ENGINEERING DIVISION
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FLOODPLAIN CONSTRUCTION

- **HOW TO DETERMINE WHETHER A BUILDING PROJECT IS A SUBSTANTIAL IMPROVEMENT**
- **CONSTRUCTION STANDARDS**
- **ENGINEERING SUBMITTAL REQUIREMENTS**
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8/9/2011

The following guidelines have been prepared to assist owners and developers of property located in the floodplain (Federal Emergency Management Agency Special Flood Hazard Area).

When planning construction projects for a home, commercial or industrial building in the floodplain, a determination first needs to be made as to whether the project is a substantial improvement. If the value of the project is 50% or more of the value of the existing structure, then the project is considered to be a substantial improvement under FEMA regulations.

To determine and compare values of the project and the structure, please use the worksheet attached. Use $275 per square foot as the value of the structure. For an Excel version of the worksheet, contact the Engineering Division, (650) 330-6740. When the worksheet is complete, skip to page 3, below. If the worksheet does not seem appropriate for your project, further directions follow.

VALUE OF THE STRUCTURE

Owners who are attempting to determine a structure value before submittal of their building or planning application may use $275 per square foot as a preliminary estimate, less 20% to 25% for depreciation. A copy of the home insurance certificate may also be used.

In some cases, the City may require that an appraiser, licensed in the State of California, determine the value of the structure. The appraiser shall use cost analysis (replacement in kind, in new condition), *not* the comparable sales method. The appraiser shall then apply a depreciation factor to account for the age of the

structure and its loss of value due to physical deterioration and functional obsolescence. The depreciation factor used by the appraiser should conform to recognized appraisal industry standards.

Each structure should be appraised separately and compared to the cost of the project proposed for that structure. The City or its consultant will review the appraisal for reasonableness and whether the square foot value is consistent with recent project costs within the City.

The value of site improvements should include only items directly associated with the structure itself.

VALUE OF THE PROJECT

In the case of small projects (under $75,000), the City will accept the project valuation submitted on the building permit application, or $275 per square foot, whichever is greater. For projects larger than $75,000, the applicant should use the worksheet on page 6 to calculate the value of the project.

The following items may be excluded in determining the value of the project:

- Plans, specifications, survey costs and permit fees;
- Debris removal, including dumpster rental, transport fees to landfill and site cleanup;
- Items not considered real property such as appliances and furniture not built-in, (e.g., stoves, throw rugs);
- Outside projects including landscaping, sidewalks, fences, yard lights, swimming pools, screened pool enclosures, sheds, gazebos, detached structures (including garages) and irrigation systems.
- Improvements that were required to correct unsafe conditions may be exluded from the project cost. However, to qualify, the owner must submit a copy of the notice received from the County Health Department, Fire Department or City Building Department that required the improvement.

Even if the owner plans to do the work, or if volunteer labor will be used, prevailing wages for the particular type of construction proposed is to be used in calculating the project value. For donated or discounted materials, use the value, as if purchased today, in a normal market transaction.

The value of projects completed within the previous 12-month period before submittal of a building permit application shall be included in the cost of the current project. Project phasing shall not be used as a means to avoid compliance with FEMA regulations.

The City may require a certification and detailed estimate from a California licensed general contractor. The contractor must state, under penalty of perjury, that the project cost provided is correct and accurate. Be sure that the project value

includes all items shown in the plans. For a template contractor's certification, please contact the Engineering Division at (650) 330-6740. The certification is subject to review and approval by the City or its consultant.

DETERMINE WHETHER THE PROJECT IS A SUBSTANTIAL IMPROVEMENT

If the value of the project is 50% or more of the value of the structure, then the project is a Substantial Improvement according to FEMA.

As the ratio of project to structure value approaches 50%, greater levels of accuracy in establishing these values are required. If the project cost is more than 40% of the value of the structure, the City may require the home insurance certificate, appraisal and/or the contractor's certification described above.

The owner or developer may present the City with a preliminary calculation as to whether the project is substantial before applying for the building permit. However, the City cannot make a final decision on this issue until after review of the building permit application, plans, appraisal and cost estimate.

STANDARDS OF CONSTRUCTION

If the project is a substantial improvement then it will need to bring the whole structure into compliance with current FEMA standards and the City's Flood Damage Prevention Ordinance (Menlo Park Code 12.42.51 and 12.42.52.
The ordinance can be found at: http://www.codepublishing.com/CA/menlopark/
Click on Title 12, Buildings and Construction,
then Chapter 12.42 Flood Damage Prevention,
then click on 12.42.51 Standards of Construction.

ENGINEERING SUBMITTAL REQUIREMENTS

This list of submittal requirements will assist engineers and architects in developing plans for economical and prompt Engineering Division review and approval.

1. Completed building permit application

2. Completed *FEMA Substantial Improvement Determination Worksheet* as shown on page 6.

3. If *Worksheet* shows project cost at more than 40% of structure value,
    a. Certification form from a California licensed general contractor
    b. Detailed cost estimate from contractor
    c. Appraisal of the structure from a licensed appraiser based on cost, not comparable sales.

4. If *Worksheet* shows project cost at more than 50% of structure value

a. An Elevation Certificate for the existing structure, stamped and signed by a California licensed surveyor.
b. A Certified statement from the licensed architect or engineer stating that the project complies with the City's Flood Damage Prevention Ordinance and FEMA regulations. The statement may be on the plans or in a separate letter to the City Engineer and should say:
"I certify that:
- I am the engineer (or architect) of record.
- I have read the entire City of Menlo Park Flood Damage Prevention Code (Chapter 12, Section 42), and specifically 12.42.51 Standards of Construction.
- These plans [or "the submitted plans dated _____, revision #___"] comply with all the requirements in the above referenced Code."

