



## THE CITY OF KEY WEST

Post Office Box 1409 Key West, FL 33041-1409 (305) 809-3700

# Executive Summary

### EXECUTIVE SUMMARY

**TO:** Jim Scholl, City Manager  
**THROUGH:** Sarah Spurlock, Asst. City Manager  
**FROM:** Scott Fraser, FEMA/CRS Coordinator  
**DATE:** March 17, 2016  
**SUBJECT:** Floodplain Ordinance Revisions – Public Restrooms

**ACTION ITEM:** Amended the existing floodplain ordinance [Sec. 34-122] to define “Public Restrooms” and establish enhanced construction standards allowing for at-grade construction below flood levels, along with other minor housekeeping revisions.

**BACKGROUND:** Existing floodplain ordinances and guidance from the National Flood Insurance Program (NFIP) or Federal Emergency Management Agency (FEMA) and the current Florida Building Code lack definitions that recognize public restrooms as the unique, utilitarian limited-use facilities they are.

This void has created a dilemma for coastal communities across the nation needing to substantially repair existing public restrooms or build new ones within flood zones, especially when needed to serve public beaches.

Lacking specific recognition of such structures, the construction of public restrooms defaults to floodplain construction standards more suitable for fully functional inhabited buildings. The consequence of which has resulted in elevated restrooms accessed by a lattice of ADA ramps that serves no one well, least of all the handicapped; the emphasis being focused on preserving the building from infrequent potential flood damage as opposed to functionally accommodating everyday public usage.



Such is the dilemma facing the City which needs new public restrooms on Smathers Beach.

Some communities have opted for bare maintenance of older deteriorating at-grade grandfathered restrooms, being careful to keep costs from reaching the 50% threshold that would require the structure be elevated. Since the ‘market value’ of such shore-side restrooms is usually minimal, so too is the 50% threshold; vastly limiting the level of permissible repairs.

Floodplain professionals studying this problem, advise one practical solution is for local communities to create a definition within their floodplain ordinance for “public restrooms,” and specify enhanced construction standards allowing such structures to be built below flood levels, with buildings designed to withstand high-velocity storm impacts that anticipate full-immersion interior flooding with minimal damage resulting; more commonly referred to as “wet-floodproofing.”

**PURPOSE AND JUSTIFICATION:** While there is a cost savings to constructing storm-resistant public restrooms at-grade, the greatest benefit comes with enhanced every-day accessibility to the general public – especially the disabled; more-so given that elevators in such salt-water environments are usually deemed unsustainable.

Since “public restrooms” aren’t specifically defined within floodplain definitions, and shouldn’t be considered commercial structures under the definition for non-residential buildings, it’s appropriate to create a separate and distinct category that’s narrowly tailored to such utilitarian structures. Essential to not compromising this definition, such buildings must: 1. Not be attached to any other structure, and; 2. Serve no other purpose beyond that which is specifically and narrowly defined. For example, use of any portion of the facility for concession purposes would nullify the entire building’s exception.

Floodproofing of buildings within “V” type flood zones – most beaches – isn’t permitted. Thus, under current provisions, elevation would be required. In the instance of Smathers beach, new public restrooms would need to be elevated about ten feet above the beach. This would be the minimal height for flood protection, with significant damage still likely to occur during a Class 4 or greater hurricane impact.

If approved, new at-grade public restrooms would be designed to withstand the full brunt of major hurricanes, whether the damaging forces are wind, flooding or a combination of the two.

Toward this end, the definitions section would be revised to include:

**Floodproofing.** Any combination of structural and non-structural additions, changes, or adjustments to structures which reduce or eliminate flood damage to real estate or improved real property, water and sanitary facilities, structures and their contents, outside of type “V” flood zones.

**Floodproofing, Dry.** Floodproofing method used to render a structure envelope substantially impermeable to the entrance of floodwater.

**Floodproofing, Wet.** The permanent or contingent measures applied to a structure and/or its contents that prevent or provide resistance to damage from flooding by allowing flood waters to enter the structure. Flood Damage Resistant Materials. Any construction material capable of withstanding direct and prolonged contact with floodwaters, without sustaining any damage that requires more than cosmetic repair.

