

**U.S. VIRGIN ISLANDS Subchapter 401 (b) (15); VIRR – draft (4-30-20)**

**NFIP- 2018 I-Codes and ASCE 24 Checklist – NFIP Requirements**

Required provisions [NFIP citations]	VIRR; Subchapter 401 (b) (15)	2018 I-Codes (IBC, IRC)	ASCE 24-14
1. Citation of Statutory Authorization. [59.22(a)(2)]	-1(b)		ASCE 24 does not include administrative provisions
2. Purpose section citing health, safety, and welfare reasons for adoption. [59.22(a)(1)]	-1(d)	101.3 R101.3	ASCE 24 does not include administrative provisions
3. Definitions [59.1]	See page 8, below	See page 8, below	See page 8, below
4. Adopt or reference correct Flood Insurance Rate Map and date. [60.2(h)]	-3(b)	1612.3 Table R301.2(1)	ASCE 24 does not include administrative provisions
5. Adopt or reference correct Flood Insurance Study and date. [60.2(h)]	-3(b)	1612.3 Table R301.2(1)	ASCE 24 does not include administrative provisions
7. Adequate enforcement provisions including a violations/penalty section specifying community actions to assure compliance. [60.2(e)]	-9	114 R113	ASCE 24 does not include administrative provisions
8. Abrogation and Greater Restriction section (provide that floodplain management regulations take precedence over any less restrictive conflicting local laws, ordinances or codes). [60.1(b)]	-1(i)		ASCE 24 does not include administrative provisions
9. Disclaimer of Liability (Degree of flood protection required by the ordinance is considered reasonable but does not imply total flood protection.)	-1(f) & (g)		ASCE 24 does not include administrative provisions
10. Severability section. (If any section, provision or portion of the ordinance is deemed unconstitutional or invalid by a court, the remainder of the ordinance shall be effective.)	-1(j)		ASCE 24 does not include administrative provisions
11. Framework for administering the ordinance (permit system, establish office for administering the ordinance, <i>recordkeeping</i> , etc.) [59.22(b)(1)]	-4 -5	IBC Chapter 1 IRC Chapter 1; R104	ASCE 24 does not include administrative provisions
12. Designate title of community Floodplain Administrator [59.22 (b)]	-4(a)		ASCE 24 does not include administrative provisions

Required provisions [NFIP citations]	VIRR; Subchapter 401 (b) (15)	2018 I-Codes (IBC, IRC)	ASCE 24-14
13. Requirement to submit new technical data: within 6 months, notify FEMA of changes in the base flood elevation by submitting technical or scientific data so insurance & floodplain management can be based on current data. <b>[65.3]</b>	-4(e)		ASCE 24 does not include administrative provisions
14. Variance section with evaluation criteria & insurance notice. <b>[60.6(a)]</b>	-8 -8(j)	104.10.1 R104.10.1	ASCE 24 does not include administrative provisions
15. For adopted ordinance: Signature of Appropriate Official & Certification. <b>[59.22(3)]</b> Date ordinance adopted: __ <i>Effective Date</i> __ <i>Ord. #</i> _____			ASCE 24 does not include administrative provisions
60.3(a) When no SFHA's have been identified, no water surface elevation data has been provided, and floodways and coastal high hazards areas have not been identified and the community applies for participation in the NFIP, the following are required:	VIRR; Subchapter 401 (b) (15)	2018 I-Codes (IBC, IRC)	ASCE 24-14
16. Require permits for all proposed construction or other development including placement of manufactured homes. <b>[60.3(a)(1)]</b>	-1(c) -5(a)	101.2; 105.1; 105.2 R101.2; R102.7; R105.1; R105.2; R105.3.1.1; R106.1.3; R301.2.4; R322	ASCE 24 does not include administrative provisions
17. Assure that all other State and Federal permits are obtained. <b>[60.3(a)(2)]</b>	-5(d)	102.2 R102.2	ASCE 24 does not include administrative provisions
18. Review permits to assure sites are reasonably safe from flooding and require performance for new construction and substantial improvements in flood-prone areas: <b>[60.3(a)(3)]</b>	-4(d)(2) -11(a)(1) -12(a)(1)	107.2.5; 1612.1; 1804.4(1)	ASCE 24 does not include administrative provisions
(a) Anchoring (including manufactured homes) to prevent floatation, collapse, or lateral movement. <b>[60.3(a)(3)(i)]</b>	-13 -15(a)(3)	1603.1; 1603.1.7; 1605.2.2; 1605.3.1.2; 16.2.1; 1612.4 (ASCE 24)	1.5.1; 1.5.3; 1.5.5; 1.6; 2.4; 2.5; 4.5.1; 4.5; 6.2.2; 7.1; 7.4; 7.5; Chapter 9
(b) Use of flood-resistant materials. <b>[60.3(a)(3)(ii)]</b>	-15(a)(4)	802.4; 1403.6; 1612.4 (ASCE 24)	1.5.1; Chapter 5; 6.2; 6.3; 7.5; 8.1; 9.1
(c) Construction methods/practices that minimize flood damage. <b>[60.3(a)(3)(iii)]</b>	-10(a) -11(a)(1) -12(a)(1) -15(a)(1)	1612.1. 1612.4 (ASCE 24)	ASCE 24 as a whole

