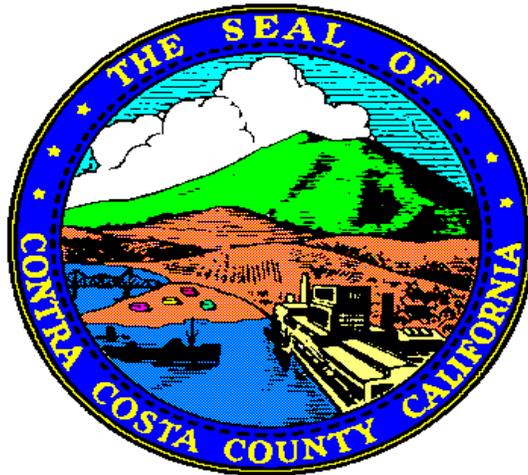


CONTRA COSTA COUNTY FLOODPLAIN MANAGEMENT PROGRAM



Answers to Commonly Asked Questions and A Guide for Residential Construction Within Special Flood Hazard Areas

Revised February 2015

Introduction

Ninety percent of all natural disasters in California are flood related. All rivers and creeks have floodplains. Floodplains are natural geological features that can provide environmental and flood reduction benefits. These floodplains are primarily level, fertile lands and have historically attracted development. As development has encroached within the floodplains, loss of life, property damage, and associated costs have greatly increased. Furthermore, as development occurs, the runoff of rainwater intensifies and the frequency of flooding events also increases.

In July 1987, after an extensive study of the County's Floodplains, the **Federal Emergency Management Agency (FEMA)** produced our first **Flood Insurance Study (FIS)** and printed **Flood Insurance Rate Maps (FIRMs)**. These watersheds are re-studied and re-mapped periodically and show areas with a one percent chance of flooding each year. These areas are commonly referred to 100-year floodplains, and are shown as **Special Flood Hazard Areas (SFHAs)** on the FIRM maps. Flood insurance is mandatory for most residential, commercial and industrial developments within SFHAs.

In compliance with the **National Flood Insurance Program (NFIP)**, Contra Costa County adopted a Floodplain Management Ordinance. This Ordinance requires that the lowest floor, including basement, for all new structures or substantial improvements to existing structures within a SFHA shall be elevated one to two feet above the 100-year **Base Flood Elevation (BFE)** for that area. Lower insurance rates are available when the lowest floor is above the BFE.

Flood Zones:

- Areas with a one-percent chance of flooding every year are shown as Flood Zones A, AO, AH, A-1 to A-30 or AE on the FIRMs. These areas are commonly referred to as the 100 year flood zone, Floodplain or SFHA.
- Areas with a one- percent chance of flooding every five years are shown as Flood Zones B or shaded X on the FIRMs. These flood zones are also known as 500-year flood zones.

- Areas least prone to flooding are shown as Flood Zones C or unshaded X. Frequency of flooding is not known in such areas.
- Areas of 100-year coastal flood with velocity (wave action) are shown as Flood Zones V, V-1 to V-30, VE on the FIRMs.

Note: Since June 16, 2009, new FIRMs show B and C zones as Zone X, Zones A-1 to A-30 as zone AE and zones V-1 to V-30 as zone VE.

FIRMs are available in the branch libraries of Contra Costa County, at the County Application and Permit Center, and at the Public Works Department for public use.

FIRMs may also be ordered from FEMA for a fee by calling (800) 358-9616. Check with FEMA for charges. You can also reach FEMA at the website www.fema.gov

Inquiries regarding flood insurance may be made by calling your local insurance agent or the NFIP at (800) 638-6620 or (800) 427-4661. You can also visit www.insure.com/home/flood.

A map determination service is available from County staff. This service is based on a review of currently available Assessor's Parcel Maps, County base maps, FEMA information and other documents or maps. Staff interprets this data to determine if any portion of a parcel (or structure) is in a SFHA. This service may not determine whether or not flood insurance will be required. The County has no authority to change the flood zones as shown on the FIRM panels. Please call one of the telephone numbers on the front of this pamphlet to inquire as to the suitability for your needs. The fee for an in office written determination is fifty dollars (\$50). A field visit and written determination can be arranged for three hundred dollars. (\$300).

Owners and developers of properties within the SFHAs of the County are encouraged to obtain a copy of the current Floodplain Management Ordinance to learn more about all of the requirements for floodplain development prior to submitting a formal application.

The Floodplain Permit and Certification Process

To satisfy the requirements of the Floodplain Management Ordinance, projects planned for construction within a SFHA must meet development and construction standards specifically designed to prevent or limit flood damage.

