



City Council Report

915 I Street, 1st Floor

Sacramento, CA 95814

www.cityofsacramento.org

File ID: 2017-00528

April 25, 2017

Consent Item 14

Title: (Pass for Publication) Ordinance Amending Various Sections of Chapter 15.104 of the Sacramento City Code Relating to Floodplain Management

Location: Citywide

Recommendation: 1) Review an ordinance amending various sections of Chapter 15.104 relating to floodplain management; and 2) pass for publication the ordinance title as required by Sacramento City Charter 32(c) to be adopted on May 4, 2017.

Contact: Connie Perkins, Senior Engineer, (916) 808-1914; Tony Bertrand, Supervising Engineer, (916) 808-1461; Dan Sherry, Engineering & Water Resources Division Manager, (916) 808-1497; Department of Utilities

Presenter: None

Attachments:

- 1-Description/Analysis
- 2-Ordinance, Clean
- 3-Ordinance, Redline

Description/Analysis

Issue Detail: The City maintains floodplain management regulations to comply with the Federal Emergency Management Agency (FEMA) National Flood Insurance Program (NFIP). Being part of the NFIP and complying with the regulations specified in the City Code allows residents and businesses to obtain affordable flood insurance and emergency funding from FEMA. The City also participates in FEMA's Community Rating System (CRS) program, which allows a 10-25% reduction in flood insurance costs to residents and businesses with the City's current CRS Class 5 rating. Within the City there currently are approximately 42,000 flood insurance policies allowing residents and businesses to save over \$1.5 million with the City's CRS program. The City must comply with higher floodplain standards than required by the NFIP to maintain this Class 5 rating. The proposed ordinance revisions include various revisions to Chapter 15.104 of the City Code to make the City's floodplain management regulations consistent with the NFIP requirements and CRS program.

Policy Considerations: The 2035 General Plan includes the following goals and policies related to flood protection:

GOAL EC 2.1 Flood Protection. Protect life and property from flooding.

EC 2.1.8 Floodplain Requirements. The City shall regulate development within floodplains in accordance with State and Federal requirements and maintain the City's eligibility under the National Flood Insurance Program.

EC 2.1.9 Community Rating System. The City shall maintain eligibility in FEMA's Community Rating System program, which gives property owners discounts on flood insurance.

EC 2.1.12 New Development Design. The City shall require new development located within a special (100-year) flood hazard area to be designed to minimize the risk of damage in the event of a flood.

Economic Impacts: Not applicable.

Environmental Considerations: The Community Development Department, Environmental Services Manager has determined that the proposed activity is not a project pursuant to the California Environmental Quality Act (CEQA). CEQA Guidelines Section 15378(b). The activity is a continuing administrative activity and is not subject to CEQA. CEQA Guidelines Section 15060(c)(3).

Sustainability: The project is consistent with the City's Sustainability Master Plan in advancing the goal of exceptional flood protection.

Commission/Committee Action: This ordinance was reviewed by the Law and Legislation Committee on April 11, 2017, which recommended forwarding to Council for approval.

Rationale for Recommendation: The majority of the proposed ordinance revisions are administrative changes and corrections that will assure compliance with the NFIP and CRS program. The other revisions provide more technical details on already established requirements for refuge locations.

Financial Considerations: Not applicable.

Local Business Enterprise (LBE): Not applicable.

Background: The proposed ordinance revisions include several revisions and additions to Chapter 15.104 of the City Code to make the City's floodplain management regulations consistent with the NFIP requirements and CRS program.

The City's CRS program is reviewed by FEMA, through the Insurance Services Office (ISO), every 3 years, which is known as "CRS Reverification". The CRS program is based on a point system where the City must provide documentation to ISO showing the City is going above and beyond the minimum NFIP requirements. The City's CRS reverification is scheduled for May 19, 2017. These revisions and additions are needed to correct language that the City did not receive points for in the last CRS Reverification, but is currently implementing.