Required provisions [NFIP citations]	VIRR; Subchapter 401 (b) (15)	2018 I-Codes (IBC, IRC)	ASCE 24-14
(d) Electrical, heating, ventilation, plumbing, air conditioning equipment, and other service facilities designed and/or located to prevent water entry or accumulation. <b>[60.3(a)(3)(iv)]</b>	-10(a) -15(a)(5)	1612.4 (ASCE 24); 3001.2; also see IMC, UMC, and mechanical and plumbing provisions of the IRC	4.6.1; Chapter 7
19. Review subdivision proposals and development proposals to assure that: (a) Such proposals minimize flood damage. <b>[60.3(a)(4)(i)]</b>	-11(a)(1) -12(a)(1)		Not within the scope of ASCE 24.
(b) Public utilities and facilities are located & constructed so as to minimize flood damage. <b>[60.3(a)(4)(ii)]</b>	-11(b)(4) -12(f) & (g)		Chapter 7
(c) Adequate drainage is provided. <b>[60.3(a)(4)(iii)]</b>	-11(a)(2) -12(a)(3)	1804.3 R401.3	1.4.2; 4.5.4
20. Require new and replacement water supply and sanitary sewer systems to be designed to minimize or eliminate infiltration. <b>[60.3(a)(5) &amp; (6)]</b>	-11(b)(4) -12(f) & (g)	RP2602.2(1)	7.3
21. Require on-site waste disposal systems be located to avoid impairment or contamination. <b>[60.3(a)(6)(ii)]</b>	-12(f)	RP2602.2(2)	7.3.4
60.3(b) When SFHA's are identified by the publication of a community's FHBM or FIRM, but water surface elevation data have not been provided or a floodway or coastal high hazard area has not been identified, then all the above ordinance provisions for 60.3(a) and the following are required:	VIRR; Subchapter 401 (b) (15)	2015 I-Codes (IBC, IRC)	ASCE 24-14
22. Require permits for all proposed construction and other development within SFHAs on the FIRM. <b>[60.3(b)(1)]</b>	-1(b) -3(a) -5(a)	Buildings only: 101.2 (see exemptions); 105.1; 1612.1 R101.2; R322.1	ASCE 24 does not include administrative provisions
23. Require base flood elevation data for subdivision proposals or other developments greater than 50 lots or 5 acres. <b>[60.3(b)(3)]</b>	-6(a)(3) -11(b)(2)		ASCE 24 does not include administrative provisions.
24. In A Zones, in the absence of FEMA BFE data and floodway data, obtain, review and reasonably utilize base flood elevation and floodway data available from available from a Federal, State, or other source as criteria for ..... <b>[60.3(b)(4)]</b>	-6(a)(2) -6(b)	1612.3.1; 1612.3.2 R106.3.1.1	ASCE 24 does not include administrative provisions.