**Public Restrooms in SFHAs.** —“Public Restroom” in a special flood hazard area is a structure designed and constructed to meet the sanitary needs of the public when visiting coastal and non-coastal properties. Such structures may include toilet rooms, changing rooms, shower stalls, required plumbing including backflow preventers, a minimum service drop for electrical equipment for lighting and receptacles, grinder pumps. Public restrooms shall provide the above elements only, and may also be called “comfort stations”, “bath houses” or “bathrooms”. Public restrooms shall be designed and constructed to withstand hydrodynamic, hydrostatic and wave load impacts, and extended periods of flood inundation. Such structures shall meet or exceed the NFIP, IBC, FBC and the ASCE/SEI24-05 standards for construction in A zones and V zones when constructed either above or below BFE.

Special Flood Hazard Area (SFHA). Land in the floodplain subject to a 1% or greater chance of flooding in any given year; area delineated on the Flood Insurance Rate Map as Zone A, AE, A1-30, A99, AR, AO, AH, V, VO, VE, or V1-30.

Sec. 34-133. – “Flood-resistant development; buildings and structures” would be amended to include the following section:

3) Public Restrooms.

- a) Not structurally connected to another structure.
- b) Are permitted below the elevations specified in ASCE-24, Table 4-1, if constructed in accordance with the provision of this Public Restrooms section.
- c) Piles, pile caps, footings, mat or raft foundations, grade beams, columns and shear walls designed and constructed in accordance with ASCE/SEI 24-05, Section 4.5 shall not be required to meet the elevation requirements of ASCE-24, Table 4-1.
- d) Public restroom foundations must be designed and constructed in accordance with ASCE/SEI 24-05, Section 4.5, to minimize forces acting on that system.
- e) All new construction and substantial improvements shall be reasonably safe from flood damage:
  - i) be designed (or modified) and adequately anchored to prevent flotation, collapse, or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy;
  - ii) be constructed with materials resistant to flood damage;
  - iii) be constructed by methods and practices that minimize flood damages; and designed to account for the following:
    - (1) Waves breaking against the side or underside of the structure;
    - (2) Drag, inertia, and other wave-induced forces acting on structural members supporting elevated structures;
    - (3) Uplift forces from breaking waves striking the undersides of structures;
    - (4) Wave run-up forces including those deflected by the structure; and

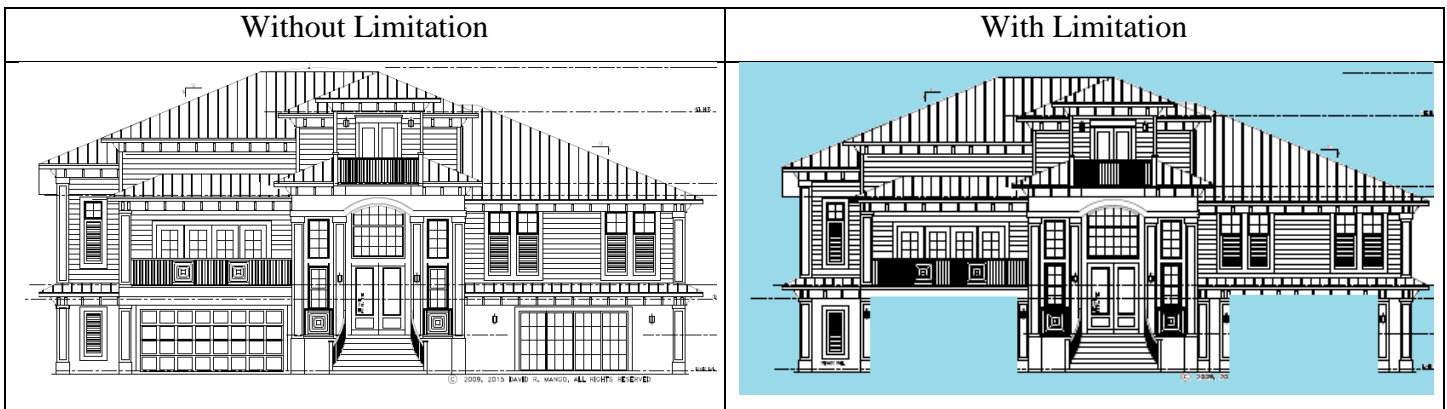
- (5) Erosion and scour.
- (6) The structure must be protected to the maximum extent possible using an appropriate alternative flood protection technique, such as wet floodproofing provided that such structures represent a minimal investment and are designed to have a low damage potential with respect to the structure and contents.
- (7) A registered professional engineer or architect shall develop or review the structural design, specifications and plans for the construction, and shall certify the design and methods of construction to be used.
- iv) Be constructed with electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding.
- f) Materials used in new construction in flood hazard areas shall have sufficient strength, rigidity, and durability to adequately resist all flood-related and other loads during installation.
- g) Plumbing systems shall be designed and constructed to withstand flood waters and to prevent contamination of surface waters in accordance with the provisions of ASCE/SEI 24-05, Section 7.3.