Signature and stamp

5. Plan set
   a. Be sure that foundation anchorage is designed to adequately resist flotation, collapse, or lateral movement resulting from hydrostatic, hydrodynamic and buoyancy forces as required by Menlo Park code 12.42.51 (3) (C) iii.
   b. Materials below BFE shall be resistant to flood damage (i.e., concrete, Redwood or pressure treated Douglas Fir).
   c. No utilities (e.g., gas meters, air conditioning units, electrical conduit) are permitted below BFE. Water and sewer pipes, sealed to prevent flood water intrusion, are allowed.
   d. On grading and drainage plan, show how flood waters will be directed around the structure.
   e. On Title Page show Flood Zone designation and Base Flood Elevation (BFE).
   f. Show the following elevations on the plans:
      Floor of crawlspace
      Lowest horizontal member of floor (top of crawlspace) (must be at or above BFE)
      Finished floor
      Top of slab, including garage slab
      Bottom of flood vents
      Lowest adjacent grade (within 2 feet of building foundation)
      Highest adjacent grade (")
   g. Show flood vent calculations. Show <u>outside</u> foundation dimensions for enclosed area (crawl space) in square feet. Show flood vent area in square inches. Show size, number and locations of flood vents.
   h. Include this message in red ink on title sheet and structural foundation sheet(s):
      For crawlspace construction:
      - "BUILDING UNDER CONSTRUCTION" FEMA ELEVATION CERTIFICATE, (INCLUDING THE ELEVATION OF THE LOWEST HORIZONTAL MEMBER OF THE FLOOR) SHALL BE

SUBMITTED AND VERIFIED BY THE BUILDING INSPECTOR PRIOR TO FRAMING INSPECTION.

- A "FINISHED CONSTRUCTION" ELEVATION CERTIFICATE WILL BE REQUIRED AT THE END OF THE PROJECT.

For slab construction:

- "BUILDING UNDER CONSTRUCTION" FEMA ELEVATION CERTIFICATE SHALL BE SUBMITTED AND VERIFIED BY THE BUILDING INSPECTOR AFTER SLAB PLACEMENT AND PRIOR TO FRAMING INSPECTION.
- A "FINISHED CONSTRUCTION" ELEVATION CERTIFICATE WILL BE REQUIRED AT THE END OF THE PROJECT.

RATIONALE

Even if the project is not deemed substantial, the City encourages owners to comply with as many of the provisions of the ordinance as possible. Buildings in compliance with FEMA standards, along with their contents, may suffer significantly less damage during flooding. The height, venting, anchorage and materials requirements all serve to improve the likelihood that the structure will resist flotation, collapse and lateral movement during a flood event. In a crisis, emergency response and life-saving personnel can do their work faster and more safely when the surrounding structures are in compliance with FEMA regulations.

Lenders of federally funded mortgages require additional insurance for properties within a Special Flood Hazard Area. When planning a project, owners should keep in mind that flood insurance for properties in compliance with, or exceeding, current FEMA regulations, is far less expensive. Over the course of a 30-year mortgage savings of $30,000 to $50,000 may be realized for a homeowner whose house meets or exceeds FEMA regulations for floodplain construction. If the house is raised as part of the project, the mortgage holder might cancel or significantly reduce the level of flood insurance required.

The National Flood Insurance Program (NFIP) raised rates in October, 2009 and may do so again if another event like Katrina occurs. The NFIP paid out more in claims for Katrina and Rita than the total paid out for all other storms since the NFIP was created in 1968.

FEMA SUBSTANTIAL IMPROVEMENT DETERMINATION WORKSHEET

for an electronic version please contact Virginia Parks at (650) 330-6752

Project Address: _____

Building Permit Number: _____

Flood Zone Designation: _____ BFE: _____

Value of Existing Structure (Replacement cost new, less depreciation)	**Value New**	**Value Depreciated**
Existing Structure-Pre FIRM (built before February 4, 1981)	$0.00	
Depreciated value of Pre FIRM structure		$0.00
Existing structure- Post FIRM (built after February 4, 1981)	$0.00	
Depreciated value of Post FIRM structure		$0.00
A. Total Value of Existing Structure (per attached appraisal dated _____)	$0.00	$0.00

Depreciation Deduction Used (in percent) _____

Year Structure Was Built _____

Area of Structure (in square feet [SF]) 1100 (edit if necessary)

Value per square foot of Structure (in dollars)[1] $ -

Value of Proposed Improvements

	Cost per SF	**Area (SF)**	**Value**
Proposed Addition[1]	$0	0	$0.00
Proposed Attached Garage Addition (33.3% of [1])	$0	0	$0.00
Bathroom Remodel (65% of [1])	$0	0	$0.00
Kitchen Remodel (65% of [1])	$0	0	$0.00
Common Living Space Remodel (50% of [1])	$0	0	$0.00
Bedroom Remodel (50% of [1])	$0	0	$0.00
Attached Garage Remodel (17.5% of [1])	$0	0	$0.00
New roof structure (25% of [1])	$0	0	$0.00
Windows, Doors, New Siding not included above (17.5% of [1])	$0	0	$0.00
B. Total Value of Proposed Improvements:			$0.00

Determination as to whether the Improvement is Substantial

B/A (If > 50%, then Proposed Improvement is a Substantial Improvement under FEMA regulations.)	#DIV/0!

City Official: **Date:**