Required provisions [NFIP citations]	VIRR; Subchapter 401 (b) (15)	2018 I-Codes (IBC, IRC)	ASCE 24-14
25. Where BFE data are utilized, obtain and maintain records of lowest floor and floodproofing elevations for new construction and substantial improvements. <b>[60.3(b)(5)]</b>	-4(g)	104.7; 110.3.3; 110.3.10.1; 1612.5(1.1), (1.3) and (2.1) R104.7; R106.1.3(4); R109.1.3; R109.1.6.1	ASCE 24 does not include administrative provisions.
26. <i>In riverine areas</i> , notify neighboring communities of watercourse alterations or relocations. <b>[60.3(b)(6)]</b>	-4(d)(11)		ASCE 24 does not include administrative provisions.
27. Maintain <b>flood</b> carrying capacity of altered or relocated watercourse. <b>[60.3(b)(7)]</b>	-6(c)(3)		ASCE 24 does not include administrative provisions.
28. Require all manufactured homes to be elevated and anchored to resist flotation, collapse, or lateral movement. <b>[60.3(b)(8)]</b>	-13		
60.3(c) When final flood elevations, but no floodways or coastal high hazard areas have been provided on a community's FIRM, then all the above ordinance provisions for 60.3(a) & 60.3(b) and the following are required:	VIRR; Subchapter 401 (b) (15)	2018 I-Codes (IBC, IRC)	ASCE 24-14
29. Require all new and substantially improved <u>residential</u> structures within A1-30, AE, and AH Zones have their lowest floor (including basement) elevated to or above the BFE. <b>[60.3(c)(2)]</b>	-10(a)	104.2.1; Dfn DFE; 1612.1; 1612.4 (ASCE 24); 1612.5(1.1); 1804.4(1) R105.1; R105.3.1.1	1.5.2; 2.3 (specification of flood depth in ordinance/code)
30. In AO Zones, require that new and substantially improved <u>residential</u> structures have their lowest floor (including basement) at or above the highest adjacent grade at least as high as the FIRM's depth number. <b>[60.3(c)(7)]</b>			
31. Require that new and substantially improved <u>nonresidential</u> structures within A1-30, AE, and AH Zones have their lowest floor elevated or floodproofed to or above the base flood elevation. <b>[60.3(c)(3)]</b>	-10(a)	104.2.1; Dfn DFE; 1612.1; 1612.4 (ASCE 24); 1612.5(1.3)	1.5.2; 2.3; Section 6 (specification of flood depth in ordinance/code)
32. In AO Zones, require new and substantially improved <u>nonresidential</u> structures have their lowest floor elevated or completely floodproofed above the highest adjacent grade to at least as high as the depth number on the FIRM. <b>[60.3(c)(8)]</b>			

Required provisions [NFIP citations]	VIRR; Subchapter 401 (b) (15)	2018 I-Codes (IBC, IRC)	ASCE 24-14
33. Require that, for floodproofed <u>nonresidential structures</u> , a registered professional/architect certify that the design and methods of construction meet requirements at (c) (3) (ii) or (c)(8)(ii). <b>[60.3(c)(4)]</b>	-10(a)	1612.5(1.3)	ASCE 24 does not include administrative provisions.
34. Require, for all new construction and substantial improvements, that fully enclosed areas below the lowest floor that are usable solely for parking of vehicles, building access or storage have permanent openings designed to allow the entry and exit of flood waters in accordance with specifications of <b>60.3(c)(5)</b> .	-10(a) -13	1612.4 (ASCE 24); 1612.5(1.2) (engineered openings) R309.3; R408.7	1.5.2; 2.7
35. Within Zones A1-30 and AE without a designated floodway, new development shall not be permitted unless it is demonstrated that the cumulative effect of all past and projected development will not increase the BFE by more than 1 foot. <b>[60.3(c)(10)]</b>	-6(c)(3)	1612.3.2; 1804.4(4) R106.1.3	2.2
36. In Zones AO and AH, require drainage paths around structures on slopes to guide water away from structures. <b>[60.3(c)(11)]</b>	-11(a)(2) -12(a)(3)	1804.4 R401.3	Not within the scope of ASCE 24.
37. Require that manufactured homes placed or substantially improved within A1-30, AH, and AE Zones, which meet one of the following location criteria, to be elevated such that the lowest floor is at or above the BFE and be securely anchored. <b>[60.3(c)(6)]</b>	-13		
38. In A1-30, AH, and AE Zones, require that manufactured homes to be placed or substantially improved in an existing manufactured home park to be elevated so that:.... <b>[60.3(c)(12)]</b>	Not applicable		
39. In A1-30, AH, and AE Zones, all recreational vehicles to be placed on a site must be elevated and anchored <u>or</u> be on the site for less than 180 consecutive days <u>or</u> be fully licensed and highway ready. <b>[60.3(c)(14)]</b>	-14		Not within the scope of ASCE 24.
60.3(d) When final flood elevations and floodway delineations have been provided on a community's FIRM, then all the above ordinance provisions for 60.3(a), 60.3(b) & 60.3(c) and the following are required:	VIRR; Subchapter 401 (b) (15)	2018 I-Codes (IBC, IRC)	ASCE 24-14

