

**ATTACHMENT A – AMENDMENTS TO THE INDIAN RIVER COUNTY CODE OF ORDINANCES, TITLE IV, CHAPTER 401, BUILDING CODES, AND CHAPTER 402, COASTAL CONSTRUCTION CODE**

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**MODIFY SECTION 401.10 AS FOLLOWS:**

Section 401.10. - Administrative amendments to the Florida Building Code. Indian River County hereby adopts the following local administrative amendments to the Florida Building Code.

*Amendment to Sec. 107.3.5, Florida Building Code, Building:*

**107.3.5 Minimum plan review criteria for buildings.**

**Commercial Buildings: Building**

8. Structural requirements shall include:

Flood requirements in accordance with Section 1612, including lowest floor elevations, enclosures, declaration of land restriction (nonconversion agreement), FEMA Elevation Certificate (FEMA Form 086-0-33), FEMA Floodproofing Certificate (FEMA Form 086-0-34), operations and maintenance plan for buildings to be dry floodproofed, flood damage-resistant materials.

**Residential (one- and two-family):**

6. Structural requirements shall include:

Flood hazard areas, flood zones, design flood elevations, lowest floor elevations, enclosures, declaration of land restriction (nonconversion agreement), FEMA Elevation Certificate (FEMA Form 086-0-33), equipment, and flood damage-resistant materials.

*Amendment to Sec. 104.10.1, Florida Building Code, Building:*

*Add a new Sec. 104.10.1 as follows:*

~~*104.10.1 Modifications of the strict application of the requirements of the Florida Building Code. The Building Official shall coordinate with the Floodplain Administrator to review requests submitted to the Building Official that seek approval to modify the strict application of the flood resistant construction requirements of the Florida Building Code to determine whether such requests require the granting of a variance pursuant to Florida Building Code Section 117.*~~

*Amendment to Sec. 107.6.1. Florida Building Code, Building:*

*Add a new Sec. 107.6.1 as follows:*

~~*107.6.1 Building permits issued on the basis of an affidavit. Pursuant to the requirements of federal regulation for participation in the National Flood Insurance Program (44 C.F.R. Sections 59 and 60), the authority granted to the Building Official to issue permits, to rely on inspections, and to accept plans and construction documents on the basis of affidavits and plans submitted pursuant to Florida Building Code Section 105.14 and Section 107.6, shall not extend to the flood load and flood resistance construction requirements of the Florida Building Code.*~~

Amendment to Sec. 117, Florida Building Code, Building:

Add a new Sec. 117 as follows:

~~117 VARIANCES IN FLOOD HAZARD AREAS~~

~~117.1 Flood hazard areas. Pursuant to section 553.73(5), F.S., the variance procedures adopted in the local floodplain management ordinance shall apply to requests submitted to the Building Official for variances to the provisions of Section 1612.4 of the Florida Building Code, Building or, as applicable, the provisions of R322 of the Florida Building Code, Residential. This section shall not apply to Section 3109 of the Florida Building Code, Building.~~

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**MODIFY SECTION 401.11 AS FOLLOWS:**

Section 401.11. - Technical amendments to the Florida Building Code, Building.

Indian River County hereby adopts the following local technical amendment to the Florida Building Code, Building.

*Amendment to Sec. 202, Florida Building Code, Building:*

**SUBSTANTIAL IMPROVEMENT.** Any combination of repair, reconstruction, rehabilitation, alteration, addition or other improvement of a building or structure taking place during a ten (10) year period, the cumulative cost of which equals or exceeds 50 percent of the market value of the structure before the improvement or repair is started and determined no sooner than six (6) months before the work is started. The period of accumulation begins when the first improvement or repair of each building is permitted subsequent to November 6, 2012. If the structure has sustained substantial damage, any repairs are considered substantial improvement regardless of the actual repair work performed. The term does not, however, include either:

1. Any project for improvement of a building required to correct existing health, sanitary or safety code violations identified by the building official and that is the minimum necessary to assure safe living conditions.
2. Any alteration of a historic structure provided that the alteration will not preclude the structure's continued designation as a historic structure.