Tentative Maps must show floodplain boundaries and BFEs.

Application submittals for subdivisions, development plans, land use permits and other entitlement changes within a floodplain must include the flood zone designation, BFE and ground elevation on the maps or plans submitted. The Public Works Department will check the maps or plans for certification of flood zone and elevation by a registered civil engineer or licensed land surveyor. An architect may also certify flood zones and elevations, but the data used must come from a survey done by a licensed surveyor or a registered civil engineer qualified to provide such services.

The Department of Conservation and Development will review building permit applications. If a property is determined to be in a SFHA, the applicant will be required to obtain a floodplain permit from the Public Works Department before any other permits can be issued. If appropriate, the applicant will be given an Elevation Certificate. This form must be completed by a licensed surveyor or a registered civil engineer qualified to provide such services. This certificate shall be submitted to the Public Works Department for review and approval prior to scheduling a framing or subfloor inspection.



Frequently Asked Questions

1. *What is the National Flood Insurance Program?*

The **National Flood Insurance Program (NFIP)** provides insurance and federal disaster assistance in the event of floods within the County. The program is administered by the **Federal Emergency Management Agency (FEMA)**. Until recently, such coverage was generally unavailable from private sector insurance companies. *In the absence of this program, the County's vulnerability to uninsured flood loss could be substantial and a threat to the public health, safety and welfare.*

Federal flood insurance is made available to residents when their local government agrees to implement and enforce measures to reduce flood risks to new construction in SFHAs. When Contra Costa County joined the program, the County agreed to require floodplain permits for all new development and substantial improvements to existing structures within SFHAs of the unincorporated portions of the County, and to ensure that construction materials and methods will minimize flood damage. As a result, building permits must contain documentation to substantiate how buildings are actually constructed.

2. *How does the National Flood Insurance Program benefit the community?*

Through the NFIP, property owners in Contra Costa County are able to insure against flood losses. Careful management of development in the floodplains results in construction practices that can reduce public and private flood losses. A major purpose of the program is to alert property owners to the danger of flooding and to assist them in reducing potential property losses.

3. *How is flood risk determined?*

Flood risk is determined by the use of all available information for each community. Historical flood data, rainfall and river-flow data, topography,

wind velocity, tidal surge, flood control measures, development (existing and planned), community maps, and other data are all elements used in determining flood risk.

4. *How does the County participate in the National Flood Insurance Program?*

When the County joined the NFIP, it adopted and began to enforce minimum floodplain management standards. FEMA worked closely with the State and the County to identify flood hazard areas, flooding risks and to establish minimum floodplain management standards. The floodplain management standards are designed to prevent new development from increasing the flood threat and to protect new and existing buildings from anticipated flood events.

5. *What is a Flood Insurance Rate Map? (FIRM)*

A FIRM is a map on which FEMA has delineated both the areas of special flood hazards and the risk premium zones applicable within the County.

6. *How can a property owner determine if a property is in a Special Flood Hazard Area?*

FEMA publishes maps indicating the County's flood hazard areas and the degree of risk in those areas. FIRMs are available for use at the County Application and Permit Center, 30 Muir Road, Martinez, California, 94553, and at the County Public Works Department, 255 Glacier Drive, Martinez, California, 94553. FIRMs are also available at the County's branch libraries or from FEMA ((800) 358-9616). Property owners may consult these maps to determine if their properties are located in a SFHA. If a property owner wants the County to determine if *a property* is located in a SFHA, the owner may contact the County at (925) 646-1623 for more information. The most important information is whether or not an *insured structure* is located in the SFHA -- not just the parcel of land. Staff may not be able to determine the structure's location in this written determination without a plot plan. **There is a fifty-dollar (\$50) fee for a written floodplain determination. Much of this basic information is also available "online".**

7. *How is a Flood Insurance Rate Map changed?*

Three procedures have been established for changing or correcting a flood map:

- A. **A LETTER OF MAP AMENDMENT (LOMA)** is the result of an administrative procedure in which the Federal Insurance Administrator reviews scientific or technical data submitted by the owner or lessee of a property who believes the property has been incorrectly included in a designated SFHA. A LOMA amends the FEMA map and can determine that a property is not located in a SFHA.

Although FEMA may issue a LOMA, it is a lending institution's prerogative to require flood insurance as a condition of its own, before granting a loan or mortgage.

