

# DSF- 255

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## FLOODPLAIN PERMIT – BUILDING PERFORMANCE STANDARDS FOR RESIDENTIAL AND NON-RESIDENTIAL DEVELOPMENT IN THE 100-YEAR FLOODPLAIN

**Floodplain Permit Number: F 2011 - \_\_\_\_\_**

The following is a summary of building performance standards required by the National Flood Insurance Program (NFIP) and County of Ventura Floodplain Management Ordinance 3841, for proposed residential and non-residential development within the 1% annual chance base flood area (100-year floodplain). Not all of these standards may be applicable to your particular development, therefore, it is the responsibility of your California-registered Civil Engineer or Architect to ensure that your building plans, site grading, and the constructed building/ structure are in compliance with all applicable NFIP regulations as set out in Title 44 Code of Federal Regulations, Parts 59 and 60, as well as the County's Ordinance.

***NOTE 1: “Development” in the 100-year floodplain, as defined by the NFIP includes buildings, structures, swimming pool / spa equipment, fill placement, grading, dredging, paving, excavation, mining, drilling, and temporary and permanent storage of equipment and materials.***

***NOTE 2: “Building” or “Structure” as defined by the NFIP is any development having at least two rigid walls and a roof. An open picnic pavilion, gazebo, bleacher, or carport, for example, are not considered to be buildings or structures, but a Floodplain Development Permit is still required for the above listed items.***

***NOTE 3: All elevations must be based on the 1988 NAVD, only. Please be aware that FEMA released new FIRM ( floodplain) mapping for Ventura County in November 24, 2008 using 1988 NAVD. Although these maps remain ‘preliminary’ at this time, they represent the best available data and need to be included in the calculation of the 100-year Base Flood Elevation for your proposed development.***

# **DSF- 255**

## **FLOODPLAIN PERMIT – BUILDING STANDARDS FOR RESIDENTIAL AND NON-RESIDENTIAL DEVELOPMENT**

**January 9, 2007  
(REVISED – Aug. 23, 2010)**

**Development & Inspection Services  
Floodplain Manager – Brian J. Trushinski, BES, MA, CFM**

The following pages present a summary of the primary building performance standards for development proposals within Special Flood Hazard Areas (100-year floodplain) in Unincorporated Ventura County. These requirements represent the minimum standards that have been set out in the Federal Management Emergency Agency’s “National Flood Insurance Program” (Title 44 Code of Federal Regulations, Parts 59 and 60). Building standards are also set out in the County of Ventura’s “Floodplain Management Ordinance 3841. Please review these documents before you prepare your building construction plans.

Compliance ensures that the risk of potential loss of life, and damage to new and substantially improved/ repaired/ remodeled buildings and the natural environment from the effects of flooding can be minimized. Compliance also helps to ensure that the County’s flood insurance program remains in good standing with FEMA, thereby benefiting affected property owners to annually obtain as low an insurance coverage premium as possible.

Please use this document as a guideline and refer to Title 44 CFR Parts 59 and 60, FEMA’s technical bulletins found at [www.fema.gov](http://www.fema.gov) , [*use the drop-down menu “How Do I Find” and click on “Publications”. Scroll down the list to “Technical Bulletins”*]. Also, please review the County of Ventura Floodplain Ordinance 3841 when preparing your building construction plans. Incorporating all applicable building standards in your initial plan submission to both Development & Inspection Services and the Building and Safety Department will help expedite the review process and avoid possible costly design revisions later on in the process.

**Building Standards for Residential Structures**  
**Proposed within the 100-Year Floodplain**  
***(Proposed Residential Development in the Floodway is Prohibited)***

**SUBMITTAL PACKAGE**

**The following items need to be submitted to Development & Inspection Services in order to plan check your building plans for compliance with FEMA regulations and the County's Floodplain Ordinance:**

- i. Completion of a Floodplain Permit Application (attached) and submission of a Permit processing fixed fee (check to be made payable to 'The County of Ventura').
- ii. Submission of a FEMA Elevation Certificate processing fee deposit (check to be made payable to 'The County of Ventura').
- iii. One (1) complete set of building construction plans (you also need to provide three sets to the Building & Safety Department for their plan check process).
- iv. On the building construction plan set submitted, the Site Plan needs to clearly and accurately delineate the boundary(ies) of the FEMA-determined floodplain zones.
- v. The FEMA 100-Year floodplain Base Flood Elevation needs to be determined by your consultant using NAVD 1988 datums. The NGVD 1929 elevation needs to be converted to the NAVD 1988 elevation, by the project's California-registered Civil Engineer, Architect or Land Surveyor.
- vi. The "top of lowest floor elevation" (which is the FEMA-determined Base Flood Elevation plus the County's one foot freeboard requirement) needs to be clearly illustrated and called-out on all elevation drawings, applicable wall sections, and floor framing plan.
- vii. The location of all flood vents need to be clearly illustrated on all elevation drawings and the foundation plan.
- viii. Submission of all necessary Federal and State permits (e.g., US Army Corp of Engineers, Dept. of Fish & Game), Ventura County Watershed Protection District, and County Planning Department Zoning Clearance.