Required provisions [NFIP citations]	VIRR; Subchapter 401 (b) (15)	2018 I-Codes (IBC, IRC)	ASCE 24-14
40. In a regulatory floodway, prohibit any encroachment which would cause any increase in the base flood level unless hydrologic and hydraulic analyses prove that the proposed encroachment would not increase flood levels during the base flood discharge. <b>[60.3(d)(3)]</b>	-6(c)(1) -12(b) -15(a)(2); (c); (d); (e)	1612.4 (ASCE 24); 1804.4(2) R106.1.3; R301.2.4; R322.1 (per ASCE 24)	2.2
60.3(e) When final flood elevations & coastal high hazard areas have been provided on a community's FIRM, then all the above ordinance provisions for 60.3(a), 60.3(b) & 60.3(c) & the following are required:	VIRR; Subchapter 401 (b) (15)	2018 I-Codes (IBC, IRC)	ASCE 24-14
41. In V1-30, VE, and V Zones, obtain and maintain the elevation of the bottom of the lowest <i>horizontal</i> structural member of the lowest floor of all new and substantially improved structures. <b>[60.3(e)(2)]</b>	-10(a) -4(g)	110.3.3; 110.3.10.1; 104.7; 1612.5(2.1) R104.7; R109.1.3; R109.1.6.1;	ASCE 24 does not include administrative provisions.
42. In V1-30, VE, and V Zones, require that all new construction and substantial improvements: (a) Are elevated on pilings/columns so that the bottom of the lowest horizontal structural member is at or above the BFE and the piles/column foundation/structure are anchored to resist flotation, collapse & lateral movement due to the effects of wind and water loads acting simultaneously. <b>[60.3(e)(4)]</b>	-10(a)	104.2.1; 1612.1; 1612.4 (ASCE 24)	1.5.2; 1.5.3; 1.6; 4.2; 4.4; 4.5; Chapter 9
(b) A registered professional engineer/architect shall develop/ review structural design, specs & plans; and shall certify that the design and methods of construction meet elevation and anchoring requirements at (e)(4)(i) and (ii). <b>[60.3(e)(4)]</b>	-10(a)	1612.5(2.2)	ASCE 24 does not include administrative provisions.
(c) Have the space below the lowest floor either free of obstruction or constructed with non-supporting breakaway walls. Such enclosed space shall be useable solely for parking, building access, or storage. <b>[60.3(e)(5)]</b>	-10(a)	1403.6; 1612.4 (ASCE 24); 1612.5(2.3); 1804.4(3)	4.5.1; 4.5.4; 4.6
(d) All new construction is landward of the reach of mean high tide. <b>[60.3(e)(3)]</b>	-12(d)(1)	1612.4 (ASCE 24)	4.3(1)
(e) Prohibit use of fill for structural support. <b>[60.3(e)(6)]</b>	-12(d)(2)	1612.4 (ASCE 24)	4.5.4

Required provisions [NFIP citations]	VIRR; Subchapter 401 (b) (15)	2018 I-Codes (IBC, IRC)	ASCE 24-14
(f) Prohibit alteration of sand dunes and mangrove stands which would increase potential flood damage. <b>[60.3(e)(7)]</b>	-12(d)(2)	1612.4 (ASCE 24)	4.3(3); 4.5.4
43. Require that manufactured homes placed or substantially improved within V1-30, VE, and V Zones, which meet one of the following location criteria, meet the V Zone standards in 60.3(e)(2) through (e)(7):..... <b>[60.3(e)(8)]</b>	-13		
44. In V1-30, VE and V Zones, require that manufactured homes to be placed or substantially improved in an existing manufactured home park to be elevated so that:..... <b>[60.3(e)(8)(iv); 60.3(c)(12)]</b>	Not applicable		
45. In V1-30, VE, and V Zones, all recreational vehicles to be placed on a site must be elevated and anchored <u>or</u> be on the site for less than 180 consecutive days <u>or</u> be fully licensed & highway ready. [60.3(e)(9)]	-14		Recreational vehicles are not within the scope of ASCE 24.

## DEFINITIONS

IBC 201.3 states that terms not defined in the IBC may be defined in the IFGC, IFC, IMC, or IPC; and IBC 201.4 states that terms not defined “shall have ordinarily accepted meanings such as the context implies.” IBC Section 202 provides definitions, including definitions previously included in Section 1612.2. ASCE 24 includes other definitions not shown.

	In 44 CFR §59.1?	Subchapter 401(b)(15) <sup>1</sup>	IBC/24 section <sup>2</sup>	Notes
500-year flood elevation	N	N	A1.2	See “Critical Facility.”
Accessory structure	N	Y	A1.2	ASCE “accessory storage structure”
Advisory Flood Hazard Resources Map	N	Y	N	ASCE 24 recognizes other flood hazard maps in “flood hazard area.”
Agricultural structure	N	Y	See Note	ASCE Commentary C1.4.3 (TB 7) and 6.3.1#4
Alteration of a watercourse	N	Y	N	
ASCE 24	N	Y	See Note	I-Codes adopt ASCE 24 by reference.
Base flood	Y	Y	202 A1.2	
Base flood elevation	N	Y	202 A1.2	
Basement	Y	Y	202 A1.2	IBC Section 202 has two definitions for basement – one is specifically for flood loads and is limited in application to Section 1612.
Breakaway wall	Y	N	A1.2	
Cistern	N	Y	N	
Coastal A Zone	N	N	202 A1.2	
Coastal high hazard areas	Y	Y	202 A1.2	
Critical facility (and Essential facility)	N	N	A1.2	ASCE 24 requires critical facilities to be elevated or protect to or above BFE plus freeboard or the 500-year flood elevation, whichever is higher.
Design flood	N	Y	202 A1.2	

<sup>1</sup> April 30, 2020 First draft

<sup>2</sup> ASCE 24-14 definitions are in Sec. 1.2 (shown “A1.2”); this chart does not show all definitions in ASCE 24-14.



	<b>In 44 CFR §59.1?</b>	<b>Subchapter 401(b)(15)<sup>1</sup></b>	<b>IBC/24 section<sup>2</sup></b>	<b>Notes</b>
Design flood elevation	N	Y	202 A1.2	The DFE = BFE if the FIS and FIRM are used.
Development	Y	Y		
Dry floodproofing (see floodproofing)	N See note	N	202 A1.2	The definition for “dry floodproofing” (IBC and ASCE 24) is equivalent to NFIP definition “floodproofing.”
Encroachment	N	Y	N	
Existing building/construction	Y	N	See note	Drafting VIC to clearly address SI/SD
Existing manufactured home park or subdivision	Y	N	See note	Not applicable in USVI
Expansion to an existing manufactured home park or subdivision	Y	N	See note	Not applicable in USVI
Existing structure (construction)	Y	N	202 A1.2	
Flood or Flooding	Y	N	202 A1.2	
Flood damage-resistant materials	N	Y	202 A1.2	
Flood hazard area	N	Y	202 A1.2	IBC (synonymous with SFHA if DFE = BFE)
Flood Insurance Rate Map (FIRM)	Y	Y	202 A1.2	
Flood Insurance Study (FIS)	Y See note	Y	202 A1.2	§59.1 defines “Flood elevation study” and Flood Insurance Study is equivalent.
Flood proofing (see Dry floodproofing)	Y See note	N	202 A1.2	The definition for “dry floodproofing” (IBC and ASCE 24) is equivalent to NFIP definition “floodproofing.”
Floodplain Administrator	N	Y	N	
Floodway	Y	Y	202 A1.2	IRC uses the term and requires compliance with ASCE 24.
Flood zone permit	N	Y	N	
Functionally dependent use	Y	Y	A1.2	
Highest Adjacent Grade	Y	Y	A1.2	
Historic structure	Y	Y	202 A1.2	

	<b>In 44 CFR §59.1?</b>	<b>Subchapter 401(b)(15)<sup>1</sup></b>	<b>IBC/24 section<sup>2</sup></b>	<b>Notes</b>
Letter of Map Change (LOMC)	N	Y	N	
Limit of Moderate Wave Action	N	N	202 A1.2	
Lowest floor	Y	Y	202	
Manufactured home	Y	Y	N	
Manufactured home park or subdivision	Y	N	N	USVI treats as subdivisions.
Mangrove stands	Y	Y	Y	
Market Value	N	Y	N	
New construction	N	N	N	Any building not already constructed.
New manufactured home park or subdivision	Y	N	N	Not applicable in USVI
Nonresidential	N	N	A1.2	
Recreational vehicle	Y	Y	N	
Residential	N	N	A1.2	
Sand dunes	Y	Y	N	
Special flood hazard area	Y	Y	202 A1.2	
Start of construction	Y	N	202 A1.2	Premise of the codes is that work on an existing building shall not alter any aspect of the building that was required to comply with the requirements at the time it was built.
Structure	Y	N	202 A1.2	Definition in §59.1 defines it for flood purposes whereas IBC has very simple generic definition.
Substantial damage	Y	Y	202 A1.2	
Substantial improvement	Y	Y	202 A1.2	
Variance	Y	Y		Used in R104.10.1
Violation	Y	Y	114	