Another revision implements one of the last items required for the City's 2010 NFIP Corrective Action Plan (CAP), that remedies the Natomas permit violations and allows the City to continue in good standing under the NFIP and CRS program. This revision adds technical language for refuge locations already required in the City's rescue areas for new special needs facilities, public facilities and commercial buildings greater than 40,000 square feet, and residential subdivisions occupying an area greater than two acres. Rescue areas are zones that would be inundated by 1 foot of water within 2 hours if a levee failed in a 200-year flood event. The rescue areas are shown on maps in the City's Comprehensive Flood Management Plan (2016-0124, May 3, 2016). The new technical language allows the refuge location requirement to be met by sheltering in place (on-site refuge location), in addition to having a public refuge location within 1 mile. The new refuge location language is based on Appendix K of the 2010 California Building Code, which is an appendix that is optional for adoption by local communities.

In summary, the ordinance additions include:

- “Functionally Dependent Use” definitions missing from previous City Code revisions;
- Language not allowing permanent structures within a City’s drainage, floodplain, or floodway easement unless approved by the Department of Utilities (DOU); and
- Language allowing variances from floodplain management regulations for functionally dependent use development projects as long as it does not increase the threat to public safety or cause a public nuisance.

The key ordinance revisions include:

- “Public Refuge” definition being changed to “Refuge Location”;
- Correction to the language for AO flood zones;
- Correction to the language for ventilation requirements in buildings when wet floodproofing;
- Correction to the language of requiring utilities (i.e., electrical, air conditioning equipment) to be elevated one foot above the 100-year floodplain;
- Revision to a requirement for special needs facilities in rescue areas. Instead of requiring special needs facilities to register with DOU, a special needs facility will be required to have a flood warning and response plan approved by the DOU; and
- Revision to the refuge location requirements for new special needs facilities, public facilities and commercial buildings greater than 40,000 square feet, and residential subdivisions occupying an area greater than two acres. The revision provides more technical details on the requirements for refuge locations (i.e., structure stability and means to evacuate outside the building if sheltering in place).

ORDINANCE NO.

Adopted by the Sacramento City Council

Date Adopted

AN ORDINANCE AMENDING VARIOUS SECTIONS OF CHAPTER 15.104 OF THE SACRAMENTO CITY CODE, RELATING TO FLOODPLAIN MANAGEMENT

BE IT ENACTED BY THE COUNCIL OF THE CITY OF SACRAMENTO:

SECTION 1.

- A. Section 15.104.020 of the Sacramento City Code is amended to add the following definitions for the terms “functionally dependent use” and “refuge location”:

“Functionally dependent use” means a use of property for docking facilities, port facilities that are necessary for the loading and unloading of cargo or passengers, and ship building and ship repair facilities, that must be located or carried out in close proximity to water, and does not include long-term storage or related manufacturing facilities.

“Refuge location” means an accessible area above the rescue flood elevation located within one mile from the farthest structure served in the event of a flood. Refuge locations may include on-site locations, approved public facilities, nonresidential buildings, or other accessible structures, such as levees.

- B. Except as amended in subsection A, above, section 15.104.020 of the Sacramento City Code remains unchanged and in full effect.

SECTION 2.

- A. Section 15.104.040 of the Sacramento City Code is amended as follows:

1. Subsection E is added to read as follows:

E. Levee Setback. The proposed construction or development is subject to any applicable levee setback requirements specified in the Planning and Development Code.

2. Subsection F is added to read as follows:

F. Construction in Easement. No permanent structure (including without limitation garages, patios, concrete slabs, sheds, fences, and similar structures) shall be constructed within a city drainage, floodplain, or floodway

easement, unless approved by the local administrator upon execution of a hold harmless agreement approved by the city attorney.

- B. Except as amended in subsection A above, section 15.104.040 of the Sacramento City Code remains unchanged and in full effect.

SECTION 3.

- A. Section 15.104.050 of the Sacramento City Code is amended as follows:

1. Subsection A.2.c is repealed.

2. Subsection A.2.d is renumbered as subsection A.2.c:

c. Within zones AH, AO, or AR/AH adequate drainage paths on slopes shall be required to guide flood waters around and away from proposed structures.