*Amendments to Sec. 1612.4, Florida Building Code, Building:*

**1612.4.1 Modification of ASCE 24. Reserved.** ~~Table 6-1 and Section 6.2.1 in ASCE 24 shall be modified as follows:~~

1. ~~The title of Table 6.1 shall be "Minimum Elevation of Floodproofing, Relative to Base Flood Elevation (BFE) or Design Flood Elevation (DFE), in Coastal A Zones and in Other Flood Hazard Areas that are not High Risk Flood Hazard Areas."~~
2. ~~Section 6.2.1 shall be modified to permit dry floodproofing in Coastal A Zones, as follows: "Dry floodproofing of nonresidential structures and~~

~~nonresidential areas of mixed-use structures shall not be allowed unless such structures are located outside of High Risk Flood Hazard areas and Coastal High Hazard Areas. Dry floodproofing shall be permitted in Coastal A Zones provided wave loads and the potential for erosion and local scour are accounted for in the design. Dry floodproofing of residential structures or residential areas of mixed-use structures shall not be permitted.”~~

**1612.4.3 Modification of ASCE 24 (Coastal A Zone).** The coastal high hazard area requirements of ASCE 24 shall apply in Coastal A Zones and stem walls shall not be permitted.

**1612.4.4 Elevation requirements.** The minimum elevation requirements shall be as specified in the Land Development Regulations, Chapter 930.

*Amendment to Sec. 322.2.1, Florida Building Code, Residential:*

Modify Sec. R322.2.1 as follows:

*~~R322.2.1 Elevation requirements.~~*

- ~~1. Buildings and structures in flood hazard areas not designated as Coastal A Zones shall have the lowest floors elevated to or above the base flood elevation plus one half (1/2) foot or the design flood elevation, whichever is higher.~~
- ~~2. Buildings and structures in flood hazard areas designated as Coastal A Zones shall have the lowest floors elevated to or above the base flood elevation plus 1 foot (305 mm), or to the design flood elevation, whichever is higher.~~
- ~~3. In areas of shallow flooding (AO Zones), buildings and structures shall have the lowest floor (including basement) elevated at least as high above the highest adjacent grade as the depth number specified in feet on the FIRM plus one half (1/2) foot, or at least 2 1/2 feet if a depth number is not specified.~~
- ~~4. Basement floors that are below grade on all sides shall be elevated to or above the base flood elevation plus one half (1/2) foot or the design flood elevation, whichever is higher.~~

~~*Exception:* Enclosed areas below the design flood elevation, including basements whose floors are not below grade on all sides, shall meet the requirements of Section R322.2.2.~~

*Amendment to Sec. 322.3.2, Florida Building Code, Residential:*

Modify Sec. R322.3.2 as follows:

*~~R322.3.2 Elevation requirements.~~*

- ~~1. All buildings and structures erected within coastal high hazard areas shall be elevated so that the lowest portion of all structural members supporting~~

~~the lowest floor, with the exception of mat or raft foundations, piling, pile caps, columns, grade beams and bracing, is:~~

~~1.1 Located at or above the base flood elevation plus one-half (1/2) foot or the design flood elevation, whichever is higher, if the lowest horizontal structural member is oriented parallel to the direction of wave approach, where parallel shall mean less than or equal to 20 degrees (0.35 rad) from the direction of approach, or~~

~~1.2 Located at the base flood elevation plus 1 foot (305 mm), or the design flood elevation, whichever is higher, if the lowest horizontal structural member is oriented perpendicular to the direction of wave approach, where perpendicular shall mean greater than 20 degrees (0.35 rad) from the direction of approach.~~