**The following building standards need to be met for:**

- **all new residential construction.**
- **all substantial improvements / repairs / remodeling to existing residential structures (i.e., where the cost of all construction materials, labor, overhead and profit, and built-in appliances total 50% or greater than the current market value of the existing residential structure).**

□ The “top of lowest floor” of the structure, as defined in Title 44 CFR Part 60.3, needs to be elevated to a minimum height of the Base Flood Elevation plus the County’s requirement of an additional one-foot freeboard. This minimum elevation may be achieved by raising the structure on structural/engineered fill (may require a Grading Permit), on piles, posts, piers, columns, walls, or through a crawlspace design.

□ All structural walls situated below the Base Flood Elevation plus a one-foot freeboard need to be constructed to be watertight (substantially impermeable to the passage of water), and have the capability of resisting hydrodynamic and hydrostatic loads. Further, all structural components and building materials, including insulation, floor beams and joists that are situated at or below the Base Flood Elevation plus one-foot freeboard must be resistant to flood water damage, as per FEMA Technical Bulletins 2-93, 7-93, and FEMA 348 standards. “Flood Resistant Material” means products that are capable of withstanding direct and prolonged contact (minimum of 72 hours) with floodwaters without sustaining significant damage (i.e., damage that requires more than low-cost cosmetic repair such as painting). Your California-registered Civil Engineer or Architect needs to review all your building designs, specifications, and plans and certify at the completion of construction and prior to the issuance of an Occupancy Permit that the building meets all applicable FEMA specifications (the Civil Engineer or Architect needs to submit FEMA’s Floodproofing Certificate: FEMA 81-65, attached). Technical guidance is available in FEMA Technical Bulletins 2-93, 3-93, 7-93, and FEMA 348.

□ The **bottom** of all electrical (including receptacles, switches, panels, fans, boxes, wiring), mechanical (including washers and dryers), heating (including furnaces, heat pumps, propane tanks), ventilation, plumbing (including hot water tanks, water softeners), air conditioning units, and other such equipment and servicing (located on the outside and inside of the structure) must be installed to a minimum height of the Base Flood Elevation plus one-foot freeboard.

□ Flood vent openings need to be installed in foundation walls in order to satisfactorily address hydrodynamic and hydrostatic loads of floodwaters on both the inside and outside the structure. Flood vent openings shall meet the all of the following minimum standards, as set out in FEMA Technical Bulletin 1-93.

- i. a minimum of two flood vent openings are required, each being on opposite walls from each other. Walls should, if possible, be perpendicular to the direction of floodwater flow.
- ii. the total net area of flood vent openings shall be one square inch for every square foot of building enclosure area (example: if the building enclosure area / footprint is 1,750 square feet, the minimum total net flood vent opening requirement shall be 1,750 square inches). (Net: excluding obstructions to the flow of water such as vent framing, grills, etc.).
- iii. the **bottom** of all vent openings shall not be higher than one foot above the adjacent grade.

- iv. vent openings must be designed and perform in a manner that allows free movement of floodwaters both entering and exiting the structure. Vents must not operate by mechanical means or by any means of human intervention.
- v. vent openings must not operate to lock or latch closed.
- vi. garage doors, service doors, and windows are not considered to be vent openings and may not be included in the total net area of vent opening calculation.
- vii. vegetation or other obstruction should not be placed in front of vent openings.

Crawlspace and basements need to be designed and constructed to equalize hydrostatic and hydrodynamic flood forces on exterior and interior walls (refer to FEMA Technical Bulletin 11-01 standards).

Crawlspace may be used for the storage of residential-related items, and access to the building, only.

Garages may be used for the parking of vehicles, storage of garage-related items, and access to the residential building, only.

All new and “50% Substantially Improved / Repair” structures must be adequately anchored to the foundation to stabilize the structure against flood forces and to prevent floatation, collapse, or lateral movement (refer to the FEMA – 85 publication). This is required to be certified by the project’s California-registered Civil Engineer or Architect.

Exterior stairs must be constructed of flood resistant materials below the Base Flood Elevation plus one-foot freeboard. Stairs need to be adequately anchored to prevent potential lateral movement, floatation, and collapse as a result of hydrodynamic and hydrostatic loads. This is required to be certified by the project’s California-registered Civil Engineer or Architect.

New and replacement water supply systems need to be designed to minimize or eliminate infiltration of floodwaters into the system. This is required to be certified by the project’s California-registered Civil Engineer.

New and replacement sanitary sewage systems need to be designed to minimize or eliminate infiltration of floodwaters into the system, and minimize or eliminate discharge of the sanitary sewage system into floodwaters. Where there is a high groundwater table, the system needs to be adequately anchored in order to prevent buoyancy. These items are required to be certified by the project’s California-registered Civil Engineer.

- On-site waste disposal systems need to be located so as to avoid contact with floodwaters. This is required to be certified by the project's California-registered Engineer. At a minimum, an automatic backflow valve should be installed to prevent sewage from backing up into the building during flooding.
  
