

California Building Standards Code Update

FloodSAFE VISION

A sustainable integrated flood management and emergency response system throughout California that improves public safety, protects and enhances environmental and cultural resources, and supports economic growth by reducing the probability of destructive floods, promoting beneficial floodplain processes, and lowering the damages caused by flooding.



Responding to Health and Safety Code Section 50465 (Senate Bill 5, 2007), the California Department of Water Resources (DWR) developed and proposed for adoption and approval by the California Building Standards Commission (CBSC) updated requirements to the California Building Standards Code (Code). The updated requirements apply to single-family homes and residential care facilities with six or fewer clients in areas protected by the facilities of the Central Valley Flood Protection Plan (CVFPP) where flood depths are anticipated to exceed three feet for a 200-year flood event.

The Building Standards Code Update Project (BSCUP) is an important element in the multi-faceted FloodSAFE California initiative, established in 2006, to improve public safety through enhanced integrated flood management state-wide. The BSCUP is closely coordinated with other FloodSAFE programs – e.g., CVFPP development – as well as, the Central Valley Flood Protection Board, the Division of the State Architect and the Office of the State Fire Marshal, among others, and focuses on amending the California Building Standards Code.

The purpose of updating the Code is twofold: improving public safety, particularly for vulnerable populations, and reducing significant and costly building damage because although flood risk can be substantially reduced, residual risk remains.

A comprehensive strategy was developed that includes:

- extensive research on flood threats in California and other states
- engagement of a Technical Advisory Committee with a broad representation of expertise, interested parties, and regulatory agencies
- a systematic approach for developing potential Code amendments addressing the most egregious flood threats identified, and
- an inclusive public engagement process for information sharing and public input.

To carry out this mandate effectively – i.e., fully engaging stakeholders and analyzing available data, Code updates must be submitted to the CBSC over multiple Code cycles. As with improvements made to California's Code related to earthquake hazards, Code improvements for flood hazards will take time to implement.

DWR submitted its initial recommendation package to the CBSC in July 2009. The revised recommendation package was available for public review and comment through December 16, 2009. The revised recommendation package was unanimously approved by the CBSC on January 12, 2010. The approved recommendation package consists of Code updates to improve public safety under deep flooding conditions in the Central Valley from two key flood threats:

- (1) entrapment and/or drowning due to the lack of a safe evacuation route or an evacuation location, and
- (2) serious injury or death caused by structural failure of walls due to unbalanced hydrostatic pressures inside and outside of the building. In other words, enough water must get inside the home to equal the water pressure on the outside of the house, so the walls do not collapse.



Homes without flood evacuation locations can leave residents trapped, out of sight of rescue personnel.

Specifically, Code updates address flood threats by providing a route to an evacuation location where occupants would be above the 200-year flood water surface elevation and can be evacuated by a rescue vehicle. As well, portions of buildings and structures that support evacuation locations shall be designed, constructed, connected and anchored to resist flotation, collapse or permanent lateral movement due to unbalanced hydrostatic pressures. Code provisions allow building owners/designers, along with local governing authorities, design flexibility and a wide range of options to comply with Code. However, flooding potential of more than six feet deep may limit some options – e.g., elevating entire buildings above anticipated flood water elevation.

In this initial phase, DWR proposed Code updates for single-family homes and residential care facilities with six or fewer clients. The approved updated Code will apply to new construction and for existing buildings, the updated Code will be triggered by change of use, substantial improvement or repair of substantial damage. “Substantial improvement” and “substantial damage” are defined by existing Code.

Subsequent to the initial phase, DWR plans to expand flood provisions within Code to further address additional building types such as educational, institutional and additional residential occupancy groups, as well as additional measures – e.g., ensuring emergency facilities remain operational during floods – to ensure public safety and flood damage reduction to buildings.

The California legislature requires that the building standards will always apply in “areas protected by the facilities of the CVFPP where flood levels are anticipated to exceed three feet for the 200-year flood event.” The CVFPP is under development. The effective date of these building standards shall be March 1, 2012 or ninety days after the corresponding maps from the approved CVFPP are completed and readily available to the general public, whichever is the later date.

The figures below are just a few examples of compliant homes; the “alternative methods” approach should allow greater flexibility.