~~2. Basement floors that are below grade on all sides are prohibited.~~

~~3. The use of fill for structural support is prohibited.~~

~~4. Minor grading, and the placement of minor quantities of fill, shall be permitted for landscaping and for drainage purposes under and around buildings and for support of parking slabs, pool decks, patios and walkways.~~

~~*Exception:* Walls and partitions enclosing areas below the design flood elevation shall meet the requirements of Sections R322.3.4 and R322.3.5.~~

~~*Amendment to Sec. 1612.2, Florida Building Code, Building:*~~

~~Modify a definition as follows:~~

~~*Substantial improvement.* Any combination of repair, reconstruction, rehabilitation, addition, or other improvement of a building or structure taking place during a ten (10) year period, the cumulative cost of which equals or exceeds 50 percent of the market value of the building or structure before the improvement or repair is started and determined no sooner than six (6) months before the work is started. For each building or structure, the 10-year period begins on the date of the first improvement or repair of that building or structure subsequent to the effective date of this ordinance. If the structure has incurred "substantial damage," any repairs are considered substantial improvement regardless of the actual repair work performed. The term does not, however, include either:~~

~~1. Any project for improvement of a building required to correct existing health, sanitary, or safety code violations identified by the building official and that are the minimum necessary to assure safe living conditions.~~

~~2. Any alteration of a historic structure provided the alteration will not preclude the structure's continued designation as a historic structure.~~

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**ADD NEW SECTION 401.12 AS FOLLOWS:**

Section 401.12. - Technical amendments to the Florida Building Code, Existing Building.

Indian River County hereby adopts local technical amendments to the Florida Building Code, Existing Building.

*Amendment to Sec. 202, Florida Building Code, Existing Building:*

**SUBSTANTIAL IMPROVEMENT.** For the purposes of determining compliance with the flood provisions of this code, any combination of repair, reconstruction, rehabilitation, alteration, addition or other improvement of a building or structure taking place during a ten (10) year period, the cumulative cost of which equals or exceeds 50 percent of the market value of the structure before the improvement or repair is started and determined no sooner than six (6) months before the work is started. The period of accumulation begins when the first improvement or repair of each building is permitted subsequent to November 6, 2012. If the structure has sustained substantial damage, any repairs are considered substantial improvement regardless of the actual repair work performed. The term does not, however, include either:

1. Any project for improvement of a building required to correct existing health, sanitary or safety code violations identified by the building official and that is the minimum necessary to assure safe living conditions.
2. Any alteration of a historic structure provided that the alteration will not preclude the structure's continued designation as a historic structure.

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**ADD NEW SECTION 410.13 AS FOLLOWS:**

Section 401.13. - Technical amendments to the Florida Building Code, Residential.

Indian River County hereby adopts local technical amendments to the Florida Building Code, Residential.

*Amendment to Sec. R322.2.1, Florida Building Code, Residential:*

Modify Sec. R322.2.1 as follows:

**R322.2.1 Elevation requirements.**

1. Buildings and structures in flood hazard areas shall have lowest floors elevated in accordance with the minimum elevation requirements specified in the Land Development Regulations, Chapter 930. including flood hazard areas designated as Coastal A Zones, shall have the lowest floors elevated to or above the base flood elevation plus 1 foot (305 mm), or the design flood elevation, whichever is higher.
2. In areas of shallow flooding (AO Zones), buildings and structures shall have the lowest floor (including basement) elevated to a height above the highest adjacent grade of not less than the depth number specified in feet (mm) on the FIRM plus 1.5 feet 4-foot (305 mm), or not less than 3.5 feet 3-foot (915 mm) if a depth number is not specified unless higher elevations are specified in the Land Development Regulations, Chapter 930.

3. Basement floors that are below grade on all sides shall be elevated to or above the elevations specified in the Land Development Regulations, Chapter 930. base flood elevation plus 1 foot (305 mm), or the design flood elevation, whichever is higher.