- When structural/engineered fill is proposed to be used, and where flood water velocities of flood flow exceed five (5) feet per second, fill material needs to be armored to prevent the loss of the fill material.
  
- When structural/engineered fill is not used and flood water velocities are less than five (5) feet per second, structural components such as piers used to support the structure need to be designed to resist hydrostatic and hydrodynamic loads.
  
- When structural/engineered fill is not used and flood water velocities are equal to five (5) feet per second and equal to or less than ten (10) feet per second, the structural support components of the structure are required to be designed to resist hydrostatic and hydrodynamic loads.
  
- When structural / engineered fill is not used and flood water velocities exceed ten (10) feet per second, the use of structural components to support the structure is prohibited.
  
- When depths of flood waters exceed three (3) feet, structural support components for the structure need to be designed for impact loads.
  
- For projects involving renovations / remodeling and repairs to existing structures, as well as building additions, a Floodplain Permit will be required. However, if the total cost of all works to be performed (including building materials, labor, overhead, profit, and built-in appliances) equal or exceed 50% of the **current** market value of the existing building and all 'attached' components to the building such as an attached garage, deck, porch, etc., the project will be required to comply with all applicable flood protection design requirements. This process is referred by FEMA as the **"50% Substantial Improvement / Repair"** determination. In determining the project cost, do not include costs associated specifically with improvements to the land / property: for example-landscaping, grading. Also, in the market appraisal, do not include the cost of the land/property or any 'detached' structure. The project cost estimate needs to be completed (signed, dated, stamped) by a California-licensed contractor. The market appraisal needs to be prepared by a California-licensed Real Estate Appraiser (signed, dated, stamped). The appraisal must be less than six (6) months old. The appraisal must not use the "income capitalization approach" which bases value on the use of the property rather than the use of the structure.

□ **For residential structures proposed in Alluvial Fan Floodplain areas, and other 'Areas of Special Flood Hazard' designated by FEMA as 'AO Zones' and 'AH Zones', the following additional building standards are required:**

□ New construction and “50% Substantial Improvement / Repair” to existing structures shall have the lowest floor (including the basement), and the bottom of all utility equipment and servicing (electrical, heating, plumbing, ventilation, mechanical, air conditioning), elevated at or above the Highest Adjacent Grade (HAG) to the *Depth Number* specified on the FIRM plus an additional one-foot freeboard. In the absence of a specified *Depth Number* on the FIRM, the minimum elevated height of the lowest floor above the highest adjacent grade shall be two feet plus a one-foot freeboard (i.e., a minimum of three (3) feet).

This determined elevation shall remain the same for the entire proposed structure (i.e., the elevation of the top of the finished floor must be the same for the entire building; a “step-down” floor height design is not permitted).

As a design alternative, the building may be designed in ‘structurally autonomous’ sections (i.e., each having its own separate roofline, foundation wall, footings, etc.) and connected by a breezeway or other similar façade design.

Another design alternative is to elevate the entire structure on structural / engineered fill, as per specific County and FEMA design requirements. These requirements are available in Development & Inspection Services of the County Public Works Agency.

□ Where a structure is proposed to be constructed on a slope, there needs to be adequate drainage paths provided to guide floodwaters around and away from the structure. Flows may not be diverted to adjacent properties.

□ Structures need to be securely anchored to minimize the impact of floodwater velocities, and potential damage from erosion and deposition.

## **OCCUPANCY PERMIT**

**The following requirements need to be achieved before an Occupancy permit can be issued:**

- i. There shall be a minimum of three (3) site inspections during construction (1.-verification of the total net area and elevation of foundation/vent openings (2.-verification of the elevation of “top of lowest floor” (3.-verification of the elevation of installed electrical, mechanical, plumbing, heating, ventilation, and air conditioning equipment and services). Contact the County Floodplain Manager at (805) 477-1967.

- ii. One (1) FEMA Elevation Certificate - FEMA Form 81-31, (see attachment) completed by the project's California-registered Civil Engineer, Architect, or Land Surveyor. (1.-verification of the total net area and elevation of foundation/vent openings (2.-verification of the elevation of "top of lowest floor" (3.-verification of the elevation of installed electrical, mechanical, plumbing, heating, ventilation, and air conditioning equipment and services). Photographs of all building elevations are required.
- iii. A Floodproofing Certificate: FEMA 81-65, completed by your project's California-licensed Civil Engineer or Architect.
- iv. Payment of any outstanding Floodplain Permit project account balance.