3. Subsection A.3.b is amended to read as follows:

b. New construction and substantial improvement of any structure in zone AO shall have the lowest floor, including basement, elevated to one foot above the depth number specified in feet on the FIRM at the highest adjacent grade or two feet above the highest adjacent grade if no depth number is specified on the FIRM. Nonresidential structures may meet the standards in subsection A.3.d of this section.

4. Subsection A.3.e is amended to read as follows:

e. For all new construction and substantial improvements, fully enclosed areas below the lowest floor that are usable solely for parking of vehicles, building access, or storage, and that are subject to flooding, shall be wet floodproofed and designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of flood waters. Designs for meeting this requirement must either:

i. Be certified by a qualified registered professional engineer; or

ii. Meet or exceed the following minimum criteria: Provide a minimum of two openings that are located on different exterior walls of the enclosed area, and have a total net area of not less than one square inch for every square foot of enclosed area subject to flooding. The bottom of all openings must be no higher than one foot above grade. Openings may be equipped with coverings or devices, such as screens, louvers, or valves, which permit the automatic entry and exit of flood waters. Buildings with more than one enclosed area must have openings on the exterior walls of each enclosed area.

5. Subsection j is added to subsection A.3 to read as follows:

j. All new construction and substantial improvements shall be constructed with electrical, heating, ventilation, plumbing, air conditioning equipment, and other service facilities elevated or dry floodproofed one foot above the base flood elevation or one foot above the zone AO depth number specified in feet on the FIRM at the highest adjacent grade, or two feet above the highest adjacent grade if no depth number is specified on the FIRM.

6. Subsection D is amended to read as follows:

D. Standards for Recreational Vehicles. All recreational vehicles placed on sites within zones A, AH, AO, AE, AR, AR/AE, AR/AH, AR/AO, and AR/A:

1. Shall meet the requirements of section 15.104.040 and the elevation and anchoring requirements for manufactured homes in subsection C.1 of this section; or
2. Shall not be on the site for more than 180 consecutive days, and shall be fully licensed and ready for highway use. A recreational vehicle is ready for highway use if it is on its wheels or jacking system, is attached to the site only by quick disconnect type utilities and security devices, and has no permanently attached additions.

B. Except as amended in subsection A above, section 15.104.050 of the Sacramento City Code remains unchanged and in full effect.

SECTION 4.

A. Section 15.104.060 of the Sacramento City Code is amended as follows:

1. Subsection C is repealed.

2. A new subsection C is added to read as follows:

C. Subject to the requirements of subsection B, a variance may be issued for new construction, substantial improvement, and other proposed new development necessary to conduct a functionally dependent use, provided that the structure or other development is protected by methods that minimize flood damage during the base flood, does not result in additional threats to public safety, and does not create a public nuisance.

3. Subsection D is added to read as follows:

- D. The local administrator's decision not to grant a variance shall be final and conclusive and shall not be subject to appeal under the provisions of section 15.104.080.
- B. Except as amended in subsection A above, section 15.104.060 of the Sacramento City Code remains unchanged and in full effect.

SECTION 5.

Section 15.104.070 of the Sacramento City Code is amended to read as follows:

15.104.070 Compliance with CFMP; additional measures.

- A. New construction in any special flood hazard area shall comply with all applicable provisions of the CFMP prior to the issuance of any building permit. The requirements of the CFMP and this section are in addition to all other applicable laws or regulations.
- B. Rescue and Evacuation Areas. This section requires additional safety measures for new construction of the following types of facilities or developments in rescue areas and evacuation areas:
 - 1. Special needs facilities.
 - 2. New public facilities and new commercial buildings (excluding industrial occupancies) with an enclosed building area greater than 40,000 square feet.
 - 3. New residential subdivisions occupying an area greater than two acres.
- C. Refuge Locations in Rescue Areas. New construction listed in subsection B, above, in rescue areas shall have a refuge location approved by the building official that is:
 - 1. A public refuge area (such as a levee or overpass) not less than one foot above the rescue flood elevation and within one mile of the location where occupants of the new construction are expected to congregate pending evacuation; or
 - 2. An on-site building space not less than one foot above the rescue flood elevation from which occupants may be evacuated during conditions of flooding, such as a room that has an exit door or operable window; a deck, balcony, porch, rooftop platform, or rooftop area; or combinations thereof.