**Exception:** Enclosed areas below the design flood elevation, including basements with floors that are not below grade on all sides, shall meet the requirements of Section 322.2.2.

*Amendment to Sec. 322.3.2, Florida Building Code, Residential:*

**R322.3.2 Elevation requirements.**

1. Buildings and structures erected within coastal high-hazard areas and Coastal A Zones, shall be elevated so that the bottom of the lowest horizontal structure members supporting the lowest floor, with the exception of pilings, pile caps, columns, grade beams and bracing, is elevated in accordance with the minimum elevation requirements as specified in the Land Development Regulations, Chapter 930. elevated to or above the base flood elevation plus 1 foot (305 mm) or the design flood elevation, whichever is higher.
2. Basement floors that are below grade on all sides are prohibited.
3. The use of fill for structural support is prohibited.
4. Minor grading, and the placement of minor quantities of fill (no more than one (1) foot thick), shall be permitted for landscaping and for drainage purposes under and around buildings and for support of parking slabs, pool decks, patios and walkways.
5. Walls and partitions enclosing areas below the design flood elevation shall meet the requirements of Sections R322.3.4 and R322.3.5.

*Amendment to Sec. R322.3.3, Florida Building Code, Residential:*

**R322.3.3 Foundations.** Buildings and structures erected in coastal high-hazard areas and Coastal A Zones shall be supported on pilings or columns and shall be adequately anchored to such pilings or columns. The space below the elevated building shall be either free of obstruction or, if enclosed with walls, the walls shall meet the requirements of Section R322.3.4. Pilings shall have adequate soil penetrations to resist the combined wave and wind loads (lateral and uplift). Water-loading values used shall be those associated with the design flood. Wind-loading values shall be those required by this code. Pile embedment shall include consideration of decreased resistance capacity caused by scour of soil strata surrounding the piling. Pile systems design and installation shall be certified in accordance with Section R322.3.6. Spread footing, mat, raft or other foundations that support columns shall not be permitted where soil investigations that are required in accordance with Section R401.4 indicate that soil material under the spread footing, mat, raft or other foundation is subject to scour or erosion from wave-velocity flow conditions. If permitted, spread footing, mat, raft or other foundations that support columns shall be designed in accordance with ASCE 24. Slabs, pools, pool decks and walkways shall be located and constructed to be structurally independent of buildings and structures and their foundations to prevent transfer of flood loads to the buildings and

structures during conditions of flooding, scour or erosion from wave-velocity flow conditions, unless the buildings and structures and their foundations are designed to resist the additional flood load.

**Exception:** In Coastal A Zones, ~~stem wall foundations supporting a floor system above and backfilled with soil or gravel to the underside of the floor system shall be permitted provided the foundations are designed to account for wave action, debris impact, erosion and local scour. Where soils are susceptible to erosion and local scour, stem wall foundations shall have deep footings to account for the loss of soil.~~

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## REPEAL AND RESERVE CHAPTER 402:

### CHAPTER 402. – RESERVED. COASTAL CONSTRUCTION CODE

#### Section 402.01. – Title.

~~The provisions contained herein shall constitute the Coastal Construction Code for construction within the coastal building zone in Indian River County and shall be referred to as the "coastal code."~~

#### Section 402.02. – General.

~~The purpose of the coastal code is to provide minimum standards for the design and construction of buildings and structures other than coastal protective structures, to reduce the harmful effects of hurricanes and other natural disasters occurring along the coastal areas of Indian River County. The coastal code is site specific to the coastal building zone as defined herein and is not applicable to other locations. In the event of a conflict between this article and other articles or chapters of this Code, the requirements resulting in more restrictive design shall apply. No provisions in this article shall be construed to permit any construction in any area prohibited by local city, county, or state regulation.~~

#### Section 402.03. – Applicability.

~~The requirements of this coastal code shall apply to the following types of construction in the coastal building zone in Indian River County:~~