**Building Standards for Non-Residential Structures  
Proposed within the 100-Year Floodplain**

**(Examples: garage, barn, shed, swimming pool/spa equipment, bridge,  
industrial building)**

**(Proposed Non-Residential Development in the Floodway is Prohibited)**

**SUBMITTAL PACKAGE**

**The following items need to be submitted to Development & Inspection Services in order to plan check your building plans for compliance with FEMA regulations and the County's Floodplain Ordinance:**

- ix. Completion of a Floodplain Permit Application (attached) and submission of a Permit processing fixed fee (check to be made payable to 'The County of Ventura').
- x. Submission of a FEMA Elevation Certificate processing fee deposit (check to be made payable to 'The County of Ventura').
- xi. One (1) complete set of building construction plans (you also need to provide three sets to the Building & Safety Department for their plan check process).
- xii. On the building construction plan set submitted, the Site Plan needs to clearly and accurately delineate the boundary(ies) of the FEMA-determined floodplain zones.
- xiii. The FEMA 100-Year floodplain Base Flood Elevation needs to be determined by your consultant using NAVD 1988 datums. The NGVD 1929 elevation needs to be converted to the NAVD 1988 elevation, by the project's California-registered Civil Engineer, Architect or Land Surveyor.
- xiv. The "top of lowest floor elevation" (which is the FEMA-determined Base Flood Elevation plus the County's one-foot freeboard requirement) needs to be clearly illustrated and called-out on all elevation drawings, applicable wall sections, and floor framing plan.
- xv. The location of all flood vents need to be clearly illustrated on all elevation drawings and the foundation plan.
- xvi. Submission of all necessary Federal and State permits (e.g., US Army Corp of Engineers, Dept. of Fish & Game), Ventura County Watershed Protection District, and County Planning Department Zoning Clearance.

**The following building standards need to be met for:**

- **all new non-residential construction.**
- **all substantial improvements / repairs / remodeling to existing non-residential structures (i.e., where the cost of all construction materials, labor, overhead and profit, and built-in appliances total 50% or greater than the current market value of the existing non-residential structure).**

**FOR NON-RESIDENTIAL STRUCTURES PROPOSED TO BE PHYSICALLY SEPARATED / DETACHED FROM A SINGLE FAMILY DWELLING**

□ The “top of lowest floor” of the structure, as defined in Title 44 CFR Part 60.3, (i.e., top of concrete slab), needs to be elevated to a minimum height of the Base Flood Elevation plus the County’s requirement of an additional one-foot freeboard. This minimum elevation may be achieved by raising the structure on structural / engineered fill (may require a Grading Permit).

□ All structural walls situated below the Base Flood Elevation plus a one-foot freeboard need to be constructed to be watertight (substantially impermeable to the passage of water), and have the capability of resisting hydrodynamic and hydrostatic loads. Further, all structural components and building materials that are situated at or below the Base Flood Elevation plus one-foot must be resistant to flood water damage, as per FEMA Technical Bulletins 2-93, 7-93, and FEMA 348 standards. “Flood Resistant Material” means products that are capable of withstanding direct and prolonged contact (minimum of 72 hours) with floodwaters without sustaining significant damage (damage that requires more than low-cost cosmetic repair such as painting). Your project’s California-registered Civil Engineer or Architect needs to review all your building designs, specifications, and plans and certify that the building meets all applicable FEMA specifications. The California-registered Civil Engineer or Architect also needs to submit FEMA’s Floodproofing Certificate: FEMA 81-65, attached) at the completion of construction and prior to the issuance of an Occupancy Permit. Technical guidance is available in FEMA Technical Bulletins 2-93, 3-93, 7-93, and FEMA 348.

□ The **bottom** of all electrical (including receptacles, switches, panels, fans, boxes, wiring), mechanical (including washers and dryers), heating (including furnaces, heat pumps, propane tanks), ventilation, plumbing (including hot water tanks, water softeners), air conditioning units, and other such equipment and servicing (located both inside and outside the structure) must be installed to a minimum height of the Base Flood Elevation plus one-foot freeboard.

**FOR NON-RESIDENTIAL STRUCTURES PROPOSED TO BE *PHYSICALLY ATTACHED TO A SINGLE FAMILY DWELLING***

The “top of lowest floor” (e.g., top of concrete slab) may be situated below the Base Flood Elevation plus the one-foot freeboard, however, all of the following design criteria must be met:

□ Flood vent openings need to be installed in foundation walls in order to satisfactorily address hydrodynamic and hydrostatic loads of floodwaters on both the inside and outside the structure. Flood vent openings shall meet the all of the following minimum standards, as set out in FEMA Technical Bulletin 1-93.

- i. a minimum of two flood vent openings are required, each being on opposite walls from each other. Walls should, if possible, be perpendicular to the direction of floodwater flow.
- ii. the total net area of flood vent openings shall be one square inch for every square foot of building enclosure area (example: if the building enclosure area / footprint is 1,750 square feet, the minimum total net flood vent opening requirement shall be 1,750 square inches). (Net: excluding obstructions to the flow of water such as vent framing, grills, etc.).
- iii. the **bottom** of all vent openings shall not be higher than one foot above the adjacent grade.
- iv. vent openings must be designed and perform in a manner that allows free movement of floodwaters both entering and exiting the structure. Vents must not operate by mechanical means or by any means of human intervention.
- v. vent openings must not operate to lock or latch closed.
- vi. garage doors, service doors, and windows are not considered to be vent openings and may not be included in the total net area of vent opening calculation.
- vii. vegetation or other obstruction should not be placed in front of vent openings.

