



## Flood Area Development Requirements

### General:

In all areas of Flood Zone A for additions, new constructions and substantial improvements

- Note on plan: “The City of Garden Grove has not determined the base flood elevation (BFE).” It is the responsibility of the property owner to establish the BFE by hiring a licensed Civil Engineer in conformance with Section 107.2.5.1, Section 1612.3 and Section G103.3 of Appendix G of the California Building Code.
- Note on plan: “Before foundation is poured and before a foundation inspection is requested, an Elevation Certificate shall be provided to the Garden Grove Building Inspector, verifying the finish floor of the proposed structure is 1 foot above the base flood elevation (BFE).” Elevation Certificates shall be provided for the lowest floor (including basements) of each building foundation as required in Section 1612.5 of the California Building Code.
- Anchoring shall be provided to prevent flotation, collapse or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads including buoyancy. Construction shall be in conformance with Section 1612.4 of the California Building Code in accordance with Chapter 5 of ASCE 7 and ASCE24.
- Materials shall be flood resistant materials as specified in FEMA Technical Bulletin TB 2-93 (replaced with TB 2-08) and provide specifications demonstrating compliance.  
[https://www.fema.gov/media-library-data/20130726-1502-20490-4764/fema\\_tb\\_2\\_rev1.pdf](https://www.fema.gov/media-library-data/20130726-1502-20490-4764/fema_tb_2_rev1.pdf)
- Provide manufacturers specifications for utility equipment demonstrating resistance to flood damage.
- Mechanical equipment shall be located to prevent water from entering or accumulating within the components during conditions of flooding. Graphically demonstrate an elevation with detailed sections showing mechanical a minimum 1 foot above the base flood elevation (BFE).
- Graphically demonstrate drainage paths around structures and identify routing and slopes for both surface and subgrade conveyance to guide floodwaters away from proposed structure(s).

### Grading:

- A grading permit shall be issued prior to the issuance of a building permit.
- The grading and site plan must be prepared, signed and sealed by a licensed Civil Engineer for the designed project, graphically demonstrating the finished floor elevation is 1 foot above the BFE prior to issuance of a building permit. An Elevation Certificate establishing the elevation of the finished floor shall be filed with the Floodplain Administrator and added to the project file.



**Residential:**

- Flood Zone Area A additions, new construction and substantial improvements shall be elevated a minimum of 1 foot above the base flood elevation (BFE) per the California Building Code as provided in the General Notes above. The design engineer of record shall provide an elevation certificate sheet demonstrating structure is located 1 foot above BFE.
- Note on plan: "Prior to final of the structure, the elevation of the lowest floor shall be certified by a registered professional engineer or surveyor, and verified by the City of Garden Grove Building Inspector to be properly elevated." The certificate shall be provided to the Floodplain Administrator for placement in project files of the City of Garden Grove.

**Non-Residential/Commercial/Industrial:**

- Flood Zone Area A additions, new construction and substantial improvements shall be elevated a minimum of 1 foot above the base flood elevation (BFE) per the California Building Code as noted above in the general notes. Provide an elevation certificate sheet demonstrating structure is located 1 foot above BFE.
- Note on plan: "Prior to final of the structure, the elevation of the lowest floor shall be certified by a registered professional engineer or surveyor, and verified by the City of Garden Grove Building Inspector to be properly elevated." The certificate shall be provided to the Floodplain Administrator for placement in project files of the City of Garden Grove.
- Demonstrate flood proofing below the elevation recommended under G.G.M.C. Subsection C.1.c.i and substantiating that the structure is watertight, with the walls substantially impermeable to the passage of water.
- Provide structural components capable of resisting hydrostatic and hydrodynamic loads and effect of buoyancy.
- Print on plan: "Prior to final inspection, a letter of certification by the registered design professional that the standards of G.G.M.C. Subsection C.1.c.ii are satisfied." This letter shall be signed and dated by the registered design professional. A hard copy of the letter shall be provided to the Planning Division to be filed with the Floodplain Administrator.

**Building access, garages and storage:**

- Fully enclosed areas below the lowest floor that are used solely for parking of vehicles, building access or storage, and that are subject to flooding, shall be designed to automatically equalize hydrostatic flood forces on exterior walls allowing for entry and exit of flood water. Designs for meeting this requirement shall follow FEMA Technical Bulletin TB 1-93 (replaced with TB 1-08) [https://www.fema.gov/media-library-data/20130726-1502-20490-9949/fema\\_tb\\_1\\_1\\_.pdf](https://www.fema.gov/media-library-data/20130726-1502-20490-9949/fema_tb_1_1_.pdf) and FEMA Technical Bulletin TB 7-93 <https://assets.jsheld.com/uploads/FEMA-TB-7-93-wet-floodproofing-req.pdf?mtime=20190709113025>, and shall exceed the following minimum criteria:



- (a) Have a minimum of 2 openings not less than 1 square inch for every square foot of enclosed area subject to flooding. The bottom of the 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 automatic entry and exit of floodwater; or
- (b) Be certified by a registered design professional as required under the California Building Code, Section 107, and the Business and Professions code.

**Utilities:**

- New and replacement water supply and sanitary sewage systems shall be designed to minimize or eliminate:
  - (1) Infiltration of floodwaters into the systems, and
  - (2) Discharge from the systems into floodwaters.
  - (3) Any compromise of the structural integrity or function of the structure of system.
- On-site waste disposal systems shall be located to avoid impairment to them, or contamination from them during flooding.

**Subdivisions:**

- All preliminary subdivision proposals shall identify the special flood hazard area and the elevation of the base flood as provided and described in the General Notes above.
- All subdivision plans shall provide the elevation of proposed finished floor of structure(s) and pad(s). If the site is filled above the base flood elevation (BFE), the lowest floor and pad elevations shall be certified in writing, and signed and sealed by a registered professional engineer or surveyor and provided to the Floodplain Administrator.
- All subdivisions shall be consistent with the need to minimize flood damage.
- All subdivision proposals shall have public utilities and facilities, such as sewer, gas, electrical and water systems, located and constructed to minimize flood damage.
- All subdivisions shall provide adequate drainage to reduce and diminish any exposure to flood hazards.

**Note:** Items checked on this list shall be reflected on the tentative (preliminary) and final development reports, calculations and plans.