

## **FLOOD HAZARD MANAGEMENT SPECIFIC PLAN GUIDELINES**

(Code Sections: L.A. Ordinance 172,081; LAMC Appendix Chapter 34)

The City has adopted a Flood Hazard Specific Plan (Ordinance No. 172,081, effective July 3, 1998) which qualifies the City to be in the regular status classification of the National Flood Insurance Program. This Plan and the Los Angeles Building Code Appendix Chapter 31 are qualifying parts to qualify property owners for greater coverage limitation and generally lower flood insurance premium rates. This Information Bulletin, as required by Section 6.D of the Specific Plan, establishes standards necessary to carry out the provisions and intent of the plan.

- A. **DEFINITIONS:** For the purpose of this Bulletin, the following terms are defined as follows:
- Base Flood:** Any flood having a one-percent chance of being equaled or exceeded in any given year.
- Basement:** Any area of the building having its floor below adjacent grade level on all sides.
- Coastal High-Hazard Area:** Any area, subject to high waters, including, but not limited to wave wash or tsunami. This area is designated VI-30 or unnumbered V zones on the Los Angeles Flood Hazard Map (LAFHM), maintained by the City Engineer.
- Development:** Any man-made change to improved or unimproved real estate, including, but not limited to, building or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations.
- Elevation Certificate:** The Elevation Certificate is an important administrative tool to provide elevation information necessary to ensure compliance with of the National Flood Insurance Program (NFIP). The Elevation Certificate may be downloaded from the FEMA website at <http://www.fema.gov/nfip/elvinst.htm>.
- Flood or Flooding:** A general and temporary condition of partial or complete inundation of normally dry land areas from:
- overflow of inland or tidal waters, including storm waves, or seiches.
  - unusual and rapid accumulation or runoff of surface waters from any source.
  - rupture or breaching of water-retaining structures including, but not limited to dams, canals and viaducts caused by an unpreventable force of nature.
  - mudflow which is proximately caused or precipitated by accumulations of water on or under the ground.
  - the collapse or subsidence of land resulting from flood-related erosion.
- Flood Prone Area or Flood Plain Area:** Any land susceptible to being inundated by water from any source.
- Flood-Proofing:** Any combination of structural and non-structural additions, changes or adjustments to structures which prevent flood-related damage to real estate or improved real property, water and sanitary facilities, structures and their contents.

Flood Proofing Certificate: The Flood Proofing Certificate is an administrative tool to document design information necessary to ensure compliance with the National Flood Insurance Program (NFIP). The Flood Proofing Certificate may be downloaded from the FEMA website at: <http://www.fema.gov/nfip/f-056.pdf>

Flood-Related Erosion Hazard Area: Land which is most likely to be subject to severe flood-related erosion losses. This area is a designated E Zone on the LAFHM.

Floodway: Any floodway so designated on the LAFHM, or other areas determined by the City Engineer, that must be reserved in order to discharge the storm water.

Los Angeles Flood Hazard Map, (LAFHM): The official maps for the City of Los Angeles showing the boundaries of hazard areas. Information from the LAFHM is provided at [www.ladbs.org](http://www.ladbs.org), keywords Zoning Information.

Los Angeles Municipal Code, (LAMC): Los Angeles Municipal Code

Lowest Floor: The lowest floor of the lowest enclosed area (including basements). An unfinished or flood resistant enclosure, usable solely for parking of vehicles, building access or storage, in areas other than basements, is not considered a building's lowest floor, provided that such enclosure is built to comply with the Flood Hazard Specific Plan.

Lowest Finished Floor Elevation, (LFFE): The elevation above mean sea level of the lowest floor of the lowest enclosed area (including basements) allowed by each flood Zone determined in accordance with this Bulletin including the freeboard (LFFE = BFE + 1.0 foot) required by the Flood Hazard Specific Plan.