Those seeking a LOMA should first talk with their lending institution to determine whether the institution will waive the requirement for flood insurance based on a LOMA. LOMA's do not revise the FIRM, and may not be shown on updated FIRMs.

- B. **A LETTER OF MAP REVISION (LOMR)** is a revision to the FIRM map. It is used to change flood zones, floodplain and floodway delineation, flood elevations, and planimetric features. Unlike map amendments, map revisions are the result of some physical improvement affecting the floodplain (i.e. grading, flood control facilities, etc.) and will be shown on any new or updated FIRMs.

All requests for LOMR's must be made to FEMA through the Floodplain Administrator in the County's Public Works Department.

- C. **A PHYSICAL MAP REVISION** is an official re-publication of a map to reflect changes to flood insurance zones, floodplain delineation, flood elevations, floodways, and planimetric features. These changes typically occur as a result of structural works or improvements, annexations resulting in

additions or deletions of flood hazard areas, or corrections of BFEs or flood insurance risk zones. The Floodplain Administrator submits data to FEMA to support the request for a map revision. The data is analyzed, and the map may be revised, if warranted. When BFEs are changed, a 90-day appeal period is provided, followed by a period for formal approval.

8. *How long does it take to obtain a LOMA, LOMR, or physical map revision?*

For single building or single lot determinations that do not involve changes to BFEs or floodways, a LOMA or LOMR can usually be issued by FEMA within four weeks. LOMAs and LOMRs involving multiple lots or multiple buildings usually require about eight weeks for FEMA to process. LOMRs involving decreases in BFEs or floodways take approximately twelve weeks for FEMA processing. If changes in flooding conditions are extensive or if BFEs increase, a physical map revision will be required, which may take 12 months or longer.

9. *What is a Conditional Letter Of Map Revision (CLOMR)?*

Communities, developers and property owners who undertake improvement projects intended to reduce the flood hazard in their communities usually want FEMA maps to reflect the effects of these projects. Similarly, property owners and developers who intend to place structures in the 100-year floodplain usually must demonstrate to lending institutions and local officials that these structures will be above the BFE.

Those who are planning such actions are encouraged to submit design plans and other engineering data to FEMA for evaluation. The response to the requests will describe the change that may eventually be made to the flood map and is called a "CLOMR".

10. *Why is the burden of proof on the person requesting the map change?*

Government agencies and private engineering firms are contracted to perform analysis of flood risks and prepare flood maps for the County. The

analysis and flood insurance study findings are then reviewed by FEMA and County staff. FEMA will not change a study determination without sufficient evidence that such a change is appropriate.

11. *How is elevation measured?*

All elevations refer to Mean Sea Level (MSL), based on the National Geodetic Vertical Datum. Elevations shown on the drawings and on Elevation Certificates must be certified by a licensed surveyor, a registered Civil Engineer in California or a licensed architect. On FIRMSs prior to June 16, 2009 the vertical datum was 1929 NGVD. Since then the vertical datum is 1988 NAVD.

12. *What constitutes "substantial improvement" or "substantial damage"?*

"Substantial improvement" means any reconstruction or improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure either (1) Before the improvement or reconstruction is started; or (2), If the structure has been damaged, and is being restored, before the damage occurred. "Substantial damage" means damage of any origin sustained by a structure, whereby the cost of restoring the structure to its "before damaged" condition would equal or exceed 50 percent of the market value of the structure before the damage occurred. "Substantial improvement" is considered to occur when the first alteration of any wall, ceiling, floor or other structural part of the building commences, whether or not that alteration affects the external dimensions of the structure. "Substantial improvement" includes structures that have incurred "substantial damage" regardless of the actual repair work performed. Substantial improvement does not, however, include either:

- (A) Any project for improvement of a structure to comply with existing state or local health, sanitary, or safety code specifications which are solely necessary to assure safe living conditions; or
- (B) Any alteration of an "Historic Structure." (Ords. 99-35, 90-118, 88-50, 87-45)

Staff will determine if an improvement is substantial. If staff and the permit applicant differ in opinion of the market value, the applicant may provide more detailed information including an appraisal by a licensed real estate appraiser.

The value of improvements are tracked and accumulated over a 10-year period to determine if the substantial improvement level has been reached.

13. *What are the floodplain requirements for mobile homes and manufactured homes?*

Within an existing mobile home park, mobile homes must be anchored to prevent floatation. The lowest floor level must be at least 3 feet above the ground or pad level.

Outside the mobile home park or within a new mobile home park, mobile homes must be elevated and anchored above the 100-year flood level to satisfy freeboard requirements of the County's Floodplain Ordinance.