- ~~(1) The new construction of, or improvement to, major structures, nonhabitable major structures, and minor structures as defined herein. Coastal protective structures such as seawalls or revetments are exempt from this article.~~
- ~~(2) The coastal code does not apply to minor work in the nature of normal beach cleaning or debris removal.~~

#### Section 402.04. – Coastal building zone boundary description.

~~The boundary of the coastal building zone on the coastal barrier island shall be the land area from the seasonal high water line to a line five thousand (5,000) feet landward from the coastal construction control line as established and as may be amended from time to time pursuant to Section 161.053, Florida Statutes, or the entire island, whichever is less. If no coastal construction control line is in place, the coastal building zone shall be the land area seaward of the most landward velocity zone (V zone) boundary line fronting upon the Atlantic Ocean. Provided, however, that in the event the land and water adjudicatory commission reduces the size of the coastal building zone then the land and water adjudicatory commission's decision shall prevail only as to the area addressed by such decision.~~

#### Section 402.05. – Existing structures.

~~The requirements of this chapter shall not apply to existing structures, structures under construction, or structures for which a valid and unexpired building permit was issued prior to the adoption of the coastal code.~~

~~Section 402.06.— Multizone structures.~~

~~For structures located partially in the coastal building zone, the requirements of the coastal code shall apply to the entire structure.~~

~~Section 402.07.— Construction seaward of mean high water.~~

~~Structures or construction extending seaward of the mean high water line which are regulated by Section 161.041, Florida Statutes, (e.g., groins, jetties, moles, breakwaters, seawalls, revetments, beach nourishment, inlet dredging, etc.) are specifically exempt from the provisions of this chapter. In addition, the coastal code does not apply to piers, pipelines, or outfalls which are regulated pursuant to the provisions of Section 161.053, Florida Statutes.~~

~~Section 402.08.— Application for permit.~~

~~Applications for building permits for all construction in the coastal building zone shall be certified by an architect or professional engineer registered in the State of Florida except single-family residences and accessory structures of normal or usual design as determined by the building official. Such certification shall state that the design plans and specifications for the construction are in compliance with the criteria established by this coastal code.~~

~~Section 402.09.— Definitions.~~

~~The following terms are defined for general use in the coastal code:~~

- ~~(a) *Beach* means the zone of unconsolidated material that extends landward from the mean low water line to the place where there is marked change in material or physiographic form, or to the line of permanent vegetation, usually the effective limit of storm waves. "Beach" is alternatively termed "shore."~~
- ~~(b) *Breakaway building wall or frangible building wall* means a partition independent of supporting structural members that will withstand design wind forces, but will fail under hydrostatic, wave, and runup forces associated with the design storm surge. Under such conditions, the wall shall fail in a manner such that it breaks up into components that will minimize the potential for damage to life or adjacent property.~~
- ~~(c) *Building support structure* means structure which supports floor, wall or column loads, and transmits them to the foundation. The terms shall include beams, grade beams, or joists, and includes the lowest horizontal structural member exclusive of piles, columns, or footings.~~
- ~~(d) *Coastal barrier island* means a geological feature is completely surrounded by marine waters and fronts the Atlantic Ocean.~~
- ~~(e) *Column action* means the potential elastic instability in piles or columns resulting in axial or lateral bending of the member due to compressive stress.~~
- ~~(f) *Construction* means the carrying out of any building, clearing, filling, or excavation or the substantial improvement in the size or use of any structure or the appearance of any land, other than coastal protective structures and beach fill/nourishment. When appropriate to the context, "construction" refers to the act of construction or the result of construction.~~
- ~~(g) *Design storm* means the one hundred year storm event including a storm surge equivalent to the base flood elevation as determined by the Federal Emergency Management Agency.~~