Mudflow: The condition wherein there is a river, flow or inundation of liquid mud and debris down a hillside. Mudflow is usually preceded by brush fires. Mudflow may occur as a distinct phenomenon while a landslide is in progress.

Mudflow-Prone Area: Individual lots and/or areas determined by the Department of Building and Safety to be "SUBJECT TO MUDFLOW." Such determination shall be made when the site grading pre-inspection reveals slope surfaces of unconsolidated material with a topographic setting, geology and/or a history that indicates a potential for mudflow. Those sites located within, or at the base of, concentrated drainage areas are the most likely to be subject to mudflow, although, sites located elsewhere may also be subject to such determination.

Substantial Improvement or Substantial Damage: Any reconstruction, rehabilitation, addition or other improvement of a structure, the cost of which equals or exceeds 50% of the Market Value of the structure before the start of construction of the improvement. This term includes structures which have incurred substantial damage, regardless of the actual repair work performed.

Zone: Designation of areas within the Flood Hazard Specific Plan Area based on severity of the risk of flooding.

B. APPLICATION: The following regulations (FEMA Publication 213) apply to all new buildings and Substantial Improvements to public and private development in the designated special flood hazard area furnished by the City Engineer.

1. Projects other than new buildings and Substantial Improvements are not required to comply with these regulations if the Permit Valuation is less than 50% of the Market Value. Documentation to support exemptions shall be attached to the building permit.
2. Market Value determined by the County Tax Assessor's web site shall be verified by one of the following (Ref:FEMA publication #213):
  - Itemized estimates from licensed contractors including depreciation (depreciation

- shall be based on rates established by the LA County Tax Assessor).
- Damage estimates from damage reports by Federal Emergency Management Agency, FEMA.
  - Appraiser certified in the state of California.
3. Projects with Permit Valuation in excess of 50% of the building Market Value are considered “Substantial Improvements.”
  4. Requests for Modification of Building Ordinances for variations to this specific plan shall be processed with concurrence from the National Flood Insurance Coordinator, Department of Public Works. Ordinance 172,081, Section 9.A.2.

C. **CONSTRUCTION LIMITATIONS:** The following are special construction limitations based on the location of the development in the special hazard areas in accordance with the Ordinance 172,081, Section 5. Developments located in more than one special hazard area (i.e. floodway, floodprone and mudflow) shall comply with the requirements in each of the applicable hazard areas.

1. All Areas:
  - Commercial and residential projects may comply by elevating the lowest finished floor of the building above the Lowest Finished Floor Elevation, LFFE.
  - Commercial projects may comply by flood proofing parts of the building below the LFFE.
  - Buildings containing residential uses may not be floodproofed.
  - Verification of the constructed finished floor elevation shall be with a licensed survey and documented on the Elevation Certificate or Flood Proofing Certificate.
  - Electrical, heating, ventilation, plumbing and air condition equipment and other service facilities shall be designed and located so as to prevent water from entering or accumulating within the components during conditions of flooding.
  - A site investigation prepared by a registered civil engineer or geologist shall be approved by the LADBS Grading Section prior to permitting any new buildings or Significant Improvements to existing buildings.
  - Garages to store private vehicles with minor storage incidental to the primary use of the building may be located below the LFFE. However, all equipment shall be located above the LFFE or be designed to operate when inundated.
  - Fully enclosed areas below the LFFE 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 floodwaters. Designs for meeting this requirement must either be certified by a registered civil engineer, structural engineer, or architect or must meet or exceed the following minimum criteria: a minimum of two openings having a total net area of not less than one square inch for every 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, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters.
  - The publication, “FEMA-102 -Floodproofing Non-Residential Structures” may be used as a guide for flood-proofing design. Where flood-proofing is required for a structure, a California registered civil engineer or architect shall certify by signature

to the Department that the completed floodproofed structure was constructed in conformity with the approved plans and is adequate to withstand the flood pressures, velocity, impact and uplift forces and other factors associated with base floods. Such certification shall be made on the building plans.