For example, all mobile homes (as well as new construction and substantial improvements) on Bethel Island must conform to the requirement of 9 feet elevation (above MSL) for the lowest floor. Therefore, temporary mobile homes (mobile homes that are not on a permanent foundation) are not allowed on Bethel Island.

14. *When is an Elevation Certificate Required?*

If a development is in a SFHA, a completed Elevation Certificate (FEMA Form 81-3 1) signed by a licensed surveyor or an engineer licensed to perform surveying must be submitted to the Public Works Department Permit Technician prior to scheduling a framing inspection from the Building Inspection Department. The building permit will not be accepted as **final** until an acceptable Elevation Certificate is submitted to the Public Works Department.

The purposes of an Elevation Certificate are:

- (A) To verify that the elevation of the lowest floor has been properly constructed relative to the BFE;
- (B) To insure compliance with the County's Floodplain Management Ordinance;
- (C) To determine the proper flood insurance premium rate; and
- (D) To support a request for a LOMA or LOMR.

The Elevation Certificate is to be completed by a licensed land surveyor or engineer authorized by state law to certify elevation information.

If a non-residential building is being flood proofed, then a Flood Proofing Certificate must be completed in addition to the Elevation Certificate.

15. What is the Community Rating System?

The **Community Rating System (CRS)** is a program that rewards residents that live in communities that have a Floodplain Management Program that exceeds the minimum FEMA standards. Under the CRS, flood insurance premiums are adjusted to reflect community activities that reduce flood damage to existing buildings, manage development in areas not mapped by NFIP, protect new buildings beyond the minimum NFIP protection level, help insurance agents obtain flood data, and help people obtain flood insurance. When the floodplain standards in a community exceed the minimum FEMA standards, the residents can receive a 5% to 45% reduction in their flood insurance premiums. As a result of the County floodplain program, residents located within the unincorporated portions of Contra Costa County are currently receiving a twenty percent (20%) reduction in their flood insurance premiums.

16. Where can I get more information and the before mentioned forms?

For more information on FEMA, the NFIP and to acquire the various forms (LOMA, CLOMR, LOMR, Elevation Certificate, etc.) log onto FEMA's web page at WWW.FEMA.GOV/NFIP.



A DESIGN GUIDE FOR RESIDENTIAL CONSTRUCTION IN SPECIAL FLOOD HAZARD AREAS

I. The flood level referred to is the **BFE** (or 100 year water surface elevation) as published on the **FIRM** by the **FEMA**.

II. All new construction and substantial improvements to residential living areas, utility areas, storage areas or any enclosed area, including a basement, must be above the base flood elevation. Only garages, carports, approved storage areas and building access areas which are not subject to flood damage may be allowed below the base flood elevation and must be clearly labeled as such on the drawings submitted for building permits.

III. "Only construction materials (structural and non-structural) that are classified as a "flood-resistant material" from FEMA Technical Bulletin 2/August 2008 or as approved by the County's Floodplain Manager may be used below the BFE. Wood products such as studs, posts, plywood, siding, doors, and trim must be pressure-treated, "heavy timber", redwood, or cedar. Gypsum board and plaster products are not flood-resistant and are not allowed below the BFE. Enclosed stud spaces or cavities in which flood water could collect are not allowed below the BFE. All building components must be designed to be rinsed clean of sediment after a flood."

IV. Assemblies other than wood stud frame, such as pole buildings, may be submitted for preliminary review prior to application for plan check. Conformance with flood regulations may be discussed before design review time is expended.

V. All construction must be designed for all vertical and lateral loads. When a building site is subject to flowing water, the structure must be designed to resist those forces. The Floodplain Manager will determine if moving water design or still water design is applicable to each building at each site.

VI. Fire protection of a building (or a portion of a building) is required by the Building Code (currently the 2010 Uniform Building Code, or UBC) under two conditions. The first is an "occupancy separation" which provides for protection between differing occupancy uses within a building, and is covered in UBC Section 302.4. The second is when a building or structure is constructed in close proximity to a property line, and is covered under Section 503.2.1.

A. Floor-Ceiling Construction:

When an occupancy separation is required, such as between a garage or carport and the residential living space above, the floor-ceiling assembly between must have a one-hour fire rating, as designated by UBC Chapter 7, and be constructed with flood-resistant elements below the base flood elevation.

B. Wall Construction:

The walls, beams, and posts which support a one-hour fire rated floor-ceiling assembly must also be one-hour fire rated, as required by UBC Section 302.2, or may be of heavy-timber construction as defined in UBC Section 605.6. Heavy-timber construction consists of 8"x8" posts and/or 6"x10" beams (minimum sizes.)