- ~~(h) *Dune* means a mound or ridge of loose sediment, usually sand-sized, lying landward of the beach, and deposited by natural or artificial means.~~
- ~~(i) *Major structure* includes, but is not limited to, residential buildings including mobile homes, commercial, institutional, industrial, and other construction having the potential for substantial impact on coastal zones, other than coastal protective structures.~~
- ~~(j) *Mean high water line* means the intersection of the tidal plane of mean high water with the shore. Mean high water is the average height of high water over a nineteen-year period.~~
- ~~(k) *Minor structure* includes, but is not limited to, pile-supported, elevated dune beach walkover structures; beach access ramps and walkways; stairways; pile-supported elevated viewing platforms, gazebos; and boardwalks; lifeguard support stands; public and private bathhouses; sidewalks, driveways, parking areas, shuffleboard courts, tennis courts, handball courts, racquetball courts, and other uncovered paved areas; earth retaining walls; sand fences, privacy fences, ornamental walls, ornamental garden structures, aviaries, and other ornamental construction. It shall be a characteristic of minor structures that they are considered to be expandable under design wind, wave and storm forces.~~
- ~~(l) *Nonhabitable major structure* includes, but is not limited to, swimming pools; parking garages; canals, lakes, ditches; water and sewage treatment plants; electrical power plants; transmission and distribution lines, transformer pads, vaults, and substations; roads, bridges, streets, and highways; underground storage tanks; communications buildings and towers; flagpoles and signs over fifteen (15) feet in height.~~
- ~~(m) *NGVD* means National Geodetic Vertical Datum a geodetic datum established by the National Ocean Service and frequently referred to as the 1929 Mean Sea Level Datum.~~
- ~~(n) *Substantial improvements* means any repair, reconstruction or improvement of a structure, the cost of which equals or exceeds a cumulative total of fifty (50) percent of the market value of the structure either:
 
  - ~~(1) Before the improvement or repairs is stated; or~~
  - ~~(2) If the structure has been damaged, and is being restored, before the damage occurred.~~~~

~~For the purposes of this definition, "substantial improvement" is considered to occur when the first alteration of any wall, ceiling, floor, or other structural part of the building commences, whether or not the alteration affects the external dimensions of the structure. The term does not, however, include either any project for improvement of a structure to comply with existing state or local health, sanitary, or safety code specifications which are solely necessary to assure safe living conditions; or any alteration of a structure listed on the National Register of Historic Places of the State Inventory of Historic Places.~~

~~Section 402.10. Coastal construction requirements.~~

~~Construction within the coastal building zone shall meet the requirements of this chapter. All structures shall be designed so as to minimize damage to life, property, and the natural environment. Assistance in determining the design parameters to minimize such damage may be found in the reference documents listed in Section 402.16, entitled "References."~~