2. Floodway Areas

- No new structures, additions, reconstruction, rehabilitation or other improvements to existing structures shall be permitted within a floodway.
- All development existing within Floodways on October 9, 1980, may continue. No grants, privileges or considerations shall be given which would prolong the life of an existing development that impedes or raises the level of discharge of a Flood.
- Manufacturing buildings or other facilities in which hazardous substances are stored, manufactured or used shall be prohibited in any Floodway.

3. Floodplain and Flood-Prone Areas:

- The lowest floor of all residential structures shall be constructed at least one foot above the Base Flood Elevation, and in Zones AH, AO and VO shall be elevated above the highest adjacent grade at least one foot higher than the depth specified in feet on the LAFHM, or at least two feet if no depth specified.
- All construction below the LFFE shall use flood-resistant materials.
- Residential structures and/or substantial improvement to residential structures located in a flood-prone area shall be designed so that the Lowest Finished Floor Elevation, is constructed at least one foot above the Base Flood Level. Verification of the constructed finished floor elevation shall be verified by a licensed survey and documented on the Elevation Certificate.
- Garages to store private vehicles with minor storage incidental to the primary use of the building may be located below the LFFE. However, all equipment shall be located above the LFFE or be designed to operate when inundated.
- New nonresidential structures and/or substantial improvements to nonresidential structures located in a flood-prone area shall be constructed with the Lowest Finished Floor surface constructed at least one foot above the Base Flood Level, or shall be constructed so that the portion of the structure below a horizontal plane located one foot above the Base Flood Level shall be flood-proofed. Areas that are to be flood-proofed shall be constructed with floors, walls and sealable openings that are substantially impermeable to the passage of flood waters and with construction components having the capability of resisting hydro-static and hydrodynamic loads and the effects of buoyancy.

4. Mudflow-prone Areas:

New construction or substantial improvements or repairs shall not be permitted on sites determined by the Department to be "SUBJECT TO MUDFLOW."

**EXCEPTION:** Construction may be permitted on a site determined to be "SUBJECT TO MUDFLOW" if the applicant submits evidence, acceptable to the Department, that the proposed development will not subject any improved portion of the site (including parking areas, lawns and similar open areas) to the hazards of mudflow. Such evidence is to include:

- a. A site investigation, evaluation and report made by persons qualified and licensed in civil engineering, engineering geology and/or soils engineering to ascertain the

- location, magnitude and extent of potential mudflow hazards and to recommend measures for the elimination of such hazards. The report is to be submitted to the Department for evaluation and determination of acceptability.
- b. Location and arrangement of developments within or at the base of concentrated drainage areas so that potential mud/debris flow path, gradient and channel capacity are maintained. For areas of abrupt change in flow path and/or gradient, provisions shall be made for the deposition and buildup of mud/debris material. Minimum design parameters to be used for mud/debris flow control systems within and at the base of concentration drainage areas are:
    - (1) A channel flow capacity of 10 cubic feet per second per acre of tributary drainage area; or
    - (2) A temporary storage capacity of 400 cubic yards per acre of tributary drainage area.
  - c. Slope planting, irrigation and drainage systems that are to be installed in a manner that reduces surface erosion, saturation of the upper soil mantle and a buildup of highly flammable brush.
5. Coastal High-hazard Areas:
- a. All designs of new construction and Significant Improvements to existing buildings within Zones V and VI-30 on the LAFHM shall be located landward of the reach of mean high tide, as determined by the National Flood Insurance Coordinator, Department of Public Works, and documented on permitted drawings.
  - b. All new construction and substantial improvements within Zones V and VI-30 on the LAFHM shall be elevated on adequately anchored pilings or columns and securely anchored to such piles or columns so that the lowest portion of the structural members of the lowest floor (excluding the pilings or columns) is elevated to or above the base flood level. A California registered civil engineer or architect shall certify that the structure is securely anchored to adequately anchored pilings or columns in order to withstand high waters and wave wash.
  - c. All new construction and substantial improvements within Zones V and VI-30 on the LAFHM shall have the space below the lowest floor free of obstructions or be constructed with "breakaway walls" intended to collapse under stress without jeopardizing the structural support of the structure so that the impact on the structure by abnormally high tides or wind-driven water is minimized. Such temporarily enclosed space shall not be used for human habitation.
6. Flood-related Erosion Hazard Areas.
- a. All new construction and substantial improvements within a flood-related erosion hazard area shall be reviewed to determine whether the proposed site alterations and improvements will be reasonably safe from flood-related erosion and will not cause or otherwise aggravate the existing flood-related erosion hazard; and
  - b. Where a proposed improvement is located within an area of flood related erosion or will increase the erosion potential, the improvement shall be relocated or adequate protective measures to be taken which will not aggravate the existing erosion hazard.

