.
Section 2306.4.2 of 2007 CBC (Lumber sheathed walls) is now Section 2306.4 of 2010 CBC: Single and double diagonally sheathed walls no longer permitted in SDC E or F.
Section 2306.4.5 of 2007 CBC (Shear walls sheathed with other materials) is now Section 2306.7 of 2010 CBC.
Table 2306.4.5 of the 2007 CBC is now Table 2306.7 of CBC, and has gone some minor changes in table and footnote

Section 2307 – Load and Resistance Factor Design (No Amendments by HCD): Minor changes, and addition of referenced sections.

Section 2308.1 Conventional Light Frame Construction General – (AMENDED BY HCD): The only change HCD did to this section is change from the International Residential Code to “California” Residential Code.
This section is for Detached one-and two-family dwellings and multiple single-family dwellings not more than three stories, I was under the impression they were limiting CRC (IRC) design to 2 stories and less? If IRC is only going to limit the structures to 2 stories, this also needs to be changed for consistency.

Section 2308.2 – Limitations – (No Amendments by HCD): Introduction of maximum floor-to-floor heights

Section 2308.2.1 – Basic Wind Speed Greater than 100 MPH – (No Amendments by HCD): Changed reference standard.

Section 2308.2.2 – Buildings in Seismic Design Category B, C, D or E – (Amended by HCD): Removed their exceptions from the 2007 CBC.

Section 2308.3.2 – Braced Wall Line Connections – (No Amendments by HCD): Added discussions on continuous load path from top of structure to base, reorganized information, added new blocking requirements.

Section 2308.3.3 – Sill Anchorage – (No Amendments by HCD): Minor clerical changes

Section 2308.6 – Foundation Plates or Sills – (No Amendments by HCD): Minor clerical changes.

Section 2308.9.1 – Size, Height and Spacing – (No Amendments by HCD): Added requirements for studs to be continuous from support at bottom (e.g. sill plate) to support at top (e.g., top plates) with the exception to jack studs, trimmer studs and cripple studs per Table 2308.9.5.

Section 2308.9.3 Item 3 – Bracing – (No Amendments by HCD): Changed minimum thickness of panel from 5/16 inch to 3/8 inch.

Table 2308.9.3(1) – Braced Wall Panels – (AMENDED BY HCD): They removed the amendments they had previously stated in the 2007 CBC

Table 2308.9.3(3) – Wood Structural Panel Wall Sheathing – (No Amendments by HCD): Removed 5/16 inch panel thickness.

Section 2308.10.1 – Wind Uplift – (No Amendments by HCD): Minor clerical changes.

Section 2308.11 - Additional Requirements for Conventional Construction in Seismic Design Category B or C
Section 2308.11.1 – Number of Stories – (AMENDED BY HCD): Removed their exception of allowing three stories in height in SDC C

Section 2308.11.2 – Concrete or Masonry – (No Amendments by HCD): Stone veneer has been added to the veneer permitted; (3.2) newer requirements for second story wall bracing; (3.3) holdown connectors language changed to allow floor to floor capacity of 2,000 lbs.

Section 2308.12 – Additional Requirements for Conventional Construction in Seismic Design Category D or E
Section 2308.12.1 – Number of Stories – (AMENDED BY HCD): Removed their exception for allowing detached one- and two-family dwellings to be 2 stories in SDC D or E. **Now only permitted to be one story!**

Section 2308.12.2 – Concrete or Masonry – (No Amendments by HCD): Stone veneer added to be permitted.

Section 2308.12.4 – Braced Wall Line Sheathing – (No Amendments in CBC):

Table 2308.12.4 – Wall Bracing in Seismic Design Categories D and E – (AMENDED BY HCD): They have removed their amendments to the table for requirements at story below top story and bottom story of three stories

Section 2308.12.8 – Sill Plate Anchorage – (No Amendments by HCD): This section has been modified to allow anchor straps to be used provided they load rated in accordance with Section 1716.1.

Section 2308.12.9 – Sill Plate Anchorage in Seismic Design Category E – (No Amendments by HCD): Same as previous section.
Section 1716.1 only addresses load rating of hangers, which is the protocol that ICC-ES Acceptance Criteria (AC) 13 uses for load rating hangers subjected to downloads, uplift and torsion. Section 1716.1 does not, however, address products embedded into concrete or to resist lateral loads. ICC-ES developed an acceptance criteria for such products, which is AC398. Recommended we use such criteria.

Changes to 2008 Special Design Provisions for Wind and Seismic (AF&PA SDPWS)

Chapter 4 – Lateral Force-Resisting Systems – (No Amendments by HCD):
Section 4.2.7.1.2 – High Load Blocked Diaphragms: Provisions of wood structural panel blocked diaphragms with multiple rows of fasteners, or “high load diaphragms” have been added to be consistent with 2006 IBC and 2003 NEHRP

Section 4.3.3.2 – Unblocked Wood Structural Panel Shear Walls: Provisions have been added to reduce the reference design shear values and stiffness as they behave differently than blocked shear walls.

Section 4.3.3.5 – Shear Capacity of Perforated Shear Walls: New equations have been added to represent more accurate results for perforated shear walls having openings of different heights within the wall length

Section 4.3.6.4.3 – Anchor Bolts: This section has been modified to be consistent with the 2006 IBC and IRC with a required plate washer which is 3x3x0.229inch. The slotted bearing plate has also been added. **One new provision that is different from the 2007 CBC, is that the edge of the bearing plate is required to be ½" from the sheathing (helps reduce cross grain bending). This requirement is only required for high strength materials. This requirement was present in the 2005 SDPWS, but since the sill plate requirement was in the IBC as well, not many were aware of this requirement. Now, this is the only specification.**
Section 4.3.7.1 – Wood Structural Panel Shear Walls: Provisions have been added for use of two 2x framing members adequately fastened together in place of a single 3x member. This was to be consistent with what was found in the 2006 IBC and commentary to the 2005 SDPWS.

Section 4.3.7.2 – Shear Walls using Wood Structural Panels over Gypsum Wallboard or Gypsum Sheathing Board: Provisions were added to be consistent with the IBC and NEHRP.

Section 4.3.7.4 – Fiberboard shear walls: Increased aspect ratio has been incorporated based on recent cyclic testing.

Tables 4.3A and 4.3B – Nominal Unit Shear Capacities for Wood-Frame Shear Walls: New provisions for staggering of adjoining panel edges and minimum nominal framing width for two-sided structural panels shear walls with nail spacings less than 6 inches. This is to be more consistent with what is found in the 2006 IBC. These provisions can be found on footnotes 6 and 5 of Tables 4.3A and 4.3B respectively. Additionally, shear stiffness, Ga, has been added to the tables. Previously, these values were listed in the appendix.

Table 4.3C – nominal Unit Shear Capacities for Wood-Frame Shear Walls: New provisions based on cyclic testing have been added in this table for gypsum lath, plain or perforated walls. These changes are consistent with the 2007 Supplement to 2006 IBC

Section 4.4 - Wood Structural Panels Designed to Resist Combined Shear and Uplift from Wind: new provisions have been added regarding design values and specific detailing requirements necessary for wood structural panel sheathing to resist combined shear and uplift from wind.
We should highlight the detailing requirements that are important to this type of method. See Technical Bulletins. http://www.strongtie.com/FTP/bulletins/T-WLSHEATH10.pdf