

Department of Water Resources  
Building Code Technical Advisory Committee Meeting #1

**Comments from:** CA Dept. of Housing and Community Development (HCD)  
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Note: these comments are in addition to those presented at the August 28, 2008, TAC Meeting.

**CA Building Code, Title 24, HCD applications:**

- New construction of hotels, motels, lodginghouses, apartments, dwellings and buildings accessory thereto.
- Permanent buildings, and permanent accessory buildings or structures, constructed within mobilehome parks and special occupancy parks that are under the control and ownership of the park operator.
- Foundation systems for manufactured homes, mobilehomes, multifamily manufactured homes and commercial modulares whether within or outside of a mobilehome or special occupancy park. (Title 25 incorporates by reference California Building Code, Chapter 16, for purposes of foundation systems for the aforementioned structures in mobilehome parks.)

**Provision 1: Require a clear path for escape and rescue above the predicted elevation of the 200-year flood (homes and certain assembly occupancies, educational occupancies, and institutional occupancies).**

- Clear and unobstructed path would be needed. These terms need to be defined.
- Path width would need to handle the occupant load for the evacuation.
- Path would need to be clearly identified especially in non-single-family residential occupancies.
- Exits would need to be sized to accommodate the occupants. This would depend on whether exits would be windows, roof hatches, and openings to balconies.
- Area of evacuation would need to support the additional occupant load. If upper stories of a building or roof would be used for flood evacuation, loads would have to be reevaluated to support the additional occupants.
- Evacuees should be able to stand, walk and possibly sit securely in the rescue areas.
- Escape provisions for disabled should be considered.
- Simple prescriptive options should be provided. Some options are easy access to attic and roof areas, ladders, roof hatches. Options should be economically and logistically feasible.

**Provision 2: Require additional foundation height (or higher floodproofing) equal to the elevation of the 200-year flood for building located in mapped floodplains (100-year floodplains) that are also identified as 200-year flood risks, as defined in SB 5.**

- Clarify if floodproofing is dry floodproofing or wet floodproofing. Degree and height of floodproofing may have implications in insurability.
- Need to clarify differences between 100-year flood zones vs. 100-year and 200-year flood zones vs. 200-year flood zones and how existing requirements and proposed

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requirements would apply. Typically, in code, the more restrictive requirements would apply; however, without maps and statistical information, the economic element cannot be determined.

- Does this include consideration of using fill meeting CBC 1803.4, to elevate structures in affected areas? If so, impact of importing fill materials and change in floodwater dynamics and volume would need to be considered.

#### **Provision 3: Require that buildings have adequate structural strength and load path to resist flotation during anticipated flood conditions (e.g., anchoring).**

- Make sure that stress loads when designing buildings use combination load formulas including factors for flood loads.
- Anticipated flood water velocity should be part of this calculation. If DWR does not have the resources to identify areas with potential to be subject to high velocity floodwaters, perhaps a certain distance from rivers or levees can be delineated as potential high velocity areas.
- May want to include factors to resist lateral flood stress by adequate number and size of openings or open areas in the lower parts of the structure.

#### **Provision 4: Require certain Occupancy Category IV facilities to protect hazardous materials against predicted flood conditions (specific facilities to be determined). As shown in CBC Table 1604.5, Category IV includes several facilities that use hazardous materials that may be exposed; including hospitals, power generating stations, water treatment facilities, and certain other buildings and structures that contain "extremely hazardous materials".**

#### **Provision 5: Require installation of automatic devices for gas lines and electricity service that shut off service when triggered by rising floodwaters.**

Note per facilitator: split into residential vs. non-residential.

- Research capability of public utilities to shutoff gas and electric to flooded areas. Can utilities shutoff power to only flooded areas.
- Might want to add public utilities controlling water supply to this provision.
- Need to make sure that power is not shutoff to critical facilities or to machinery designed to function under flooded conditions, e.g., sump pumps.
- Need to evaluate practicality and commercial availability of shutoff devices for homeowners. Would the average homeowner routinely test these devices and know how to use them in an emergency?

#### **Provision 6: Require use of selected flood damage-resistant materials (based on pending research to identify those materials that hinder recovery most when not resistant).**

- Research cost of building with flood damage-resistant materials vs. non-flood damage resistant materials.
- Provide a definition for flood-resistant materials including intended effect and in what situations would they be utilized?)

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- Most flood damage-resistant materials are resistant for at least 72 hours. May need to specify what the material is resistant to -- maintaining structural integrity, mold, removal, etc.? Would this level of protection make a difference in a 200-year flood situation?
- Focus could be placed on requiring materials that would compromise dimensional stability to be flood-damage resistant.
- Code requirements for requiring flood damage-resistant materials could become complicated above the subfloor.
- What materials are available? Are any applicable reference standards available to test to?
- What flood level, e.g., flood waters above a certain height over the finished floor, should be used for reference?

#### Additional Code Provisions

- Note that the updated building standards would also apply to foundation systems for manufactured homes, mobilehomes, multifamily manufactured homes and commercial modulares whether within or outside of a mobilehome or special occupancy park. (Title 25 incorporates by reference California Building Code, Chapter 16, for purposes of foundation systems for the aforementioned structures in mobilehome parks.)

#### Other Comments/Concerns

- Where will the 200-year flood regulations be located? In a separate section, near the 100-year flood requirements, only in the CA Building Code or also referenced in the plumbing, mechanical and electrical codes?
- The proposed regulations should provide a distinct definition for the 200-year flood event to differentiate from the "design flood," "base flood," and "flood hazard area," which currently refers to the 100-year flood event.
- Need to clarify if the flood mitigation requirements are required at the level of the "200-year flood" or the "200-year flood at the 3 feet plus." level.
- Should DGS (state facilities) also be included in the TAC?