- D. **REPORTING:** The Department is required to submit to the Federal Emergency Management Agency, FEMA, copies of the following:
1. A report of the number of permits approved and waivers applied for and granted in areas of special hazard, and
  2. Copies of all Flood Proofing Certificates and Elevation Certificates for all projects completing final inspections.
- E. **DEPARTMENTAL PROCEDURES:**
1. **Express Permits**  
No change in procedure. All Express Permits for work within the Flood Hazard Specific Plan Area will be issued with the following note:  
"All equipment and other service facilities must be designed and/or located above the lowest finished floor, so as to prevent water from affecting the components during conditions of flooding. Refer to FEMA Publication 348 for further details."
  2. **Grading Engineering Section:**  
An evaluation and opinion as to whether or not a site is "SUBJECT TO MUDFLOW" within the Grading Hillside area shall be made by the consulting geologist and soil engineer. The detailed evaluation of the mudflow potential and recommendations to protect the property shall be included in the soil and / or geology report. The final determination as to whether or not a site is "SUBJECT TO MUDFLOW" shall be made by the Grading Division of the Department after review of the soil and / or geology report.
  3. **Building Plan Check:**
    - a. Plan Check Engineers shall check plans for compliance with the guidelines set forth in this Bulletin and the "Supplemental Correction Sheet for Flood Hazard Specific Plan - Structural."
    - b. All appeals and waivers shall be microfilmed to be provided to FEMA representatives during an audit. A copy of the appeal and waiver shall be sent to the National Flood Insurance Coordinator, Department of Public Works.
    - c. Mechanical and Electrical Plan Check Engineers shall require a note on a plan to require all equipment to be installed above the lowest finished floor, unless designed to operate while inundated by a flood.
  4. **Building Inspection:**
    - a. A licensed survey shall verify the elevation of the finished floor is as required on the approved plans. LAMC Appendix Section 3109
    - b. A copy of the completed certificate (Elevation Certificate or Flood Proofing Certificate) shall be placed in:
      - i. The Building Inspector's field pack,
      - ii. Microfilmed with the completed Certificate of Occupancy, and
      - iii. A copy shall be kept at the Assistant Inspection Bureau Chief's office for the biannual FEMA audit. Ordinance 172,081, Section 6.D.6.
  5. **Grading Inspection:**  
The Grading Inspector may be requested to verify the site evaluation submitted to the Department on whether or not a site is "SUBJECT TO MUDFLOW." Some indicators of sites "SUBJECT TO MUDFLOW" are:
    - a. Sites below slopes that are located within an area having evidence and/or history of past Mudflow problems.

- b. Sites located within or at the base of concentrated drainage areas. It should be noted that an area subject to deep-seated or surficial landslide or slumping is not necessarily subject to Mudflow.
- c. Where sufficient grading and/or other work has been performed to eliminate the Mudflow hazard to the site or where it has been demonstrated through approved reports that the Mudflow hazard does not exist, the Department will remove the "SUBJECT TO MUDFLOW" designation. Removal of the designation will be accomplished through attachment of the Department's determination to the tract file copy of the Grading Pre-Inspection, GPI, sheet.