D. New construction in rescue areas that includes on-site refuge location(s) as described in subsection C.2, above, must comply with the following criteria:

1. Structure Stability.

a. Portions of buildings and structures supporting refuge locations shall be designed, constructed, connected, and anchored to resist flotation, collapse, and permanent lateral movement resulting from the hydrostatic loads anticipated during conditions of flooding anticipated for the rescue flood elevation. Hydrostatic loads, based on the depth of water determined by the rescue flood elevation, may be determined in accordance with the most current edition of Chapter 5 (Flood Loads) of ASCE/SEI 7 (Minimum Design Loads for Buildings and Other Structures).

b. Reduction of hydrostatic loads may be accomplished by features that allow for the automatic entry and exit of floodwaters to minimize unbalanced loads. The features must be designed by a registered design professional and may include, but are not limited to, openings, valves, and panels designed to yield under load.

Exception: The use of a registered design professional is not required for flood vents installed in compliance with section 15.104.050.A.3.e.ii.

2. Refuge Locations.

a. An evacuation route shall be provided through any number of intervening rooms or spaces. All doors along the route shall be equipped to open without the use of a key, combination, tool, or special knowledge or effort.

Exception: Doors in individual dwelling or sleeping units having an occupant load of ten or less are permitted to be equipped with a night latch, dead bolt, or security chain, provided such devices can be opened from the inside without the use of a key or tool.

b. Refuge locations shall provide a minimum gross floor area of seven square feet per occupant, based on the occupant load of the portions of the building that are below the rescue flood elevation. The area provided shall be adequate to accommodate the occupant load of the upper levels as well as the anticipated occupant load from the area below the rescue flood elevation.

3. Refuge location that is space within the building.

- a. If the refuge location is a space within a building, the refuge location shall be provided with a means for occupants to be evacuated out of the building.
 - b. A minimum of one window or door shall be provided that meets the egress requirements of the California Residential Building Code.
4. Refuge location that is a deck or balcony.
- a. Decks and balconies that have finish floors not less than one foot above the rescue flood elevation may be used as refuge locations. When a deck or balcony used as a refuge location is not at the same level as a floor within the building, access to the deck or balcony shall be provided by a stairway, ramp, alternating tread device, fixed ladder, or other means approved by the building official.
 - b. Decks and balconies that are refuge locations shall be designed for the live load required for the occupancy.
5. Rooftop refuge location.
- a. Rooftop platforms and rooftop areas that are not less than one foot above the rescue flood elevation may be used as refuge locations. A minimum horizontal distance of three feet shall be provided between the lower edge of the rooftop refuge location access point and the refuge location lower perimeter. A rooftop platform shall be provided if the roof covering materials are:
 - i. Clay tile, concrete tile, slate shingles, wood shingles, or wood shakes, and the roof slope is three units vertical in 12 units horizontal (25 % slope) or greater.
 - ii. Metal roof panels or metal roof shingles, and the roof slope is one unit vertical in 12 units horizontal (8.33 % slope) or greater.
 - b. Roof areas and roofs that support rooftop platforms that are refuge locations shall be designed for the roof live load required for the occupancy.
 - c. Evacuation routes to rooftop refuge locations shall be provided by a stairway, ramp, alternating tread device, fixed ladder, or other means approved by the building official.
 - d. The perimeter of rooftop refuge locations shall be protected by:

- i. Guards as required by the California Building Code if a rooftop platform is provided; or
 - ii. A railing that is at least 12 inches in height if a sloped roof is provided.
 - e. A separation of at least 48 inches shall be provided between a rooftop refuge location and any mechanical equipment, photovoltaic system, utility service drop, or other utility line. Electrical service lines shall not pass over refuge locations.
- 6. Attic refuge location.
 - a. Attics that have finish floors not less than one foot above the rescue flood elevation may be used as refuge locations.
 - b. When an attic is used as a refuge location, the minimum headroom of the required area shall be 30 inches with 50 % of the required area having a headroom of 60 inches.
 - c. The required area of the refuge location shall be solidly sheathed.
 - d. Attic areas that are used as refuge locations shall be designed for the floor live load required for the occupancy.
 - e. Evacuation routes to attic refuge locations shall be provided by a stairway, ramp, alternating tread device, fixed ladder, or other means approved by the building official.
- E. Special Needs Facilities in Rescue Areas. Electrical equipment, heating and ventilating equipment, air conditioning, emergency generators, and phone banks for these facilities must be either located one foot above the rescue flood elevation or constructed in a manner satisfactory to the city's chief building official such that water cannot enter or accumulate in any of the system components.
- F. Requirements for Rescue Areas and Evacuation Areas. The following additional safety measures are required for new construction in locations that are both rescue areas and evacuation areas:
 - 1. New subdivisions shall have two or more vehicular ingress and egress points designed to facilitate evacuation and other emergency services where geographically feasible. Knox boxes shall be provided in gated communities to facilitate emergency vehicle access.

2. Approved lever handle gas valves shall be used for all residential and nonresidential gas appliances as required under this title.
 3. Above ground fuel tanks shall be securely anchored to a foundation to prevent movement or flotation during a flood as required under this title.
 4. Special needs facilities must have a flood warning and response plan approved by the local administrator prior to occupancy of the structure.
- G. Requests for alternative compliance methods with, or variances from, any portion of this section shall be subject to review and approval by the local administrator. Such requests shall be in writing and shall include such documentation as may be required by the local administrator.

Adopted by the City of Sacramento City Council on _____ by the following vote:

Ayes:

Noes:

Abstain:

Absent:

Attest:

MAYOR

City Clerk

Passed for Publication:

Published:

Effective:

ORDINANCE NO.

Adopted by the Sacramento City Council

Date Adopted

AN ORDINANCE AMENDING VARIOUS SECTIONS OF CHAPTER 15.104 OF THE SACRAMENTO CITY CODE, RELATING TO FLOODPLAIN MANAGEMENT

BE IT ENACTED BY THE COUNCIL OF THE CITY OF SACRAMENTO:

SECTION 1.

- A. Section 15.104.020 of the Sacramento City Code is amended to add the following definitions for the terms “functionally dependent use” and “refuge location”:

“Functionally dependent use” means a use of property for docking facilities, port facilities that are necessary for the loading and unloading of cargo or passengers, and ship building and ship repair facilities, that must be located or carried out in close proximity to water, and does not include long-term storage or related manufacturing facilities.

“Refuge location” means an accessible area above the rescue flood elevation located within one mile from the farthest structure served in the event of a flood. Refuge locations may include on-site locations, approved public facilities, nonresidential buildings, or other accessible structures, such as levees.

- B. Except as amended in subsection A, above, section 15.104.020 of the Sacramento City Code remains unchanged and in full effect.

SECTION 2.

- A. Section 15.104.040 of the Sacramento City Code is amended as follows:

1. Subsection E is added to read as follows:

E. Levee Setback. The proposed construction or development is subject to any applicable levee setback requirements specified in the Planning and Development Code.

2. Subsection F is added to read as follows:

F. Construction in Easement. No permanent structure (including without limitation garages, patios, concrete slabs, sheds, fences, and similar structures) shall be constructed within a city drainage, floodplain, or floodway

easement, unless approved by the local administrator upon execution of a hold harmless agreement approved by the city attorney.

- B. Except as amended in subsection A above, section 15.104.040 of the Sacramento City Code remains unchanged and in full effect.