~~Section 402.11. Structural requirements for major structures.~~

- ~~(1) *Foundations:*~~

- ~~(a) All major structures shall be anchored to their foundation in such a manner as to prevent flotation, collapse or lateral displacement.~~
- ~~(b) Foundation design and construction of a major structure shall consider all anticipated loads resulting from a one hundred year storm event, including wave, hydrostatic, and hydrodynamic loads acting simultaneously with live and dead loads. Erosion computations for foundation design shall account for all vertical and lateral erosion and scour production forces, including localized scour due to the presence of structural components.~~
- ~~(2) [ Pole foundations. ] Pole foundation shall be required for buildings located in federal emergency management agency flood insurance rate map "V" (velocity) zones.~~
  - ~~(a) Pile dimensions, spacing and embedment shall be designed consistent with the requirements of the site, taking into account all vertical, lateral, erosion and scour-producing forces.~~
  - ~~(b) Pile shall be driven to a penetration which achieves adequate bearing capacity taking into consideration the anticipated loss of soil above the design grade.~~
  - ~~(c) In addition to the normal foundation analysis, the pile foundation analysis shall consider piles in column action, where appropriate, from the bottom of the support structure to the design grade.~~
  - ~~(d) Consideration shall also be given to the degree of exposure to wave attack and the resulting impact loads on lateral or diagonal bracing between piles.~~
- ~~(3) [ Monolithic foundations. ] Monolithic foundations may be permitted in federal emergency management agency flood insurance rate map "A" or "B" zones.~~
  - ~~(a) Monolithic foundations may be used if soil conditions permit and if located at an elevation which minimizes their effect on the beach and adjacent properties. Due consideration shall be given to their vulnerability to erosion under design storm conditions.~~
  - ~~(b) In the event that a monolithic foundation is used, the maximum elevation of the top slab is to be below the design scour depth (see Chapter 5.28, Shore Protection Manual, U.S. Corps of Engineers, 4th Edition, 1984) unless positive methods are provided to prevent scour.~~
- ~~(4) Understructures. No substantial walls or partitions shall be constructed below the level of the first finished floor. This does not preclude the construction of:~~
  - ~~(a) Stairways;~~
  - ~~(b) Shearwalls essentially perpendicular to breaking waves;~~
  - ~~(c) Shearwalls essentially parallel to breaking waves which do not exceed a maximum of twenty (20) percent of the building length;~~
  - ~~(d) Wind or sand screens constructed of fabric or wire mesh;~~
  - ~~(e) Light open lattice partitions with individual wooden lattice strips no greater than three-quarters ( $\frac{3}{4}$ ) inches thick or three (3) inches wide;~~
  - ~~(f) Elevator shafts;~~
  - ~~(g) Breakaway or frangible building walls; or~~

- ~~(h) Substantial building walls constructed above the wave action and storm surge expected under design storm conditions.~~
- ~~(5) *Building and floor elevations.* The minimum elevation for the underside of the building support structure (excluding foundation) shall be above the elevation of the design breaking wave crests of wave uprush superimposed on the storm surge with dynamic wave setup shall be the elevation established by the base flood elevation for the specific area as established by the Federal Management Agency.~~
- ~~(6) *Erosion and design grade.* The elevation of the soil surface to be used in the design of foundations, calculation of pile reactions, and bearing capacities shall not be greater than that which would result from the erosion reasonably anticipated as a result of design storm conditions. Calculation of the design grade shall take into account localized scour due to the presence of structural components. Erosion computations for foundation design shall consider all vertical and all lateral erosion and scour producing forces.~~
- ~~(7) *Wave force design:*~~
- ~~(a) Calculations for wave forces resulting from design storm conditions on building foundations and superstructures may be based upon the minimum criteria and methods prescribed in the Naval Facilities Engineering Command Design Manual, FAVFAC DM-26, U.S. Department of Navy; Shore Protection Manual, U.S. Department of the Army Corps of Engineers; U.S. Department of Army Coastal Engineering Research Center Technical Papers and Reports; the Technical and Design Memoranda of the Division of Beaches and Shores, Florida Department of Natural Resources; or other professionally recognized methodologies which produce equivalent design criteria.~~
- ~~(b) Breaking, broken and nonbreaking waves shall be considered as they may be applicable. Design wave loading analysis shall consider vertical uplift pressures and all lateral pressures to include impact as well as dynamic loading and the harmonic intensification resulting from repetitive waves.~~
- ~~(8) *Hydrostatic loads.* Calculations for hydrostatic loads shall consider the maximum water pressure resulting from a fully peaked, breaking wave superimposed upon the design storm surge with dynamic wave setup. Both free and hydrostatic loads shall be considered. Hydrostatic loads which are confined shall be determined using the maximum elevation to which the confined water would freely rise if unconfined. Vertical hydrostatic loads shall be considered both vertically downward and upward on horizontal or inclined surfaces of major structures (e.g., floors, slabs, roofs, walls). Lateral hydrostatic loads shall be considered as forces acting horizontally above and below grade on vertical or inclined surfaces. Hydrostatic loads on irregular or curved geometric surfaces shall be determined by considering the separate vertical and horizontal components acting simultaneously under the distribution of the hydrostatic pressures.~~
- ~~(9) *Hydrodynamic loads.* Hydrodynamic loads shall consider the maximum water pressures resulting from the motion of the water mass associated with the design storm. Full intensity loading shall be applied on all structural surfaces above the design grade which would affect the flow velocities.~~
- ~~(10) *Design conditions; general:*~~
- ~~(a) Foundations for all major structures shall be designed for the horizontal and vertical pressures generated by wave forces between the elevation of the design breaking wave crest or wave uprush superimposed upon the storm surge and the stable soil elevation of the site.~~