The City's Director of Engineering has reviewed and approved this new language.

#### **Other Housekeeping Revisions:**

- Definition of "structure," for floodplain management purposes would include: "A gas or liquid storage tank." [134-132 Definitions]
  - Clarifies that such tanks in flood zones are required to be secured from flotation.
- Definition for "Substantial damage" would include... "Accumulated deterioration or decay also contributes toward substantial damage." [134-132 Definitions]
  - Clarifies that exemptions for health, sanitation and safety can't be exploited to allow dilapidated buildings to be rebuilt below flood because the entire structure constitutes a safety hazard.
- Definition for "Substantial improvement" would include... "The five-year period is extended if the improvements are not completed within this time, until all the improvements pass all final inspections." [134-132 Definitions]
  - Clarifies that construction projects taking longer than five years to complete do not have the value of improvements reset to zero simply because the work took more than five years to complete.
- When determining the value of existing structures, private appraisals submitted may not be more than one year old [34-123,4(a)].
  - Closes a loophole wherein property appraisals of any age could be submitted.
- Requiring photographs accompany Elevation Certificates [34-123,8(d)].
  - Closes a loophole regarding FEMA Elevation Certificates that photographs are only required when certificates are to be used for insurance purposes. Certificates obtained for regulatory purposes should serve property owners with the dual use of obtaining flood insurance; requiring photographs preserves this dual use, eliminating the need for yet another Elevation Certificate for insurance purposes after construction has been approved.

- Adopts “Appendix G” of the Florida Building Code Fifth Edition, entitled “Flood-Resistant Construction,” an update to the state building code that confers certain duties previously limited to the local Floodplain Administrator to the Chief Building Official as well [Sec. 34-126(b)]. (See Attachment: “Appendix G”) [134-126(2)b Permits]
- Requiring appliances servicing buildings to be installed above the flood level. [Sec. 34-133]
  - Prevents flood damage to new or substantially repaired air-conditioning units by requiring such units be installed above the flood level. Presently, such elevation is only required with new construction and Substantially Renovated buildings.
- Requiring elevators within regulated flood zones to have a default cab return to any height above the design flood elevation [34-139,2].
  - Prevents flood damage to elevator cabs left below flood levels as people evacuate buildings.
- Limiting the size of ground-floor enclosures to a maximum of 299sf when planned in conjunction with the Building Height Exception [Sec. 34-126,3(h)].
  - Clarifies that buildings elevated using the Building Height Exception can’t also enclose the entire ground floor to create a three-story building where only two-story buildings were intended.



**Options/Advantages/Disadvantages:**

**Option 1:** Approve the recommended changes to the flood damage protection ordinance.

**Advantages:**

- Clarifies and defines the limited utilitarian use of public restrooms within flood zones, allowing such structures to be built at-grade if designed to withstand tropical storm impacts and full-immersion flooding with minimal damage resulting.
- Allows for the construction of more user-friendly restrooms for the general public, especially the disabled.
- Authorizes other minor housekeeping changes.

**Disadvantages:**

- Technically isn’t yet fully sanctioned by FEMA. Resulting in some other communities and federal agencies constructing such public restrooms contrary to existing regulations, rather than redefining

public restrooms with enhanced storm-resistant construction methods. As the national debate on this topic continues, it's believed FEMA will eventually sanction such construction.

- **Financial Impact:**

- Construction cost savings of approximately \$26k per structure.

**Option 2:** Don't amend the ordinance.

**Advantages:**

- Fully consistent with current FEMA/NFIP guidelines.

**Disadvantages:**

- Under the existing ordinance, most coastal public restrooms would need to be constructed two-feet higher than the Base Flood Elevation for a given site.
- ADA access would be achieved via a series of ramps to reach the facility, as elevators in such environments wouldn't be sustainable.
- Building more susceptible to hurricane damage.

**Financial Impact:**

- More costly construction; approximately \$26,000 each.

**Recommendation: Staff recommends option 1.**