SECTION 3.

- A. Section 15.104.050 of the Sacramento City Code is amended as follows:

1. Subsection A.2.c is repealed.

~~c. All new construction and substantial improvements shall be constructed with electrical, heating, ventilation, plumbing and air conditioning equipment and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding.~~

2. Subsection A.2.d is renumbered as subsection A.2.c:

~~d.c.~~ Within zones AH, AO, or AR/AH adequate drainage paths on slopes shall be required to guide flood waters around and away from proposed structures.

3. Subsection A.3.b is amended to read as follows:

b. New construction and substantial improvement of any structure in zone AO, shall have the lowest floor, including basement, elevated to one foot above the ~~highest adjacent grade to the~~ depth number specified in feet on the FIRM at the highest adjacent grade or two feet above the highest adjacent grade if no depth number is specified on the FIRM. Nonresidential structures may meet the standards in subsection ~~A.3.d(A)(3)(d)~~ of this section.

4. Subsection A.3.e is amended to read as follows:

e. For all new construction and substantial improvements, fully enclosed areas below the lowest floor that are usable solely for parking of vehicles, building access, or storage, and that are subject to flooding, shall be wet floodproofed and designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of flood waters. Designs for meeting this requirement must either:

i. Be certified by a qualified registered professional engineer; or

ii. Meet or exceed the following minimum criteria: Provide a minimum of two openings that are located on different exterior walls of the enclosed area, and ~~having~~ a total net area of not less than one square inch for

every square foot of enclosed area subject to flooding ~~shall be provided~~. The bottom of all openings ~~must~~ shall be no higher than one foot above grade. Openings may be equipped with coverings or devices, such as screens, louvers, or valves, or other coverings or devices provided that they which permit the automatic entry and exit of flood waters. Buildings with more than one enclosed area must have openings on the exterior walls ~~of for~~ each enclosed area ~~to allow flood water to directly enter~~.

5. Subsection j is added to subsection A.3 to read as follows:

j. All new construction and substantial improvements shall be constructed with electrical, heating, ventilation, plumbing, air conditioning equipment, and other service facilities elevated or dry floodproofed one foot above the base flood elevation or one foot above the zone AO depth number specified in feet on the FIRM at the highest adjacent grade, or two feet above the highest adjacent grade if no depth number is specified on the FIRM.

6. Subsection D is amended to read as follows:

D. Standards for Recreational Vehicles. All recreational vehicles placed on sites within zones A, AH, AO, AE, AR, AR/AE, AR/AH, AR/AO, and AR/A:

1. Shall meet the requirements of ~~S~~section 15.104.040 and the elevation and anchoring requirements for manufactured homes in subsection ~~C.1(C)(1)~~ of this section; ~~and/or~~
2. Shall not be on the site for more than ~~one hundred eighty (180)~~ consecutive days, and shall be fully licensed and ready for highway use. A recreational vehicle is ready for highway use if it is on its wheels or jacking system, is attached to the site only by quick disconnect type utilities and security devices, and has no permanently attached additions.

- B. Except as amended in subsection A above, section 15.104.050 of the Sacramento City Code remains unchanged and in full effect.

SECTION 4.

- A. Section 15.104.060 of the Sacramento City Code is amended as follows:

1. Subsection C is repealed.

~~C. The local administrator's decision not to grant a variance shall be final and conclusive and shall not be subject to appeal under the provisions of Section 15.104.080.~~

2. A new subsection C is added to read as follows:

C. Subject to the requirements of subsection B, a variance may be issued for new construction, substantial improvement, and other proposed new development necessary to conduct a functionally dependent use, provided that the structure or other development is protected by methods that minimize flood damage during the base flood, does not result in additional threats to public safety, and does not create a public nuisance.

3. Subsection D is added to read as follows:

D. The local administrator's decision not to grant a variance shall be final and conclusive and shall not be subject to appeal under the provisions of section 15.104.080.

B. Except as amended in subsection A above, section 15.104.060 of the Sacramento City Code remains unchanged and in full effect.