- ~~(b) All major structures shall be designed to withstand one hundred ten (110) mile per hour windspeeds in accordance with the Standard Building Code.~~
- ~~(c) Appropriate shape factors shall be applied for resistance against overturning and uplift as required elsewhere in this Code. Internal pressures on internal walls, ceilings, and floors resulting from damaged windows or doors shall be considered in the design unless the specified windows and doors have been tested by an approved testing agency and have been shown to be capable of withstanding the design pressures required herein.~~
- ~~(d) Mobile homes shall conform to the Federal Mobile Home Construction and Safety Standards of the Uniform Standards Code ANSI book 1A-119.1, pursuant to section 320.823, Florida Statutes, in addition to the other requirements contained in this chapter.~~

~~Section 402.12. Structural requirements for nonhabitable major structures.~~

~~Nonhabitable major structures need not meet the specific structural requirements of section 402.11, except that they shall be designed to produce the minimum adverse impact on the beach and dune system and shall comply with the applicable standards of construction found elsewhere in this Code. All sewage treatment and public water supply systems shall be floodproofed to prevent infiltration of surface water anticipated under design storm conditions. Underground utilities, excluding pad transformers and vaults, shall be floodproofed to prevent infiltration of surface water expected under design storm conditions or shall otherwise be designed to function when submerged under such storm conditions.~~

~~Section 402.13. Structural requirements for minor structures.~~

~~Minor structures need not meet the specific structural requirements of section 402.11, except that they shall be designed to produce the minimum adverse impact on the beach and dune system and shall comply with the applicable standards of construction found elsewhere in this Code.~~

~~Section 402.14. Location of construction.~~

~~Construction, except for elevated walkways, lifeguard support stands, piers, beach access ramps, gazebos, etc., shall be located a sufficient distance landward of the beach to permit natural shoreline fluctuations and to preserve dune stability. Construction including excavation, may occur to the extent that the natural storm buffering and protection capability of the dune is not diminished.~~

~~Section 402.15. Public access.~~

~~Where the public has established an accessway through private lands to lands seaward of the mean high tide or water line by prescription, prescriptive easement, or any other legal means, development or construction shall not interfere with such right of access unless a comparable alternative accessway is provided. The developer shall have the right to improve, consolidate, or relocate such public accessways so long as they are:~~

- ~~(1) Of substantially similar quality and convenience to the public;~~
- ~~(2) Approved by the local government and whenever improvements are involved seaward of the coastal construction control line the additional approval of the department of natural resources is required; and~~
- ~~(3) Consistent with the coastal management element of the local comprehensive plan adopted pursuant to section 163.3187, Florida Statutes.~~

~~Section 402.16. References.~~

~~Assistance in determining the design parameters and methodologies necessary to comply with the requirements of this chapter may be obtained from:~~

- ~~(1) Shore Protection Manual, U.S. Army Corps of Engineers, 4th edition, 1984.~~

- ~~(2) U.S. Department of the Army, Coastal Engineering Research Center's Technical Papers and Reports.~~
- ~~(3) Florida Department of Natural Resources, Division of Beaches and Shores Technical and Design Memoranda.~~
- ~~(4) Naval Facilities Engineering Command Design Manual, NAVFAC DM-26, U.S. Department of the Navy.~~