□ All structural walls situated below the Base Flood Elevation plus a one-foot freeboard need to be constructed to be watertight (substantially impermeable to the passage of water), and have the capability of resisting hydrodynamic and hydrostatic loads. Further, all structural components and building materials that are situated at or below the Base Flood Elevation plus one-foot freeboard must be resistant to flood water damage, as per FEMA Technical Bulletins 2-93, 7-93, and FEMA 348 standards. “Flood Resistant Material” means products that are capable of withstanding direct and prolonged contact (minimum of 72 hours) with floodwaters without sustaining significant damage (i.e., damage that requires more than low-cost cosmetic repair such as painting). Your project’s California-registered Civil Engineer or Architect needs to review all your building designs, specifications, and plans and certify that the building meets all applicable FEMA specifications. The California-registered Engineer or Architect also

needs to submit FEMA's Floodproofing Certificate: FEMA 81-65, attached) at the completion of construction and prior to the issuance of an Occupancy Permit. Technical guidance is available in FEMA Technical Bulletins 2-93, 3-93, 7-93, and FEMA 348.

□ The **bottom** of all electrical (including receptacles, switches, panels, fans, boxes, wiring), mechanical (including washers and dryers), heating (including furnaces, heat pumps), ventilation, plumbing (including hot water tanks), air conditioning units, and other such equipment and servicing (located both inside and outside the structure) must be installed to a minimum height of the Base Flood Elevation plus one-foot freeboard.

**FOR NON-RESIDENTIAL STRUCTURES PROPOSED TO BE EITHER ATTACHED OR DETACHED FROM A SINGLE FAMILY DWELLING, the following additional design requirements need to be achieved:**

□ Garages may be used for the parking of vehicles, storage of garage-related items, and access to the residential building, only.

□ All new and "50% Substantially Improvement / Repair" structures must be adequately anchored to the foundation to stabilize the structure against flood forces and to prevent floatation, collapse, or lateral movement (refer to the FEMA – 85 publication). This is required to be certified by the project's California-registered Civil Engineer.

□ Exterior stairs must be constructed of flood resistant materials below the Base Flood Elevation plus one-foot freeboard. Stairs need to be adequately anchored to prevent potential lateral movement, floatation, and collapse as a result of hydrodynamic and hydrostatic loads. This is required to be certified by the project's California-registered Civil Engineer or Architect.

□ New and replacement water supply systems need to be designed to minimize or eliminate infiltration of floodwaters into the system. This is required to be certified by the project's California-registered Civil Engineer.

□ New and replacement sanitary sewage systems need to be designed to minimize or eliminate infiltration of floodwaters into the system, and minimize or eliminate discharge of the sanitary sewage system into floodwaters. Where there is a high groundwater table, the system needs to be adequately anchored in order to prevent buoyancy. These items are required to be certified by the project's California-registered Civil Engineer.

□ On-site waste disposal systems need to be located so as to avoid contact with floodwaters. This is required to be certified by the project's California-registered Engineer. At a minimum, an automatic backflow valve should be installed to prevent sewage from backing up into the building during flooding.

□ Where floodwater velocities are less than five (5) feet per second, structural components of the structure need to be designed to resist hydrostatic loads.

□ Where floodwater velocities are equal to five (5) feet per second and equal to or less than ten (10) feet per second, the structural support components of the structure are required to be designed to resist hydrostatic and hydrodynamic loads.

□ Where floodwater velocities exceed ten (10) feet per second, structures with floors below water surface elevations are prohibited and the use of structural components to support the structure are prohibited.

□ When depths of floodwater exceed three (3) feet, structural support components for the structure need to be designed for impact loads.

□ **For non-residential structures proposed in Alluvial Fan Floodplain areas, and other 'Areas of Special Flood Hazard' designated by FEMA as 'AO Zones' and 'AH Zones'**, the following additional building standards are required:

□ New construction and "50% Substantial Improvement / Repair" to existing structures shall have the lowest floor (including the basement), and the bottom of all utility equipment and servicing (electrical, heating, plumbing, ventilation, mechanical, air conditioning), elevated at or above the Highest Adjacent Grade (HAG) to the *Depth Number* specified on the FIRM plus an additional one-foot freeboard. In the absence of a specified *Depth Number* on the FIRM, the minimum elevated height of the lowest floor above the highest adjacent grade shall be two feet plus a one-foot freeboard (i.e., a minimum of three (3) feet).

This determined elevation shall remain the same for the entire proposed structure (i.e., the elevation of the top of the finished floor must be the same for the entire building; a "step-down" floor height design is not permitted).

As a design alternative, the building may be designed in 'structurally autonomous' sections (i.e., each having its own separate roofline, foundation wall, footings, etc.) and connected by a breezeway or other similar façade design.

Another design alternative is to elevate the entire structure on structural / engineered fill, as per specific County and FEMA design requirements. These requirements are available in Development & Inspection Services of the County Public Works Agency.