SECTION 5.

Section 15.104.070 of the Sacramento City Code is amended to read as follows:

15.104.070 Compliance with CFMP; additional measures.

A. New construction in any special flood hazard area shall comply with all applicable provisions of the CFMP prior to the issuance of any building permit. The requirements of the CFMP and this section are in addition to all other applicable laws or regulations.

B. Rescue and Evacuation Areas. ~~The following~~ This section requires additional safety measures ~~shall be required~~ for new construction of the following types of facilities or developments in areas defined as rescue areas and evacuation areas ~~in the CFMP~~:

1. Special ~~N~~needs ~~f~~Facilities.

~~Special needs facilities located in rescue areas must register with the department prior to occupancy of the structure. Electrical equipment, heating and ventilating equipment, air conditioning, emergency generators, and phone banks for these facilities must be either located one foot above the rescue flood elevation or constructed in a manner satisfactory to the city's chief building official such that water cannot enter or accumulate in any of the system components.~~

2. New public facilities and new commercial buildings (excluding industrial occupancies) ~~located in rescue areas~~ with an enclosed

building area greater than ~~forty thousand (40,000)~~ square feet ~~shall have an accessible roof or floor level at least one foot above the rescue flood elevation.~~

3. New residential subdivisions ~~located in rescue areas~~ occupying an area greater than two acres.

~~shall either:~~

~~a. Identify a public refuge location or locations located within one mile of all residential units;~~

~~b. Have a maximum slope of 4:12 (four vertical to twelve (12) horizontal) for the entire roof of a minimum of fifty (50) percent of the residential units; or~~

~~c. Have a floor level at least one foot above the rescue flood elevation.~~

C. Refuge Locations in Rescue Areas. New construction listed in subsection B, above, in rescue areas shall have a refuge location approved by the building official that is:

1. A public refuge area (such as a levee or overpass) not less than one foot above the rescue flood elevation and within one mile of the location where occupants of the new construction are expected to congregate pending evacuation; or

2. An on-site building space not less than one foot above the rescue flood elevation from which occupants may be evacuated during conditions of flooding, such as a room that has an exit door or operable window; a deck, balcony, porch, rooftop platform, or rooftop area; or combinations thereof.

D. New construction in rescue areas that includes on-site refuge location(s) as described in subsection C.2, above, must comply with the following criteria:

1. Structure Stability.

a. Portions of buildings and structures supporting refuge locations shall be designed, constructed, connected, and anchored to resist flotation, collapse, and permanent lateral movement resulting from the hydrostatic loads anticipated during conditions of flooding anticipated for the rescue flood elevation. Hydrostatic loads, based on the depth of water determined by the rescue flood elevation, may be determined in

accordance with the most current edition of Chapter 5 (Flood Loads) of ASCE/SEI 7 (Minimum Design Loads for Buildings and Other Structures).

b. Reduction of hydrostatic loads may be accomplished by features that allow for the automatic entry and exit of floodwaters to minimize unbalanced loads. The features must be designed by a registered design professional and may include, but are not limited to, openings, valves, and panels designed to yield under load.

Exception: The use of a registered design professional is not required for flood vents installed in compliance with section 15.104.050.A.3.e.ii.

2. Refuge Locations.

a. An evacuation route shall be provided through any number of intervening rooms or spaces. All doors along the route shall be equipped to open without the use of a key, combination, tool, or special knowledge or effort.

Exception: Doors in individual dwelling or sleeping units having an occupant load of ten or less are permitted to be equipped with a night latch, dead bolt, or security chain, provided such devices can be opened from the inside without the use of a key or tool.

b. Refuge locations shall provide a minimum gross floor area of seven square feet per occupant, based on the occupant load of the portions of the building that are below the rescue flood elevation. The area provided shall be adequate to accommodate the occupant load of the upper levels as well as the anticipated occupant load from the area below the rescue flood elevation.