When the exterior walls of a building are located near the property line (less than 3 feet no inches for residential construction), it is also required that they be of one-hour fire resistant construction from UBC Section 503.2.1.

In either case, it is preferred that the vertical members be constructed of masonry or concrete which are both fire-resistant and flood-resistant materials. The Floodplain Ordinance, however, does allow these members to be of pressure treated wood or steel framing with fire protection elements of these assemblies incorporated.

Non-flood resistant materials will only be allowed in writing by the Floodplain Manager if no flood resistant materials can be obtained. The cost will not be considered in determining if flood resistant materials are available.

Otherwise, all construction materials located below the BFE must be flood-resistant as defined in FEMA Technical Bulletin 2/August 2008.

VII. Electrical Limitations:

P.G.&E. must approve the location of all electrical meters. Both electrical meter sockets and load centers must have 30-inch wide, 36-inch deep working clearances. If located on an exterior platform, the platform must conform to the Uniform Building Code. If the load center is located inside the building it may not be located in a closet used to store combustible materials.

All electrical equipment must be located above the BFE. "Electrical equipment" includes electrical load centers, sub-panels, circuit breakers, and ground fault interrupting devices, motors, etc.

Electrical branch circuits may extend below the BFE only if protected by a ground fault interrupting device located above the BFE.

An electrical meter socket may be located below the BFE. If this option is chosen, PG & E will require a main disconnect located within four feet of the meter. A main disconnect located below the BFE may not be a circuit breaker. The remaining components must be located above the BFE.

VIII. Storage Limitations:

In general, all enclosed storage rooms and areas must be located above the BFE. Enclosed storage or garages which may be permitted below the BFE are those that are incidental and accessory to the principal use of the structure and used only to store damage resistant items that cannot be stored above the BFE. For instance, if the structure is a residence, the storage in the enclosure below should be limited to items such as lawn and garden equipment, snow tires, canoes, and other low damage items that cannot be stored in the elevated portion of the structure. The term "low damage items" is a good test of acceptability. The occupant should note that no flood insurance coverage is available for these items stored below the BFE under most circumstances.

Plans submitted to the County for plan check must include the following statement limiting the use of storage space or garages located below the BFE:

"Use of enclosed storage areas or garages below the Base Flood Elevation must meet all the following limitations:

- A. Use of this storage area must be incidental and accessory to the principal use of the structure, and
- B. Storage is limited to damage resistant items only, and
- C. Storage is limited to items that cannot be stored above the base flood elevation."

IX. Plumbing and Mechanical Limitations:

All heating, ventilation, plumbing and air conditioning equipment must be designed and located so as to prevent water from entering or accumulating within the components during conditions of flooding. Without a special design authorized by the Building Inspection Department, mechanical equipment and plumbing fixtures shall be located above the BFE.

X. Venting Requirements:

For all new construction and substantial improvements, all fully enclosed areas below the lowest floor, that are subject to flooding, shall be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of flood water. Designs for meeting this requirement must either be certified by a registered professional engineer or architect or meet or exceed the following minimum criteria:

- (i) Have a minimum of two openings with a total net area not less than 6.45 square centimeters (one square inch) for every 0.09 square meters (one square foot) of enclosed area subject to flooding shall be provided. The bottom of all openings shall be no higher than one foot above grade. (Openings may be equipped with screens, louvers, valves or other coverings or devices provided that they permit the automatic entry and exit of flood water); or
- (ii) Be certified to comply with a local flood proofing standard approved by the FIA.

Note:

Please direct any questions about the Floodplain Management Program to the Floodplain Manager (See Below).

For information on applying for a Floodplain Permit contact the Public Works Department Permit Technician (See Below).

Contra Costa County Public Works Department
255 Glacier Drive
Martinez, CA 94553
(925) 313-2000

Contra Costa County Public Works Department,
Application and Permit Center
30 Muir Road
Martinez, CA 94553
(925) 674-7200

Jocelyn LaRocque, PE, Floodplain Manager	(925) 313-2315
Robert B. Hendry III - Permit Technician	(925) 674-7744
Floodplain Determination Program	(925) 646-1623

This pamphlet applies only to the unincorporated area of Contra Costa County. Please contact your local governmental agency if your property is within an incorporated city.

For information regarding Flood Insurance call (800) 427-4661 or (800) 638-6620. You can also visit www.insure.com/home/flood.