- Where a structure is proposed to be constructed on a slope, there needs to be adequate drainage paths provided to guide floodwaters around and away from the structure. Flows may not be diverted to adjacent properties.
- Structures need to be securely anchored to minimize the impact of floodwater velocities, and potential damage from erosion and deposition.
- For projects involving renovations / remodeling and repairs to existing structures, as well as building additions, a Floodplain Permit will be required. However, if the total cost of all works to be performed (including building materials, labor, overhead, profit, and built-in appliances) equal or exceed 50% of the **current** market value of the existing building and all ‘attached’ components to the building such as an attached garage, deck, porch, etc., the project will be required to comply with all applicable flood protection design requirements. This process is referred to by FEMA as the “**50% Substantial Improvement / Repair**” determination. In determining the project cost, do not include costs associated specifically with improvements to the land/property: for example-landscaping, grading. Also, in the market appraisal, do not include the cost of the land/property or any ‘detached’ structure. The project cost estimate needs to be completed (signed, dated, stamped) by a California-licensed contractor. The market appraisal needs to be prepared by a California-licensed Real Estate Appraiser (signed, dated, stamped). The appraisal must be less than six (6) months old. The appraisal must not use the “income capitalization approach” which bases value on the use of the property rather than the use of the structure.

### **OCCUPANCY PERMIT**

**The following requirements need to be achieved before an Occupancy permit can be issued:**

- i. There shall be a minimum of three (3) site inspections during construction (1.- verification of the total net area and elevation of foundation/vent openings (2.- verification of the elevation of “top of lowest floor” (3.-verification of the elevation of installed electrical, mechanical, plumbing, heating, ventilation, and air conditioning equipment and services). Contact the County Floodplain Manager at (805) 477-1967.
- ii. One (1) FEMA Elevation Certificate - FEMA Form 81-31, (see attachment) completed by the project’s California-registered Engineer, Architect, or Land Surveyor. (1.- verification of the total net area and elevation of foundation / vent openings (2.-verification of the elevation of “top of lowest floor” (3.-verification of the elevation of installed electrical, mechanical, plumbing, heating, ventilation, and air conditioning equipment and services). Photographs of all building elevations are required.
- iii. A Floodproofing Certificate: FEMA 81-65 completed by your project’s California-registered Civil Engineer or Architect.
- iv. Payment of any outstanding Floodplain Permit project account balance.

## **Building Standards for Structures Proposed within Coastal ‘V’ Zones**

*‘V’ zone properties are properties located along the coastline that have been designated by FEMA as being subject to high velocity waters, including coastal and tidal inundation or tsunamis. They are located in ‘Coastal High Hazard Areas’. These areas tend to flood from storm surge and wave impacts during coastal storms and hurricanes, as well as undercutting of building foundations from erosion and scour.*

### **SUBMITTAL PACKAGE**

**If a new or a “50% Substantially Improvement / Repair” structure is proposed to be located in a “V” Zone, the following items need to be submitted to Development & Inspection Services in order to plan check your building plans for compliance with FEMA regulations and the County’s Floodplain Ordinance:**

- i. Completion of a Floodplain Permit Application (attached) and submission of a Permit processing fixed fee (check to be made payable to ‘The County of Ventura’).
- ii. Submission of a FEMA Elevation Certificate processing fee deposit (check to be made payable to ‘The County of Ventura’).
- iii. One (1) complete set of building construction plans (you also need to provide three sets to the Building & Safety Department for their plan check process).
- iv. On the building construction plan set submitted, the Site Plan needs to clearly and accurately delineate the boundary(ies) of the FEMA-determined floodplain zones.
- v. The FEMA 100-Year floodplain Base Flood Elevation needs to be determined by your consultant using the NAVD 1988 datums. The NGVD 1929 elevation needs to be converted to the NAVD 1988 elevation, by the project’s California-registered Civil Engineer, Architect or Land Surveyor.
- vi. The **bottom** of the lowest horizontal support member of the building needs to be elevated a minimum of the ‘V Zone Depth Number’ (identified on the FIRM) plus the County’s one-foot freeboard requirement. This Base Flood elevation needs to be clearly illustrated and called-out on all elevation drawings, applicable wall sections, and floor framing plan.
- vii. Submission of all necessary Federal and State permits (e.g., US Army Corp of Engineers, Dept. of Fish & Game), Ventura County Watershed Protection District, and County Planning Department Zoning Clearance.

**The following building standards need to be met for:**

- **all new residential construction.**
- **all substantial improvements / repairs / remodeling to existing residential structures (i.e., where the cost of all construction materials, labor, overhead and profit, built-in appliances, total 50% or greater than the current market value of the existing residential structure).**

The proposed structure shall meet all building standards for Residential Development in FEMA-designated 'A' Zones (refer to pages 2-6 in this handout package). Coastal development standards are presented in the FEMA-55 publication ([www.fema.gov](http://www.fema.gov) [*use the drop-down menu "How Do I Find" and click on "Publications". Scroll down the list to "Technical Bulletins"*]).

The structure must be located landward of the mean high tide line, it may not be built over water. The structure may not remove sand dunes.

The proposed structure must be elevated on support pilings, posts, piers, or columns only.

The placement of fill to elevate existing grades and the construction of solid walls, crawlspaces or any other form of obstruction is not permitted. However, the use of flood resistant breakaway walls (e.g., latticework, insect screening) may be permitted provided that these walls are not designed or used as support foundation walls. Breakaway walls are intended to collapse under wave action without jeopardizing the structural support of the building. If breakaway walls are proposed, the created enclosed area may not exceed three hundred (300) square feet. Also, the enclosed area created may be used for parking of vehicles, building access, and storage only.

For projects involving renovations/remodeling and repairs to existing structures, as well as building additions, a Floodplain Permit will be required. However, if the total cost of all works to be performed (including building materials, labor, overhead, profit, and built-in appliances) equal or exceed 50% of the **current** market value of the existing building and all 'attached' components to the building such as an attached garage, deck, porch, etc., the project will be required to comply with all applicable flood protection design requirements. This process is referred by FEMA as the **"50% Substantial Improvement / Repair"** determination. In determining the project cost, do not include costs associated specifically with improvements to the land/property: for example-landscaping, grading. Also, in the market appraisal, do not include the cost of the land/property or any 'detached' structure. The project cost estimate needs to be completed (signed, dated, stamped) by a California-licensed contractor. The market appraisal needs to be prepared by a California-licensed Real Estate Appraiser (signed, dated, stamped). The appraisal must be less than six (6) months old. The appraisal must not use the "income capitalization approach" which bases value on the use of the property rather than the use of the structure.



□ All new and “50% Substantially Improvement / Repair” structures must be adequately anchored to stabilize the structure against flood forces and to prevent floatation, collapse, or lateral movement of the structure (refer to the FEMA – 85 publication). This is required to be certified by the project’s California-registered Civil Engineer.

### **OCCUPANCY PERMIT**

**The following requirements need to be achieved before an Occupancy permit can be issued:**

- i. There shall be a minimum of three (3) site inspections during construction (1.- verification of the total net area and elevation of foundation/vent openings (2.- verification of the elevation of “top of lowest floor” (3.-verification of the elevation of installed electrical, mechanical, plumbing, heating, ventilation, and air conditioning equipment and services). Contact the County Floodplain Manager at (805) 477-1967.
- ii. One (1) FEMA Elevation Certificate - FEMA Form 81-31, (see attachment) completed by the project’s California-registered Engineer, Architect, or Land Surveyor. (1.- verification of the total net area and elevation of foundation / vent openings (2.-verification of the elevation of “top of lowest floor” (3.-verification of the elevation of installed electrical, mechanical, plumbing, heating, ventilation, and air conditioning equipment and services). Photographs of all building elevations are required.
- iii. A Floodproofing Certificate: FEMA 81-65, completed by your project’s California-registered Civil Engineer or Architect.
- iv. Payment of any outstanding Floodplain Permit project account balance.

## **Building Standards for Manufactured Homes** **Proposed within the 100- Year Floodplain**

*A Manufactured Home, as defined in the National Floodplain Insurance Program (NFIP), is a structure that is transportable in one or more sections, is built on a permanent chassis, and is designed for use with or without a permanent foundation when attached to the required utilities. This definition includes park trailers, travel trailers, and other similar vehicles.*

### **SUBMITTAL PACKAGE**

**If a manufactured home is proposed to be located within a 100-year floodplain, the following items need to be submitted to Development & Inspection Services in order to plan check your building plans for compliance with FEMA regulations and the County's Floodplain Ordinance:**

- i. Completion of a Floodplain Permit Application (attached) and submission of a Permit processing fixed fee (check to be made payable to 'The County of Ventura').
- ii. Submission of a FEMA Elevation Certificate processing fee deposit (check to be made payable to 'The County of Ventura').
- iii. One (1) complete set of building construction plans (you also need to provide three sets to the Building & Safety Department for their plan check process).
- iv. On the building construction plan set submitted, the Site Plan needs to clearly and accurately delineate the boundary(ies) of the FEMA-determined floodplain zones.
- v. The FEMA 100-Year floodplain Base Flood Elevation needs to be determined by your consultant using the NAVD 1988 datums. The NGVD 1929 elevation needs to be converted to the NAVD 1988 elevation, by the project's California-registered Civil Engineer, Architect or Land Surveyor.
- vi. The "top of lowest floor elevation" (which is the FEMA-determined Base Flood Elevation plus the County's one-foot freeboard requirement) needs to be clearly illustrated and called-out on all elevation drawings, applicable wall sections, and floor framing plan.
- vii. The location of all flood vents need to be clearly illustrated on all elevation drawings and the foundation plan.
- viii. Submission of all necessary Federal and State permits (e.g., US Army Corp of Engineers, Dept. of Fish & Game), Ventura County Watershed Protection District, and County Planning Department Zoning Clearance, by the Applicant).

**The following building standards need to be met for:**

- **all new residential construction.**
- **all substantial improvements / repairs / remodeling to existing residential structures (i.e., where the cost of all construction materials, labor, overhead and profit, built-in appliances, total 50% or greater than the current market value of the existing residential structure).**

□ The proposed manufactured home development must meet the same flood protection requirements as wood frame / conventional housing as outlined on pages 2 through 7 of this information package, including “top of lowest floor elevation”, flood vent openings, location and elevation of utilities, flood resistant materials, anchoring, and FEMA Elevation Certification documentation.

□ Notwithstanding anything to the above, new manufactured homes or existing homes that are “50% Substantially Improved / Repaired” that are already located or are proposed to be located in an existing manufactured home park or subdivision are exempt from the requirements pertaining to floodwater velocities and associated hydrostatic and hydrodynamic loads.

### **OCCUPANCY PERMIT**

**The following requirements need to be achieved before an Occupancy permit can be issued:**

- i. There shall be a minimum of three (3) site inspections during construction (1.- verification of the total net area and elevation of foundation/vent openings (2.- verification of the elevation of “top of lowest floor” (3.-verification of the elevation of installed electrical, mechanical, plumbing, heating, ventilation, and air conditioning equipment and services). Contact the County Floodplain Manager at (805) 477-1967.
- ii. One (1) FEMA Elevation Certificate - FEMA Form 81-31, (see attachment) completed by the project’s California-registered Engineer, Architect, or Land Surveyor. (1.- verification of the total net area and elevation of foundation/vent openings (2.-verification of the elevation of “top of lowest floor” (3.-verification of the elevation of installed electrical, mechanical, plumbing, heating, ventilation, and air conditioning equipment and services). Photographs of all building elevations are required.
- iii. A Floodproofing Certificate: FEMA 81-65, completed by your project Civil Engineer or Architect.
- iv. Payment of any outstanding Floodplain Permit project account balance.

## **Building Standards for Recreational Vehicles Proposed within the Floodplain**

*A Recreational Vehicle, as defined in the National Insurance Floodplain Program (NFIP), is a structure that is built on a single chassis, is 400 square feet or less in size when measured at the largest horizontal projection, is designed to be self-propelled or permanently towed by a light truck and is not for use as a permanent dwelling but as a temporary living quarters for recreational, camping, travel, or seasonal use.*

Recreational vehicles are not permitted to be permanently located in a 100-year floodplain area unless they are well protected from flooding. If a recreational vehicle is proposed to be located within a 100-year floodplain, the following shall be required of the Applicant:

### **SUBMITTAL PACKAGE**

**The following items need to be submitted to Development & Inspection Services in order to plan check your building plans for compliance with FEMA regulations and the County's Floodplain Ordinance:**

- i. Completion of a Floodplain Permit Application (attached) and submission of a Permit processing fixed fee (check to be made payable to 'The County of Ventura').
- ii. Submission of a FEMA Elevation Certificate processing fee deposit (check to be made payable to 'The County of Ventura').
- iii. One (1) complete set of building construction plans (you also need to provide three sets to submit to the Building & Safety Department for their plan check process).
- iv. On the building construction plan set submitted, the Site Plan needs to clearly and accurately delineate the boundary(ies) of the FEMA-determined floodplain zones.
- ix. The FEMA 100-Year floodplain Base Flood Elevation needs to be determined by your consultant using the NAVD 1988 datums. The NGVD 1929 elevation needs to be converted to the NAVD 1988 elevation, by the project's California-registered Civil Engineer, Architect or Land Surveyor.
- v. The "top of lowest floor elevation" (which is the FEMA-determined Base Flood Elevation plus the County's one foot freeboard requirement) needs to be clearly illustrated and called-out on all elevation drawings, applicable wall sections, and floor framing plan.
- vi. Submission of all necessary Federal and State permits (e.g., US Army Corp of Engineers, Dept. of Fish & Game), Ventura County Watershed Protection District, and County Planning Department Zoning Clearance, by the Applicant).

**The following building standards need to be met:**

- The recreational vehicle must be elevated to the FEMA-determined Base Flood Elevation plus a one-foot freeboard, as well as meet the anchoring requirements for manufactured homes (refer to FEMA-85 publication at [www.fema.gov](http://www.fema.gov)); **OR**
- Be located on the site for less than one hundred and eighty (180) consecutive days;  
**OR**
- Be fully licensed and ready for highway use, that is, the structure is on wheels or its jacking system is attached to the site only by quick disconnect type utilities, and it has no permanently attached additions.

**The following requirements need to be achieved before an Occupancy permit can be issued:**

**OCCUPANCY PERMIT**

- i. There shall be a minimum of one (1) site inspection to verify the elevation of “top of lowest floor” and the elevation of installed electrical, mechanical, plumbing, heating, ventilation, and air conditioning equipment and services. Contact the County Floodplain Manager at (805) 477-1967.
- ii. One (1) FEMA Elevation Certificate - FEMA Form 81-31, (see attachment) completed by the project’s California-registered Civil Engineer, Architect, or Land Surveyor to verify the elevation of “top of lowest floor” and the elevation of installed electrical, mechanical, plumbing, heating, ventilation, and air conditioning equipment and services). Photographs of all project elevations must accompany the Certificate.
- iii. A Floodproofing Certificate: FEMA 81-65, completed by your project’s California-registered Civil Engineer or Architect.
- iv. Payment of any outstanding Floodplain Permit project account balance.