3. Refuge location that is space within the building.

a. If the refuge location is a space within a building, the refuge location shall be provided with a means for occupants to be evacuated out of the building.

b. A minimum of one window or door shall be provided that meets the egress requirements of the California Residential Building Code.

4. Refuge location that is a deck or balcony.

a. Decks and balconies that have finish floors not less than one foot above the rescue flood elevation may be used as refuge

locations. When a deck or balcony used as a refuge location is not at the same level as a floor within the building, access to the deck or balcony shall be provided by a stairway, ramp, alternating tread device, fixed ladder, or other means approved by the building official.

b. Decks and balconies that are refuge locations shall be designed for the live load required for the occupancy.

5. Rooftop refuge location.

a. Rooftop platforms and rooftop areas that are not less than one foot above the rescue flood elevation may be used as refuge locations. A minimum horizontal distance of three feet shall be provided between the lower edge of the rooftop refuge location access point and the refuge location lower perimeter. A rooftop platform shall be provided if the roof covering materials are:

i. Clay tile, concrete tile, slate shingles, wood shingles, or wood shakes, and the roof slope is three units vertical in 12 units horizontal (25 % slope) or greater.

ii. Metal roof panels or metal roof shingles, and the roof slope is one unit vertical in 12 units horizontal (8.33 % slope) or greater.

b. Roof areas and roofs that support rooftop platforms that are refuge locations shall be designed for the roof live load required for the occupancy.

c. Evacuation routes to rooftop refuge locations shall be provided by a stairway, ramp, alternating tread device, fixed ladder, or other means approved by the building official.

d. The perimeter of rooftop refuge locations shall be protected by:

i. Guards as required by the California Building Code if a rooftop platform is provided; or

ii. A railing that is at least 12 inches in height if a sloped roof is provided.

e. A separation of at least 48 inches shall be provided between a rooftop refuge location and any mechanical equipment, photovoltaic system, utility service drop, or other utility line. Electrical service lines shall not pass over refuge locations.

6. Attic refuge location.

- a. Attics that have finish floors not less than one foot above the rescue flood elevation may be used as refuge locations.
- b. When an attic is used as a refuge location, the minimum headroom of the required area shall be 30 inches with 50 % of the required area having a headroom of 60 inches.
- c. The required area of the refuge location shall be solidly sheathed.
- d. Attic areas that are used as refuge locations shall be designed for the floor live load required for the occupancy.
- e. Evacuation routes to attic refuge locations shall be provided by a stairway, ramp, alternating tread device, fixed ladder, or other means approved by the building official.

E. Special Needs Facilities in Rescue Areas. Electrical equipment, heating and ventilating equipment, air conditioning, emergency generators, and phone banks for these facilities must be either located one foot above the rescue flood elevation or constructed in a manner satisfactory to the city's chief building official such that water cannot enter or accumulate in any of the system components.

CF. Requirements for Rescue Areas and Evacuation Areas. The following additional safety measures are required for new construction in locations that are areas defined as both rescue areas and evacuation areas in the CFMP:

- 1. New subdivisions shall have two or more vehicular ingress and egress points designed to facilitate evacuation and other emergency services where geographically feasible. Knox boxes shall be provided in gated communities to facilitate emergency vehicle access.
- 2. Approved lever handle gas valves shall be used for all residential and nonresidential gas appliances as required under ~~Title 15 of this code~~ this title.
- 3. Above ground fuel tanks shall be securely anchored to a foundation to prevent movement or flotation during a flood as required under ~~Title 15 of this code~~ this title.
- 4. Special needs facilities must have a flood warning and response plan approved by the local administrator prior to occupancy of the structure.

| ~~DG~~. Requests for alternative compliance methods with, or variances from, any portion of this section shall be subject to review and approval by the local administrator. Such requests shall be in writing and shall include such documentation as may be required by the local administrator.

|

Adopted by the City of Sacramento City Council on _____ by the following vote:

Ayes:

Noes:

Abstain:

Absent:

MAYOR

Attest:

City Clerk

Passed for Publication:

Published:

Effective: