City of Sonoma

Building Department Informational Handout

Conventional Construction and When I Need to Hire an Architect or Engineer

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As time goes on, construction regulations become more and more voluminous and complex. As a result, it has become extremely difficult for non-design professionals to prepare plans and documentation for projects requiring a building permit. In addition, the California Building Code (CBC), the California Residential Code (CRC) and the California Business and Professions Code [B&PC] strictly limits the types of structures that may be designed by an individual not otherwise licensed to do so. The Building Department recommends that a licensed architect or engineer be retained to design all but the simplest of structures.

Generally, a California licensed architect or engineer will need to be hired to design a new structure or alteration project except in the following circumstances:

(1) Single-family dwellings of wood-frame construction not more than two stories and basement in height and complying with the conventional light-frame construction framing requirements of the California Residential Code. [B&PC 5537(a)(1)]

(2) Multiple dwellings containing no more than four dwelling units per lot of wood-frame construction not more than two stories and basement in height and complying with the CRC or the conventional light-frame construction provisions of Section 2308 of the California Building Code, as applicable. [B&PC 5537(a)(2) and CBC 2308.1.1]

(3) Garages or other structures appurtenant to buildings described above of wood-frame construction not more than two stories and basement in height and complying with the conventional framing requirements. [B&PC 5537(a)(3)]

(4) Agricultural and ranch buildings of wood-frame construction, unless the building official deems that an undue risk to the public health, safety, or welfare is involved. [B&PC 5537(a)(4)]

(5) Pursuant to Section 5538 of the California Business and Professions Code, any person may prepare the design for work that they are furnishing, either alone or with contractors, for nonstructural or non-seismic storefronts, interior or other nonstructural or non-seismic alterations, additions or work, fixtures, cabinetwork, furniture, or other appliances or equipment, provided those alterations do not change or affect the structural system or safety of the building.

(6) Pursuant to Section 5537.2 of the California Business and Professions Code, a licensed contractor may perform any of the services permitted within the classification for which the contractor's license is issued. Those services may include the preparation of shop and field drawings for work which he or she has contracted or offered to perform, and designing systems and facilities which are necessary to the completion of contracting services which he or she has

contracted or offered to perform. As an example, a licensed landscape contractor working within the classification for which his license is issued is specifically allowed to design systems or facilities for work to be performed and supervised by that contractor. [B&PC 7027.5]

(7) Pursuant to Section 6737.3 of the California Business and Professions Code, a licensed contractor, contracting for the installation of electrical or mechanical systems or facilities, may design those systems or facilities along with electrical or mechanical shop or field drawings for work which he or she has contracted to perform in accordance with applicable construction codes and standards for work to be performed and supervised by that contractor.

A licensed contractor may not design work which is to be installed by another person unless the structure is exempt under Section 5537 of the California Business and Professions Code.

Section 5537(b) of the California Business and Professions Code requires that if any portion of any exempted structure deviates from substantial compliance with conventional framing requirements as prescribed in the California Building Code or the California Residential Code or the tables of limitation for wood-frame construction contained therein, the building official having jurisdiction shall require the preparation of plans, drawings, specifications, or calculations for that portion by, or under the responsible control of, a licensed architect or registered engineer. The documents for that portion of the work must be stamped and signed by the licensed professional responsible for their preparation.

California Building Code or California Residential Code?

All new and altered one- and two-family dwellings, townhouses with a separate means of egress and not more than three stories above grade in height and accessory buildings associated with those uses are subject to the requirements of the California Residential Code (CRC). The California Residential Code provides prescriptive construction requirements for light-frame wood and steel buildings as well as concrete and masonry construction. All other building types and uses are subject to the requirements of the California Building Code (CBC). The California Building Code provides the option of either meeting the conventional light-frame wood construction provisions or alternatively designing the building using accepted engineering practices in conformance with the CBC. When buildings of otherwise conventional construction contain structural elements exceeding the prescriptive limits allowed in the CRC or the CBC, the elements must be engineered. Buildings engineered in accordance with the CBC are permitted for all buildings and structures (including one- and two-family dwellings and accessory structures, if so desired). [CBC 2308.1.1 and CRC R301.1.3]

Section 2308 of the CBC permits buildings and structures to be constructed in accordance with the conventional framing requirements of Chapter 23 of the CBC. Section 2308 specifies prescriptive requirements for "conventional light-frame construction" in Seismic Design Category D (Sonoma is D_2) or E when not of unusual shape, size or split-level configuration.

Examples of buildings subject to the requirements of the **California Residential Code** that do not meet conventional construction requirements include:

- When structural elements exceed the tables listed or the design criteria listed in the California Residential Code.
- Buildings not meeting the wall bracing requirements of CRC R602.10 or other prescriptive structural measures of the CRC.
- Buildings exceeding three stories above grade plane. [CRC R301.1.3.2]
- When structural elements of floors, walls or roof/ceiling assemblies are constructed of cold-formed steel, concrete or masonry or structural insulated panels (SIPs) [CRC R301.1.3.3]
- Where exterior wall panels are not in one plane vertically from the foundation to the uppermost story in which they are required. [CRC R301.2.2.6, also see exception]
- Where a section of the floor or roof is not laterally supported by braced wall lines on all edges. [CRC R301.2.2.6, also see exception]
- Where the end of a required braced wall panel extends more than one foot over an opening in the wall below. [CRC R301.2.2.6, also see exception]
- Buildings where an opening in a floor or roof exceeds the lesser of 12 feet or 50 percent of the least floor or roof dimension. [CRC R301.2.2.6]
- Where portions of a floor level are vertically offset such that the framing members on either side of the offset cannot be lapped or tied together in an approved manner. CRC R301.2.2.6, also see exception]
- When shear walls and braced wall lines do not occur in two perpendicular directions. [CRC R301.2.2.6]
- When stories above grade plane partially or completely braced by wood wall framing in accordance with Section R602 or steel wall framing in accordance with Section R603 include masonry or concrete construction. [CRC R301.2.2.6]

Examples of buildings subject to the requirements of the **California Building Code** that do not meet conventional construction requirements include:

- When structural elements exceed the table values listed or the design criteria specified in Section 1208 of the California Building Code.
- Buildings exceeding one story above grade plane. [CBC Table 2308.2.1]
- When structural elements of floors, walls or roof/ceiling assemblies are constructed of cold-formed steel, concrete or masonry or structural insulated panels (SIPs).
- When horizontal diaphragms, wall construction or wall bracing does not meet the requirements prescribed in CBC Sections 1208.4,1208.5 or 1208.6
- When floor to floor height exceeds 11 feet 7 inches or when bearing wall height exceeds 10 feet. [CBC 2308.2.2]

- When the average dead load exceeds 15 psf for combined roof and ceiling, exterior walls, floors and partitions. [CBC 2308.2.3, also see exception]
- Where live loads exceed 40 psf. [CBC 2308.2.3]
- Where roof trusses and rafters spanning more than 40 feet between points of vertical support. [CBC 2308.2.5.]
- Buildings with a Risk Category of IV (essential facilities). [CBC 2308.2.6.]

Please note that soils investigations are required for most new buildings. See the informational handout, "When Is a Soils Investigation Required?" for additional information.